

Economics

Senior High

Grade 12

Teacher Guide

Standards-Based



Papua New Guinea

Department of Education

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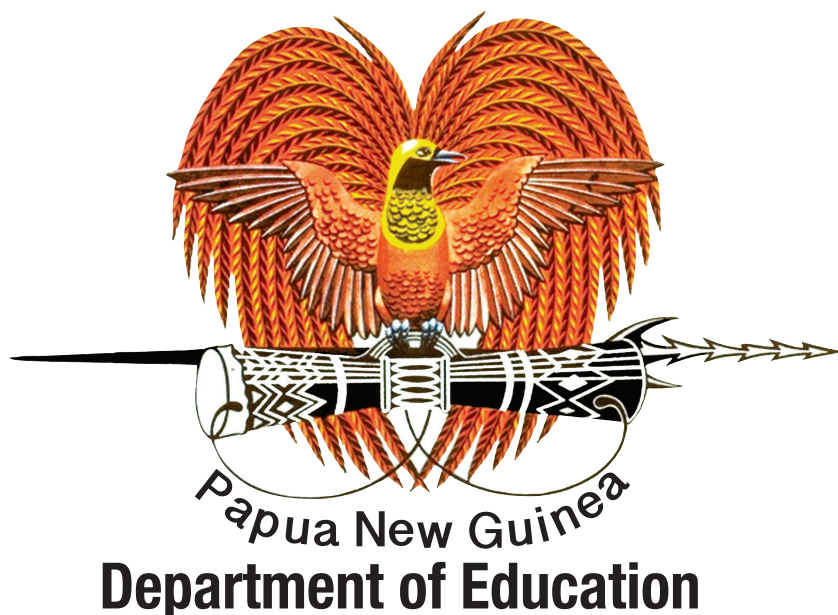
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Issued free to schools by the Department of Education

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Acronyms

AAL	Assessment As Learning
AFL	Assessment For Learning
AOL	Assessment Of Learning
BOS	Board Of Studies
CDD	Curriculum Development Division
CP	Curriculum Panel
DA	Diagnostic Assessment
IHD	Integral Human Development
GoPNG	Government of Papua New Guinea
KSVA	Knowledge Skills Values and Attitudes
MTDG	Medium Term Development Goals
NDoE	National Department of Education
OBC	Outcomes-Based Curriculum
OBE	Outcomes-Based Education
PNG	Papua New Guinea
SAC	Subject Advisory Committee
SBC	Standards-Based Curriculum
SBE	Standards-Based Education
SCG	Subject Curriculum Group
STEAM	Science, Technology, Engineering, Arts and Mathematics

Secretary's Message

The ultimate aim of Standards-Based Education (SBE) in Papua New Guinea is to prepare students for careers, higher education, and citizenship. SBE will therefore focus on providing students with careers, higher education, and citizenship preparedness knowledge, skills, values and attitudes that they can use to work, study and live in the 21st century.

Standards-Based Curriculum (SBC) in PNG is closely aligned to and is key to achieving this aim and its related operational goals. The curriculum is underpinned by four key pillars:

- morals, values and attitudes;
- cognitive, reasoning, decision-making, problem-solving, high level and 21st century skills;
- Science, Technology, Engineering, Arts and Mathematics (STEAM),
- core curriculum.

Social Science is a significant curriculum framework for teaching children and enabling them to progressively develop proficiency on fundamental ideas of Geography, History, Political Science Economics and Environment. This curriculum addresses Social Science skills and processes of geography, civic and cultural literacy, historical and economical literacy and global awareness.

Thus, students will be able to make informed decisions and will be equipped with problem-solving and management knowledge, skills, values and attitudes in Social Science. This enables them to function effectively in the work and higher education environments as productive and useful citizens of a culturally diverse and democratic society in an interdependent world.

Social Science teachers are expected to effectively plan, teach, and assess these knowledge, skills, values, and attitudes. This teacher guide describes what teachers are expected to know and do to enable all their students to effectively learn and demonstrate the expected levels of proficiency in all the grade level Social Science knowledge, skills, values and attitudes, and attain the national content standards.

I commend and approve this Social Science Teacher Guide for Grade 12 to be used in all High Schools throughout Papua New Guinea.



.....
UKE W. KOMBRA, PhD.
Secretary for Education

Introduction

Social Science aims to develop and instill in students the ability to gauge views from all spectrums of life and be able to analyse and make proper judgments and statements to resonate and promote peace and harmony for all people. As individuals, they must be aware of issues of paramount importance affecting their daily lives such as their social groupings and institutions, governance and the natural world surrounding them. Thus, they are able to create and foster great cohesion within their locality which should have an impact on the world and over to sustain and maintain life.

The study of Social Science enhances students' understanding of inter-disciplinary concepts and issues in relation to geography, history, politics, economics and environment within PNG and globally.

Social Science aims to provide a meaningful pedagogical framework for teaching and learning essential and in demand knowledge, skills, values, and attitudes that are required for the preparation of students for careers, higher education and citizenship in the 21st century.

Students should be prepared to gather and understand information, analyse issues critically, learn independently or collaboratively, organize and communicate information, draw and justify conclusions, create new knowledge, and act ethically.

Students' employability will be enhanced through the study and application of STEAM principles. STEAM is an integral component of the core curriculum. All students are expected to study STEAM and use STEAM related skills to solve problems relating to both the natural and the physical environments. The aim of STEAM education is to create a STEAM literate society. It is envisioned that the study of STEAM will motivate students to pursue and take up academic programs and careers in STEAM related fields. STEAM has been embedded in the Social Science curriculum. Equal opportunities should be provided for all students to learn, apply and master STEAM principles and skills.

Social Science is to be timetabled for 240 minutes per week in grade 12.

Structure of the Teacher Guide

This teacher guide comprises of three main sections that provide essential information that all teachers should know and do to effectively implement the Social Science - Economics curriculum.

1. General Information

- Purpose of the teacher guide
- How to use the teacher guide
- Syllabus and teacher guide alignment
- Learning and performance standards
- Core Curriculum
- STEAM
- Curriculum Integration
- Essential KSVAs

2. Teaching and Learning

- Teaching and Learning Strategies
- Units and Topics
- Standards-Based Lesson Planning

3. Assessment

- Performance Assessment
- Performance Standards

The above components are linked and closely aligned. They should be connected to ensure that the intended learning outcomes and the expected quality of education standards are achieved. The close alignment of planning, instruction and assessment is critical to the attainment of learning standards.

Purpose of the Teacher Guide

This teacher guide describes what all teachers should know and do. The overarching purpose is to help teachers to effectively plan, teach, assess, evaluate, report and monitor students' learning and mastery of national and grade-level expectations. That is, the essential knowledge, skills, values and attitudes (KSVAs) described in the content standards and grade-level benchmarks, and their achievement of the national and grade-level proficiency standards.

Thus, the teacher is expected to:

- understand the significance of aligning all the elements of Standards-Based Curriculum (SBC) as the basis for achieving the expected level of education quality;
- effectively align all the components of SBC when planning, teaching, and assessing students' learning and levels of proficiency;
- effectively translate and align the Social Science syllabi and teacher guide to plan, teach and assess different Social Science units and topics, and the KSVAs described in the grade-level benchmarks;
- understand the Social Science national content standards, grade-level benchmarks, and evidence outcomes;
- effectively make sense of the content (KSVAs) described in the Social Science national content standards and the essential components of the content described in the grade-level benchmarks;
- effectively guide students to progressively learn and demonstrate proficiency on a range of Social Science knowledge, skills, processes, concepts, ideas, principles, practices, values and attitudes;
- confidently interpret, translate and use Social Science content standards and benchmarks to determine the learning objectives and performance standards, and plan appropriately to enable all students to achieve these standards;
- embed the core curriculum in their Social Science lesson planning, instruction, and assessment to permit all students to learn and master the core KSVAs required of all students;
- provide opportunities for all students to understand how STEAM has and continues to shape the social, political, economic, cultural, and the environment contexts and the consequences, and use STEAM principles, skills, processes, ideas and concepts to inquire into and solve problems relating to both the natural and physical (man-made) worlds as well as problems created by STEAM;
- integrate cognitive skills (critical, creative, reasoning, decision-making, and problem-solving skills), high level thinking skills (analysis, synthesis and evaluation skills), values (personal, social, work, health, peace,

relationship, sustaining values), and attitudes in lesson planning, instruction and assessment;

- meaningfully connect what students learn in Social Science with what is learnt in other subjects to add value and enhance students' learning so that they can integrate what they learn and develop in-depth vertical and horizontal understanding of subject content;
- formulate effective SBC lesson plans using learning objectives identified for each of the topics;
- employ SBC assessment approaches to develop performance assessments to assess students' proficiency on a content standard or a component of the content standard described in the grade-level benchmark;
- effectively score and evaluate students' performance in relation to a core set of learning standards or criteria, and make sense of the data to ascertain students' status of progress towards meeting grade-level and nationally expected proficiency standards, and use evidence from the assessment of students' performance to develop effective evidence-based intervention strategies to help students' who are making inadequate or slow progress towards meeting the grade-level and national expectations to improve their learning and performance.

How to use the Teacher Guide

Teacher Guide provides essential information about what the teacher needs to know and do to effectively plan, teach and assess students learning and proficiency on learning and performance standards. The different components of the teacher guide are closely aligned with SBC principles and practice, and all the other components of PNG SBC. It should be read in conjunction with the syllabus in order to understand what is expected of teachers and students to achieve the envisaged quality of education outcomes.

The first thing teachers should do is to read and understand each of the sections of the teacher guide to help them understand the key SBC concepts and ideas, alignment of PNG SBC components, alignment of the syllabus and teacher guide, setting of content standards and grade-level benchmarks, core curriculum, STEAM, curriculum integration, essential knowledge, skills, values and attitudes, strands, units and topics, learning objectives, SBC lesson planning, and SBC assessment. A thorough understanding of these components will help teachers meet the teacher expectations for implementing the SBC curriculum, and therefore the effective implementation of Grade 12 Economics Curriculum. Based on this understanding, teachers should be able to effectively use the teacher guide to do the following:

Determine Learning Objectives and Lesson Topics

Topics and learning objectives have been identified and described in the Teacher Guide. Lesson objectives are derived from topics that are extracted from the grade-level benchmarks. Lesson topics are deduced from the learning objectives. Teachers should familiarise themselves with this process as it is essential for lesson planning, instruction and assessment. However, depending on the context and students' learning abilities, teachers would be required to determine additional learning objectives and lesson topics. Teachers should use the examples provided in this teacher guide to formulate additional learning objectives and lesson topics to meet the educational or learning needs of their students.

Identify and Teach Grade Appropriate Content

Grade appropriate content has been identified and scoped and sequenced using appropriate content organisation principles. The content is sequenced using the spiraling sequence principles. This sequencing of content will enable students to progressively learn the essential knowledge, skills, values and attitudes as they progress further into their schooling. What students learn in previous grades is reinforced and deepens in scope with an increase in the level of complexity and difficulty in the content and learning activities. It is important to understand how the content is organised so that grade appropriate content and learning activities can be selected, if not already embedded in the benchmarks and learning objectives, to not only help students learn and master the content, but ensure that what is taught is rigorous, challenging, and comparable.

Integrate the Core Curriculum in Lesson Planning, Instruction and Assessment

Teachers should use this teacher guide to help them integrate the core curriculum – values, cognitive and high-level skills, 21st century skills, STEAM principles and skills, and reading, writing, and communication skills in their lesson planning, instruction and assessment. All students in all subjects are required to learn and master these skills progressively through the education system.

Integrate Cognitive, High Level, and 21st Century Skills in Lesson Planning, Instruction and Assessment

Teachers should integrate the cognitive, high level and 21st century skills in their annual teaching programs, and give prominence to these skills in their lesson preparation, teaching and learning activities, performance assessment, and performance standards for measuring students' proficiency on these skills. Social Science addresses the skills and processes of geography, civic and cultural literacy, historical and economical literacy and global awareness. Thus, students will be able to make informed decisions, problem-solving and management knowledge, skills, values and attitudes in Social Science. This enables them to function effectively in the work and higher education environments as productive and useful citizens of a culturally diverse and democratic society in an interdependent world.

In addition, it envisages all students attaining expected proficiency levels in these skills and will be ready to pursue careers and higher education academic programs that demand these skills, and use them in their everyday life after they leave school at the end of Grade 12. Teachers should use the teacher guide to help them to effectively embed these skills, particularly in their lesson planning and in the teaching and learning activities as well as in the assessment of students' application of the skills.

Integrate Social Science values and attitudes in Lesson Planning, Instruction and Assessment

In Social Science, students are expected to learn, promote and use work, relationship, peace, health, social, personal, family, community, national and global values in the work and study environments as well as in their conduct as community, national and global citizens. Teachers should draw from the information and suggestions provided in the syllabus and teacher guide to integrate values and attitudes in their lesson planning, instruction, and assessment. They should report on students' progression towards internalizing different values and attitudes and provide additional support to students who are yet to reach the internalization stage to make positive progress towards this level.

Integrate Science, Technology, Engineering, Arts and Mathematics (STEAM) Principles and Skills in Lesson Planning, Instruction and Assessment

Teachers should draw from both the syllabus and teacher guide in order to help them integrate STEAM principles and skills, and methodologies in their lesson planning, instruction and assessment. STEAM teaching and learning happens both inside and outside of the classroom. Effective STEAM teaching and learning requires both the teacher and the student to participate as core investigators and learners, and to work in partnership and collaboration with

relevant stakeholders to achieve maximum results. Teachers should use the syllabus, teacher guides and other resources to guide them to plan and implement this and other innovative and creative approaches to STEAM teaching and learning to make STEAM principles and skills learning fun and enjoyable and, at the same time, attain the intended quality of learning outcomes.

Identify and Use Grade and Context Appropriate, Innovative, Differentiated and Creative Teaching and Learning Methodologies

SBC is an eclectic curriculum model. It is an amalgamation of strengths of different curriculum types, including behavioural objectives, outcomes, and competency. Its emphasis is on students attaining clearly defined, measurable, observable and attainable learning standards, i.e., the expected level of education quality. Proficiency (competency) standards are expressed as performance standards/criteria and evidence outcomes, that is, what all students are expected to know (content) and do (application of content in real life or related situations) to indicate that they are meeting, have met or exceeded the learning standards. The selection of grade and contextually appropriate teaching and learning methodologies is critical to enabling all students to achieve the expected standard or quality of education. Teaching and learning methodologies must be aligned to the content, learning objective, and performance standard in order for the teacher to effectively teach and guide students towards meeting the performance standard for the lesson. They should be equitable and socially inclusive, differential, student-centred, and lifelong. They should enable STEAM principles and skills to be effectively taught and learned by students. Teachers should use the teacher guide to help them make informed decisions when selecting the types of teaching and learning methodologies to use in their teaching of the subject content, including STEAM principles and skills.

Plan Standards-Based Lessons

SBC lesson planning is quite difficult to do. However, this will be easier with more practice and experience over time. Effective SBC lesson plans must meet the required standards or criteria so that the learning objectives and performance standards are closely aligned to attain the expected learning outcomes. Teachers should use the guidelines and standards for SBC lesson planning and examples of SBC lesson plans provided in the teacher guide to plan their lessons. When planning lessons, it is important for teachers to ensure that all SBC lesson planning standards or criteria are met. If standards are not met, instruction will not lead to the attainment of intended performance and proficiency standards. Therefore, students will not attain the national content standards and grade-level benchmarks.

Use Standards-Based Assessment

Standards-Based Assessment has a number of components. These components are intertwined and serve to measure evaluate, report, and monitor students' achievement of the national and grade-level expectations, i.e., the essential knowledge, skills, values and attitudes they are expected to master and demonstrate proficiency on. Teachers should use the information and examples on standards-based assessment to plan, assess, record, evaluate, report and monitor students' performance in relation to the learning standards.

Make Informed Judgments About Students' Learning and Progress Towards Meeting Learning Standards

Teachers should use the teacher guide to effectively evaluate students' performance and use the evidence to help students to continuously improve their learning as well as their classroom practice.

It is important that teachers evaluate the performance of students in relation to the performance standards and progressively the grade-level benchmarks and content standards to make informed judgments and decisions about the quality of their work and their progress towards meeting the content standards or components of the standards. Evaluation should not focus on only one aspect of students' performance. It should aim to provide a complete picture of each student's performance. The context, inputs, processes, including teaching and learning processes, and the outcomes should be evaluated to make an informed judgment about each student's performance. Teachers should identify the causal factors for poor performance, gaps in students learning, gaps in teaching, teaching and learning resource constraints, and general attitude towards learning. Evidence-based decisions can then be made regarding the interventions for closing the gaps to allow students to make the required progress towards meeting grade-level and national expectations.

Prepare Students' Performance Reports

Reporting of students' performance and progress towards the attainment of learning standards is an essential part of SBC assessment. Results of students' performance should be communicated to particularly the students and their parents to keep them informed of students' academic achievements and learning challenges as well as what needs to be done to ensure the students' make positive progress towards meeting the proficiency standards and achieving the desired level of education quality. Teachers should use the information on the reporting of students' assessment results and the templates provided to report the results of students' learning.

Monitor Students' Progress Towards Meeting the National Content Standards and Grade-Level Benchmarks

Monitoring of students' progress towards the attainment of learning standards is an essential component of standards-based assessment. It is an evidence-based process that involves the use of data from students' performance assessments to make informed judgments about students' learning and proficiency on the learning standards or their components, identify gaps in students' learning and the causal factors, set clear learning improvement targets, and develop effective evidence-based strategies (including preplanning and re-teaching of topics), set clear timeframes, and identify measures for measuring students' progress towards achieving the learning targets.

Teachers should use the teacher guide to help them use data from students' performance assessments to identify individual students' learning weaknesses and develop interventions, in collaboration with each student and his/her parents or guardians, to address the weaknesses and monitor their progress towards meeting the agreed learning goals.

Develop Additional Benchmarks

Teachers can develop additional benchmarks using the examples in the teacher guide to meet the learning needs of their students and local communities. However, these benchmarks will not be nationally assessed as these are not comparable. They are not allowed to set their own content standards or manipulate the existing ones. The setting of national content standards is done at the national level to ensure that required learning standards are standardised, maintained and monitored to sustain the required level of education quality.

Avoid Standardisation

The teaching and learning strategies by means of lesson plans, lesson objectives and assessment should not be standardised when implementing the Social Science curriculum. SBC does not mean that the content, lesson objectives, teaching and learning strategies, and assessment are standardised. This is a misconception and any attempt to standardise the components of curriculum without due consideration of the teaching and learning contexts, children's backgrounds and experiences, and different abilities and learning styles of children will be counterproductive. It will hinder students from achieving the expected proficiency standards and hence, high academic standards and the desired level of education quality. That is, they should not be applied across all contexts and with all students, without considering the educational needs and the characteristics of each context. Teachers must use innovative, creative, culturally relevant, and differentiated teaching and learning approaches to teach the curriculum and enable their students to achieve the national content standards and grade-level benchmarks. And enable all students to experience success in learning the curriculum and achieve high academic standards.

The teaching and learning and assessment strategies provided in this teacher guide are not fixed and can be changed. Teachers should use the information and examples provided in the teacher guide to guide them to develop, select, and use grade, context, and learner appropriate content, learning objectives, teaching and learning strategies, and performance assessment and standards. SBC is evidence-based hence decisions about the content, learning outcomes, teaching and learning strategies, students' performance, and learning interventions should be based on evidence. Teaching and learning should be continuously improved and effectively targeted using evidence from students' assessment and other sources.

Syllabus and Teacher Guide Alignment

A teacher guide is a framework that describes how to translate the content standards and benchmarks (learning standards) outlined in the syllabus into units and topics, learning objectives, lesson plans, teaching and learning strategies, performance assessment, and measures for measuring students' performance (performance standards). It expands the content overview and describes how this content identified in the content standards and their components (essential KSVAs) can be translated into meaningful and evidence-based teaching topics and learning objectives for lesson planning, instruction and assessment. It also describes and provides examples of how to evaluate and report on students' attainment of the learning standards, and use evidence from the assessment of students' performance to develop evidence-based interventions to assist students who are making slow progress towards meeting the expected proficiency levels to improve their performance.

Grade 12 Social Science comprises of the Syllabus and Teacher Guide. These two documents are closely aligned, complimentary and mutually beneficial.

They are the essential focal points for teaching and learning the essential Social Science knowledge, skills, values and attitudes.

Syllabus and teacher guide alignment	
Syllabus Outlines the ultimate aim and goals, and what to teach and why teach it	Teacher Guide Describes how to plan, teach, and assess students' performance
<ul style="list-style-type: none"> - Overarching and SBC principles - Content overview - Core curriculum - Essential knowledge, skills, values and attitudes - Strands and units - Evidence outcomes - Content standards and grade-level benchmarks - Overview of assessment, evaluation, and reporting 	<ul style="list-style-type: none"> - Determine topics for lesson planning, instruction and assessment - Formulate learning objectives - Plan SBC lesson plans - Select teaching and learning strategies - Implement SBC assessment and evaluation - Implement SBC reporting and monitoring

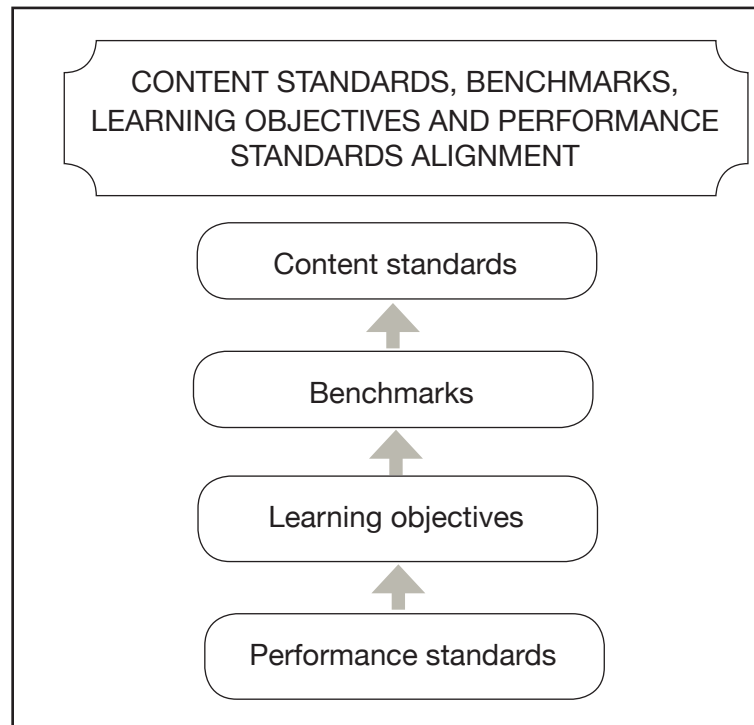
The syllabus outlines the ultimate aim and goals of SBE and SBC, what is to be taught and why it should be learned by students, the underlying principles and articulates the learning and proficiency standards that all students are expected to attain. On the other hand, the teacher guide expands on what is outlined in the syllabus by describing the approaches or the how of planning, teaching, learning, and assessing the content so that the intended learning outcomes are achieved.

This teacher guide should be used in conjunction with the syllabus. Teachers should use these documents when planning, teaching and assessing Grade 12 Social Science content.

Teachers will extract information from the syllabus (e.g., content standards and grade-level benchmarks) for lesson planning, instruction and is for measuring students' attainment of a content standard as well as progress to the next grade of schooling.

Learning and performance standards alignment

Content standards, benchmarks, learning objectives, and performance standards are very closely linked and aligned. There is a close linear relationship between these standards. Students' performance on a significant aspect of a benchmark (KSVA) is measured against a set of performance standards or criteria to determine their level of proficiency using performance assessment. Using the evidence from the performance assessment, individual student's proficiency on the aspect of the benchmark assessed and progression towards meeting the benchmark and hence the content standard are then determined.



Effective alignment of these learning standards and all the other components of PNG SBE and SBC (ultimate aim and goals, overarching, SBC and subject-based principles, core curriculum, STEAM, and cognitive, high level, and 21st century skills) is not only critical but is also key to the achievement of high academic standards by all students and the intended level of education quality. It is essential that teachers know and can do standards alignment when planning, teaching, and assessing students' performance so that they can effectively guide their students towards meeting the grade-level benchmarks (grade expectations) and subsequently the content standards (national expectations).

Learning and Performance Standards

Standards-Based Education (SBE) and Standards-Based Curriculum (SBC) are underpinned by the notion of quality. Standards define the expected level of education quality that all students should achieve at a particular point in their schooling. Students' progression and achievement of education standard(s) are measured using performance standards or criteria to determine their demonstration or performance on significant aspects of the standards and therefore their levels of proficiency or competency. When they are judged to have attained proficiency on a content standard or benchmark or components of these standards, they are then deemed to have met the standard(s). That is, achieved the intend level of education quality.

Content standards, benchmarks, and learning objectives are called learning standards while performance and proficiency standards (evidence outcomes) can be categorised as performance standards. These standards are used to measure students' performance, proficiency, progression and achievement of the desired level of education quality. Teachers are expected to understand and use these standards for lesson planning, instruction and assessment.

Content standards

Content standards are evidence-based, rigorous and comparable regionally and globally. They have been formulated to target critical social, economic, political, cultural, environmental, and employable skills gaps identified from a situational analysis. They were developed using examples and experiences from other countries and best practice, and contextualized to PNG contexts.

Content standards describe what (content - knowledge, skills, values, and attitudes) all students are expected to know and do (how well students must learn and apply what is set out in the content standards) at each grade-level before proceeding to the next grade. These standards are set at the national level and thus cannot be edited or changed by anyone except the National Subject-Based Standards Councils. Content Standards:

- are evidence-based;
- are rigorous and comparable to regional and global standards;
- are set at the national level;
- state or describe the expected levels of quality or achievement;
- are clear, measurable and attainable;
- are linked to and aligned with the ultimate aim and goals of SBE and SBC and overarching and SBC principles;
- delineate what matters, provide clear expectations of what students should progressively learn and achieve in school, and guide lesson planning, instruction, assessment;
- comprise knowledge, skills, values, and attitudes that are the basis for quality education;
- provide teachers a clear basis for planning, teaching, and assessing lessons;

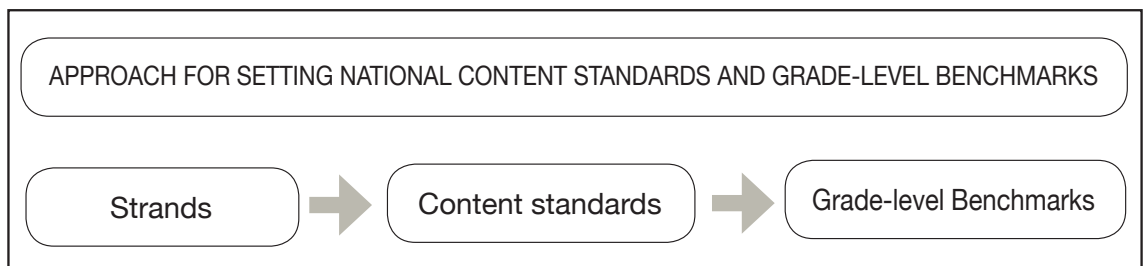
- provide provinces, districts, and schools with a clear focus on how to develop and organise their instruction and assessment programs as well as the content that they will include in their curriculum.

Benchmarks

Benchmarks are derived from the content standards and benchmarked at the grade-level. Benchmarks are specific statements of what students should know (i.e., essential knowledge, skills, values or attitudes) at a specific grade-level or school level. They provide the basis for measuring students' attainment of a content standard as well as progress to the next grade of schooling.

Grade-level benchmarks:

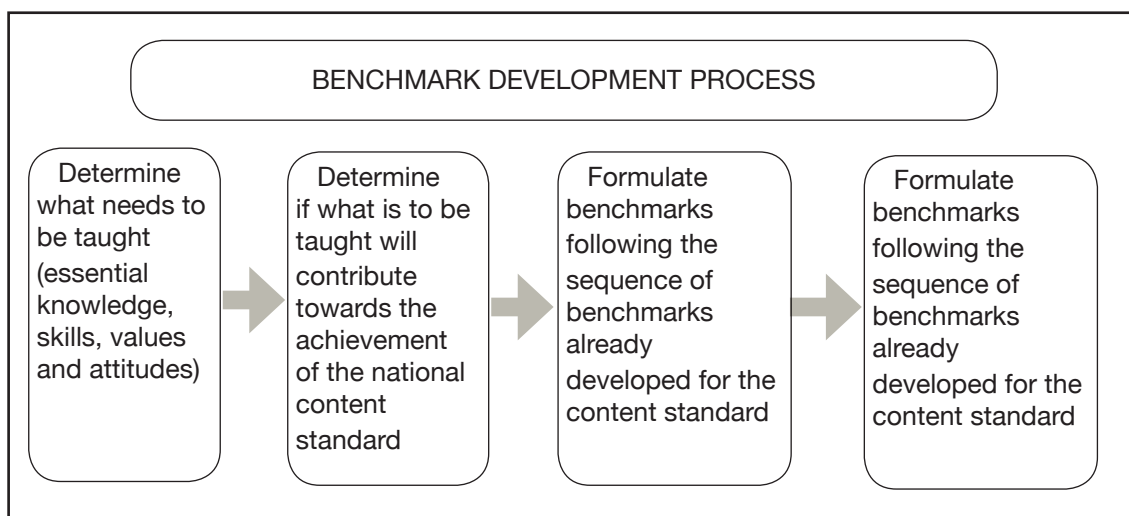
- are evidenced-based;
- are rigorous and comparable to regional and global standards;
- are set at the grade level;
- are linked to the national content standards;
- are clear, measurable, observable and attainable;
- articulate grade level expectations of what students are able to demonstrate to indicate that they are making progress towards attaining the national content standards;
- provide teachers a clear basis for planning, teaching, and assessing lessons;
- state clearly what students should do with what they have learned at the end of each school-level;
- enable students' progress towards the attainment of national content standards to be measured, and
- enable PNG students' performance to be compared with the performance of PNG students with students in other countries.



Development of additional benchmarks

Teachers should develop additional benchmarks to meet the learning needs of their students. They should engage their students to learn about local, provincial, national and global issues that have not been catered for in the grade-level benchmarks but are important and can enhance students' understanding and application of the content. However, it is important to note that these benchmarks will not be nationally examined as they are not comparable. Only the benchmarks developed at the national level will be tested. This does not mean that teachers should not develop additional

benchmarks. An innovative, reflect, creative and reflexive teacher will continuously reflect on his/her classroom practice and use evidence to provide challenging, relevant, and enjoyable learning opportunities for his/her students to build on the national expectations for students. Teachers should follow the following process when developing additional grade-level benchmarks.



Learning objectives

Learning or instructional objectives are precise statements of educational intent. They are formulated using a significant aspect or a topic derived from the benchmark, and is aligned with the educational goals, content standards, benchmarks, and performance standards. Learning objectives are stated in outcomes language that describes the products or behaviours that will be provided by students. They are stated in terms of measurable and observable student behaviour.

For example, students will be able to identify all the main towns of PNG using a map.

Performance standards

Performance Standards are concrete statements of how well students must learn what is set out in the content standards, often called the “**be able to do**” of “**what students should know and be able to do.**” Performance standards are the indicators of quality that specify how competent a student’s demonstration or performance must be. They are explicit definitions of what students **must do to demonstrate proficiency or competency at a specific level on the content standards.**

Performance standards:

- measure students’ performance and proficiency (**using performance indicators**) in the use of a specific knowledge, skill, value, or attitude in real life or related situations
- provide the basis (**performance indicators**) for evaluating, reporting and monitoring students’ level of proficiency in use of a specific knowledge, skills, value, or attitude

- are used to plan for individual instruction to help students not yet meeting expectations (**desired level of mastery and proficiency**) to make adequate progress towards the full attainment of benchmarks and content standards
- are used as the basis for measuring students' progress towards meeting grade-level benchmarks and content standards.

Proficiency standards

Proficiency standards describe what all students in a particular grade or school level can do at the end of a strand, or unit. These standards are sometimes called evidence outcomes because they indicate if students can actually apply or use what they have learnt in real life or similar situations. They are also categorized as benchmarks because that is what all students are expected to do before exiting a grade or are deemed ready for the next grade.

Core Curriculum

A core set of common learnings (knowledge, skills, values, and attitudes) are integrated into the content standards and grade-level benchmarks for all subjects. This is to equip all students with the most essential and in-demand knowledge, skills, and dispositions they will need to be successful in modern/postmodern work places, higher-education programs and to be productive, responsible, considerate, and harmonious citizens. Common set of learnings are spirally sequenced from Preparatory - Grade 12 to deepen the scope and increase the level of difficulty in the learning activities so that what is learned is reinforced at different grade levels.

The core curriculum includes:

- cognitive (thinking) skills (refer to the syllabus for a list of these skills);
- reasoning, decision-making and problem-solving skills
- high level thinking skills (analysis, synthesis and evaluation skills);
- 21st century skills (refer to illustrative list in *Appendix 2*);
- reading, writing and communication skills (literacy skills);
- STEAM principles and skills;
- essential values and attitudes (Core personal and social values, and sustaining values), and
- spiritual values and virtues.

The essential knowledge, skills, values and attitudes comprising the core curriculum are interwoven and provide an essential and holistic framework for preparing all students for careers, higher education and citizenship.

All teachers are expected to include the core learnings in their lesson planning, teaching, and assessment of students in all their lessons. They are expected to foster, promote and model the essential values and attitudes as well as the spiritual values and virtues in their conduct, practice, appearance, and their relationships and in their professional and personal lives. In addition, teachers are expected to mentor, mould and shape each student to evolve and possess the qualities envisioned by society.

Core values and attitudes must not be taught in the classroom only; they must also be demonstrated by students in real life or related situations inside and outside of the classroom, at home, and in everyday life. Likewise, they must be promoted, fostered and modeled by the school community and its stakeholders, especially parents. A whole school approach to values and attitudes teaching, promoting and modeling is critical to students and the whole school community internalising the core values and attitudes and making them habitual in their work and school place, and in everyday life. Be it work values, relationship values, peace values, health values, personal and social values, or religious values, teachers should give equal prominence to all common learnings in their lesson planning, teaching, assessment, and learning interventions. Common learnings must be at the heart of all teaching and extracurricular programs and activities.

Science, Technology, Engineering, Arts and Mathematics

STEAM education is an integrated, multidisciplinary approach to learning that uses science, technology, engineering, arts and mathematics as the basis for inquiring about how STEAM has and continues to change and impact the social, political, economic, cultural and environmental contexts and identifying and solving authentic (real life) natural and physical environmental problems by integrating STEAM-based principles, cognitive, high level and 21st century skills and processes, and values and attitudes.

Social Science is focused on both goals of STEAM rather than just the goal of problem-solving. This is to ensure that all students are provided opportunities to learn, integrate, and demonstrate proficiency on all essential STEAM principles, processes, skills, values and attitudes to prepare them for careers, higher education and citizenship.

Objectives

Students will be able to:

- examine and use evidence to draw conclusions about how STEAM has and continues to change the social, political, economic, cultural and environmental contexts.
- investigate and draw conclusions on the impact of STEAM solutions to problems on the social, political, economic, cultural and environmental contexts.
- identify and solve problems using STEAM principles, skills, concepts, ideas and process.
- identify, analyse and select the best solution to address a problem.
- build prototypes or models of solutions to problems.
- replicate a problem solution by building models and explaining how the problem was or could be solved.
- test and reflect on the best solution chosen to solve a problem.
- collaborate with others on a problem and provide a report on the process of problem-solving used to solve the problem.
- use skills and processes learnt from lessons to work on and complete STEAM projects.
- demonstrate STEAM principles, skills, processes, concepts and ideas through simulation and modelling.
- explain the significance of values and attitudes in problem-solving.

Content overview

STEAM is a multidisciplinary and integrated approach to understanding how science, technology, engineering, arts and mathematics shape and are shaped by our material, intellectual, cultural, economic, social, political and environmental contexts. And for teaching students the essential and in-demand cognitive, high level and 21st century skills, values and attitudes, and empower them to effectively use these skills and predispositions to identify and solve problems relating to the natural and physical environments as well as the impact of STEAM-based solutions on human existence and livelihoods, and on the social, political, economic, cultural, and environmental systems.

STEAM disciplines have and continue to shape the way we perceive knowledge and reality, think and act, our values, attitudes, and behaviours, and the way we relate to each other and the environment. Most of the things we enjoy and consume are developed using STEAM principles, skills, process, concepts and ideas. Things humans used and enjoyed in the past and at present are developed by scientists, technologists, engineers, artists and mathematicians to address particular human needs and wants. Overtime, more needs were identified and more products were developed to meet the ever changing and evolving human needs. What is produced and used is continuously reflected upon, evaluated, redesigned, and improved to make it more advanced, multipurpose, fit for purpose, and targeted towards not only improving the prevailing social, political, economic, cultural and environmental conditions but also to effectively respond to the evolving and changing dynamics of human needs and wants. And, at the same time, solutions to human problems and needs are being investigated and designed to address problems that are yet to be addressed and concurred. This is an evolving and ongoing problem-solving process that integrates cognitive, high level, and 21st century skills, and appropriate values and attitudes.

STEAM is a significant framework and focal point for teaching and guiding students to learn, master and use a broad range of skills and processes required to meet the skills demands of PNG and the 21st century. The skills that students will learn will reflect the demands that will be placed upon them in a complex, competitive, knowledge-based, information-age, technology-driven economy and society. These skills include cognitive (critical, synthetic, creative, reasoning, decision-making, and problem-solving) skills, high level (analysis, synthesis and evaluation) skills and 21st century skills. Knowledge-based information and technology driven economies require knowledgeable workers and not technicians. Knowledge workers are lifelong learners, are problem solvers, innovators, creators, critical and creative thinkers, reflective practitioners, researchers (knowledge producers rather than knowledge consumers), solutions seekers, outcomes oriented, evidence-based decision makers, and enablers of improved and better outcomes for all.

STEAM focuses on the skills and processes of problem-solving. These skills and processes are at the heart of the STEAM movement and approach to not only problem-solving and providing evidence-based solutions but also the development and use of other essential cognitive, high level and 21st century skills. These skills are intertwined and used simultaneously to gain a broader understanding of the problems to enable creative, innovative, contextually

relevant, and best solutions to be developed and implemented to solve the problems and attain the desired outcomes. It is assumed that by teaching students STEAM-based problem-solving skills and providing learning opportunities inside and outside the classroom, more students will be motivated to pursue careers and academic programs in STEAM related fields thus, closing the skills gaps and providing a pool of cadre of workers required by technology, engineering, science, and mathematics-oriented industries.

Although, STEAM focuses on the development and application of skills in authentic (real life) contexts, for example the use of problem-solving skills to identify and solve problems relating to the natural and physical worlds, it does not take into account the significant influence values and attitudes have on the entire process of problem-solving. Values and attitudes are intertwined with knowledge and skills. Knowledge, skills, values and attitudes are inseparable. Decisions about skills and processes of skills development and application are influenced by values and attitudes (mindset) that people hold. In the same light, the use of STEAM principles, processes and skills to solve problems in order to achieve the outcomes envisaged by society are influenced by values and the mindset of those who have identified and investigated the problem as well as those who are affected by the problem and will benefit from the outcome.

STEAM problem-solving methods and approaches

Problem-solving involves the use of problem-solving methods and processes to identify and define a problem, gather information to understand its causes, draw conclusions, and use the evidence to design and implement solutions to address it.

Even though there are many different problem-solving methods and approaches, they share some of the steps of problem-solving, for example:

1. identifying the problem;
2. understanding the problem by collecting data;
3. analysing and interpret the data;
4. drawing conclusions;
5. using data to consider possible solutions;
6. selecting the best solution;
7. testing the effectiveness of the solution by trialling and evaluating it, and
8. reviewing and improve the solution.

STEAM problem-solving processes go from simple and technical to advance and knowledge-based processes. However, regardless of the type of process used, students should be provided opportunities to learn the essential principles and processes of problem-solving and, more significantly, to design and create a product that addresses a real problem and meets a human need.

The following are some of the STEAM problem-solving processes.

Engineering and technology problem-solving methods and approaches

Engineering and technology problem-solving methods are used to identify and solve problems relating to the physical world using the design process. The following are some of the methods and approaches used to solve engineering and technology related problems.

Parts substitution

It is the most basic of the problem-solving methods. It simply requires the parts to be substituted until the problem is solved.

Diagnostics

After identifying a problem, the technician would run tests to pinpoint the fault. The test results would be used either as a guide for further testing or for replacement of a part, which also need to be tested. This process continues until the solution is found and the device is operating properly.

Troubleshooting

Troubleshooting is a form of problem-solving, often applied to repair failed products or processes.

Reverse engineering

Reverse engineering is the process of discovering the technological principles underlying the design of a device by taking the device apart, or carefully tracing its workings or its circuitry. It is useful when students are attempting to build something for which they have no formal drawings or schematics.

Divide and conquer

Divide and conquer is the technique of breaking down a problem into sub-problems, then breaking the sub-problems down even further until each of them is simple enough to be solved. Divide and conquer may be applied to all groups of students to tackle sub-problems of a larger problem, or when a problem is so large that its solution cannot be visualised without breaking it down into smaller components.

Extreme cases

Considering “extreme cases” – envisioning the problem in a greatly exaggerated or greatly simplified form, or testing using extreme condition – can often help to pinpoint a problem. An example of the extreme-case method is purposely inputting an extremely high number to test a computer program.

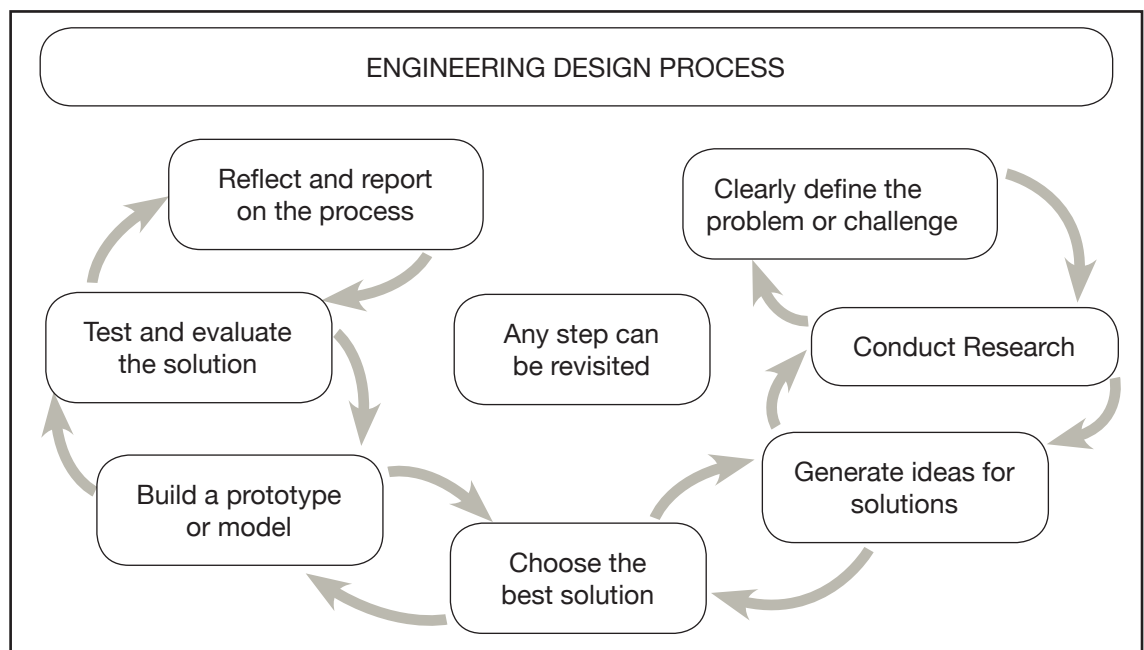
Trial and error

The trial and error method involves trying different approaches until a solution is found. It is often used as a last resort when other methods have been exhausted.

Engineering design process

Technological fields use the engineering design process to identify and define the problem or challenge, investigate the problem, collect and analyse data, and use the data to formulate potential solutions to the problem, analyse each of the solutions in terms of its strengths and weaknesses, and choose the best solution to solve the problem. It is an open-ended problem-solving process that involves the full planning and development of products or services to meet identified needs. It involves a sequence of steps such as the following:

1. Analysing the context and background, and clearly defining the problem.
2. Conducting research to determine design criteria, financial or other constraints, and availability of materials.
3. Generating ideas for potential solutions, using processes such as brainstorming and sketching.
4. Choosing the best solution.
5. Building a prototype or model.
6. Testing and evaluate the solution.
7. Repeating steps as necessary to modify the design or correct faults.
8. Reflecting and report on the process.



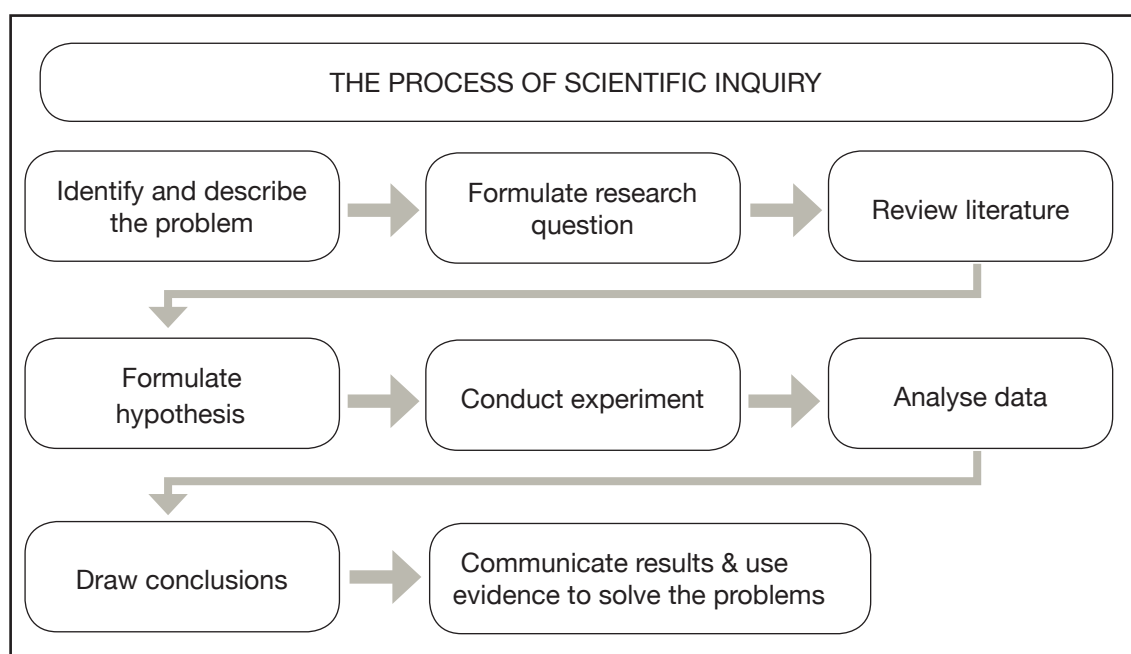
The scientific method and approach to problem-solving

Science uses predominantly the quantitative-scientific inquiry process to investigate, understand, and make informed decisions about problems relating to the natural world. The steps in the process vary, depending on the purpose of the inquiry and the types of questions asked.

There are six basic science process skills:

1. Observation
2. Communication
3. Classification
4. Measurement
5. Inference
6. Prediction

These processes are at the heart of the scientific inquiry and problem-solving process.



The steps above should be taught and demonstrated by students separately and jointly before they implement the inquiry process. Students should be guided through every step of the process so that they can explain it and its importance, and use the steps and the whole process proficiently to identify, investigate and solve problems. A brief explanation and examples of each step are provided below to help teachers plan and teach each step. Students should be provided with opportunities to practice and reflect on each step until they demonstrate the expected level of proficiency before moving on to the next one.

Step 1: Identify and describe the problem

Problems are identified mainly from observations and the use of the five senses – smell, sight, sound, touch and taste. Students should be guided and provided opportunities to identify natural and physical environment problems using their five senses and describe what the problem is and its likely causes.

Example - Observation

- i. When I turn on a flashlight using the on/off switch, light comes out of one end.

Step 2: Formulate research question

After the problem is identified and described, the question to be answered is then formulated. This question will guide the scientist in conducting research and experiments.

Example - Question

- i. What makes light comes out of a flash light when I turn it on?

Step 3: Review literature

It is more likely that the research problem and question have already been investigated and reported by someone. Therefore, after asking the question, the scientist spends some time reading and reviewing papers and books on past research and discussions to learn more about the problem and the question asked to prepare him/her for his own research. Conducting literature review helps the scientist to better understand his/her research problem, refine the research question and decide on the experiment/research approach before the experiment is conducted,

Example - Literature review

- i. The scientist may look at the flashlight's instruction manual for tips or conduct online search on how flashlights work using the manufacturer's or relevant websites. The scientist may even analyse information and past experiments or discoveries regarding the relationship between energy and light.

Step 4: Formulate hypothesis

With a question in mind, the researcher decides on what he/she wants to test (The question may have changed as a result of the literature review). The research will clearly state what he/she wants to find out by carrying out the experiment. He/She will make an educated guess that could answer the question or explain the problem. This statement is called a hypothesis. A hypothesis guides the experiment and must be testable.

Example – Hypothesis

- i. The batteries inside a flashlight give it energy to produce light when the flashlight is turned on.

Step 5: Conduct experiment

This step involves the design and conduct of experiment to test the hypothesis. Remember, a hypothesis is only an educated guess (a possible explanation), so it cannot be considered valid until an experiment verifies that it is valid.

Example - Experimental procedure

- i. Remove the batteries from the flashlight, and try to turn it on using the on/off switch.

Result: The flashlight does not produce light

- ii. Re-insert the batteries into the flashlight, and try to turn it on using the on/off switch.

Result: The flashlight does produce light.

- iii. Write down these results

In general, it is important to design an experiment to measure only one thing at a time. This way, the researcher knows that his/her results are directly related to the one thing he/she changed. If the experiment is not designed carefully, results may be confusing and will not tell the researcher anything about his/her hypothesis.

Researchers collect data while carrying out their experiments. Data are pieces of information collected before, during, or after an experiment. To collect data, researchers read the measuring instruments carefully. Researchers record their data in notebooks, journals, or on a computer.

Step 6: Analyse data

Once the experiment is completed, the data is then analysed to determine the results. In addition, performing the experiment multiple times can be helpful in determining the credibility of the data.

Example - Analysis

- i. Record the results of the experiment in a table.
- ii. Review the results that have been written down.

Step 7: Draw conclusions

If the hypothesis was testable and the experiment provided clear data, the scientist can make a statement telling whether or not the hypothesis was correct. This statement is known as a conclusion. Conclusions must always be backed up by data. Therefore, scientists rely heavily on data so they can make an accurate conclusion.

If the data support the hypothesis, then the hypothesis is considered correct or valid. However, if the data do not support the hypothesis, the hypothesis is considered incorrect or invalid.

Example - Valid hypothesis

- i. The flashlight did not produce light without batteries. The flashlight did produce light when batteries were inserted. Therefore, the hypothesis that batteries give the flashlight energy to produce light is valid, given that no changes are made to the flashlight during the experiment.

Example - Invalid hypothesis

- ii. The flashlight did not produce light when the batteries were inserted. Therefore, the hypothesis that batteries give the flashlight energy to produce light is invalid. In this case, the hypothesis would have to be modified to say something like, "The batteries inside a flashlight give it energy to produce light when the batteries are in the correct order and when the flashlight is turned on." Then, another experiment would be conducted to test the new hypothesis.

An invalid hypothesis is not a bad thing! Scientists learn something from both valid and invalid hypotheses. If a hypothesis is invalid, it must be rejected or modified. This gives scientists an opportunity to look at the initial observation in a new way. They may start over with a new hypothesis and conduct a new experiment. Doing so is simply the process of scientific inquiry and learning.

Step 8: Communicate findings

Scientists generally tell others what they have learned. Communication is a very important component of scientific progress and problem-solving. It gives other people a chance to learn more and improve their own thinking and experiments. Many scientists' greatest breakthroughs would not have been possible without published communication or results from previous experimentation.

Every experiment yields new findings and conclusions. By documenting both the successes and failures of scientific inquiry in journals, speeches, or other documents, scientists are contributing information that will serve as a basis for future research and for solving problems relating to both the natural and physical worlds. Therefore, communication of investigative findings is an important step in future scientific discovery and in solving social, political, economic, cultural, and environmental problems.

Example - Communication of findings

- i. Write your findings in a report or an article and share it with others, or present your findings to a group of people. Your work may guide someone else's research on creating alternative energy sources to generate light, additional uses for battery power, etc.

Artistic design

Science uses predominantly the quantitative-scientific inquiry process to investigate, understand, and make informed decisions about problems. The steps in the process vary, depending on the purpose of the inquiry and the types of questions asked. There are six basic science process skills:

The equipping and enabling of students to become proficient in a broad range of STEAM skills, processes and predispositions can also lead to the attainment of many other societal goals, including national and global development goals and aspirations. These goals include:

- sustainability goals;
- peace related goals;
- work related goals;
- academic goals;
- relationship goals;
- health goals;
- adoption and internalisation of values and attitudes accepted by society, and
- improved social, political, economic outcomes.

Even though the original purpose and the drive of STEAM was to develop a pathway to engage students in learning about, experiencing, and applying STEAM skills in real life situations to motivate and hopefully get them to pursue careers in STEAM related fields and undertake STEAM related higher education programs to meet the demand for STEAM workers, STEAM education can also be used to teach and engage students to study more broadly the impact of STEAM on the social, economic, political, intellectual, cultural and environmental contexts. This line of inquiry is more enriching, exciting, empowering and transformative.

STEAM-based lesson planning

Effective STEAM lesson planning is key to the achievement of expected STEAM outcomes. STEAM skills can be planned and taught using separate STEAM-based lesson plans or integrated into the standards-based lesson plans. To effectively do this, teachers should know how to write effective standards and STEAM-based lesson plans.

Developing STEAM-based lesson plans

Teachers should integrate STEAM content and teaching, learning and assessment strategies into their standards-based lesson plans.

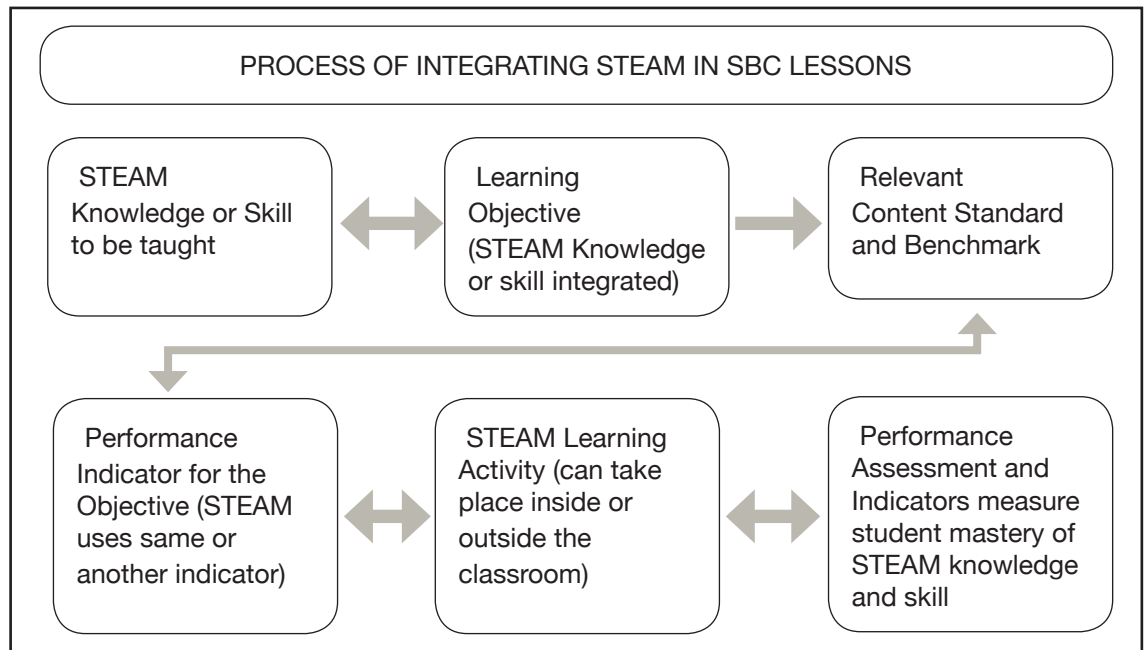
Integration of STEAM problem-solving skills into standards-based lesson plans

Knowing how to integrate STEAM problem-solving skills, principles, values and attitudes as well as STEAM teaching, learning, and assessment strategies into the standards-based lesson plans is essential for achieving the desired STEAM learning outcomes. When integrating STEAM problem-solving skills into the standards-based lesson plans, teachers should ensure that these skills are not only effectively aligned to the learning objective and performance standards, they must also be effectively taught and assessed.

STEAM principles and problem-solving skills are integrated into the content standards and grade-level benchmarks. A list of these skills, including 21st century skills, is provided in the Social Science Grades 11 & 12 Syllabus. Teachers should ensure that these skills are integrated in their standards-based lesson plans, taught and assessed to determine students' level of proficiency on each skill or specific components of the skill. Teachers should use the following process as guide to integrate STEAM principles and problem-solving skills into the standards-based lesson plans.

Teachers are expected to integrate the essential STEAM principles, processes, skills, values and attitudes described in the grade 12 benchmarks when formulating their standards-based lesson plans. Opportunities should be provided inside and outside of the classroom for students to learn, explore, model and apply what they learn in real life or related situations. These learning experiences will enable students to develop a deeper understanding of STEAM principles, processes, skills, values and attitudes and appreciate their application in real life to solve problems.

Process for integrating STEAM principles and problem-solving skills into standards-based lessons



Teachers should follow the steps given below when integrating STEAM problem-solving principles and skills into their standards-based lesson plans.

- Step 1:** Identify the STEAM knowledge or skill to be taught (From the table of KSVAs for each content standard and benchmark). This could already be captured in the learning objective stated in the standards-based lesson plan.
- Step 2:** Develop and include a performance standard or indicator for measuring student mastery of the STEAM knowledge or skill (e.g. level of acceptable competency or proficiency) if this is different from the one already stated in the lesson plan.
- Step 3:** Develop student learning activity (An activity that will provide students the opportunity to apply the STEAM knowledge or skill specified by the learning objective and appropriate statement of the standards). Activity can take place inside or outside of the classroom, and during or after school hours.
- Step 4:** Develop and use performance descriptors (standards or indicators) to analyse students' STEAM related behaviours and products (results or outcomes), which provide evidence that the student has acquired and mastered the knowledge or skill of the learning objective specified by the indicator(s) of the standard(s).

STEAM teaching strategies

STEAM education takes place in both formal and informal classroom settings. It takes place during and after school hours. It is a continuous process of inquiry, data collection, data analysis, making decisions about interventions, and implementing and monitoring interventions for improvements.

There are a variety of STEAM teaching strategies. However, teaching strategies selected must enable teachers to guide students to use the engineering and artistic design processes to identify and solve natural and physical environmental problems by designing prototypes and testing and refining them to effectively mitigate the problems identified. The following are some of the strategies that could be used to utilise the STEAM approach to solve problems and coming up with technological solutions.

1. Inquiry-Based Learning
2. Problem-Based Learning
3. Project-Based Learning
4. Collaborative Learning

Collaborative learning involves individuals from different STEAM disciplines and expertise in a variety of STEAM problem-solving approaches working together and sharing their expertise and experiences to inquire into and solve a problem.

Teachers should plan to provide students opportunities to work in collaboration and partnership with experts and practitioners engaged in STEAM related careers or disciplines to learn first-hand about how STEAM related skills, processes, concepts, and ideas are applied in real life to solve problems created by the natural and physical environments. Collaborative learning experiences can be provided after school or during school holidays to enable students to work with STEAM experts and practitioners to conduct inquiry and solve problems by developing creative, innovative and sustainable solutions. Providing real life experiences and lessons, e.g., by involving students to actually solve a scientific, technological, engineering, or mathematical, or Arts problem, would probably spark their interest in a STEAM career path.

Developing STEAM partnerships with external stakeholders e.g., higher education institutions, private sector, research and development institutions, and volunteer and community development organizations can enhance students' learning and application of STEAM problem-solving principles and skills.

1. Participatory Learning
2. Group-Based Learning
3. Task Oriented Learning
4. Action Learning
5. Experiential Learning
6. Modeling
7. Simulation

STEAM learning strategies

Teachers should include in their lesson plans STEAM learning activities. These activities should be aligned to principle or a skill planned for students to learn and demonstrate proficiency at the end of the lesson to expose students to STEAM and giving them opportunities to explore STEAM-related concepts, they will develop a passion for it and, hopefully, pursue a job in a STEAM field. Providing real life experiences and lessons, e.g., by involving students to actually solve a scientific, technological, engineering, or mathematical, or arts problem, would probably spark their interest in a STEAM career path. This is the theory behind STEAM education.

STEAM-based assessment

STEAM-based assessment is closely linked to standards-based assessment where assessment is used to assess students' level of competency or proficiency of a specific knowledge, skill, value, or attitude taught using a set of performance standards (indicators or descriptors). The link also includes the main components such as the purpose, the assessment principles and assessment strategies and tools.

In STEAM-based assessment, assessments are designed for what students should know and be able to do. In STEAM learning students are assessed in a variety of ways including portfolios, project/problem-based assessments, backwards design, authentic assessments, or other student-centered approaches.

When planning and designing the assessment, teachers should consider the authenticity of the assessment by designing an assessment that relates to a real world task or discipline specific attributes (such as simulation, role play, placement assessment, live projects, debates) which should make the activity meaningful to the students, and therefore be motivating as well as developing employability skills and discipline specific attributes.

Effective STEAM-based assessment strategies

The following sections describe six assessment tools and strategies shown to impact teaching and learning as well as help teachers foster a 21st century learning environment in their classrooms:

1. Rubrics
2. Performance-Based Assessments (PBAs)
3. Portfolios
4. Student self-assessment
5. Peer-assessment
6. Student Response Systems (SRS).

Although the list does not include all innovative assessment strategies, it includes what we think are the most common strategies, and ones that may be particularly relevant to the educational context of developing countries in this 21st century. Many of the assessment strategies currently in use fit under one or more of the categories discussed. Furthermore, it is important to note that these strategies also connect in a variety of ways.

1. Rubrics

Rubrics are both a tool to measure students' knowledge and ability as well as an assessment strategy. A rubric allows teachers to measure certain skills and abilities not measurable by standardized testing systems that assess discrete knowledge at a fixed moment in time. Rubrics are also frequently used as part of other assessment strategies (portfolios, performances, projects, peer-review and self-assessment). They will be discussed in those sections as well.

2. Performance-Based Assessments

Performance-Based Assessments (PBA), also known as project-based or authentic assessments, are generally used as a summative evaluation strategy to capture not only what students know about a topic, but if they have the skills to apply that knowledge in a “real-world” situation. By asking them to create an end product, PBA pushes students to synthesize their knowledge and apply their skills to a potentially unfamiliar set of circumstances that is likely to occur beyond the confines of a controlled classroom setting.

The implementation of performance-based assessment strategies can also impact other instructional strategies in the classroom.

3. Portfolio Assessment

Portfolios are a collection of student work gathered over time that is primarily used as a summative evaluation method. The most salient characteristic of the portfolio assessment is that rather than being a snapshot of a student's knowledge at one point in time (like a single standardized test), it highlights student effort, development, and achievement over a period of time; portfolios measure a student's ability to apply knowledge rather than simply regurgitate. They are considered both student-centered and authentic assessments of learning.

4. Self-assessment

While the previous assessment tools and strategies listed in this report generally function as summative approaches, self-assessment is generally viewed as a formative strategy, rather than one used to determine a student's final grade. Its main purpose is for students to identify their own strengths and weaknesses and to work to make improvements to meet specific criteria. Self-assessment occurs when students judge their own work to improve performance as they identify discrepancies between current and desired performance. In this way, self-assessment aligns well with standards-based education because it provides clear targets and specific criteria against which students or teachers can measure learning.

Self-assessment is used to promote self-regulation, to help students reflect on their progress and to inform revisions and improvements on a project or paper. In order for self-assessment to be truly effective four conditions must be in place: the self-assessment criteria is negotiated between teachers and students, students are taught how to apply the criteria, students receive feedback on their self-assessments and teachers help students use assessment data to develop an action plan.

5. Peer assessment

Peer assessment, much like self-assessment, is a formative assessment strategy that gives students a key role in evaluating learning. Peer assessment approaches can vary greatly but, essentially, it is a process for learners to consider and give feedback to other learners about the quality or value of their work. Peer assessments can be used for a variety of products like papers, presentations, projects, or other skilled behaviours. Peer assessment is understood as more than only a grading procedure and is also envisioned as teaching strategy since engaging in the process develops both the assessor and assessee's skills and knowledge.

The primary goal for using peer assessment is to provide feedback to learners. This strategy may be particularly relevant in classrooms with many students per teacher since student time will be more plentiful than teacher time. Although any single student's feedback may not be rich or in-depth as teacher's feedback, the research suggests that peer assessment can improve learning.

6. Student Response System

Student response system(SRS), also known as classroom response system (CRS) or audience response system (ARS) is a general term that refers to a variety of technology-based formative assessment tools that can be used to gather student-level data instantly in the classroom through the combination of hardware, (voice recorders, PC, internet connection, projector and screen) and software.

Teachers can ask students a wide range of questions (both closed and open ended), where students can respond quickly and anonymously, and the teacher can display the data immediately on graphs. The use of technology also includes a use of video which examines how a range of strategies can be used to assess students' understanding.

The value of SRS comes from teachers analyzing information quickly and then devising real-time instructional solutions to maximize student learning. This includes a suggested approach to help teachers and trainers assess learning.

Curriculum Integration

What is Curriculum Integration?

Curriculum integration is making connections in learning across the curriculum. The ultimate aim of curriculum integration is to act as a bridge to increase students' achievement and engage in relevant curriculum (*Susan M. Drake and Rebecca C. Burns 2008*).

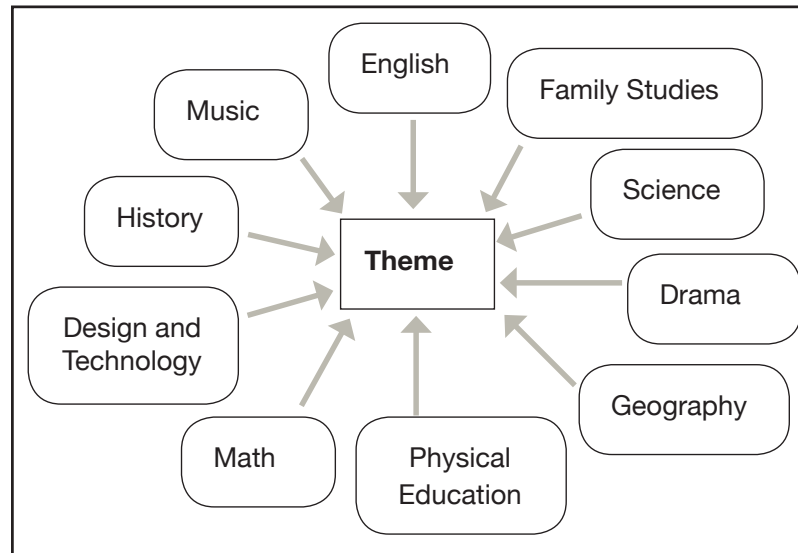
Teachers must develop intriguing curriculum by going beyond the traditional teaching of content based or fragmented teaching to one who is knowledge based and who should be perceived as a 21st century innovative educator. Curriculum integration is a holistic approach to learning thus curriculum integration in PNG SBC will have to equip students with the essential knowledge, skills, values and attitudes that are deemed 21st century.

There are three approaches that PNG SBC will engage to foster conducive learning for all its children whereby they all can demonstrate proficiency at any point of exit. Adapting these approaches will have an immense impact on the lives of these children thus they can be able to see themselves as catalyst of change for a competitive PNG. Not only that but they will be comparable to the world standards and as global citizens.

Engaging these three approaches in our curriculum will surely sharpen the knowledge and ability of each child who will foresee themselves as assets through their achievements and thus contribute meaningfully to their country. They themselves are the agents of change. Integrated learning will bear forth a generation of knowledge based populace who can solve problems and make proper decisions based on evidence. Thus, PNG can achieve its goals like the Medium Term Development Goals (MTDG) and aims such as the Vision 2050 for a happy, healthy and wealthy society whereby, all its citizens should have access to and fair distribution to income, shelter, health, education and general goods and services thus improving the general standard of living for PNG in the long run.

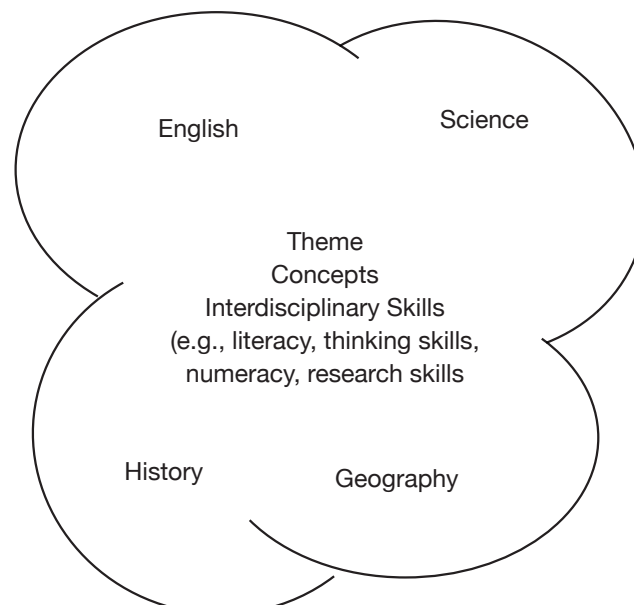
1. Multidisciplinary approach

In this approach, learning involves a theme or concept that will be taught right across all subject areas of study by students. That is, content of a particular theme will be taught right across all subjects as shown in the diagram below. For instance, if the theme is global warming, subject areas create lessons or assessment as per their subjects around this theme. Social Science will address this issue and Science and all other subject will do likewise.



2. Interdisciplinary approach

This approach addresses learning similarly to the multidisciplinary approach of integrated learning whereby learning takes place within the subject area. However, it is termed interdisciplinary in that the core curriculum of learning is interwoven into each subject under study by the students. For instance; in Social Science geography strand, students write essay on internal migration however, apart from addressing the issues of this topic, they are to apply the skill of writing text types in their essay, such as; argumentative, informative, explanatory, descriptive, expository and narrative essay. They must be able to capture the mechanics of English skills such as grammar, punctuation and so forth.



Though these skills are studied under English, they are considered as core skills that cut across all subjects. For example; if Science students were to write about human development in biology, then the application of writing skills has to be captured by the students in their writing. It is not seen as an English skill but a standard essential skill all students must know and do regardless.

Therefore, essential knowledge, skills, values and attitudes comprising the core curriculum are interwoven and provide an essential and holistic framework for preparing all students for careers, higher education and citizenship in this learning.

3. Intra-disciplinary approach

This approach involves teachers integrating sub disciplines within a subject area. For instance, within the subject Social Science, the strands (disciplines) of geography, environment, history and political science will all be captured studying a particular content for Social Science. For example, under global warming, students will study the geographical aspects of global warming, environmental aspect of global warming and likewise for history, political science and economics. Thus, children are well aware of the issues surrounding global warming and can address it confidently at each level of learning.

4. Trans-disciplinary approach

In this approach, learning goes beyond the subject area of study. Learning is organized around students' questions and concerns. That is, where there is a need for change to improve lives, students develop their own curriculum to effect this need.

The trans-disciplinary approach addresses real-life situations thus giving the opportunity to students to attain real life skills. This learning approach is more to do with Project-Based Learning which is also referred to as problem-based learning or place-based learning.

The three steps to planning project based curriculum (*Chard 1998*).

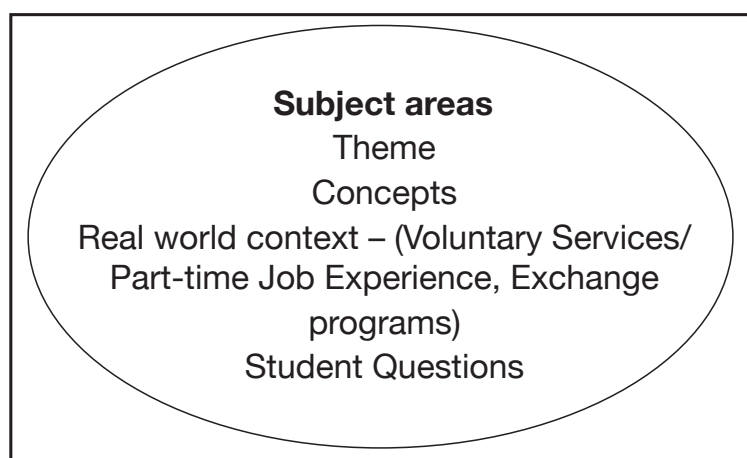
1. Teachers and students select a topic of study based on student interests, curriculum standards, and local resources
2. The teacher finds out what the students already know and helps them generate questions to explore. The teacher also provides resources for students and opportunities to work in the field
3. Students share their work with others in a culminating activity. Students display the results of their exploration and review and evaluate the project.

For instance; students may come up with slogans for school programs such as 'Our culture – clean city for a healthier PNG'. The main aim could be to curb betel nut chewing in public areas especially around bus stops and local markets. Here, students draw up their own instructions and criteria for assessment which is; they have to clean the nearest bus stop or local market once a week throughout the year. They also design and create posters to educate the general public as their program continues. They can also involve the town council and media to assist them especially to carry out awareness.

Studies (Susan M. Drake and Rebecca C. Burns 2008). have proven that Project based-programs have led to the following:

- Students go far beyond the minimum effort
- Make connections among different subject areas to answer open-ended questions
- Retain what they have learnt
- Apply learning to real-life problems
- Have fewer discipline problems
- Lower absenteeism (Curtis, 2002)

These integrated learning approaches will demand for teaches to be proactive in order to improve students learning and achievements. In order for PNG Standards-Based Curriculum to serve its purpose fully, these three approaches must be engaged for better learning for the children of Papua New Guinea now and in the future.



Essential Knowledge, Skills, Values, and Attitudes

Students' level of proficiency and progression towards the attainment of content standards will depend on their mastery and application of essential knowledge, skills, values, and attitudes in real life or related situations.

Social Science has 5 broad areas (strands) which contain essential knowledge captured in the national content standards and benchmarks. Knowledge is 'what students must know and understand' in Social Science. The fundamental concepts in Social Science are outlined below.

Geography

- The examination, description, and explanation of the earth - its variability from place to place, how places and features change over time, and the processes responsible for these variations and changes.
- Human geography (population, migration,)

History

- Historical roots and how past events have shaped Papua New Guinea and the world.
- Reconstructing and interpreting historical events

Political Science

- Political ideologies and systems (power, authority, governance and functions of different political systems)

Economics

- The concept of scarcity (limited resources & unlimited needs & wants)
- Satisfying needs and wants
- Decision making

Environment

- Physical systems and processes of the environment
- Relationship between people and the environment
- Impact of the exploitation of the natural environment
- Good stewards of the environment

Social Science requires 'inquiry-based learning'. The inquiry-based learning 'is an approach that emphasises the role of the student in the learning process, rather than the teacher telling the students what they need to know. It encourages the students to explore a topic, ask questions and share ideas. Therefore, the skills outlined here are essential for 'inquiry-based learning'.

Research Skills

- Access information
- Organise information
- Evaluate sources
- Use information
- Align solution with task
- Cite all sources accurately

Collaborating Skills

Working effectively with peers, listen and share ideas and compromise to create good products

- Show independent initiative
- Assume shared responsibility
- Assist others in their roles
- Contribute ideas
- Keep an open mind
- Apply strategies
- Take a variety of roles
- Tolerate different view points

Critical Thinking

Create products that demonstrate abilities to justify arguments, asking questions, analyse complex systems, evaluate evidence, draw conclusions, reflect on learning and explain how to solve problems

Creative and Innovative Skills

- Think creatively
- Generate ideas
- Work creatively with others
- Implement innovations

Communicating Skills

- Ability to listen, read, write, present, comprehend, share and express ideas and thoughts between different audiences and use multiple forms of media

Thinking is problem-solving. Critical thinking is motivated by a problem. Teachers are advised to raise the level of higher thinking skills for the students.

The 'inquiry-based learning' is a process where students are engaged in;

1. Identify the problem
2. Develop an action plan
3. Research/gather/collect data
4. Analyse/organise data and form conclusions
5. Report the results/presentation

Moreover, Social Science is driven by values. These values and attitudes must be emphasised and reinforced in the teaching and learning process.

Values & Attitudes

- Curiosity
- Initiative
- Adaptability
- Leadership
- Collaboration & teamwork
- Participation
- Passion for exploring & learning
- Appreciation of the awesomeness of nature, events, people etc
- Being patriotic and responsible
- Show consideration
- Respect the environment and people
- Embrace diversity
- Maintain positive values

Teaching and Learning Strategies

Social Science emphasises and embraces the use of cognitive, reasoning, decision-making, problem-solving and higher-level thinking skills to teach to enhance students' understanding of inter-disciplinary concepts and issues in relation to environment, geography, history, politics and economic within PNG and globally. It aims to provide a meaningful pedagogical framework for teaching and learning essential and in-demand knowledge, skills, values, and attitudes that are required for the preparation of students for careers, higher education and citizenship in the 21st century.

Students must be prepared to gather and understand information, analyse issues critically, learn independently or collaboratively, organize and communicate information, draw and justify conclusions, create new knowledge, and act ethically.

These teaching and learning strategies will help teachers to;

- familiarize themselves with different methods of teaching in the classroom
- develop an understanding of the role of a teacher for application of various methods in the classroom

Successful teachers always keep in view that teaching must “be dynamic, challenging and in accordance with the learner’s comprehension. He/she does not depend on any single method for making his/her teaching interesting, inspirational and effective”.

Please find a list of the different teaching and learning strategies in Appendix 3. page 135.

These strategies;

- make learning more engaging
- make learning more effective
- make learning fun
- encourage higher motivational level
- improve attention spans
- develop higher order thinking and reflective skills
- improve communication skills
- develop the spirit of teamwork/collaboration
- develop leadership skills and qualities
- encourage discovery learning

Therefore, teachers are encouraged to utilise the suggested strategies as well as others.

Units and Topics

This section of the teacher guide contains the Social Science – Economics content to be taught in grade 12. It consists of;

- units
- topics

Economics in grade 12 has five (5) units and they are;

1. Factors of Production and Consumption
2. Methods of Production and Distribution
3. Regulation of Production, Distribution and Consumption
4. Satisfying Needs and Wants
5. Economic Ideologies

The table below outlines the units and topics of Economics in grade 12 to be taught in an academic year. This will guide teachers to plan and teach the Economics strand in grade 12.

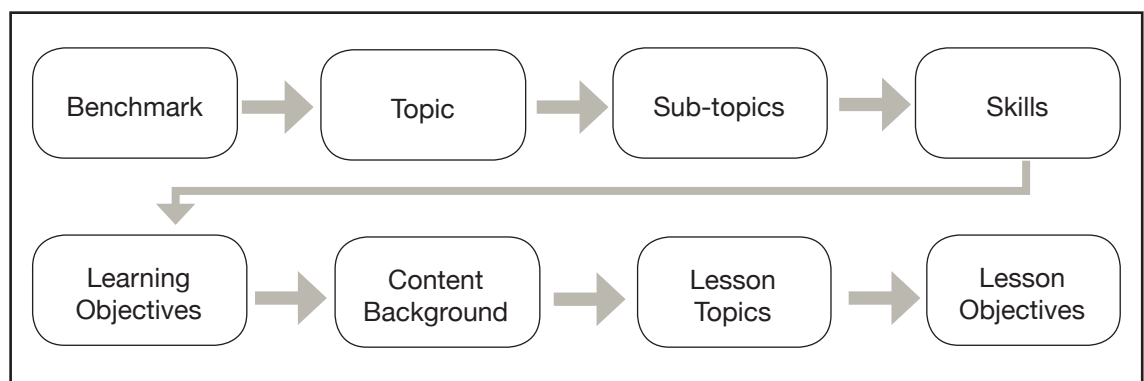
Units	Topics
Factors of Production and Consumption	Topic 1: Economic resources Topic 2: Use of natural and capital resources Topic 3: Use of natural and capital resources through time Topic 4: Theories of natural and capital resources Topic 5: Boosting capital and natural resources Topic 6: Transformation of communities and nations
Methods of Production and Distribution	Topic 1: Specialisation and production Topic 2: Factors manipulating international trade Topic 3: Market structures Topic 4: Demand and supply analysis Topic 5: Elasticity of demand and supply Topic 6: Sales tax and subsidy
Regulation of Production and Distribution	Topic 1: Global Economic Institutions Topic 2: Regulatory roles of economic institutions Topic 3: Role of international Labour Organisation (ILO) Topic 4: Role of Major Economic Institutions in Fostering Economic Relations
Satisfying Needs and Wants	Topic 1: International trade relations Topic 2: Effects of International Trade Relations on Production and distribution Topic 3: Effects of Trade Relations on Trading between countries Topic 4: Economic assistance Topic 5: Aid models Topic 6: Reasons for Aid Assistance
Economic Ideologies	Topic 1: Socialist ideology on Production, Distribution and Consumption Topic 2: Control of Production and Distribution under socialist system Topic 3: Strengths and weaknesses of socialist system Topic 4: Operations of financial institutions in a socialist system Topic 5: Influence of socialism on exchange between government and people Topic 6: Actions of producers and consumers in a socialist economy Topic 7: Operations of private enterprises in a socialist economy

How were the topics developed?

The topics given in the table were derived from the benchmarks. That is, National content standards are benchmarked at each grade level, which allows for essential KSAVs to be reinforced and expanded throughout the grades. Benchmarks show grade level expectations of what students are able to do to demonstrate that they are making progress towards attaining the content standard. These grade-level benchmarks were then unpacked to identify the topics. From the topics, teachers should be able to develop sub-topics and learning objectives and of course the lesson topics and lessons objectives to be achieved per lesson.

When we unpack a benchmark, we are identifying what students will know and be able to do when they have mastered the benchmark.

1. Write out the benchmark.
2. Write the verbs (skills/actions) – Higher order thinking skills.
3. Underline or highlight the big idea (content) in the benchmark. The big idea (content) is the topic derived from the benchmark.
4. Develop sub-topics from the big idea (topic).
5. Write learning objectives according to the sub-topics.
6. Derive lesson topics from the learning objectives.



Unit of work

The unit of work outlines the topics, sub-topics and the learning objectives for each of the five (5) units in Economics, derived from the content standard and the benchmarks. It basically presents what the teacher is expected to teach. Teachers are advised to use the learning objectives to create lesson topics and lesson objectives in preparing lessons. Brief content background of each topic is provided to support teacher's lesson preparation.

Unit 1: Factors of Production and Consumption

Content Standard 4.1: Students will be able to analyse and identify different factors that influence and contribute to the production, distribution and consumption of goods and services.

Benchmark 12.4.1.1: Identify and distinguish natural and capital resources and justify their importance in the production and distribution of resources.

Topic 1: Economic resources

Sub-topics:

- Natural resources
- Capital resources
- Importance of economic resources

Skills: Critical thinking - Understanding (identify), analysing (distinguish) natural and capital resources.

Learning Objectives: By the end of the topic, students will be able to:

- Identify natural and capital resources.
- Analyse and explain the importance of natural and capital resources in the production and distribution of resources.

Content Background

This topic requires the students to develop an understanding of resources classifications and their importance to deriving goods and services out of them. In conjunction to this, are the factors of production and how these factors enable production, distribution and consumption of goods and services. They are also known as economics resources and is composed of both natural and human factors. These factors can be categorised into four main factors as *land, labour, capital and entrepreneurship*.

Resources: A resource is any item scarce or otherwise, that is able to satisfy needs and wants. It can broadly be classified into natural and manmade resources.

Natural resources: Resources that is are available in nature and that is are found on the land, inside the ground, in the air and under the waters/seas.

Manmade resources: These are items that are made my humans either for consumption purposes or to be used in the production of other goods and services. These can be categorised into capital goods and services and consumer goods and services.

Importance of resources: The production of goods and services for individuals, organisations and the economy requires use of resources. Without resources is like having been crash landed in the middle of a desert awaiting your fate to be decided by the sand dunes.

Factors of production: These are the movers of the economy. There can be abundance of resource availability but without these factors they cannot be resources. They are sometimes called the economic resources. These are things or items that are put together to make production, distribution and consumption conceivable. In other words, they are the inputs that are used to create things or help to provide services.

The four main factors of production are:

1. Land: Resources on the land, in the ground, waters and in the air
2. Labour: Human input into production process
3. Capital: Tools, machinery, buildings, etc. used in the production process.
4. Entrepreneurs: Knowledge and skills applied in organising and managing the production, distribution and consumption processes.

Added areas for teacher and students to expand on:

1. Examples of natural and manmade resources
2. Classification of capital goods.
3. Rewards to factors of production

Suggested Resources

1. Bandara, P. (2013). *Economics for Grade 11&12*. 94/1 Arthurugiriya Road, Kottawa, Sri Lanka: Sara Publications.
2. Mickleburgh, A. (1992). *Economics for Developing Nation (Vol. Book 1)*. Level 9 5 Queens Road Melbourne 3004 Australia: Pearson Education Australia.
3. Shade E.D, C.G.Latty and P.M. Scott, (1989), *Fundamentals of Economics* (3rd.ed.Vol 1) McGraw, Hill Book Company, Australia.
4. Other appropriate resources

Benchmark 12.4.1.2: Explain how natural and capital resources have been used to increase production, and improve the distribution of resources.

Topic 2: Use of natural and capital resources

Sub-topics:

- Uses of natural resources to increase production and improve distribution
- Uses of capital resources to increase production and improve distribution

Skills: Critical thinking - Understanding (explain).

Learning Objectives: By the end of the topic, students will be able to:

- Explain how natural resources have been used to increase production and distribution of resources.
- Explain how capital resources have been used to increase production and distribution of resources.

Content Background

Natural resources

All things provided by nature are natural resources. Minerals, forests, soil, air space, water, oil are all natural resources. Natural resources are needed for production of all goods. This is true of even the so called synthetics, which are made by combining or breaking down of natural resources. The amount and kind of natural resources owned or available to individuals, businesses or governments is very important. It is the limiting factor availability of natural resources that determines the level of production, distribution and consumption of goods and services in an economy.

The production of goods and services can be likened to the making of a cake. The resources resemble the ingredients which are brought together and the technology or know how, is used together to process the resources in a certain way until a cake is finally made and distributed to the consumer. Thus increase in availability of natural resources gives rise to increase in production input and output.

Capital resources refers to the equipment or machine or tool that has been produced for the purpose of making goods or providing services. A simple item like a needle is just as much as a giant blast furnace in a steel mill or even the steel mill itself. Other examples includes, a chain saw, fishing net, drills, artist paint brush, etc. Money is not really a capital resource because by itself, it is not capable of producing goods. The term financial capital is sometimes given to things that will be used to buy certain capital goods. Thus increase in availability of capital resources gives rise to increase in production input and output.

Suggested Resources

1. Bandara, P. (2013). *Economics for Grade 11& 12*. 94/1 Arthurugiriya Road, Kottawa, Sri Lanka: Sara Publications.
2. Mickleburgh, A. (1992). *Economics for Developing Nation* (Vol. Book 1). Level 9 5 Queens Road Melbourne 3004 Australia: Pearson Education Australia.
3. Shade E.D, C.G.Latty and P.M. Scott, (1989), *Fundamentals of Economics* (3rd.ed.Vol 1) McGraw, Hill Book Company, Australia.
4. Other appropriate resources

Benchmark 12.4.1.3: Critically evaluate and Identify different ways human labour were used in many different societies to, produce goods and services, to satisfy the needs and wants of governments and its people.

Topic 3: Use of natural and capital resources through time

Sub-topics:

- Natural resources in the traditional society
- Natural resources in the colonial era
- Natural resources during the era of
- Capital resources in the traditional society
- Capital resources in the colonial era
- Capital resources during the era of slavery

Skills: Critical thinking - Understanding (identify), Analysing (analyse).

Learning Objectives: By the end of the topic, students will be able to:

- Identify and describe ways natural resources were used in the traditional society to satisfy needs and wants of people.
- Investigate and explain ways natural resources were used in the colonial era to extract, produce and distribute resources to satisfy needs and wants of people and the government.
- Examine how natural resources were used during the era of slavery to satisfy needs and wants of people and the government.
- Explain how capital resources were used in the traditional society to extract, produce and distribute resources to satisfy needs and wants of people and the government.
- Examine and describe the ways capital resources were used in the colonial era to satisfy needs and wants of people and the government.
- Identify and explain ways capital resources were used during the era of slavery to satisfy needs and wants of people and the government.

Content Background

Uses of natural resources in traditional societies

As defined, natural resources are things or items that are available in nature or provided for by nature, for example, a coconut tree. The usage or how it is being utilised as a resource differs from society to society in accordance to the varying needs of people. In this context, the teacher and the students guided by the community within which the school is situated should do the following to develop the understanding and appreciate the knowledge of changing resources use over time.

- i. Identify one or two commonly used natural resources
- ii. List and discuss the traditional usage and importance that the resource played in the traditional economy of the area/or society (can be PNG as a whole or any particular region or community within a locality).
- iii. List and discuss how the resource was utilised (or the changing circumstances of its usage) with the onset of outside world influences, particularly the colonial administration and the interventions of the cash economy in the subsistence economy.

- iv. Also list and discuss any natural resources that were there but done away with or those that were not a resource in the past but were introduced and turned into useful resources by the outside influence intrusion (colonial and cash economy development).

Uses of capital resources in traditional societies

As defined, capital resources are things or items that are manmade to assist in further production or production of other goods, for example, a stone axe. The usage or how it was being utilised as a resource differs from society to society in accordance to the varying needs of people. In this context, the teacher and the students guided by the community within which the school is situated should do the following to develop the understanding and appreciate the knowledge of changing resources use over time.

- i. Identify one or two commonly used capital resources.
- ii. List and discuss the traditional usage and importance that the resource played in the traditional economy of the area/or society (can be PNG as a whole or any particular region or community within a locality).
- iii. List and discuss how the resource was utilised (or the changing circumstances its usage) with the onset of outside world influences, particularly the colonial administration and the interventions of the cash economy in the subsistence economy.
- iv. Also list and discuss any capital resources that were there but done away with or those that were not a resource in the past but were introduced and turned into useful resources by the outside influence intrusion (colonial and cash economy development).

Suggested Resources

1. Bandara, P. (2013). *Economics for Grade 11& 12*. 94/1 Arthurugiriya Road, Kottawa, Sri Lanka: Sara Publications.
2. Mickleburgh, A. (1992). *Economics for Developing Nation* (Vol. Book 1). Level 9 5 Queens Road Melbourne 3004 Australia: Pearson Education Australia.
3. Other appropriate resources

Benchmark 12.4.1.4: Investigate and analyse different natural and capital resource theories and evaluate their relevance and applicability to resource production and distribution.

Topic 4: Theories of natural and capital resources

Sub-topics:

- Resource theories
- Relevance of resource theories to production and distribution
- Application of resource theories to production and distribution

Skills: Analysing (investigate, analyse).

Learning Objectives: By the end of the topic, students will be able to:

- Examine resource theories.
- Evaluate the relevance of resource theories to production and distribution.
- Evaluate the application of resource theories to production and distribution.

Content Background

Conservation of Resources Theory

Conservation of Resources (COR) Theory is a stress theory that describes the motivation that drives humans to both maintain their current resources and to pursue new resources. This theory was proposed by Dr. Stevan E. Hobfoll in 1989 as a way to expand on the literature of stress as a construct.

Hobfoll posited that psychological stress occurred in three instances; when there was a threat of a loss of resources, an actual net loss of resources, and a lack of gained resources following the spending of resources. From this perspective, resources are defined as things that one values, specifically objects, states, and conditions. COR states that loss of these types of resources will drive individuals into certain levels of stress.

(Source: Wikipedia, the free encyclopedia)

History of stress theory

COR was developed from various theories on the cause of stress. COR development branches back to Walter Bradford Cannon(1932) who was one of the first researchers to study the concept of stress as it applies to humans, specifically in how stress can be withstood. Hans Selye (1950) took on Cannon's research on stress as a response and indicated that stress itself was designed as a way to protect the body from environmental challenges.

Other researchers such as Elliot and Eisdorfer (1982) defined stress as specifically being the stimulus and not the response, which had been accepted by some of the scientific community.[5] However, this theory is largely based on the homeostatic model of stress developed by Joseph McGrath (1970). It is in this theory that stress is defined as an imbalance between the environmental demand and the response capability of an organism.

Basic Principles of COR

COR covers two basic principles involving the protection of resources from being lost. The first principle is called the Primacy of Resource Loss. This principle states that it is more harmful for individuals to lose resources compared to when there is a gain of resources. What this means, is that a loss of pay will be more harmful than the same gain in pay would have been helpful. The second principle is known as Resource Investment. This principle of COR states that people will tend to invest resources in order to protect against resource loss, to recover from losses, and to gain resources. Within the context of coping, people will invest resources to prevent future resource losses. From these two principles, COR has suggested a number of corollaries that can be applied to resource changes. They are as follows:

1. Individuals with higher resources will be set up for gains in resources. Similarly, individuals with fewer resources are more likely to experience resource losses.
2. Initial resource loss will lead to resource loss in the future.
3. Initial resource gains will lead to resource gains in the future.
4. A lack of resources will invariably lead to defensive attempts to conserve the remaining resources.

Suggested Resources

1. Wikipedia, the free encyclopedia
2. www.oecd.com
3. youtube.com.conservation theory

Benchmark 12.4.1.5: Identify and examine different ways in which natural and capital resources can be improved to boost the production and distribution of resources.

Topic 5: Boosting capital and natural resources

Sub-topics:

- Ways of improving natural resources to increase production and distribution
- Ways of improving capital resources to increase production and distribution

Skills: Critical thinking - Understanding (identify), Analyse (examine).

Learning Objectives: By the end of the topic, students will be able to:

- Identify ways of improving natural resources to increase production and distribution.
- Examine ways of improving natural resources to increase production and distribution.
- Identify ways of improving capital resources to increase production and distribution.
- Examine ways of improving capital resources to increase production and distribution.

Content Background

Resources can contribute to development only when they are accompanied by appropriate technological development and institutional changes. The technology available in a particular industry or economy allows firms to use labor and capital more or less efficiently.

There is need for quality of human resources i.e. skilled workers who can convert natural resources into more useable forms. Workers in an organisation are up skilled through education and training programs that enhance the skills and knowledge of workers and managers ('human capital').

Nature contains resources. These resources are converted into usable form with the help of technology. Human beings interact with nature through technology, and create institutions to accelerate their economic development. Some very viable options on how to manage our resources;

1. The 3R concept of:
 - Reduce e.g. walk short distance rather than using a car.
 - Reuse e.g. use back of rough papers for personal work.
 - Recycle e.g. reprocess materials like glass & cans.
2. Use of right policy by the government which includes;
 - Decouple material consumption for economic growth
 - Maximise waste management efforts
 - Sustainable practices in resource use
 - Government to encourage waste and abuse charges on resources use, environment damages
 - Support longer product life span

- Support legal minimum product warranty period.
- Provide incentives for local firms and organisations

(Source: www.oecd.org)

The effectiveness of national efforts to improve productivity depends largely on government policies in areas such as; (Prokopenko, 1987.)

- Education and training
- National mechanisms for promoting institutional productivity
- Productivity campaigns
- Labour management relations and the productivity movement

Suggested Resources

1. Garry. Banks. (2015). *Institutions to promote pro-productivity policies: logic and lessons*. Paris, OECD Publishing. Retrieved from: <https://www.oecd.org/>
2. Joseph Prokopenko. (1987). *Productivity management: A practical handbook*. Geneva. International Labour Office. Retrieved from: <http://www.nzdl.org/>

Benchmark 12.4.1.6: Examine the important role that natural and capital resources play in the development and the transformation of communities and nations.

Topic 5: Development and transformation of communities and nations

Sub-topics:

- Roles of natural resources in the development and transformation of communities and nations.
- Roles of capital resources in the development and transformation of communities and nations.

Skills: Critical thinking - Analysing (examine).

Learning Objectives: By the end of the topic, students will be able to:

- Identify and examine the role of natural resources in the development and transformation of communities and nations.
- Examine the role of capital resources in the development and transformation of communities and nations.

Content Background

Natural resources, both renewable and non-renewable, and ecosystem services are a part of the real wealth of nations. Governments play essential role in constructing policies that ensure that resources contribute to the long-term economic development of communities and nations.

Many countries have seen significant rises in revenues from natural resources due to the rise in commodity prices. Natural resources such as oil, gas, minerals and timber are expected to continue to play a significant role in resource abundant economies (OECD, 2011).

Many governments have utilised the revenue from the natural resources for infrastructural developments and provide basic services for the people. There is an increase in economic activities; create more jobs, increased income which finally leads to better living standards.

Natural resources are a source of income for the local people who are engaged in small scale businesses. They have developed their local communities in small ways like, setting up a wet coffee factory, a supermarket or even an adult literacy school. In one way or another, they have developed their communities and look forward to better living standards.

PNG as a developing nation has gone through many rapid changes both socially and economically from the arrival of the primitive man some 50 000 years ago to independence in 1975. During this period and to this time, tremendous transformation that had taken place both socially and economically. This topic is centred on resource development and the trickledown effects of these developments to impacted areas and the nation as a whole. There has been and is still continuing to be more discoveries and development of particularly natural resources in many parts of PNG. Common one are: Minerals, oil and gas, fisheries, forestry, Copra, cocoa, coffee, vanilla,

rubber, many livestock and agricultural produce. The discussion may also lead to set up of factories and other secondary productions in the country. However, one thing for sure is that the economic development and transformation of PNG is based on natural resources including the use of the land itself. This can be better understood by the teacher and students through the use of a case study. Teacher to use professional judgement particularly based on information availability and local knowledge.

Key areas of focus

Select a natural resource development site [lands use, agriculture, forestry, mining, oil drill, etc.] State traditional subsistence use of the natural resource selected. How big is the scale of operation?

Microeconomic impacts of the natural resource development

List and discuss some of the notable changes that has been brought to the local community [Economic and social transformations in the society]

Macroeconomic impacts of the natural resource development

List and discuss the contributions of the resources development to the national economy in terms of: employment, tax revenue, GDP, infrastructure, market exposure, investment, capital accumulation and technology and skills transfer. Sustainability: Is this the development sustainable? What should be done to maintain its sustainability or consequent action should it be an unsustainable development, particularly with respect to the developments that are based on non-renewable natural resources.

Role of capital resources in development and transformation of communities and nations

Capital as defined is the produced means of production. It consists of any productive resources which have been obtained as a result of previous productive efforts. Included in capital are machinery, factories, irrigation works, higher education and technological research.

People have been creating capital ever since they decided to forego some current consumption in order to increase productive capacity. For economic transformation to occur, there must be capital creation and accumulation. A primitive producer who takes time off from fishing by hand to fashion out a rough hook and line, the farmer who saves some seeds for planting in next round of crops growing, and the modern industrialist who retains some income to buy a new machine instead of a new car for personal use, are all creating capital. Increased capital stock [capital deepening] leads to increase in productivity, output, earnings, consumption and savings.

The increasing use of capital in production and distribution also paves way for improvements in living standards, infrastructural developments and other social service sectors gives rise to transformation of communities.

In PNG, with the introduction of the cash economy and the discovery and extraction of natural resources had paved way for use of greater capital both directly by the resource developers and the trickledown entrepreneurs who may be subsidiaries business or spring off businesses. Thus from those earned

and saved and borrowings from the saved income of others for economic or business ventures had lead led to changes in living standards and general changes in the societies.

Teacher and students are encouraged to discuss how capital resources have contributed to development and transformation in their local communities socially and economically.

Suggested Resources

1. Edward B. Barbier. (2005). *Natural resources and economic development*. New York, USA. Cambridge University Press. Retrieved from: <https://books.google.com.pg/>
2. OEDC. (2011). *The economic significance of natural resources*. Parish: OEDC Publishing. Retrieved from: <https://books.google.com.pg/>

Unit 2: Methods of Production and Distribution

Content Standard 4.2: Students will be able to analyze and explain the methods, processes, and the means of production and the distribution of goods and services.

Benchmark 12.4.2.1: Explore the relationship between specialization, cost of production and the subsequent impact on production and consumption in trade.

Topic 1: Specialisation in production

Sub-topics:

- Specialisation
- Relationship between specialisation and cost of production
- Impact of specialisation on production and consumption

Skills: Critical thinking - Analysing (explore).

Learning Objectives: By the end of the topic, students will be able to:

- Explain the development of specialisation.
- Identify the advantages and disadvantages of specialisation.
- Examine the relationship between specialisation and the cost of production.
- Analyse the impact of specialisation on production and consumption.

Content Background

Specialisation

Specialisation is when we concentrate on a product or task and become an expert or good at in a particular skill or subject. In economics, it happens when a person, firm or a country produce a limited range of goods or services and overtime develops a comparative cost advantage in producing these goods and services. For example, Greg can produce ice block at a lower cost than cakes; he can choose to specialize and dedicate all the resources to the production of bananas, using some of them to trade for cakes.

Moreover, there is specialisation in the type of work people do. For instance, a nurse is specialised in dealing with sick people and the medicines while a teacher is specialised in the teaching and learning of students in the classroom.

Specialisation is sometimes referred to a 'division of labour'. This occurs in organisations where complex tasks are broken down into achievable or smaller tasks for individual workers to complete in a manufacturing process. Workers specialisation is common in factories where there is mass production of goods. It happens at all levels of economic activities.

Specialisation happens at all levels

- The specialization of tasks within extended families in many of the world's poorest countries
- Within businesses and organizations
- In a country – Bangladesh is a major producer and exporter of textiles; Norway is a leading oil exporter and Ghana is one of the biggest producers of cocoa in the world.
- In a region of a country – for many years the West Midlands has been a centre for motor car assembly, there has been huge investment in recent years in the Mini plant at Oxford

What are the possible gains from specialization?

By concentrating on what people and businesses do best rather than relying on self-sufficiency the following will be gained;

- **Higher output:** Total production of goods and services is raised and quality can be improved
- **Variety;** Consumers have access to a greater variety of higher quality products
- **A bigger market:** Specialisation and global trade increase the size of the market offering opportunities for economies of scale
- **Competition and lower prices:** Increased competition acts as an incentive to minimise costs, keep prices down and therefore maintains low inflation.

Advantages and disadvantages of specialisation

Advantages	Disadvantages
Quality output	Isolation
Increased efficiency/ productivity (become very skillful)	Boring (complacency/monotonous)
Reduces the risk of making mistakes	Limits the ability to multi-task – equipped with only one skill
Saves a lot of time	Employees are rarely challenged
	Limited corporation and communication among employees

What is the relationship between specialisation and cost of production?

Specialisation reduces the cost of production. It results in economies of scale, which means a company is able to reduce the price for its goods or services because it costs less to make their goods or provide their services.

Impact of specialisation on production and consumption

The impacts of specialization on the economy are massive. Occasionally, people who specialize in a field develop new techniques or new technologies that lead to huge increases in productivity. Increased specialization ultimately leads to higher standards of living for all those involved in economic exchanges.

Suggested Resources

1. Bandara, P. (2013). *Economics for Grade 11& 12*. 94/1 Arthurugiriya Road, Kottawa, Sri Lanka: Sara Publications.
2. John.London. (2018). *Advantages and disadvantages of specialisation*. Retrieved from: <https://careertrend.com/>
3. Mickleburgh, A. (1992). *Economics for Developing Nation (Vol. Book 1)*. Level 9 5 Queens Road Melbourne 3004 Australia: Pearson Education Australia.
4. Nicky. LaMarco. (2018). *Manage your business: Management*. Retrieved from: <https://bizfluent.com/>
5. Pamela. Lewis et al. (2007). *Management: Challenges for tomorrow's leaders*. USA: Thomson Learning Inc. Retrieved from: <https://books.google.com.pg/>

Benchmark 12.4.2.2: Investigate the economic and geographical factors that prompt international trade (availability of productive resources; differences in relative prices; transaction costs; production of a good or service at a lower opportunity cost; and comparative advantage due to resource prices, and events that occur in other countries).

Topic 2: Factors manipulating international trade

Sub-topics:

- Economic factors
- Geographical factors

Skills: Critical thinking - Analysing (investigate)

Learning Objectives: By the end of the topic, students will be able to:

- Investigate and discuss the main geographical factors that prompt trade relations among countries.
- Investigate and discuss the economic factors that prompt trade relations among countries.
- Identify and develop an understanding of how the theory of comparative advantage model is used to aid decision making in production and trade.
- List and discuss how events in one country may have bearing on its trading partner or others in a global economics context.

Content Background

International trade is the exchanging of goods and services between countries. Goods and services must pass through the boundaries of two countries before international trade to occur. There are many factors that prompt international trade. These factors range from social, political, economical to geographical factors.

Exchange rates, competitiveness, growing globalization, tariffs and trade barriers, transportation costs, languages, cultures, various trade agreements affect companies by its decision to trade internationally. Political policies and other government concerns, such as the relationships between trading nations, are highly important to the growth of international trade. A politically stable nation with few policies restricting international trade will likely be able to expand its worldwide trade rapidly (*Dubravska,2014*)

However, the focus of this section is on how economic and geographic factors determine international trade.

Economic factors

- Level of economic development
- Availability of productive resources
- Foreign currency exchange rates
- Globalisation
- Government policies on imports (trade restrictions/taxes/subsidies)
- Transaction costs
- Opportunity costs

- Comparative advantage
- Absolute advantage
- Competiveness

Geographical factors

Geography and economy are closely tied together because transport makes trade with widespread areas possible. Water ways such as rivers, lakes and oceans allow for quick transit and even land features, such as oases and mountain passes, have been used to create trade routes over difficult areas.

- Differences in resources endowments
- Location and boundaries
- Climate
- Ease of transportation and communication

Suggested Resources

1. Bandara, P. (2013). *Economics for Grade 11& 12*. 94/1 Arthurugiriya Road, Kottawa, Sri Lanka: Sara Publications.
2. Frances Katz. (2018). *Factors influencing international trade*. Retrieved from: <https://bizfluent.com/>
3. Mickleburgh, A. (1992). *Economics for Developing Nation (Vol. Book 1)*. Level 9 5 Queens Road Melbourne 3004 Australia: Pearson Education Australia.
4. Mariana Dubravaska & Elena Sira. (2014). *The analysis of the factors influencing the international trade of the Slovak Republic*. Presov. Presov University. Retrieved from: <https://pdf.sciencedirectassets.com/>

Benchmark 12.4.2.3: Justify why markets are created with respect to supply and demand and price.

Topic 3: Market structures

Sub-topics:

- Market definition
- Price mechanism
- Market structures

Skills: Critical thinking - Evaluating (justify).

Learning Objectives: By the end of the topic, students will be able to:

- Define a market.
- Define price mechanism.
- Investigate and discuss the features of each market structure.
- Identify and discuss PNG examples of firms that operate under each of the market structure.
- Investigate and discuss how exchange of goods and services occur in each market structures.

Content Background

What is a market?

A market is a place where producers [sellers] and consumers [buyers] meet and exchange goods for money. This is or was the traditional definition of a market. However with changing time and the complexity of the changing nature of people's actions and aligned with the growth and expansion of the global economies, this definition can now be reworded as *“any transactions that are involved in exchange of goods and services for money”*.

Price mechanism

Usually markets are driven by price mechanism. That is, the force of demand and supply which determines the type of markets in an economy. Supply and demand are the forces that make the market economies work. They determine the quantity of each good produced and the price at which it is sold.

Though many transactions are occurring, all can be categorised into a perfect market or an imperfect market.

Market structures

Perfect market is a theoretical market characterised by: many buyers and sellers, perfect knowledge of the market, well established communication system, there is consumer sovereignty, all goods are bought and sold, homogenous products sold and all firms earn a normal profit.

In reality, there is no perfect market. Most businesses operate under imperfect competition or market structures.

The common imperfect market structures are:

1. Monopolistic competition
2. monopoly
3. Duopoly
4. Oligopoly
5. Monopsony

Type of market	Characteristics
Monopolistic competition	<ul style="list-style-type: none"> - Large number of small firms competing against each other - Sell similar but highly differentiated goods/products - High competition between firms - Prices determined by demand and supply <p>Examples: fast food restaurants (kai bar), clothing shops, beauty salons, products such as washing powder (B29 & kiln), biscuits, tinned fish (Ocean blue & 777).</p>
Monopoly	<ul style="list-style-type: none"> - Single firm (only one) in the market, no close substitute - No competition - Very high prices set by the producer/supplier (more profit) <p>Examples:</p>
Duopoly	<ul style="list-style-type: none"> - Only two sellers <p>Examples: Air lines Companies (Air Nuigini & PNG Air)</p>
Oligopoly	<ul style="list-style-type: none"> - Few powerful firms in the market (3-5 firms) - Homogenous /differentiated products - Limited competition - Firms set prices - More profits - Pricing, profits and production levels change as the dynamic relationship between sellers and buyers changes <p>Examples: telecommunication market (digicel/b-mobile/telecom),</p>
Monopsony	<ul style="list-style-type: none"> - Many sellers - Only one buyer - Buyer controls prices - Homogeneous goods <p>Examples: Coffee Industry Board</p>

Suggested Resources

1. Bandara, P. (2013). *Economics for Grade 11*. 94/1 Arthurugiriya Road, Kottawa, Sri Lanka: Sara Publications.
2. Mickleburgh, A. (1992). *Economics for Developing Nation (Vol. Book 1)*. Level 9 5 Queens Road Melbourne 3004 Australia: Pearson Education Australia.
3. NDoE. FODE. (2017). *Managing the economy; A micro-economic focus- Grade 11 Economics*. Port Moresby, NDoE.

Benchmark 12.4.2.4: Justify the interaction of demand and supply in determining production and consumption of goods and services.

Topic 4: Demand and supply analysis

Sub-topics:

- Demand analysis
- Supply analysis
- Interaction of demand and supply

Skills: Critical thinking - Evaluating (justify).

Learning Objectives: By the end of the topic, students will be able to:

- Differentiate between individual and market demand.
- Differentiate between demand schedule and demand curve.
- Explain the law of demand.
- Explain the steps in constructing a demand curve.
- Construct demand curves.
- Analyse the causes of a decrease or an increase in demand.
- Examine the causes of extension and contraction of demand.
- List and discuss factors affecting demand including graphical illustrations.
- Differentiate between individual and market supply.
- Differentiate between supply schedule and supply curve.
- Explain the law of supply.
- Explain the steps in constructing a supply curve.
- Construct supply curves.
- Analyse the causes of a decrease or an increase in supply.
- Examine the causes of extension and contraction of supply.
- List and discuss factors affecting supply including graphical illustrations.
- Examine and explain equilibrium.
- Explain the difference between equilibrium price and equilibrium quantity.
- Construct interaction of demand and supply curves.
- Evaluate how interaction of demand and supply determine the production and consumption of goods and services.

Content Background

What is a demand?

Quantity of goods and services people are willing and able to buy at a given price at a given time.

Individual versus market demand

An individual demand is one person's demand for a good or a service while a market demand is made up of (total) all the individual demand for a good or a service.

Demand schedule and demand curve

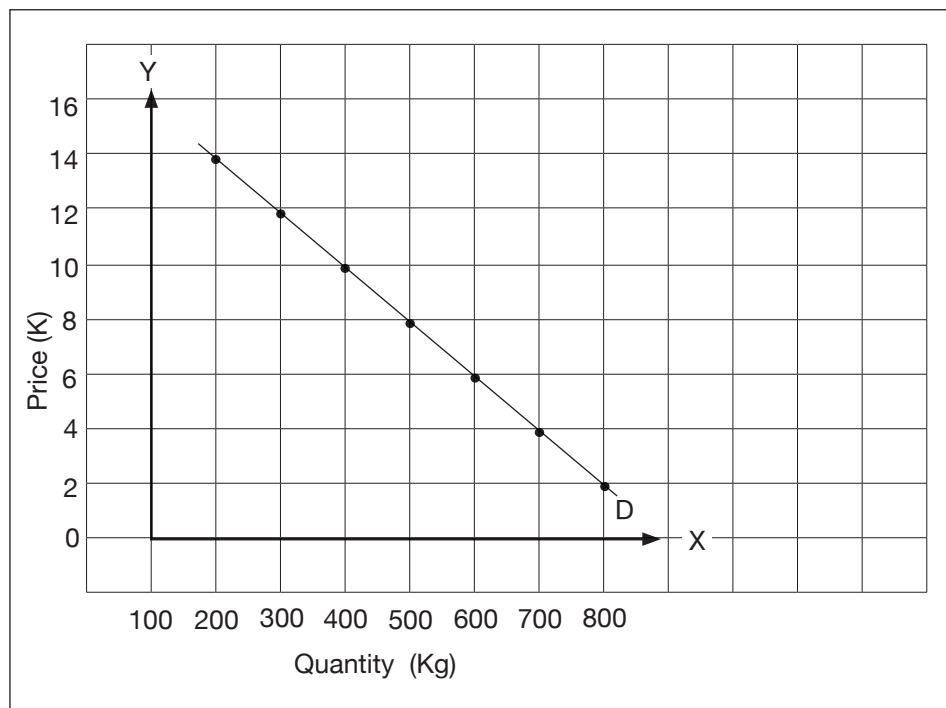
A demand schedule is a table that shows the quantity demanded of a good or service at different price levels.

For example; Demand schedule for strawberry

Price (per kg)	Quantity demanded (kg)
K1.00	50
K2.00	40
K3.00	30
K4.00	20
K5.00	10

A demand curve is a graphical representation of the relationship between the price of a good or service and the quantity demanded for a given period of time.

For example; Demand curve for coffee



The law of demand

When the price of a product increases, the demand for the same product will fall. Other factors being constant (*ceteris paribus*). According to the graph you can clearly see that as price increases demand decreases. This is the inverse relationship.

However, in rare cases, the demand curve slopes upwards. The reason for upward sloping curve is because as prices increase the demand for the good increases as well. This happens for conspicuous consumption and goods bought for speculative reasons.

Constructing demand curve

The information from a demand schedule can be graphed to show the law of demand more clearly. When a demand schedule is graphed, it becomes a demand curve, even if it is a straight line. (*Managing the economy – Grade 1, FODE, 2017*)

Drawing a demand curve

Step 1: Take a sheet of grid or graph paper. Draw a vertical line and a horizontal line (right angle).

Mark prices on the y-axis and quantities along the x-axis. Select an appropriate scale. The scales on each axis do not have to be the same, but each scale must be even.

Step 2: Plot the points of the demand curve.

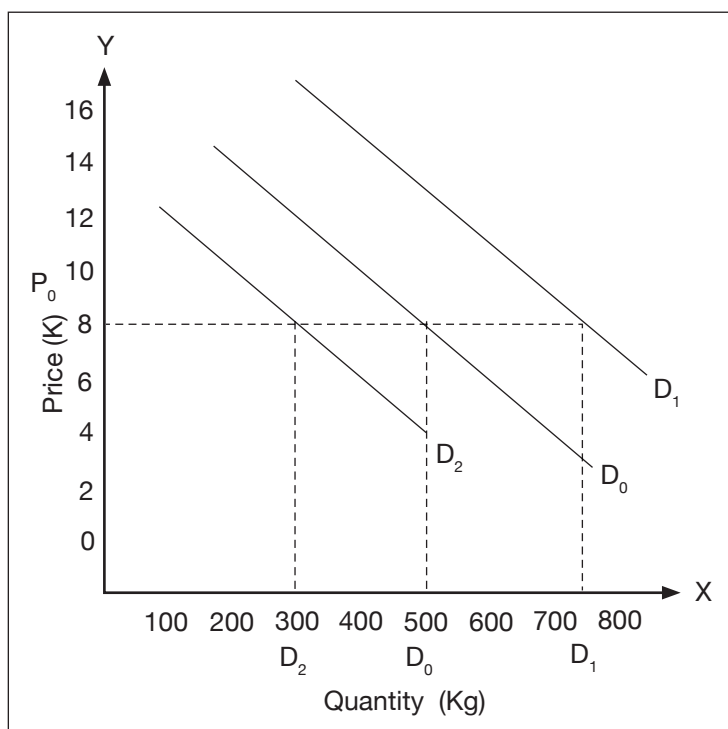
Step 3: Connect the points and draw the demand curve.

Step 4: Label the demand curve D, the x-axis as Quantity (unit or kg) and the y-axis as Price (K).

Step 5: Write a title for the demand curve.

Increase and decrease in demand

Increase in demand refers to a rise in demand due to changes in other factors, price remaining constant. Decrease in demand refers to fall in demand due to changes in other factors, price remaining constant. Take a look at this demand which shows a decrease and an increase in demand.



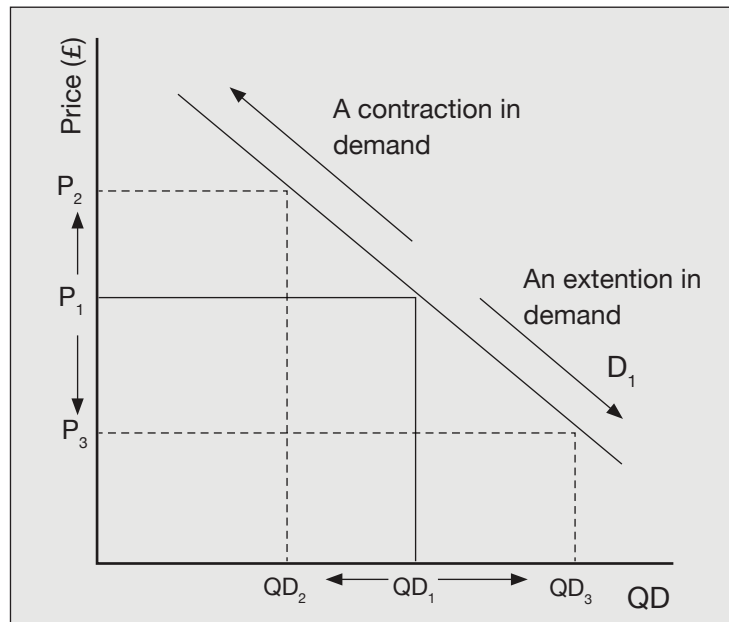
A change in demand causes a shift in the existing demand curve demand to the right or left as price remains constant at P_0 . Demand decreases when quantity moves to the left from Q_0 to Q_2 . Demand increases when quantity moves to the right from Q_0 to Q_1 .

(Managing the economy – Grade 1, FODE, 2017)

Extension and contraction in demand

Extension and contraction of the demand curve occurs when there is a change in quantity demanded as a result of change in price. These will cause movement along the demand curve either upwards or downwards. There are no changes in factors affecting demand.

(*Managing the economy – Grade 1, FODE, 2017*)



Source: <https://learneconomicsonline.com>.

Factors affecting demand

- The price of goods
- Prices of relative goods (substitute and complementary goods)
- Consumer income
- Consumer expectations
- Consumer tastes and preferences
- Number of consumers (population)
- Competition

Note for teachers: Explain each factor with examples and graphs.

What is a supply?

Quantity of goods that a supplier is able and willing to offer for sale at a given price at a given time.

Note for teachers: Apply the same layout for supply analysis and the impact of interaction on production and consumption.

Suggested Resources

1. Bandara, P. (2013). *Economics for Grade 11*. 94/1 Arthurugiriya Road, Kottawa, Sri Lanka: Sara Publications.
2. Mickleburgh, A. (1992). *Economics for Developing Nation (Vol. Book 1)*. Level 9 5 Queens Road Melbourne 3004 Australia: Pearson Education Australia.
3. NDoE. FODE. (2017). *Managing the economy; A micro-economic focus-Grade 11 Economics*. Port Moresby, NDoE.

Benchmark 12.4.2.5: Measure and justify the responsiveness of demand and supply in relation to price changes and other stimulus factors.

Topic 5: Elasticity of demand and supply

Sub-topics:

- Price elasticity of demand
- Price elasticity of supply

Skills: Critical thinking - Analysing (measure), evaluate (justify).

Learning Objectives: By the end of the topic, students will be able to:

- Define and discuss types of elasticities for demand.
- Identify methods of calculation of elasticity co-efficiencies of demand.
- Examine types of elasticities for supply.
- Identify methods of calculation of elasticity co-efficiencies of supply.

Content Background

What is elasticity of demand?

Measure of the responsiveness of the quantity demanded of a good or service caused variable factors that influence the demand of a good or service.

There are three concepts or ideas used to measure the elasticity of demand based on changes in price of a good, price of the related goods and consumer income. (*Managing the economy – Grade 1, FODE, 2017*)

These three concepts are;

1. Price elasticity of demand
2. Cross elasticity of demand
3. Income elasticity of demand

Calculating the elasticity of demand (coefficient)

Note for teachers: The examples and calculations were derived from the; *Managing the economy – Grade 11, FODE, 2017*. For more information, please refer to the reference provided.

Price elasticity of demand

Price elasticity of demand is the measure of responsiveness of the quantity demanded of a good caused by a change in its price.

Methods of calculating co-efficiency of demand

- Arch elasticity method
- Total outlay method

What is co-efficiency of demand? Co-efficiency of demand refers to the amount of responsiveness of peoples' demand to change in price.

The arch elasticity method

Price elasticity of demand = $\frac{\% \text{ change in quantity of goods demanded}}{\% \text{ change in price}}$

$$= \frac{Q_1 - Q_2}{2} \quad \frac{P_1 - P_2}{2}$$

Where: P1 = Change in Price
 P2 = Original
 Q1 = Original Demand
 Q2 = New Price

Total outlay method

The total outlay method can only be used as an approximation to determine whether demand will be elastic, unit elastic or inelastic. The total outlay method cannot be used to calculate the numerical value given to the elasticity.

Types of elasticity

There are five types of price elasticity. The elasticity depends on the coefficient.

Coefficient	Elasticity	Explanation
Less than 1 ($E < 1$)	Inelastic	The price elasticity of demand for a good is inelastic if the coefficient is less than ($E_d < 1, 0.2$). This means, the percentage change in demand is less than the percentage change in price. Demands for essential goods have an inelastic demand.
Equal to 1 ($E = 1$)	Unitary elastic	Demand is unitary elasticity when its coefficient equals 1. The percentage in quantity demanded changes at the same rate as price.
Greater than 1 ($E > 1$)	Elastic	The price elasticity of demand for a good is elastic if the coefficient is greater than 1 ($E_d > 1, 1.2$). That is, the percentage change in demand for a product is greater than the percentage change in price. Usually, the demand for non-essential goods (normal goods; that is, goods whose demand increases as income increases have an elastic demand). ^{*1} .
0	Perfectly inelastic	Demand is perfectly inelastic when its coefficient is 0. This means, the quantity demanded is not affected by any change in price. The demand curve is a vertical straight line.
∞	Perfectly elastic	Demand is perfectly elastic when its coefficient is infinite ($E_d = \infty$). The demand curve is a horizontal straight line. At a given price level, consumers would demand an unlimited amount of good.

Factors affecting the price elasticity of demand

The following are the factors affecting price elasticity of demand.

- Substitutes
- Necessity:
- Proportion of total income spent on that commodity
- Use of goods
- Habit
- Durability
- Advertising
- Complement

Cross-elasticity of demand

Cross elasticity of demand is a measure of the responsiveness of quantity demanded to changes in the prices of related goods; and related goods are either substitutes or complementary goods.

The following formula is used to calculate cross elasticity of demand.

$$\text{Cross elasticity of demand} = \frac{\% \text{ Change in Quantity demanded of X}}{\% \text{ Change in price of Y}}$$

A rise in the price of a good will cause an increase in demand for its substitutes. A fall in the price of a good will cause a decrease in demand for its substitutes. The relationship for substitute goods is positive.

A fall in the price of an item may lead to an increase in demand for its complements, and vice versa when the price of an item rises. Complementary goods will have negative cross-elasticity.

The cross elasticity of demand value can either be zero, one, infinity or greater than one or less than one.

Value	Conclusion
Zero	The two goods are not related
Greater than zero, but less than one	The two goods are related, but no close relationship exists
Greater than one	The two goods are closely related
Negative	The two goods are complementary goods
Positive	The two goods are substitutes

Income-elasticity of demand

Income elasticity of demand is a measure of responsiveness of the quantity demanded to a change in consumer income.

Income elasticity of demand = $\frac{\% \text{ change in quantity of goods demanded}}{\% \text{ change in price}}$

$$= \frac{Q_1 - Q_2}{Q_1} \quad \frac{Y_1 - Y_2}{Y_1}$$

Where: Q1 = Original Quantity
Q2 = New Quantity
Y1 = Original Income
Y2 = New Income

When income elasticity of demand is greater than 1 demand is income elastic. However, if income elasticity is less than 1 demand is income inelastic.

Inferior goods are goods which are demanded less as income increases. Normal goods are goods which are demanded more when income rises. Inferior goods have negative income elasticity while normal goods have positive income elasticity.

Note for teachers: Apply the same layout for price elasticity of supply. Support explanations with graphs and examples where necessary.

Suggested Resources

1. Bandara, P. (2013). *Economics for Grade 11*. 94/1 Arthurugiriya Road, Kottawa, Sri Lanka: Sara Publications.
2. E.D.Shade, R. M. (1995). *Fundamentals of Economics*. (4 ed. Vol. 1). Longman House, Kings Garden, 95 Coventry Street, Melbourne 3205, Australia: Longman Australia Pty Ltd.
3. Mickleburgh, A. (1992). *Economics for Developing Nation (Vol. Book 1)*. Level 9 5 Queens Road Melbourne 3004 Australia: Pearson Education Australia.
4. NDoE. FODE. (2017). *Managing the economy; A micro-economic focus-Grade 11 Economics*. Port Moresby, NDoE.
5. Other economics resources appropriate

Benchmark 12.4.2.6: Examine and analyse the roles of sales tax and subsidy and their effects on production, distribution and consumption of goods and services.

Topic 6: Sales tax and subsidy

Sub-topics:

- Sales tax
- Subsidy

Skills: Critical thinking - Analysing (examine, analyse).

Learning Objectives: By the end of the topic, students will be able to:

- Define sales tax and discuss the reasons for sales tax.
- Graphically illustrate the distribution of sales tax payment amongst the producer and consumer.
- Analyse the effect of sales tax on production, distribution and consumption of goods and services.
- Define subsidy and discuss the reasons for subsidy.
- Graphically illustrate the total subsidy payment and its effect on producer's income and productivity.
- Examine the effect of subsidy on production, distribution and consumption of goods and services.

Content Background

What is a sales tax?

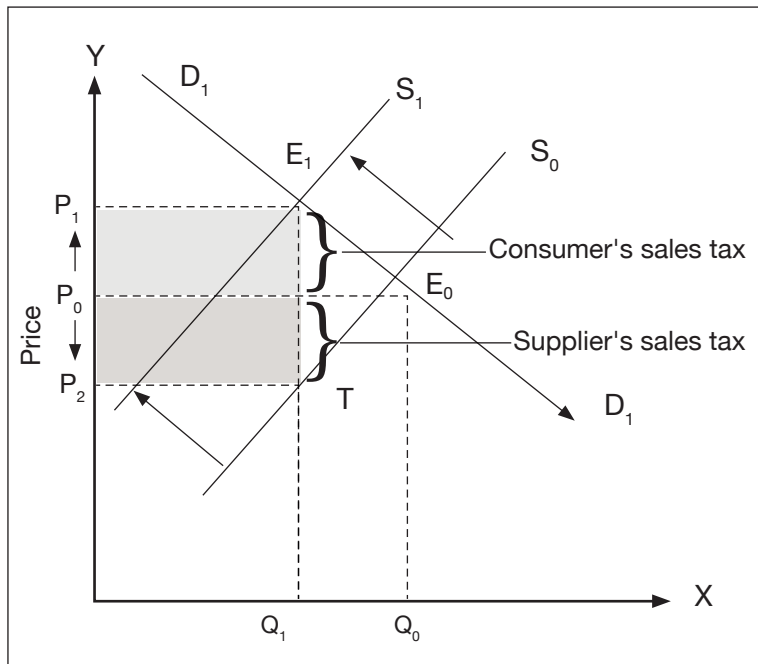
It is a consumption tax imposed by the government for the sales of goods and services. A sales tax is levied at the point of sale, collected by the retailer, and passed on to the government. It is an additional amount paid on top of the normal price of the goods and services. For instance, a watch costs K50.00 and you live in an area where the sales tax is 5%. You will pay a total of K52.50 for the watch (5% of K50 = K2.50 + K50).

Sales tax is imposed to earn revenue for the government and to restrict the production and consumption of certain goods (cigarette & alcohol). Goods and services tax(GST) is an example of a sales tax.

Tax incidence

Tax incidence refers to how the burden of a tax is distributed between firms and consumers (or between employer and employee). The tax incidence depends upon the relative elasticity of demand and supply.

- The consumer burden of a tax increase reflects the amount by which the market price rises.
- The producer burden is the decline in revenue firms face after paying the tax.

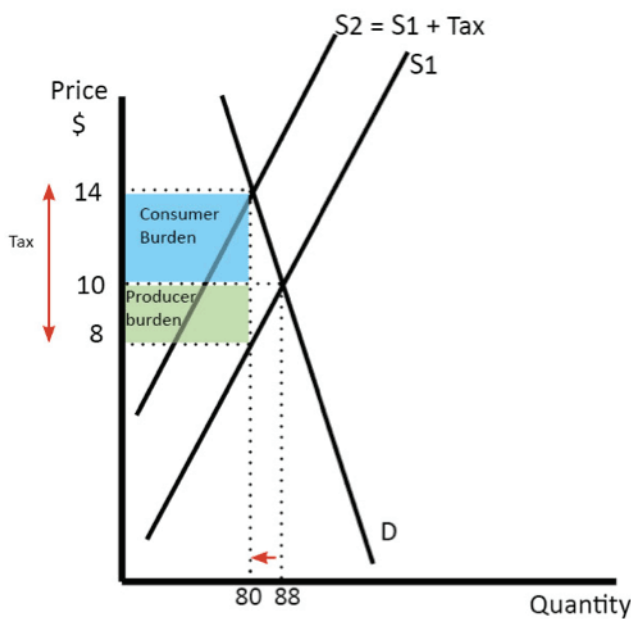


According to this graph, the total tax is made up of the shaded box which extends from P_0 to P_1 and P_1 to P_2 .

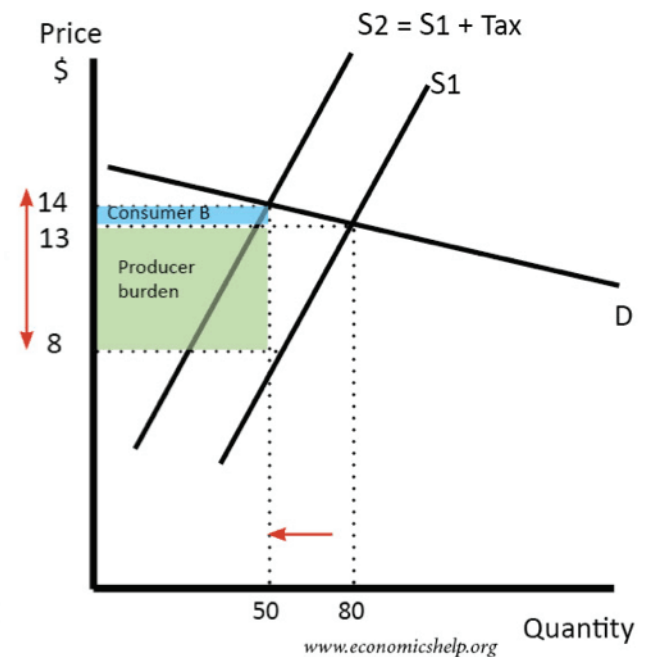
P_1 to P_2 gives the tax component paid by the consumer whilst P_0 to P_2 gives the component paid by the suppliers. The burden of the tax is shared by both the producer and consumer. Sales tax paid by the suppliers and the consumers depends on the elasticity of demand and supply.

Examples of tax incidence

Graph A



Graph B



Source: <https://www.economicshelp.org>

Interpretation of the graphs

Graph A	Graph B
<ul style="list-style-type: none"> - Sales tax is K6.00 - Price increased from K10 to K14 - Quantity demanded decreased - Quantity supplied decreased - Consumer burden is $80 \times K4 = K320$ (New Qty x K4 extra charged on the item) - Inelastic demand (bigger change in price resulting in smaller change in demand) - Consumer pays more than the producer/supplier 	<ul style="list-style-type: none"> - Sales tax is K6.00 - Price increased from K13 to K14 - Quantity demanded decreased - Quantity supplied decreased - Consumer burden is $50 \times K1 = K50$ (New Qty x K1 extra charged on the item) - Inelastic demand (small change in price resulted in bigger change in demand) - Supplier/producer pays more than the consumer

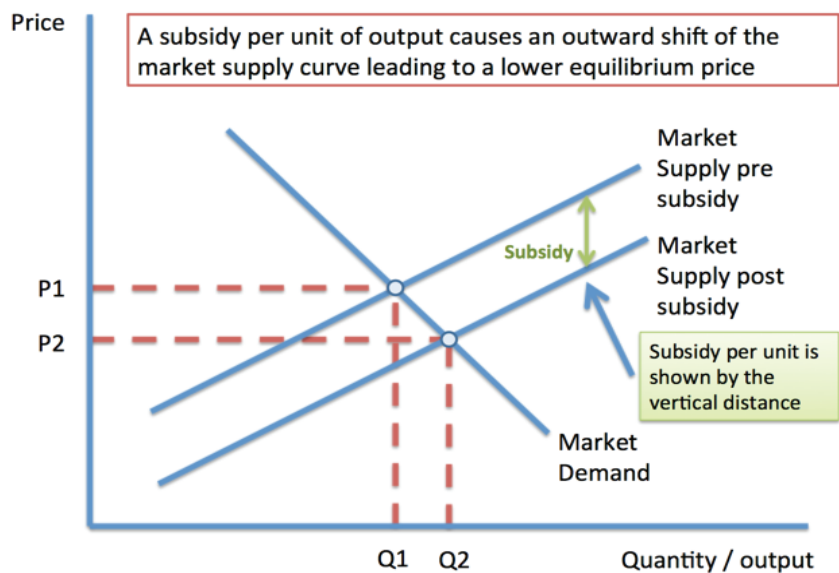
Effects of sales tax

- Price increase
- Supply decrease (production decrease)
- Demand decrease (consumption decrease)
- Consumer and producer/supplier share the burden of the tax depending on the price elasticity of demand.

What is a subsidy?

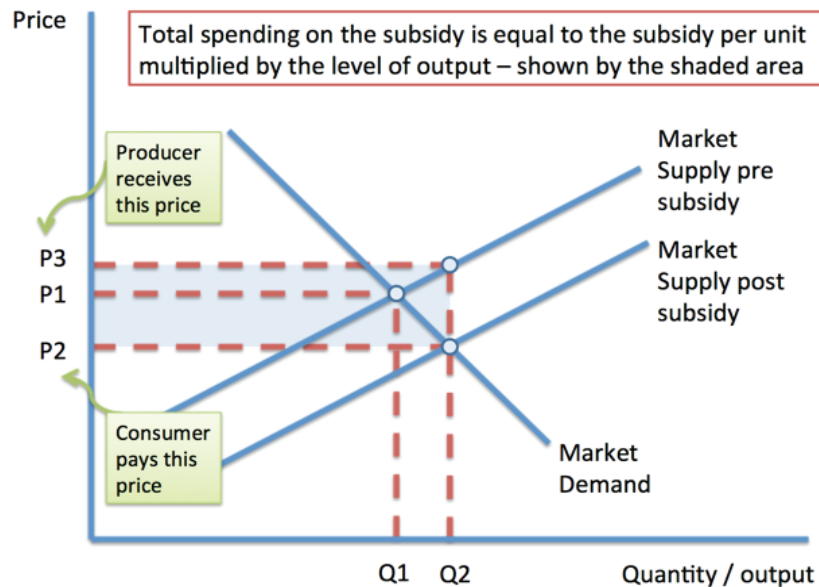
A payment made to the producer by the government to encourage production and consumption of particular goods.

Basic Subsidy Diagram – For Producers



Source: <https://www.tutor2u.net/>

Showing Total Government Spending on the Subsidy



Source: <https://www.tutor2u.net/>

Effects of subsidy

- Price decrease
- Supply increase (production increase)
- Demand increase (consumption increase)

Suggested Resources

1. Bandara, P. (2013). *Economics for Grade 11*. 94/1 Arthurugiriya Road, Kottawa, Sri Lanka: Sara Publications.
2. E.D.Shade, R. M. (1995). *Fundamentals of Economics*. (4 ed. Vol. 1). Longman House, Kings Garden, 95 Coventry Street, Melbourne 3205, Australia: Longman Australia Pty Ltd.
3. Geoff Riley. Producer subsidies (Government intervention). Retrieved from: <https://www.tutor2u.net/>
4. Mickleburgh, A. (1992). *Economics for Developing Nation (Vol. Book 1)*. Level 9 5 Queens Road Melbourne 3004 Australia: Pearson Education Australia.
5. NDoE. FODE. (2017). *Managing the economy; A micro-economic focus-Grade 11 Economics*. Port Moresby, NDoE.
6. Tejvan Pettinger. (2018). *Tax incidence*. Retrieved from: Source: <https://www.economicshelp.org>
7. Other economics resources appropriate

Unit 3: Regulation of Production, Distribution and Consumption

Content Standard 4.3: Students will be able to identify and analyze how market forces and other mechanisms are used to regulate the production, representation, distribution and consumption of goods and services.

Benchmark 12.4.3.1: Investigate the roles and responsibilities of World Trade Organization, International Labour Organization, and the different financial institutions such as the World Bank and the International Monetary Fund.

Topic 1: Global economic institutions

Sub-topics:

- World Trade Organization (WTO)
- International Labour Organization (ILO)
- World Bank (WB)
- International Monetary Fund (IMF)

Skills: Critical thinking - Analysing (investigate)

Learning Objectives: By the end of the topic, students will be able to:

- Identify and discuss the roles and responsibilities of the World Trade Organisation (WTO).
- Examine the roles and responsibilities of the International Labour Organisation (ILO).
- Analyse the roles and responsibilities of the World Bank (WB).
- Examine the roles and responsibilities of the International Monetary Fund (IMF).
- Analyse and discuss the influences of the major economic institutions on global trading systems.
- List and discuss some of their influences in PNG
- Identify and discuss some negative influences on PNG economy.

Content Background

Papua New Guinea is part of major international organisations such as the,

- World Trade Organisation (WTO)
- International Labour Organisation (ILO)
- World Bank (WB)
- International Monetary Fund (IMF),
- Asia Pacific Economic Corporation (APEC)
- ASEAN
- GATT
- European Union (EU)
- Organisation of the Petroleum Exporting Countries (OPEC)
- Pacific Islands Forum (PIF)
- United Nations (UN)

The reason for such association to or joining to such organisation is many a times for economics gains or supports but there are also strong political agendas attached to it. There are benefits as well setback for being a member.

Thus, this section intends for the teacher to guide the students into discovering PNG's association to these major organizations and the benefits and negative influences or impacts of such association on PNG.

World Trade Organisation (WTO)

The establishment of WTO

The World Trade Organisation is an international economic organisation that deals with the rules of international trade. It was established on the 1st of January, 1995. WTO was created to replace the 'General Agreement on Tariffs and Trade' (GATT). WTO has 164 member countries. Its headquarter is located in Geneva, Switzerland.

The GATT was a legal agreement minimizing barriers to international trade by eliminating or reducing quotas, tariffs, and subsidies while preserving significant regulations. It was signed by 23 countries on the 30th of October, 1947 in Geneva (Switzerland).

The GATT's rules were only applied to the trading of goods while the WTO is a permanent organisation or institution whose rules are applicable to goods, services and intellectual property. This has made way for the establishment of the WTO.

Functions of WTO

The main objective of the WTO is to help international trade flow smoothly, fairly, freely and predictably. With this objective, given below are some of the specific functions;

- administering trade agreements
- acting as a forum for trade negotiations
- settling trade disputes
- monitoring and reviewing national trade policies
- technical assistance and training for developing economies
- cooperating with other international organizations (<https://www.wto.org/>).

Global rules of trade provide assurance and stability. At the heart of the multilateral trading system, WTO's agreements are negotiated and signed by a large majority of the world's trading economies (member states), and ratified in their parliaments. These agreements are the legal foundations for global trade. Essentially, they are contracts guaranteeing WTO members important trade rights. They also bind governments to keep their trade policies transparent and predictable which is to everybody's benefit. These agreements provide a stable and transparent framework to help producers of goods and services as well as assist exporters and importers conduct their business. (<https://www.wto.org/>).

Principles of WTO

World Trade Organisation is based on some core principles. They are;

- Trade without discrimination
- Promote free trade through reduction of tariffs
- Provide legal framework for negotiation of trade disputes.
- Promote economic development
- Reciprocity
- Transparency
- Equal treatment

Influence of WTO on global trading systems

The WTO helps trade throughout the world flow smoothly through its trade agreements. Members of the WTO know what the rules are, and they understand the penalties for breaking the rules which creates a safer trading arena for everyone. The WTO also provides its members with a fair method to resolve trade disputes. WTO also prevents trade protectionism to encourage economic growth. (<https://www.thebalance.com/>).

WTO has huge impacts to the international flow of trade, investments and trade agreements. The WTO not only encourages international trade but also participates on business creativeness. It always put required effort to keep the peaceful trans-boundary trades and to solve disagreements among member countries. WTO plays a significant and affirmative role for promoting international trade and surely beneficial for the countries to trade trans-boundary as long as they are a member.

Benefits of WTO

- Free trade increase economic growth
- Access to new markets
- Lower tariffs
- Variety of products for consumers
- Access to WTO grants and capacity building initiatives
- Promotes peace through trade
- Helps resolve trade disputes
- Free trade reduces cost of living

Disadvantages of WTO

- Free trade may prevent developing countries to develop their infant countries
- Speed up the use of natural resources (degradation of natural resources)

Discussion Question

Can PNG do without being part of this organisation? Or is it necessary to join?

Note for teachers: Develop assessment on the other 'International Organisations'. Encourage 'inquiry based learning', giving the opportunity to students to research, analyse and report the findings. Provide clear guidelines and expectations to carry out the project.

Suggested Resources

1. Kimberly Amadeo. (2020). *The WTO: Members, Categories, and Benefits*. Retrieved from: <https://www.thebalance.com/>
2. Lakshay Anand. (2018). *Difference between GATT and WTO*. Retrieved from: <https://www.legalbites.in>
3. Muhammad Saqib Irshad. et al . (2016). *The role of charismatic World Trade Organisation and the expansion of free international trade*. Retrieved from: <https://www.researchgate.net/profile/>
4. WTO. (2018). *World Trade Organisation in Brief*. Retrieved from: <https://www.wto.org/>.

Benchmark 12.4.3.2: Identify and analyse the regulatory roles and responsibilities of each of the economic institutions with regards to the production and distribution of resources, selling and buying of goods and services, management of prices of goods and services, and establishment and fostering economic relationships.

Topic 2: Regulatory roles of international economic institutions

Sub-topics:

- Production and distribution of resources
- Importing and exporting goods and services
- Pricing and consumption of goods and services
- Establishing and fostering economic relations among nations

Skills: Analysis (Identify, explain), synthesis (dramatize, replicate), evaluation (justify).

Learning Objectives: By the end of the topic, students will be able to:

- Identify and discuss how international economic organisations influence the production and distribution of resources.
- Examine the regulation of exporting and importing of goods and services by the international economic organisations.
- Analyse how prices and consumption of goods and services are determined by the actions of the international economic organisations.
- Assess how international economic organisations regulate and monitor the establishment and fostering of economic relations among nations.

Content Background

This benchmark encompasses the regulations of the International economic institutions and the scope of their operations within the global economic arena as well as the member states they represent. The main focus will be on defining the roles of the organisations and their conditions and the compliance role applied to subject nations or global economic units as a whole.

Note for teachers: It is a mammoth task to look at each organization. Therefore, teachers are required to apply professional judgement by choosing one or two key institutions that PNG is a member to and its contributions to the development of PNG. International Monetary Fund [IMF] is used as an example.

International Monetary Fund

Quick facts:

- Abbreviation: IMF
- Formation: 27th December 1947
- Type: International Financial Institution
- Purpose: Promote International Monetary Cooperation, facilitate international trade, foster economic growth, and make resources available to members experiencing balance of payment difficulties
- Location: Head Quarters in Washington DC- USA
- Region: World wide
- Official Language: English
- Membership: 189 countries. PNG is a member to IMF

Functions of IMF

According to the IMF, it works to foster global economic growth and economic stability by providing policy advice and financing the members by working with developing nations. The IMF helps developing economies to achieve macroeconomic stability and reduce poverty because private international capital markets function imperfectly and many countries have limited access to financial markets. Such market imperfections, together with balance of payments financing, provide the justification for official financing, without which many countries could only correct large external payment imbalances through measures with adverse economic consequences. The IMF provides alternate sources of financing.

How does IMF assist member countries?

The IMF has facilities that assist member countries in different ways;

- i. The credit facilities of IMF allow member countries to borrow and use the money to help overcome major balance of payments problems, increase production and improve distribution of goods and services. In addition, The IMF provides technical assistance to the member countries such as; granting the member countries the services of its specialists and experts and secondly by sending the outside experts to aid in the production process.
- ii. The Fund helps member countries in eliminating or minimising long period disequilibrium in their balance of payments (exports & imports). It maintains exchange stability and thereby discourages any fluctuations in the rate of exchange of foreign currencies.
- iii. The IMF keeps a general watch on the monetary and fiscal policies followed by the member countries to ensure no flouting of the provisions of the charter in fostering economic relations among nations.

Conditionality of loans

IMF conditionality is a set of policies or conditions that IMF requires in exchange for financial resources. The Fund does not require collateral from countries for loans but also requires the government seeking assistance to correct its macroeconomic imbalances in the form of policy reform. If the conditions are not met, the funds are withheld. The concept of conditionality was introduced in a 1952 Executive Board Decision and later incorporated into the Articles of Agreement.

Conditionality is associated with economic theory as well as an enforcement mechanism for repayment. Stemming primarily from the work of Jacques Polak, the theoretical underpinning of conditionality was the "monetary approach to the balance of payments".

(From Wikipedia, the free encyclopedia. [www.googlesearch.com])

The IMF and the WTO work together on many levels, with the aim of ensuring greater coherence in global economic policymaking and reflecting the underlying common policy goal of limiting the use of restrictions on the international flow of goods and services, which can be affected through exchange or trade restrictions.

However, IMF and the World Bank have distinct functions. The World Bank Group works with developing countries to reduce poverty and increase shared prosperity, while the International Monetary Fund serves to stabilize the international monetary system and acts as a monitor of the world's currencies.

Examples of IMF involvement in PNG:

- The Privatization Economic Reform Program in PNG
- Loan Assurances to PNG
- SDRs [Special Drawing Rights] facilities to PNG
- Staff Monitored Program (SMP)

Note for teachers: Develop assessment on the other 'International Organisations' and their involvement in PNG. Refer to IMF as an example. Encourage 'inquiry based learning', giving the opportunity to students to research, analyse and report the findings. Provide clear guidelines and expectations to carry out the project.

Key focus areas

- Membership of PNG
- Its governing regulations/ or covenant
- Targeted areas of development and conditions applied
- Examples of its inputs in local economy [PNG]
- State some positive and negative effects of its influence on local economy [PNG]

Suggested Resources

1. Bernhard Fritz-Krockow et. al. (2007). *International Monetary Fund Handbook. Its functions, policies and operations*. Retrieved from: <https://www.imf.org/>
2. Brian Walker. (2020). *Staff Monitoring Program*. Retrieved from: <https://www.imf.org/en/>
3. Wikipedia, the free encyclopedia. [[www.google search.com](http://www.googlesearch.com)]
4. Vidya Sethy. *Top 10 functions of the International Monetary Fund*. Retrieved from: <https://www.yourarticlelibrary.com/>
5. Other relevant sources

Benchmark 12.4.3.3: Evaluate the role of the International Labour Organisation in regulating the use of human resources to provide labour for industries, business organisations, companies, and governments, and ensuring the rights and decent working conditions for all workers.

Topic 3: International Labour Organisation (ILO)

Sub-topics:

- What is an International Labour Organisation?
- Roles of the ILO

Skills: Critical thinking - Evaluating (evaluate)

Learning Objective: By the end of the topic, students will be able to:

- Examine and analyse the key functions of ILO.
- Assess the role of the ILO in regulating the use of human resources.

Content Background

What is International Labour Organisation (ILO)?

The International Labour Organisation (ILO) is a United Nation's (UN) agency. The ILO has 187 member states. Its headquarter is in Geneva, Switzerland with around 40 field offices around the world, and employs approximately 2,700 staff from over 150 nations (<https://en.wikipedia.org/wiki/>).

Establishment of the ILO

It was formed /founded in 1919 (part of Versailles treaty) in the wake of a destructive war, to pursue a vision based on the premise that universal lasting peace can be established only if it is based on social justice.

Objectives of the ILO

The main aim of the ILO is to attain social justice and peace among nations. It embodies a vision of universal human conditions of labour.

Principles of ILO

The 1998 ILO 'Declaration on Fundamental Principles and Rights at Work' declares that all members, even if they have not ratified the conventions in question have an obligation arising from the membership in the organisation to respect, to promote and to realise in good faith and in accordance with the constitution, the principles concerning the fundamental rights which are the subject of those conventions, namely;

- freedom of association and effective recognition of the right to collective bargaining
- the elimination of all forms of forced or compulsory labour
- the effective abolishment of child labour (<https://www.ilo.org/download>)

Core functions of ILO

The ILO's most important task has been the development, promotion, and monitoring of international labour standards (*Sengenberger, 2013*). The ILO ensures that it serves the needs of working women and men by bringing together governments, employers and workers to;

- set labour standards
- develop policies
- devise programs (<https://www.ilo.org/>).

It makes sure the views of the social partners are closely reflected in ILO labour standards, policies and programs.

ILO is devoted to advancing opportunities for workers to obtain decent and productive working conditions of freedom, equity, security and human dignity. (<https://www.ilo.org>download>). This basically implies that ILO stands for the welfare and rights to freedom and fairness of human factors engaged in the production, distribution and consumption of goods and services.

The international labour standards

According to the Cambridge Dictionary, the international labour standards are a set of rules created by the ILO to protect the rights of workers and to make sure they have good working conditions (<https://dictionary.cambridge.org/dicti>). The standards are drawn up by the ILO constituents (governments, employers and the workers) that set out basic principles and rights at work.

The core standards

Upon release of the 'Declaration on Fundamental Principles and Rights at Work' in 1998, ILO member states agreed to respect, promote, and realise core labour standards whether ratified or not (<https://cleanclothes.org/faq/ilo>). The Declaration outlines five labour standards in eight conventions:

- Freedom of association and the effective recognition of the right to collective bargaining/Freedom to form and join a union, and to bargain collectively (Conventions 87 & 98)
- The elimination of all forms of forced and compulsory labour/freedom from forced labour (Conventions 29 & 105)
- The effective abolition of child labour /freedom from child labour (Conventions 138 & 182)
- The elimination of discrimination in respect of employment and occupation/freedom from discrimination at work (Conventions 100 & 111(<https://www.ilo.org/>)).

In today's globalized economy, international labour standards are essential components in the international framework for ensuring that the growth of the global economy provides benefits to all.

How does ILO regulate the use of human resources?

The ILO serves the needs of working women and men by bringing together governments, employers and workers to set labour standards, develop policies and devise programs. The standards are there to ensure that it remains focused on improving the life and dignity of men and women (<https://www.ilo.org/>) and for the development of people as human beings.

Suggested Resources

1. Cambridge Dictionary. *International labour standards*. Retrieved from: <https://dictionary.cambridge.org/dicti>.
2. Werner Sengenberger. (2013). ILO; goals, functions and political impact. Retrieved from: <https://www.ilo.org>download>.

Benchmark 12.4.3.4: Analyse the role of each institution and organization in developing and fostering mutually beneficial economic relationships amongst different countries.

Topic 4: Role of major economic institutions in fostering economic relations

Sub-topics:

- Economic institutions (WTO, APEC, ASEAN, FTA, UN, IMF)

Skills: Critical thinking - Analysing (analyse)

Learning Objectives: By the end of the topic, students will be able to:

- Identify and define international economics units/organizations.
- Assess how each international economic organisation develops and fosters mutually economic relationships among countries.

Content Background

This benchmark encompasses the economic development aspects of the international institutions and the scope of their operations within the global economic arena as well as the member states they represent. The main focus will be on defining the roles of the international economic organisations in assisting the development of the economies of developing countries like PNG.

Asia Pacific Economic Corporation (APEC)

APEC is the premier Asia-Pacific economic forum. Its purpose is to lower tariffs in order to promote the free exchange of goods and services between nations. It works to facilitate economic growth, cooperation, trade and investment in the Asia-Pacific region.

Free Trade Agreement (FTA)

What are Free Trade Agreements? Agreements between two or more countries on obligations that affect trade in goods and services, and protections for investors and intellectual property rights. For instance, there are no import tariffs or quotas on products from one country entering another. This sets guides for how countries treat each other when it comes to doing business together.

The focus of an FTA is primarily on economic benefits and encouraging trade between the countries by making it more efficient and profitable. Agreements usually remove tariffs on goods, simplify customs procedures, remove unjustified restrictions on what can or can't be traded, and make it easier for business people to travel or live in each other's country. By doing this, it promotes and fosters economic relations between nations.

FTA can also help trade partners (countries) to manage risks associated with imported products more effectively and efficiently as well as promote cooperation and collaboration to build strong institutional relationships to resolve specific trade concerns.

Note for teachers: Provide reading materials for other international economic organisations for students to read, analyse and write summaries of their reading (assessment). Focus on how these organisations or institutions foster economic relationships.

Suggested Resources

1. Lorraine C. Cardenas and Arpaporn Buranakanits. (1999). The role of APEC in the achievement of regional cooperation in Southeast Asia.
Retrieved from: <https://digitalcommons.law.ggu.edu/>
2. Manatu Aorere. About free trade agreements.
Retrieved from: <https://www.mfat.govt.nz/en/>

Unit 4: Satisfying Needs and Wants

Content Standard 4.4: Students will be able to investigate and review the different mechanisms used by individuals, groups, families, institutions, communities, organisations, and businesses to satisfy their wants and needs.

Benchmark 12.4.4.1: Define and differentiate between bilateral and multilateral relationships

Topic 1: International trade relations

Sub-topics:

- Bilateral trade relationship
- Multilateral trade relationship

Skills: Critical thinking - Understanding (define), analyse (differentiate)

Learning Objectives: By the end of the topic, students will be able to:

- Define and analyse definition of bilateral trade relations.
- Define and analyse definition of multilateral trade relations.
- Identify and assess PNG's trade relations.

Content Background

Trade agreement

A trade agreement is a contract agreement pact between two or more nations that outlines how they will work together to ensure mutual benefit in the field of trade and investment. Trade agreements are usually bilateral or multilateral.

Bilateral trade relations

Bilateral trade is a trade between two countries and *bilateral trade agreement* is when two countries enter into terms of agreements to trade with each other. Such agreement as lowering import duties between the two countries.

Bilateral agreements aim to keep trade deficits to a minimum. Bilateral agreements are not bound by WTO rules. These agreements target individual policy areas, aiming to increase cooperation and facilitate trade between nations in certain areas.

In a bilateral trade agreement, the countries involved provide each other access to their markets, which leads to trade and economic growth. The agreement also creates an environment that promotes fairness since a set of rules in business operations is observed (*CFI Education Inc, 2015*).

What areas are covered in a bilateral agreement?

- Elimination of tariffs and trade-related taxes,.
- Countries involved in the agreement will not offer products at a low cost only to gain a bigger share in the market.
- The countries will not use unfair subsidies.
- The agreement involves not stealing the innovative goods of other exporters. Countries adhere to existing copyright and intellectual property laws.

Advantages	Disadvantages
<ul style="list-style-type: none"> • Entering into a bilateral agreement is much easier • It gives companies access to new markets. • When the parties involved see demand, they will open more job opportunities. • Bilateral agreements enable consumers to buy goods at lower prices. 	<ul style="list-style-type: none"> • Less successful companies will find it hard to keep their business going as they will not be able to compete with more successful industries in another country. • The elimination of trade taxes means companies lose their price advantage. • A bilateral agreement can result in competing agreements between other countries.

Multilateral trade relations

Multilateral trade refers to trade between more than one country. They establish institutional framework to pursue trade with their trading partners. International economic institutions such as General Agreement on Trade and Tariff (GATT), World Trade Organisation (WTO), Asia Pacific Economic Cooperation (APEC), United Nations (UN), International Monetary Fund (IMF), European Union (EU) facilitate multilateral trade agreements.

Multilateral trade agreements are treaties of commerce between three or more nations. All signatories treat each other the same. The treaties are intended to confer such benefits as reduce tariffs and make it easier for participating countries to import and export products, give expanded access to each other's markets and increase each country's economic growth (Coca,2018). They strengthen the global economy by making developing countries competitive. They standardize import and export procedures giving economic benefits to all member nations.

Multilateral agreements are complex. Trade barriers disappear and smaller businesses cannot compete with giant multinationals. This forces small businesses to lay off workers to cut costs or move their businesses to a participant country where the wages are low.

Multilateral agreements are difficult to enforce and not very popular as bilateral trade agreements.

Suggested Resources

1. CFI. Bilateral Agreement. (2015).
Retrieved from: <https://corporatefinanceinstitute.com/>
2. E.D. Shade, C.G.Latty and P.M. Scott.1989. *Fundamentals of Economics* (3rd.ed.Vol 1. McGraw Hill Book Company. Australia
3. E.D. Shade and R.J.Miller.2000. *Foundations of Economics*. (4th Edition). Addison Wesley Longman. Melbourne. Australia.
4. Edgar O'Neil .1996. *Principles of Economics*. Dellasta Pacific, Victoria. Australia.
5. Panditha M.N. Bandarara.2013. *Economics for Grade 12*. UPNG Bookshop. Port Moresby. PNG
6. R.J.Brown.1989. *The Australian Economy*. Brooks Waterloo. Queensland, Australia.
7. T.Rao. Coca. (2018). Multilateral vs. bilateral trade agreement: Which is better for U.S. Economy? Retrieved from: <https://businesspress.vegas/>

Benchmark 12.4.4.2: Examine how bilateral and multilateral relationship aid resources production and distribution.

Topic 2: Effects of international trade relations on production and distribution

Sub-topics:

- Effect of international trade relations on production
- Effect of international trade relations on distribution

Skills: Critical thinking - Analysing (examine)

Learning Objectives: By the end of the topic, students will be able to:

- Analyse and discuss the effect of international trade relations on production.
- Analyse and discuss the effect of international trade relations on distribution.

Content Background

Positive international relations promote effective trade policies between nations, both in terms of importing natural resources and finished products not available in one country and in terms of gaining access to the larger market afforded by exports to foreign countries.

International relations define the requirements and limitations of cross-border trade, in terms of taxes, transportation routes, and trade sanctions, materials that can and cannot be traded.

International relations also demonstrate to the rest of the world in which countries are powerhouses in certain industries, which other countries really need to rely on. For instance, Korea and Japan export most cars, while China exports many different kinds of electronics and Colombia exports coffee (*Almoni, 2018*).

Bilateral trade relations between two countries could involve defence corporations, education and health in order to improve socio-economic indicators of the two countries. For example, bilateral relations between PNG and Australia or PNG with China. Generally such agreements create dependency between the two countries on trade and investments.

Effect of international trade relations on production

International trade encourages specialisation and division of labour in the production of commodities or provision of services. When there is specialisation of a particular product or service and division of labour in the production process, the output increases. Countries produce more or increase production to sell/export to their trading partners.

International trading partners may also aid developing economies with the factors of production (raw materials, skills and knowledge, machinery) needed to produce certain products. Such assistance leads to an increase in production.

Effect of international trade relations on distribution

The outputs of production are distributed to all trading partners which means, markets are created to sell the output. Trade related infrastructure such as building roads, ports and telecommunications networks connect domestic markets to the global economy for the transportation and distribution of goods and services.

Suggested Resources

1. ICFI. Bilateral Agreement. (2015).
Retrieved from: <https://corporatefinanceinstitute.com/>
2. E.D. Shade, C.G.Latty and P.M. Scott.(1989). *Fundamentals of Economics* (3rd.ed.Vol 1. McGraw Hill Book Company. Australia
3. E.D. Shade and R.J.Miller.(2000). *Foundations of Economics*. (4th Edition). Addison Wesley Longman. Melbourne. Australia.
4. Edgar O'Neil . (1996). *Principles of Economics*. Dellasta Pacific, Victoria. Australia.
5. Panditha M.N. Bandarara. (2013). *Economics for Grade 12*. UPNG Bookshop. Port Moresby. PNG
6. R.J.Brown. (1989). *The Australian Economy*. Brooks Waterloo. Queensland, Australia.
7. T. Rao. Coca. (2018). *Multilateral vs. bilateral trade agreement: Which is better for U.S. Economy?* *Retrieved from: <https://businesspress.vegas/>*

Benchmark 12.4.4.3: Analyse the different ways in which bilateral and multilateral relationships enable the trade of goods and services between countries.

Topic 3: Effects of trade relations on trading between countries

Sub-topics:

- Effects of bilateral trade relations on trading between countries
- Effects of multilateral trade relations on trading between countries

Skills: Analysing (analyse)

Learning Objectives: By the end of the topic, students will be able to;

- Analyse and discuss the effects of bilateral trade relations on trading between countries
- Analyse and discuss the effects of multilateral trade relations on trading between countries

Content Background

The effects of bilateral trade relations on trading between countries

Effective bilateral trade could result in reduction on tariff barriers, quantitative restrictions and subsidies on trade on series of different agreements.

The effects of multilateral trade relations on trading between countries

The World Trade Organisation (WTO) is an example of a multilateral trade organisation that establishes rules for global trade through consensus among its member states. It also involves in solving disputes between its members. WTO aims are to promote global trade amongst its member states to lower trade barriers and to provide a flat form in the economic affairs of its member states.

A trading system should be free of discrimination in the sense that one country cannot privilege a particular trading partner above others within the system, nor can it discriminate against foreign products and services. A trading system should tend towards more freedom that is towards fewer trade barriers such as tariff and non- tariff barriers.

The WTO's main function is to ensure that trade flows smoothly, predictably and freely as possible for all.

Other key strategies include;

- Trade without discrimination
 - Promoting fair competition
 - Providing 'Aid for Trade' (World Bank Group (WBG) assists developing countries)
 - Open/Free Trade Policies (WBG)
-

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
3. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
4. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.
5. World Trade Organisation WTO), Retrieved from: [Https://www.wto.org](https://www.wto.org).

Benchmark 12.4.4.4: Evaluate the types of assistance, monetary, human resources, capital and aid given by donor country to the recipient country and how this assistance will benefit the recipient country.

Topic 4: Economic assistance

Sub-topics:

- Types of aid given to assist countries
- Benefit of aid assistance to recipient countries

Skills: Critical thinking - Evaluating (evaluate)

Learning Objectives: By the end of the topic, students will be able to:

- Examine types of aid from developed to developing nations.
- Analyse the benefits of aid to recipient countries.

Content Background

What is aid?

Aid refers to assistance or support given or provided to someone. In economics, economic aid/assistance/support is a voluntary transfer of resources (most often capital) from one country to another. The voluntary assistance or support from one country to another is known as international, foreign or economic aid. Usually, aid is given by the developed countries to the less developed countries (LDCs). For instance, PNG receives aid from Japan. Japan is the donor country and PNG is the recipient.

Types of aid given to countries from developed to developing nations

Aid from donor countries to recipient countries comes in three (3) forms;

- monetary (in the form of money),
- human resources, (qualified people from the donor country sent to recipient country to work e.g. Australian police personnel assisting PNG police or consultants engaged in governments to provide technical expertise to Papua New Guineans),
- capital (providing or supplying equipment to be used in PNG. For instance, Japan through JICA projects provides tablets for teachers to use in maths and science classes for grades 5-6 in primary schools in PNG)

Benefits of Aid to recipient countries

Aid has assisted many recipient countries to greatly improve most of their development needs. Aid is used to build more schools and hospitals. Develop human resources and increase agricultural projects that increased socio-economic indicators.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
3. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
4. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.

Benchmark 12.4.4.5: Identify and probe the purpose and main focus of different aid modalities.

Topic 5: Aid models

Sub-topics:

- Types of aid models
- Benefits aid models

Skills: Understanding (identify), analysing (probe)

Learning Objective: By the end of the topic, students will be able to:

- List and distinguish type of aids given to countries from developed to developing nations
- Analyse the benefits of AIDS to the recipient countries
- Analyse the benefits each aid models

Content Background

What is Aid?

As mentioned in the preceding topics, aid is the transfer of money, goods, and knowledge from donor to recipient countries.

Foreign Aid is for economic and political policies. Countries pour billions of dollars in foreign Aid. goal of aid is to develop the economy or solve a humanitarian crises.

What is an Aid Modality?

It is a tool, an instrument or a form that transfers aid from donors to recipients.

Forms of Aid Modalities

Listed below are different forms of Aid Modalities by the donor countries;

1. Project Aid
2. Budget Support (General Budget Support (GBS) & Sector Budget Support (SBS))
3. Pooling Funds
4. Sector-Wide Approach (SWAp)

Project Aid is a form of aid to finance activities with a limited objective, budget and time-frame to achieve specific results. Its main focus is to allocate expenditures to specific activities to achieve coherent objectives with defined inputs linked to outputs.

Moreover, a Budget Support (BS) is a form of financial aid (funds) directly to the recipient's government budget using the government's own allocation and accounting systems. This aid focuses mainly on policy measures relating to growth, poverty reduction, and fiscal adjustment and strengthening intuitions. A budget support aid is divided into two;

- i. General Budget Support (GBS)
- ii. Sector Budget Support (SBS)

A General Budget Support (GBS) aid is given to cover financial assistance as a general contribution to the host government's overall national budget in support of general development strategy agreed between donor and host country government.

In a Sector Budget Support (SBS), funds are allocated to a discrete (separate/disconnected/isolated) sector.

The Pool Funds Aid modality is a form of pool donor funds to the government's accounts where it is managed and accounted for using standard budget procedures.

The SWAp is an approach to increase donor alignment with government policy and expenditure framework (GRIPS, 2004).

Benefit of aid models

It is unrealistic to say that aid does not have any impact on the recipient economy. Aid has assisted many third world countries to improve many of their socio-economic status. Aid comes in terms of contracts and economic developments such as health, education and infrastructural developments in the recipient countries. Most of the developments are the testimonies of the foreign aid received from the donor countries but it does have its negative effects with the many positive benefits associated with foreign aid.

Note for teachers: Allow students to research on the types of Aid Modalities to PNG and how these funds were/are being utilized. What impact do these aids have on the development of the country? Set specific criteria or rubric for this activity.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
3. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
4. E.D. Shade and R.J.Miller. (2000). *Foundations of Economics*. (4th Edition. Page.350 -351).Addison Wesley Longman. Melbourne. Australia.
5. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.
6. GRIPS Development Forum, (2004), *Good Donorship and the Choice of Aid Modalities*. National Graduate Institute of Policy Studies, 2-2 Wakamatsu-cho, Shinjuku-ku, Tokyo 162-8677 Japan. Retrieved from: <https://www.grips.ac.jp>.

Benchmark 12.4.4.6: Investigate the relationships between donor and recipient countries, and the circumstances in which assistance is provided by the donor country.

Topic 6: Reasons for aid assistance

Sub-topics:

- Relationship between donor and recipient nations
- Reasons for donor nations providing aid to recipient nations

Skills: Analysing (investigate)

Learning Objective: By the end of the topic, students will be able to:

- Analyse the kind of relations that exist between the donor and the recipient nations.
- Identify and discuss political, social and economic reasons for offering aid to the recipient countries.
- Identify type of aid received by PNG and analyse the motives behind such aid.

Content Background

Relations between the donor and the recipient nations

Most of the aid flows from advanced economies to developing economies and as a result most third world countries rely on foreign aid donors to supplement their national budgets.

Political, social and economic reasons for offering aid to the recipient countries

Foreign aid is aimed at addressing the Millennium Development Goals (MDGs). It is targeted at improving the lives of people around the world. These includes tackling global diseases, humanitarian assistance, eliminating poverty, reducing the impact of climate change and making progress towards the United Nations' Sustainable Development Goals. Moreover, aid assists economic sectors such as trade and investment, education, health and infrastructural developments in the recipient countries.

Type of aid received by PNG

Papua New Guinea receives different types of aid from countries like Australia (AusAid), New Zealand(New Zealand Aid), Japan(JICA), America(US Aid) and European Union(EU). Recently China has increased Aid to PNG in terms of Infrastructural Development such as road, bridges etc.)

Types of aid received and the motives behind such aid

Most aid is given through bilateral relationships on the understanding to encourage trade between the two countries. Most third world countries export mainly primary resources to the advanced countries. The raw resources are used to produce finished products and are exported back to the recipient countries. The advanced countries have industries that depend on the third world countries resources. There is an existence of a mutual relationship between the trading countries resulting in bilateral and multilateral relationships.

Note for teachers:

This topic can be used as an assessment. Allow the students to work in groups. There are so many Foreign Aid Programs in PNG. For example, Assistance from Japan - JICA Aid Program on developing Mathematics and Science Text Books for Grades 3-5 students through the Department of Education, Curriculum Development Division.

- Provide the students with a rubric to do this assignment.
- Allow students to research and collect or gather information (facts may be required too)
- Students analyse the collected information.
- Present the data on charts, tables or attach picture.
- Get the students to do a presentation of their findings.
- Have a rubric for this assessment.
- Teach students to do proper referencing.

Instructions for students (just a guide, teacher may add more)

- i. Identify Foreign Aid Programs (donor countries) in PNG.
- ii. Explain the purpose of these Aid Programs.
- iii. Discuss the benefits of these Aid Programs.
- iv. Analyse the effectiveness of the implementation of these Aid Programs. (did the aid achieve its purpose)
- v. What can PNG do to sustain the projects funded by Foreign Aid after the donors contract expires? How can we continue to maintain when the Foreign Aid is over.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
3. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
4. E.D. Shade and R.J.Miller. (2000). *Foundations of Economics*. (4th Edition. Page.350 -351).Addison Wesley Longman. Melbourne. Australia.
5. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.
6. Russel. Taylor. (2022). Importance of Foreign aid programme. House of the Lords. UK. Retrieved from: <https://lordslibrary.parliament.uk>.

Unit 5: Economic Ideologies

Content Standards: 4.5: Students will be able to interrogate and rationalise the influence of economic ideologies on economic systems, production, distribution and consumption of goods and services and on the trade relationship amongst different nations and people.

Benchmark 12.4.5.1: Examine the influence of the socialist ideology on the production and distribution of resources.

Topic 1: Socialist ideology on production and distribution

Sub-topic:

- Definition of socialism
- Influence of socialist ideology on production and distribution

Skills: Critical thinking - Analysing (examine)

Learning Objective: By the end of the topic, students will be able to:

- Identify and discuss socialism or socialist ideology
- Analyse and discuss the principles of socialist ideology.
- Examine how socialist ideology influences production, and distribution of goods and services in the economy.

Content Background

Nature of socialist economy

Socialism is a range of economic and social systems characterised by social ownership and control of the means of production as well as the political theories and movements associated with socialism.

The bases of socialist ideology

A theory or system of social organisation that advocates on ownership and control of production, consumption and distribution of capital, land, labour and entrepreneur by the society as a whole. Socialism is a political and economic system based on public/collective/common ownership of the means of production.

The impacts of socialist ideology on production, distribution and consumption of goods and services

In a socialist state most of the goods provided are public goods and services.

Production of goods and services in socialist economies

The production of goods and services in a socialist economy is managed by the government. The government determines, organises and manages how best the factors of production (land, labour, capital & entrepreneur) can be utilised. The government makes decisions on what to produce, how to produce, how much to produce and when to produce. Everyone in the society contributes in the production process in the form of work and is entitled to a share of the goods and services produced. The production of goods and services is for direct use and not to generate profit.

Distribution of goods and services in socialist economies

The distribution of goods and services is monitored by the government which means, the wealth is distributed to everyone. Citizens depend on the state for food, employment, health care and everything else. Every citizen in a socialist economy is guaranteed access to basic goods and services even to those who are not able to contribute (older people, children and other marginalised groups).

In summary, in socialist economies, production of goods and services is for use and not for profit; there is an equal distribution of wealth and material resources among all people, there is absence of competition and access to goods and services. There is corporation and sharing in socialist economies.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
3. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
4. E.D. Shade and R.J.Miller. (2000). *Foundations of Economics*. (4th Edition. Page.350 -351).Addison Wesley Longman. Melbourne. Australia.
5. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.

Benchmark 12.4.5.2: Analyse the management and control of the means of production in a socialist economic system.

Topic 2: Factors of production in a socialist economy

Sub-topics:

- Control of productive resources or the factors of production in socialist economic systems
- Efficiency of the management of the factors of production in socialist economic systems

Skills: Analysing (analyse).

Learning Objectives: By the end of the topic, students will be able to:

- Identify who owns and controls the factors of production in a socialist economic system
- Analyse the efficiency of the management of the factors of production in a socialist economic systems

Content Background

In a socialist economic system, the factors of production are owned in common/public enterprises or the government. Personal property may be allowed but in the form of consumer goods only. However, there is central management and controlling of productive resources or factors of production by the state which emphasises equality.

Efficiency of the management and control of the factors of production

Having in mind that the ultimate aim of socialist economy is to ensure the maximisation of wealth of a whole community, a whole country. It aims to have an equal distribution of wealth among all its citizens, not just the welfare of its richest companies and individuals.

However, according to Chukwuemeka (2022), inefficiency develops in the production and distribution of goods and services because civil workers do not perform to the best of their ability. This means, regardless of how much work is being done, they will still be paid. A scenario not different from the PNG public service sector.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edeh Samuel Chukwuemeka, (2022), *Advantages and disadvantages of socialism*. 15 Bishop Anyogu Street, Uwani Enugu state, Nigeria. Retrieved from: <https://bscholarly.com>
3. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
4. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
5. E.D. Shade and R.J.Miller. (2000). *Foundations of Economics*. (4th Edition. Page.350 -351).Addison Wesley Longman. Melbourne. Australia.
6. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.

Benchmark 12.4.5.3: Evaluate the strength and weakness of the socialist economic system.

Topic 3: Strengths and weaknesses of socialist system

Sub-topics:

- Advantages of socialist economic systems
- Disadvantages of socialist economic systems

Skills: Evaluating (evaluate)

Learning Objectives: By the end of the topic, students will be able to:

- Identify the advantages of the socialist economic systems
- Identify the disadvantages of a socialist economic systems
- Make comparison with a capitalist system

Content Background

Advantages of the socialist economic system

In socialism ownership and control of the means of product and distribution of capital, land, labour and entrepreneurship is owned by the community or society as a whole. Mostly public goods are produced for the benefit of all citizens and no individuals have ownership of private properties.

- Equal distribution of goods and services
- Absence of exploitation
- Prevention of private monopoly

Disadvantages of a socialist economic system

Socialism is a theory or economic system of social organisation that advocates the vesting of the ownership and control of the means of product and distribution of capital, land, labour etc. in the community as a whole. However in reality most of the rulers are dictatorial and suppress citizens' rights in order to hold on to power. Such rulers spent billions of dollars from the country instead of providing needed social services as promised by the social ideology further leading to poverty and starvation. Stead dictators spent on building military warfare's and involves bilateral trade.

- Lack of competitiveness and innovation
- Creates room for laziness
- Slows down economic development
- Lack of specialisation because it does not encourage division of labour

Comparison socialist system to a capitalist system

Capitalism is an economic system characterised by private or corporate ownership of capital goods by investments that are determined by private decision and by prices, production and distribution of goods and services that are determined mainly by competition in a free market through the market forces of demand and supply.

Capitalism it is about owning capital by private individuals while socialism is about owning capital, land, labour etc. by all members of the society. Advocates of socialism are Karl Marx and Friedrich Engels. On the other hand

we have socialism which defines as an economic system in which goods are owned in common and are available to all as needed. It is also a theory advocating elimination of private property.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edeh Samuel Chukwuemeka, (2022), *Advantages and disadvantages of socialism*. 15 Bishop Anyogu Street, Uwani Enugu state, Nigeria.
Retrieved from: [Https://bscholarly.com](https://bscholarly.com)
3. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
4. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
5. E.D. Shade and R.J.Miller. (2000). *Foundations of Economics*. (4th Edition. Page.350 -351).Addison Wesley Longman. Melbourne. Australia.
6. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.

Benchmark 12.4.5.4: Explain how financial institutions function in a socialist economic system.

Topic 4: Operations of financial institutions in a socialist system

Sub-topic:

- Ownership of financial institutions in a socialist system
- Control and management of the financial system

Skills: Critical thinking - Analysing (explain)

Learning Objective: By the end of the topic, students will be able to:

- Analyse the ownership of financial systems in a social system.
- Discuss the control and management of the financial system.

Content Background

Ownership of financial institutions under socialist system

As learnt earlier, in a socialist economy, property and the means of production are owned in common, typically controlled by the state. Therefore, major financial institutions in the socialist economies are owned by the state.

Control and management of the financial system

In most socialist systems the financial institutions are influenced by the ruling authorities or the government. who makes decisions about debts and equity. Debts refer to loans and the bonds while equity refers to prepared equity and common stocks.

Control and management of financial system by any socialist system is by; clearing and settling payments,

- pooling resources and subdividing shares,
- transferring resources across time and space,
- managing risks,
- providing information and dealing with incentive problems.

In clearing and settling payments the financial systems in place provide mechanisms that facilitate exchanges of goods and services, as well as assets, followed by settlement, transferring ownership in return for the agreed remuneration.

Pooling resources and subdividing shares enable multiple investors to contribute to projects that no one of them alone could afford. Also, even if a single investor could afford to fund a project, there may be incentives for diversification.

Transferring resources across time and space is the fundamental purpose of investing to delay consumption, for example as households accumulate wealth for retirement or for the benefit of future generations. Firms in one industry, or in one location, may seek to invest surplus funds in other industries or at other locations.

Managing risk is when financial systems provide ways for investors to exchange, and thereby to control, risks. For example, insurance enables the pooling of risks, hedging enables the transfer of risk to speculators, diversification exploits low correlations that may exist among risky projects.

Providing information to financial systems to enable price discovery - that is, for those who wish to trade to observe the prices, rates of exchanges at which agreements can be made. Other information, for example about expectations of future asset price volatility, can be inferred from market prices.

Dealing with incentive problems. It is reasonable to suppose that contractual obligations can never stipulate the actions to be taken in every eventuality, even if every contingency could be imagined. Financial systems can help individuals to construct the sorts of contracts that fulfill their needs and to cope with the contingencies that the contracts do not explicitly take into account. For instance, the shareholders many firms may finance its operations partly with debt, the contractual obligations for which are designed to provide incentives for the firm's managers to act in.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
3. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
4. E.D. Shade and R.J.Miller. (2000). *Foundations of Economics*. (4th Edition. Page.350 -351).Addison Wesley Longman. Melbourne. Australia.
5. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.

Benchmark 12.4.5.5: Examine the influence of social ideology on the exchange of goods and services between governments and between people.

Topic 5: Influence of socialism on exchange of goods and services between governments and between people

Sub-topic:

- Government provision of goods and services
- Efficiency of government provision of goods and services

Skills: Analysing (examine)

Learning Objective: By the end of the topic, students will be able to:

- Examine the influence of socialism on the exchange of goods and services between people.
- Discuss the influence of socialism on the exchange of goods and services between governments.
- Analyse and discuss the government's provision of goods and services in a socialist system
- Evaluate the efficiency of government provision of goods and services in socialist systems

Content Background

Influence of socialism on the exchange of goods and services between governments

In a socialist economy, foreign trade is a state monopoly and is carried out in a planned way

Influence of socialism on the exchange of goods and services between people

Socialist ideals include production for use, rather than for profit; an equal distribution of wealth and material resources among all people; there is no competitive buying and selling in the market and free access to goods and services.

The government determines the output and pricing levels of the goods and services. Public officials (government workers) control producers, consumers, savers, borrowers and investors by regulating trade.

Government's provision of goods and services in a social system

The decision of how, what and for whom to produce lays with central authorities in power. The decision of the government is to provide goods and services.

A socialist economy has only state owned enterprises and no private enterprises. Most firms operating in social ideology economies are owned by the state which controls the debts and equity prices. Evaluating the efficiency of government provision of goods and services in socialist systems is ineffective leading to suppression of private citizens' rights and responsibilities to pursue common good of the citizens.

To reach its goal, the central planners set the price of a good or services which are below the equilibrium price than all state owned enterprise will apply the pricing formula or the maximum. This maximum pricing will create shortages for goods and services. That means long lines, empty shelves, and black markets exists. As for a free market economy consumers have varieties of goods and services to choose from.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
3. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
4. E.D. Shade and R.J.Miller. (2000). *Foundations of Economics*. (4th Edition. Page.350 -351).Addison Wesley Longman. Melbourne. Australia.
5. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.

Benchmark 12.4.5.6: Evaluate producer and consumer behaviour patterns in a socialist economy.

Topic 6: Behaviours patterns of producers and consumers in a socialist economy

Sub-topics:

- Producers' behaviour in a socialist economy
- Consumers' behaviour in a socialist economy

Skills: Evaluation (evaluate)

Learning Objective: By the end of the topic, students will be able to:

- Explain the behaviours of consumers in a socialist economy
- Discuss the behaviours of producers in a socialist economy

Content Background

Consumers in a socialist economy

In a socialist economy, consumer satisfaction is not the ultimate aim of the government, however, the emphasis is on the product for consumption and not the needs and tastes (Kostecki, 1985). Consumer preferences are not important in a socialist economy.

The government determines the kind and amount of goods and services offered in the market. The consumer may be forced to buy them even if he or she would prefer others that could have been produced.

Consumers do not make choices but consume what is provided by the state unlike the consumers in a free market economy. In a free market economy consumers decide for themselves what to be afforded and consume.

Producers in a socialist economy

Production is geared towards satisfying economic demands and human needs. As discussed earlier, the state runs the economy. Therefore, production of goods and services is centrally planned and controlled.

The setting of the price of a good or services is also controlled by the government. Prices are set below the equilibrium which leads to shortages. That means, black markets may exist for a long time due to shortages and surpluses. In a free market economy consumers have varieties of goods and services to choose from.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
3. Kostecki, M.M. (1985), *The Consumer in a Socialist Economy*, European Journal of Marketing, Vol 19 No.1. pp 20-30. Retrieved from: <https://www.emerald.com>
4. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
5. E.D. Shade and R.J.Miller. (2000). *Foundations of Economics*. (4th Edition. Page.350 -351).Addison Wesley Longman. Melbourne. Australia.

Benchmark 12.4.5.7: Illustrate how private enterprises operate in a communist economy.

Topic 7: Operations of private enterprises in a communist economy

Sub-topic:

- Freedom or liberty to do business in a socialist economy
- Efficiency to produce goods and services in a socialist economy in terms of quality, quantity and profitability

Skills: Understanding (illustrate)

Learning Objective: By the end of the topic, students will be able to:

- Analyse the ease of operations of private enterprises in a socialist economic system,
- Identify and discuss production output in terms of (quality, quantity and profitability)

Content Background

Operations of private enterprises in a socialist economic system

Private enterprises are enterprises owned by the private individuals. Socialist economies discourage private ownership and enterprises. The basic industries are owned by the government or by the private sector under strong government control. The decision on production and consumption lies with the ruling authorities in the economy. Many activities are centrally planned and have monopolistic characteristics.

Production output in terms of quality, quantity and profitability

The principal feature of a socialist economy is the central planning board at the top transmits economic decisions down to the various producing and consuming units below. Most times citizens are not given rights to produce for themselves. Because profit is not the motive of producers in a command economy. Due to mass production there could be defective items produced as producers will be bored doing the same thing over and over. Quality and quantity would be compromised. For example China is mixed economy similar to a socialist state. It produces in mass and disposing and dumping them to the third world countries. Mass production surely results in poor quality and nondurable goods and services in the third world countries.

Suppose one of the principal goals of the socialist economy is to keep the prices low. They will always keep prices below the equilibrium price in a free market economy to make cheaper prices of the goods and services. All state owned enterprise will apply pricing ceiling formula. The price ceiling will create shortages for goods and services. A command economy has only state owned enterprises do not deal with private enterprises.

Comparative examination with operations of private enterprises in a free market economy

This maximum pricing will create shortages for goods and services. The consequence of shortages is that black markets or thefts would occur. A Command economy has only state owned enterprise and no private

enterprises. Most firms operating in command economies sets price ceiling and not at the equilibrium price due to demand and supply factors. In the free market economy prices are set due to the interaction of demand and supply.

Suggested Resources

1. E.D. Shade, C.G.Latty and P.M. Scott. (1989). *Fundamentals of Economics* (3rd.ed.Vol 1.Page.294 -337) McGraw Hill Book Company. Australia
2. Edgar O'Neil. (1996). *Principles of Economics* (page.151-167) Dellasta Pacific, Victoria. Australia.
3. Kostecki, M.M. (1985), *The Consumer in a Socialist Economy*, European Journal of Marketing, Vol 19 No.1. pp 20-30. Retrieved from: <https://www.emerald.com>
4. Panditha M.N. Bandarara. (2013). *Economics for Grade 12* (page 107-176). UPNG Bookshop. Port Moresby.PNG
5. E.D. Shadia and R.J.Miller. (2000). *Foundations of Economics*. (4th Edition. Page.350 -351).Addison Wesley Longman. Melbourne. Australia.
6. R.J.Brown. (1989). *The Australian Economy* (Page.299-321) Brooks Waterloo. Queensland, Australia.

Standards-Based Lesson Planning

What are Standards-Based Lessons?

In a Standards-Based Lesson, the most important or key distinction is that, a student is expected to meet a defined standard for proficiency. When planning a lesson, the teacher ensures that the content and the methods of teaching the content enable students to learn both the skills and the concepts defined in the standard for that grade level and to demonstrate evidence of their learning.

Planning lessons that are built on standards and creating aligned assessments that measure student progress towards standards is the first step teacher must take to help their students reach success. A lesson plan is a step-by-step guide that provides a structure for an essential learning.

When planning a standards-based lesson, teacher instructions are very crucial for your lessons. How teachers instruct the students is what really points out an innovative teacher to an ordinary teacher. Teacher must engage and prepare motivating instructional activities that will provide the students with opportunities to demonstrate the benchmarks. For instance, teacher should at least identify 3-5 teaching strategies in a lesson; teacher lectures, ask questions, put students into groups for discussion and role play what was discussed.

Why is Standards-Based Lesson Planning Important?

There are many important benefits of having a clear and organized set of lesson plans. Good planning allows for more effective teaching and learning. The lesson plan is a guide and map for organizing the materials and the teacher for the purpose of helping the students achieve the standards. Lesson plans also provide a record that allows good, reflective teachers to go back, analyze their own teaching (what went well, what didn't), and then improve on it in the future.

Standards-based lesson planning is vital because the content standards and benchmarks must be comparable, rigorous, measurable and of course evidence based and be applicable in real life that we expect students to achieve. Therefore, teachers must plan effective lessons to teach students to meet these standards. As schools implement new standards, there will be much more evidence that teachers will use to support student learning to help them reach the highest levels of cognitive complexity. That is, students will be developing high-level cognitive skills.

Components of a Standards-Based Lesson Plan

An effective lesson plan has three basic components;

- aims and objectives of the course;
- teaching and learning activities;
- assessments to check student understanding of the topic.

Effective teaching demonstrates deep subject knowledge, including key concepts, current and relevant research, methodologies, tools and techniques, and meaningful applications.

Planning for under-achievers

Who are underachieving students?

Under achievers are students who fail or do not perform as expected. Underachievement may be caused by emotions (low self-esteem) and the environment (cultural influences, unsupportive family)

How can we help underachievement?

Underachievement varies between students. Not all students are in the same category of underachievement.

Given below a suggested strategies teachers may adopt to assist underachievers in the classroom.

- Examine the Problem Individually

It is important that underachieving students are addressed individually by focusing on the student's strengths.

- Create a Teacher-Parent Collaboration

Teachers and parents need to work together and pool their information and experience regarding the child. Teachers and parents begin by asking questions such as;

- In what areas has the child shown exceptional ability?
 - What are the child's preferred learning styles?
 - What insights do parents and teachers have about the child's strengths and problem areas?
- Help student to plan every activity in the classroom
 - Help students set realistic expectations
 - Encourage and promote the student's interests and passions.
 - Help children set short and long-term academic goals
 - Talk with them about possible goals.
 - Ensure that all students are challenged (but not frustrated) by classroom activities
 - Always reinforce students

Sample of Standards-Based Lesson Plans

To help teachers plan effective Standards-Based lesson plans, a sample lesson is provided here. Teachers are encouraged to study the layout of the different components of this lesson and follow this design in their preparation and teaching of each lesson. Planning a good lesson helps the teacher to focus on the essential knowledge, skill, value and attitude that students are expected to learn and master at the end of the lesson.

NOTE FOR TEACHER:

GIVEN BELOW ARE GRADE 9 SBC LESSON PLANS. USE THESE TO HELP YOU DESIGN YOUR LESSON PLANS FOR GRADE 12 ECONOMICS

Sample Lesson Plan - Lesson 1

Strand 4: Economics

Unit 5: Economic ideologies

Content Standard 4.1: Students will be able to interrogate and rationalize the influence of economic ideologies on economic systems, production, distribution, and consumption of goods and services, and on the trade relationships amongst different nations and people.

Benchmark 9.4.5.1: Interpret Papua New Guinea's Five National Goals and Directive Principles and investigate their influence on thinking, economic policies and practices, on economic relationships, and on the production and distribution of resources.

Topic 1: Papua New Guinea's National Goals and Directive Principals

Lesson Topic: What are National Goals and Directive Principles?

Grade: 9

Length of Lesson: 40 minutes

Essential Knowledge, skills, values and attitude

Knowledge:

- Meaning of National Goals and Directive Principles
- The Five National Goals and Directive Principles

Skill(s): Evaluation (interpret)

Values: Respect, being responsible

Attitudes: Appreciate

Performance indicator: Explain the different methods used to transmit cultures in PNG.

Materials:

Instructional Objective(s): By the end of the lesson, students will be able to:

- Define National Goals and Directive Principles.
- Identify Papua New Guinea's National Goals and Directive Principles.
- Interpret the National Goals and Directive Principles.

Essential Questions:

- Why do we have National Goals and Directive Principles?
- Who has written the National Goals and Directive Principles?
- Where do we find the National Goals and Directive Principles?

Lesson Procedure

Teacher Activities	Student Activities
Introduction (time in minutes)	
Relate this lesson to what is learnt in history. <ul style="list-style-type: none"> • Show pictures of our great leaders (Grand Chief, Sir Michael Somare and others) • Ask questions about the roles of these leaders and some significant things they have done. (writing of the constitution, independence) • Discuss and elaborate on students' answers 	Listen and answer questions
Body (time in minutes)	
<i>Modeling</i>	
Bring students' attention back to the lesson about to be taught by relating to what has already been discussed. <ol style="list-style-type: none"> Why do governments have goals to be achieved? What is one of the goals of the PNG government? 	Discuss in pairs and answer questions accordingly
<i>Guided Practice</i>	
Give a copy of; <ul style="list-style-type: none"> • the article; <i>The story of PNG's National Goals and Directive Principles'</i> • PNG Constitution (only the pages that have the National Goals and Directive Principles) Ask students to read and list one of PNG's National Goals and Directive Principles. Ask what is one of the National Goals and what does it mean?	Read and list one of PNG's National Goals and Directive Principles Students respond by giving one of the National Goals and provide a brief explanation.
<i>Independent Practice</i>	

<p>Ask students to list all the other National Goals and Directive Principles and provide a brief explanation of what each of these mean.</p> <p>Ask students to exchange what they have written with other students to read aloud in class and compare their answers.</p> <p>Compile all the answers provided by the students.</p>	<p>List all the National Goals and Directive Principles and explain what they mean in their own words as to how they understand.</p> <p>Listen carefully and follow instructions.</p> <p>Listen and improve their answers.</p>
Conclusion (time in minutes)	
<p>Get students into five groups.</p> <p>Give each group an envelope containing a card with a National Goal.</p> <p>Ask students to explain in one sentence what that goal means.</p> <p>Ask team leaders to read what each group has written.</p>	<p>Form five groups.</p> <p>Open the envelop and read what is on the card.</p> <p>Discuss and construct one sentence that will explain what that Goal mean.</p> <p>Team leader read to the whole class</p>

Assessments, Reporting and Monitoring

What is Standards-Based Assessment (SBA)?

Standards-Based Assessment is an on-going and a systematic process of **assessing, evaluating, reporting** and **monitoring** students' performance and progression towards meeting grade and national level expectations. It is the measurement of students' proficiency on a learning objective or a specific component of a content standard and progression towards the attainment of a benchmark and content standard.

Purpose of Standards-Based Assessment

Standards-Based Assessment (SBA) serves different purposes. These include instruction and learning purposes. The primary purpose of SBA is to improve student learning so that all students can attain the expected level of proficiency or quality of learning.

Enabling purposes of SBA is to:

- measure students' proficiency on well-defined content standards, benchmarks and learning objectives
- ascertain students' attainment or progress towards the attainment of specific component of a content standard
- ascertain what each student knows and can do and what each student needs to learn to reach the expected level of proficiency
- enable teachers to make informed decisions and plans about how and what they would do to assist weak students to make adequate progress towards meeting the expected level of proficiency
- enable students to know what they can do and help them to develop and implement strategies to improve their learning and proficiency level
- communicate to parents, guardians, and relevant stakeholders the performance and progress towards the attainment of content standards or its components
- compare students' performances and the performances of other students

Principles of Standards-Based Assessment

The principle of SBA is for assessment to be;

- emphasising on tasks that should encourage deeper learning
- be an integral component of a course, unit or topic and not something to add on afterwards
- a good assessment requires clarity of purpose, goals, standards and criteria
- of practices that should use a range of measures allowing students to demonstrate what they know and can do
- based on an understanding of how students learn
- of practices that promote deeper understanding of learning processes by developing students' capacity for self-assessment
- improving performance that involves feedback and reflection
- on-going rather than episodic

- given the required attention to outcomes and processes
- be closely aligned and linked to learning objectives, benchmarks and content standards.

Standards-Based Assessment Types

In standards-Based Assessment, there are three broad assessments types.

1. Formative Assessment

Formative assessment includes ‘assessment *for* and *as*’ and is conducted during the teaching and learning of activities of a topic.

Purposes of Assessment For Learning

- On-going assessment that allows teachers to monitor students on a day-to-day basis.
- Provide continuous feedback and evidence to the teachers that should enable them to identify gaps and issues with their teaching, and improve their classroom teaching practice.
- Helps students to continuously evaluate, reflect on, and improve their learning.
- Help teachers to make inferences about student learning to inform their teaching.
- Provide continuous feedback to both students and teachers which enables them to monitor progress, identify and address gaps and errors in learning.

Purposes of Assessment As Learning

- Occurs when students reflect on and monitor their progress to inform their future learning goals.
- Helps students to continuously evaluate, reflect, and improve their own learning.
- Helps students to understand the purpose of their learning and clarify learning goals.

2. Summative Assessment

Summative assessment focuses on ‘assessment of learning’ and is conducted after or at the conclusion of teaching and learning of activities or a topic.

Purposes of Assessment Of Learning

- Help teachers to determine what each student has achieved and how much progress he/she has made towards meeting national and grade-level expectations.
- Help teachers to determine what each student has achieved at the end of a learning sequence or a unit.
- Enable teachers to ascertain each student’s development against the unit or topic objectives and to set future directions for learning.
- Help students to evaluate, reflect on, and prepare for next stage of learning.

3. Authentic Assessment

- Is performed in a real life context that approximates as much as possible, the use of a skill or concept in the real world.
- Is based on the development of a meaningful product, performance or process.
- Students develop and demonstrate the application of their knowledge, skills, values and attitudes in real life situations which promote and support the development of deeper levels of understanding.

Authentic Assessment Criteria

Authentic assessment refers to assessment that:

- Looks at students actively engaged in completing a task that represents the achievement of a learning objective or standard.
- Takes place in real life situations.
- Asks students to apply their knowledge, skills, values and attitudes in real life situations.
- Students are given the criteria against which they are being assessed.

Performance Assessment

Performance assessment is a form of testing that requires students to perform a task rather than select an answer from a ready-made list. For example, a student may be asked to explain historical events, generate scientific hypotheses, solve math problems, converse in a foreign language, or conduct research on an assigned topic. Teachers, then judge the quality of the student's work based on an agreed-upon set of criteria. It is an assessment which requires students to demonstrate that they have mastered specific skills and competencies by performing or producing something.

Types of performance assessment;

i. Products

This refers to concrete tangible items that students create through either the visual, written or auditory media such as;

- Creating a health/physical activity poster
- Video a class game or performance and write a broadcast commentary
- Write a speech to be given at a school council meeting advocating for increased time for health and physical education in the curriculum
- Write the skill cues for a series of skill photo's
- Create a brochure to be handed out to parents during education week
- Develop an interview for a favorite sportsperson
- Write a review of a dance performance
- Essays
- Projects

ii. Process Focused Tasks

It shows the thinking processes and learning strategies students use as they work such as;

- Survival scenarios
- Problem-solving initiative/adventure/activities
- Decision making such as scenario's related to health issues
- Event tasks such as creating a game, choreographing a dance/ gymnastics routine, creating an obstacle course
- Game play analysis

- Peer assessment of skills or performances
- Self-assessment activities
- Goal setting, deciding a strategy and monitoring progress towards achievement

iii. Portfolio

This refers to a collection of student work and additional information gathered over a period of time that demonstrates learning progress.

iv. Performances

It deals with observable affective or psycho-motor behaviours put into action such as;

- Skills check during game play
- Role plays
- Officiating a game
- Debates
- Performing dance/gymnastics routines
- Teaching a skill/game/dance to peers

Performance Standards

Performance Standards are concrete statements of how well students must learn what is set out in the content standards, often called the “be able to do” of “what students should know and be able to do.” Performance standards are the indicators of quality that specify how competent a students’ demonstration or performance must be. They include explanations of how well students must demonstrate the content, explaining how good is good enough.

Performance standards:

- measure students’ performance and proficiency (using performance indicators) in the use of a specific knowledge, skill, value, or attitude in real life or related situations
- provide the basis (performance indicators) for evaluating, reporting and monitoring students’ level of proficiency in use of a specific knowledge, skills, value, or attitude
- are used to plan for individual instruction to help students not yet meeting expectations (desired level of mastery and proficiency) to make adequate progress towards the full attainment of benchmarks and content standards
- are used as the basis for measuring students’ progress towards meeting grade-level benchmarks and content standards.

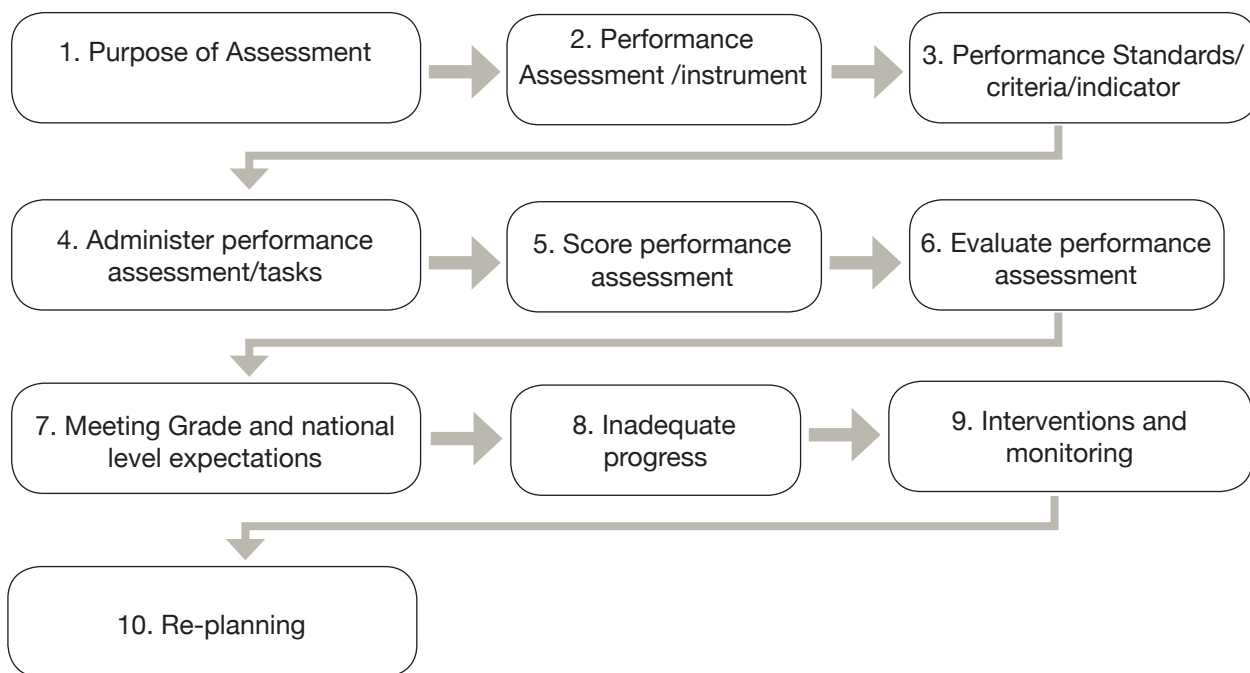
Assessment Strategies

It is important for teachers to know that, assessment is administered in different ways. Assessment does not mean a test only. There are many different ways to find out about student’s strengths and weaknesses. Relying on only one method of assessing will not reflect student’s achievement. Provided in the appendices is a list of suggested strategies you can use to assess student’s performances. These strategies are applicable in all the standards-based assessment types.

Please refer to Appendix 5 to see the suggested strategies.

There are different performance assessment methods and assessment strategies for assessing students’ learning and performance on significant components of content standards.

Standards-Based Assessment Process



Scoring Students' Assessment

Assessment scoring methods describe how students' assessment tasks will be scored.

The most commonly used methods of scoring students' assessment are:

- i. Checklists
- ii. Rating Scales
- iii. Rubrics

Students' performance is assessed and scored using:

- i. a set of well-defined criteria
- ii. performance standards or indicators,

Checklists, rating scales and rubrics are tools that state specific criteria and allow teachers and students to gather information and to make judgements about what students know and can do in relation to the standards. They offer systematic ways of collecting data about specific behaviours, knowledge and skills.

The quality of information acquired through the use of checklists, rating scales and rubrics is highly dependent on the quality of the descriptors chosen for assessment.

Checklists usually offer a yes/no format in relation to student demonstration of specific criteria. This is similar to a light switch; the light is either on or off. They may be used to record observations of an individual, a group or a whole class.

Rating Scales allow teachers to indicate the degree or frequency of the behaviours, skills and strategies displayed by the learner. Rating scales state the criteria and provide three or four response selections to describe the quality or frequency of student work.

Teachers can use rating scales to record observations and students can use them as self-assessment tools. Teaching students to use descriptive words, such as *always*, *usually*, *sometimes* and *never* helps them pinpoint specific strengths and needs. Rating scales also give students information for setting goals and improving performance. In a rating scale, the descriptive word is more important than the related number. The more precise and descriptive the words for each scale point, the more reliable the tool.

Effective rating scales use descriptors with clearly understood measures, such as frequency. Scales that rely on subjective descriptors of quality, such as *fair*, *good* or *excellent*, are less effective because the single adjective does not contain enough information on what criteria are indicated at each of these points on the scale.

Rubrics use a set of criteria to evaluate a student's performance. They consist of a fixed measurement scale and detailed description of the characteristics for each level of performance. These descriptions focus on the *quality* of the product or performance and not the quantity; e.g., not number of paragraphs, examples to support an idea, spelling errors. Rubrics are commonly used to evaluate student performance with the intention of including the result in a grade for reporting purposes. Rubrics can increase the consistency and reliability of scoring.

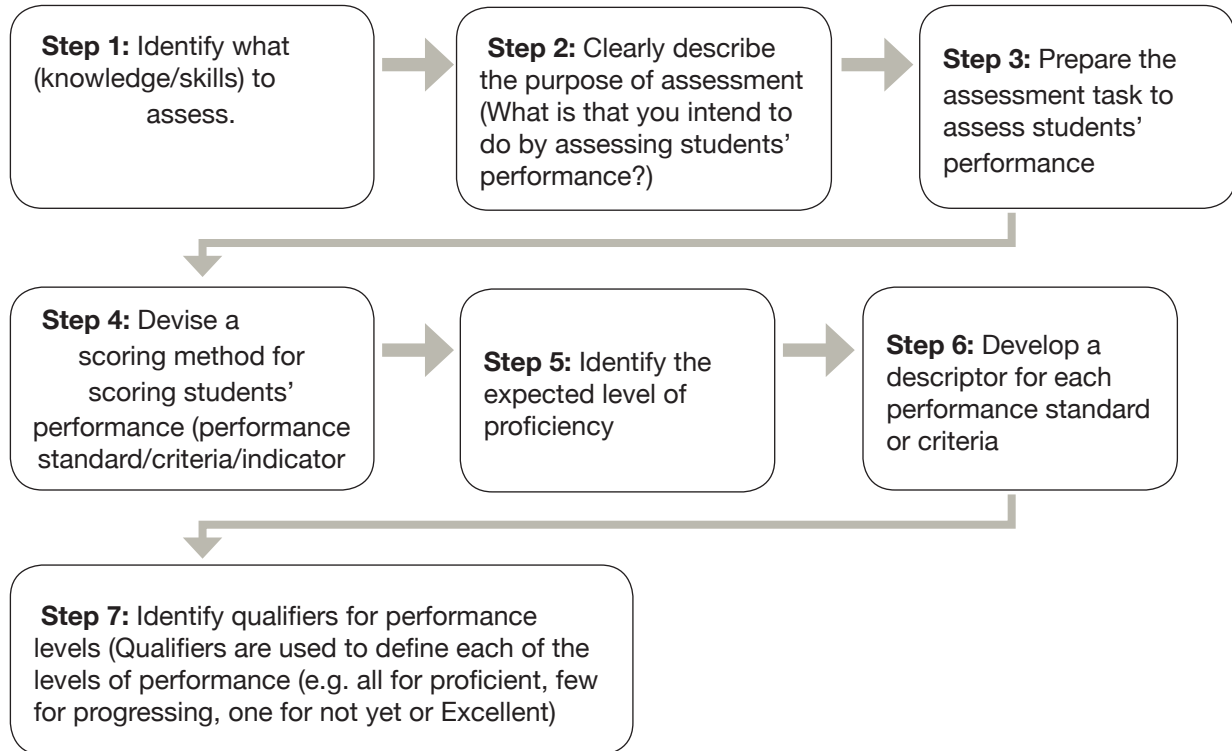
Rubrics use a set of specific criteria to evaluate student performance. They may be used to assess individuals or groups and, as with rating scales, may be compared over time.

Rubrics are recognized as a way to effectively assess student learning and communicate expectations directly, clearly and concisely to students. The inclusion of rubrics in a teaching resource provides opportunities to consider what demonstrations of learning look like, and to describe stages in the development and growth of knowledge, understandings and skills. To be most effective, rubrics should allow students to see the progression of mastery in the development of understandings and skills.

However, regardless of which method is used, students' performance, proficiency, and quality of learning should be meaningfully and effectively measured. This will help ascertain if students are meeting grade-level expectations and progressing towards meeting the content standard.

Assessment Samples

Teachers are required to use the steps outlined below when planning assessment. These steps will guide you to develop effective assessments to improve student's learning as well as evaluating their progress towards meeting national and grade –level expectations.



There are three (3) assessment samples provided here to guide teachers when preparing assessment for students. There is a/an;

- i. formative assessment sample
- ii. summative assessment sample
- iii. authentic assessment sample

Teachers are encouraged to give a variety of assessments using different strategies on one topic to test the understanding and achievement of a content standard and a benchmark by individual students.

Assessment Types

NOTE FOR TEACHER:

GIVEN BELOW ARE GRADE 9 SBC ASSESSMENT SAMPLES. USE THESE TO DEVELOP GRADE 12 ECONOMICS ASSESSMENTS

Formative Assessment

This assessment is given during the lesson.

Benchmark 9.1.1.1: Identify and explain the use of weather instruments and unit of measurements used in measuring weather.

Topic 1: Weather instruments

Lesson Topic: Weather instruments and elements of weather

What are you assessing?

Identification of weather instruments and relate to the elements of weather.

Performance Task

Identify weather instruments and the elements measured. Students will complete this table.

Name of weather instrument	Picture of weather instrument	Element of weather measured

What is the purpose of this assessment?

To monitor students understanding of the weather instruments and the elements measured

Assessment Scoring

Checklist		
Date: 7th August, 2020		
Performance criteria/standard	Yes	No
Identifies weather instruments and the elements measured.		

Summative Assessment

Strand 2: Geography

Unit 1: Geography Skills

Content Standard 1.1: Student will be able to use geographical tools to locate and interpret information about people, places and environment.

Benchmark 9.1.1.1: Identify and explain the use of weather instruments and unit of measurements used in measuring weather.

Topics 1: Weather instruments

Learning Objectives: By the end of the topic, students will able to;

- Identify weather instruments.
- Explain the uses of weather instruments.
- Identify the units of measurements used in weather instruments.

Purpose of this assessment

The purpose of this assessment is to measure student's achievement of the benchmark, i.e. if students have used analytical skills to identify different weather instruments and their units of measurements and explain what each weather instrument is used for and how it is used. Also to find out if the students can work independently and have confidence in their abilities and evaluate the effectiveness of their research.

Expected level of proficiency

All students are expected to;

1. Explain the uses of weather instruments
2. Identify the units of measurements used in weather instruments

Performance Task

Create a booklet on weather instruments. This will include; carrying out a research on the uses and units of measurements of weather instruments, explanations on the uses of weather instruments, illustrations of the different weather instruments, general layout of the booklet (cover, content, references,)

Assessment Strategy

Project to assess the quality of end product

Assessment Scoring

Project to assess the quality of end product

Rubric					
Date: 20th August, 2019					
Performance standards/Criteria	Proficiency Levels				Score
	Excellent (4)	Good (3)	Fair (2)	Needs to improve (1)	__/30 Marks
Research (Work independently)	Research is complete including descriptions and facts from different sources	Research is mostly there with descriptions and facts from only two sources	Research is missing some descriptions and facts and used only one source	Research is lacking some crucial parts making it incomplete	
Identify units of measurements used in each weather instrument	Identify units of measurements used in all the weather instruments	Identify units of measurements used in most of the weather instruments	Identify units of measurements used in some of the weather instruments	Identify units of measurements used in few weather instruments	
Explain the use of each weather instruments	Clear explanations on the uses of all-weather instruments	Explain the uses of most of the weather instruments	Explain the uses of some weather instruments only	Explain the use of only a few weather instruments	
Design, layout and organization of the booklet	Content is well organized with headings and sub-headings. Text and illustrations are neatly organized and making it easy to read	Content is organized with headings and sub-headings. Text and illustrations are placed to make it easy to read	Most of the sections are organized, however, the placement of the text and graphics sometimes make it difficult to read	There was no clear structure. Text and illustrations are randomly placed making it hard to read.	

Strand 2: History**Unit 3: Culture and Society**

Content Standard 2.3: Students will be able to investigate the different ways of transmitting culture and critically think about the reasons culture and cultural diffusion affects the development and maintenance of societies.

Benchmark 9.2.3.1: Examine the methods by which societies of PNG transmit culture across time, such as storytelling, songs, religious services, food, clothing, rituals, holidays, etc.

Topics 1: Culture transmission**Learning Objectives: By the end of the topic, students will able to;**

- Examine the different methods used to transmit cultures in PNG
- Discuss how PNG's cultures are transmitted through oral tradition
- Examine how PNG cultures are transmitted through language, art, music and customs
- Observe and critique how PNG cultures are transmitted through food, clothing and religious rituals
- *Use video recording gadgets to record a video on a method of transmitting culture (Authentic Assessment)*

Lesson Topics:

1. Methods used to transmit culture in PNG
2. Transmission of culture through oral traditions in PNG
3. Transmission of culture through art, music and customs in PNG
4. Transmission of culture PNG food, clothing and religious rituals in PNG

Purpose of this assessment

To find out if students can be able to use the skills of analyzing to examine the methods by which societies of PNG transmit culture across time.

Note: *Assessment should be linked to the performance indicator indicated in the learning objectives*

Expected level of proficiency

All students are expected to;

- identify the methods used to transmit culture in PNG
- analyse how these methods have been used to transmit culture over time

Performance Task

Students will write a test out of 20 marks. You can use other assessment tools (assignment, projects etc) assess student's proficiency on this benchmark.

Assessment Strategy

A test will be used to measure student's proficiency.

Sample test

Grade 9 Social Science
Test No: 01

Name: _____ **Class:** _____ **Date:** _____ **Total:** ___/10 Marks

There are two parts to this test.

Part A: Multiple Choice (4 marks)

Circle the correct answer to the questions given.

QUESTION 1

Culture is defined as

- | | | | |
|----|------------------------|----|-----------------------------------|
| A. | A group of people. | B. | <i>People's way of life.</i> |
| C. | Daily lives of people. | D. | The food and clothes people wear. |

QUESTION 2

'The methods used by people to pass on their cultures from one generation to the next is referred to as

- | | | | |
|----|-----------------------|----|-------------------------------|
| A. | Culture. | B. | Cultural heritage. |
| C. | Cultural transfusion. | D. | <i>Cultural transmission.</i> |

QUESTION 3

Which example shows a native PNG culture?

- | | | | |
|----|-----------------------------|----|---------------------------|
| A. | Easter Worship | B. | Chewing of betel |
| C. | <i>Bride price ceremony</i> | D. | Regional sports gathering |

QUESTION 4

Which of these is a foreign culture introduced to Papua New Guinea culture?

- | | | | |
|----|-----------|----|------------------|
| A. | Dances | B. | <i>Christmas</i> |
| C. | Gardening | D. | Bride price |

Part B: Short Answers

(6 marks)

Write your answers clearly

QUESTION 1

Name the three common ways culture has been transmitted in Papua New Guinea. (3 marks)

- (i) *Oral* (ii) *Practices* (iii) *Experiences*

QUESTION 2

Choose one of the three ways and explain how it has helped transmit culture overtime. (2 marks)

- (i) *Oral transmission has helped culture to be passed onto the next generation through use of the word of mouth by storytelling.*
- (ii) *Practices has transmitted culture through time, by children being shown the practices through.*

(iii) Experience has transmitted culture through time by children been born into that culture where they are part of that activity or they observe till they are allowed to take part.

QUESTION 3

State a reason why we should maintain our culture?

(1 mark)

We should maintain our culture because it is our identity, other people are able to tell where we come from and also to keep it from dying out

End of test

Assessment Scoring

Rubrics must be developed to articulate the real proficiency of the child. This is an analytical rubrics used to assess the child's learning through the assessment tool a test.

Performance Standard/ Criteria	Advanced 5	Proficient 4	Progressing 3	Not yet 2	Score ___/10
Define culture and cultural transmission (4 marks)	Correctly distinguish culture from cultural transmission and shows clear understanding of their connections	Correctly distinguish culture from cultural transmission	Satisfactorily distinguish culture from cultural transmission	Cannot distinguish between culture and cultural transmission	
Identify the different methods used to transmit cultures in PNG (3 marks)	Identifies all the methods of transmitting culture and writes it correctly	Identifies all the methods of transmitting culture	Identifies two of the methods of transmitting culture	Identifies only one method of transmitting culture	
Analyze these methods to transmit cultures in PNG (3 marks)	Clearly explains how culture is transmitted and maintained and with more than two supporting examples.	Explain how culture is transmitted and maintained and with a supporting examples	Satisfactorily explains how culture is transmitted and maintained but no examples given	Poor explanation of how culture is transmitted and no examples given	

Authentic Assessment

Strand 1: Geography

Unit 1: Geography Skills

Content Standard 1.1: Student will be able to use geographical tools to locate and interpret information about people, places and environment.

Benchmark 9.1.1.4: Record daily maximum and minimum temperature over two weeks and construct a temperature graph and calculate the average daily temperature over two weeks as well as the average maximum and average daily temperature.

Topic 4: Temperature

Learning Objectives: By the end of this topic, students will be able to;

- Record daily maximum and minimum temperature over two weeks.
- Construct temperature line graph.
- Calculate the average daily temperature over two weeks.
- Calculate average maximum and average minimum temperature.

Purpose

The purpose of this assessment is to test students understanding of how temperature is measured using thermometers. To see if students can apply what they have learnt in theory into practice in real life and of course motivate them to become meteorologists in future.

Expected level of proficiency

- Observe and take measurements of the temperature
- Record temperature on a temperature chart
- Construct temperature graph

Performance task

Observing and Recording Temperature Data

Students will observe the temperature each day with the thermometer. They will record the temperature each day for 5 days. *(They can use thermometers provided by the school or use the ones they have created in the STEAM Activity).*

Assessment strategy

Students will do a project (project-based learning) to demonstrate their proficiency of the benchmark. Refer to the performance task.

Materials needed

- Thermometer, pencil, paper to record temperature, temperature chart for one week
- Teacher to communicate with necessary school personnel to let them know that students will be measuring temperatures around the building.

Instructions

- Go outside and observe the temperature at 10:00am, 12:00pm, 2:00pm, each day (Monday-Friday)
- Record the temperature reading on the paper
- Enter the data for the 5 days on the temperature chart
- Calculate the daily average temperature
- Construct average temperature graph (line, bar or column)

Assessment Scoring

DATE: 30th August, 2019					
Performance standard/criteria	Exceeds expectations (5)	Meets expectations (4)	Needs improvement (3)	Inadequate (2)	Score
Observe and take measurements of the temperature	Observations and measurements are accurate. Measurements are taken at the same time each day. Displays careful and correct handling of the thermometer	Accurate measurements taken at the same time each day	Some measurements are not accurate	Observations and measurements at different times each day. Most of the measurements are not accurate	
Record temperature on a temperature chart	Chart has a title Chart captures the time Chart captures the daily temperature recordings at different times Chart captures the daily average temperatures Highlights the minimum & maximum daily temperatures	Chart has a title Chart captures the time Chart captures the daily temperature recordings at different times Chart captures the daily average temperatures	Chart has a title Chart captures the time Chart captures the daily temperature recordings at different times	Chart captures only the daily temperature recordings at different times	
Construct a temperature graph	Graph has a title Axis labeled correctly Graph has accurate intervals Clear and easy to read	Graph has a title Axis labeled correctly Clear and easy to read	Graph has a title Axis labeled incorrectly Easy to read	Has a graph without a title and axis not labeled making it difficult to read	

Strand 2: History**Unit 3:** Culture and Society

Content Standard 2.3: Students will be able to investigate the different ways of transmitting culture and critically think about the reasons culture and cultural diffusion affects the development and maintenance of societies.

Benchmark 9.2.3.1: Examine the methods by which societies of PNG transmit culture across time, such as storytelling, songs, religious services, food, clothing, rituals, holidays, etc.

Topic 1: Culture transmission**Lesson topics:**

- Methods used to transmit culture in PNG
- Transmission of culture through oral traditions in PNG
- Transmission of culture through art, music and customs in PNG
- Transmission of culture PNG food, clothing and religious rituals in PNG

Learning objectives: By the end of the topic, students will be able to:

- Examine the different methods used to transmit cultures in PNG.
- Discuss how PNG's cultures are transmitted through oral tradition.
- Examine how PNG cultures are transmitted through language, art, music and customs.
- Observe and critique how PNG cultures are transmitted through food, clothing and religious rituals.
- Use video recording gadgets to record a video and create a portfolio on one method of transmitting cultures in PNG (Authentic Assessment).

What is to be assessed?

Content of the topic which is transmission of PNG's cultures

Purpose

The purpose of this assessment is for the students to understand how cultures of Papua New Guinea have been transmitted overtime and also to enable them to become aware of their dying cultures which must be preserved through recording and archiving as such the activity that they are doing. They foresee the importance of preserving culture thus is empowered to promote and maintain it.

Expected level of proficiency

Students can;

- Identify the methods of transmitting cultures in PNG
- Analyse the methods used to transmit cultures in PNG

Performance task

'Video Recordings and Portfolio on Methods of Transmitting Cultures in PNG'

Use video recording gadgets (portable cameras/mobile phone cameras) to record a video and create a portfolio of the snap shots of one method used to transmitting culture in PNG. Students will work in groups of 4 to 5 to produce a video and portfolio on the methods of transmitting cultures in PNG. This activity will take up to a month (4 weeks).

Assessment strategy

Students will do a project (project-based learning) to demonstrate their proficiency of the benchmark. Refer to the performance task.

Materials needed

Mobile, camera, biros, papers and questionnaire, (If the required technology is not available at all then, document information through questionnaires)

Instructions

- Students to work in groups of four or five
- Carry out the project according to the criteria
- A period or two of lesson times for Social Science should be made available for students to continue work on this. (Organise trip to museum as refresher as they continue with their assessment tasks)
- Present video and portfolio of the snap shots of the assessment task after the due date.

Assessment scoring

Rubrics must be developed to articulate the real proficiency of the child. This is an analytical rubrics used to assess the child's learning through the assessment tool a project.

'Video recordings and portfolio on methods of transmitting cultures in PNG'

Performance Standard/ Criteria	Advanced 11	Proficient 10	Progressing 9-5	Not yet 4-1	Score ___/30
Identify the methods of transmitting culture in PNG (10 marks)	Correct video recordings and snap shots of the whole range of methods of transmitting and with voice recording as well	Correct video recordings and snap shots of one method of transmitting culture	Fair recordings and snap shots of one method of transmitting culture	Inappropriate recordings and snap shots of one method of transmitting	
Analyze the methods used to transmit culture in PNG (10 marks)	Exceptional title Well explained video recordings and clearly written analysis of snap shots of all the methods of transmitting culture	Very good title Good explanation of video recordings and sound written analysis of the snap shots of one method of transmitting culture	Sound title Fair explanation of video recordings and fair written analysis of the snap shot of one method of transmitting culture	Fair title Poor explanation of the video recordings and poor written analysis of the snap shots of one method of transmitting culture	
Archive of video record and portfolio of the snap shots (10 marks)	Outstanding video records and portfolio of snap shots for archiving	Very good video record and portfolio of snap shots for archiving	Fair video record and portfolio of snap shots for archiving	Poor video record and portfolio of snap shots therefore cannot be archived	

Steam Assessment (creating/replicating)**Strand 2:** History**Unit 4:** Development and Sustainability of Societies

Content Standard 2.4: Students will be able to explain and analyse the roles of individuals and groups within a society as promoters of change or guardians of status quo.

Benchmark 9.2.4.4: Identify individuals and groups in PNG who have made important contributions towards promoting change or sustainability and evaluate the nature of their contribution.

Topic 4: Agents of change in PNG**Learning Objectives: By the end of this topic, students will be able to:**

- Identify individuals and groups who have made important contributions to PNG.
- Evaluate the nature of these contributions.
- Research on important figures in PNG's history and create monuments in honour of their contributions to developing our nations.

What is to be assessed?

Content of benchmark which is individuals and groups in PNG who have made important contributions towards promoting change or sustainability and evaluate the nature of their contribution.

Purpose

The purpose of this assessment is for the students to appreciate history of and show respect for important persons who have greatly contributed to the development of PNG.

Expected level of proficiency

Students can;

- Identify individuals and groups who have made important contributions to PNG
- Evaluate the nature of these contributions

Performance task*'Restoration of PNG's Agents of Change'*

Students will work in groups of 5 to 6 to research and create monuments for important persons who have contributed to develop PNG. This assessment should be done in collaboration with other subjects such as Technology and Industrial Arts (TIA), English/L&L, Maths, Science and Business Studies. Why these subjects? TIA will assist students draw faces of this important persons and create their sculptures. English to assist write biographies of these figures and also write proper captions to their monuments and Business Studies will capitalize on the idea of making money from these monuments for the school through school fares and other ways. Math on the correct size and measurement of the sculptures and Science on the advice of how much of the content of certain chemicals to maintain lasting effects etc.

Assessment strategy

Students will do a steam project to demonstrate their proficiency of the benchmark. Refer to the performance task.

Materials needed

Biros, pencils, erasers, ruler, tape measures, metals, sculpturing tools, safety gears such as masks, hand clothes, overalls and helmet, calculators, diaries and journals,

Assessment scoring

Rubrics must be developed to articulate the real proficiency of the child. This is an analytical rubrics used to assess the child's learning through the assessment tool a STEAM project.

'Restoration of PNG's Agents of Change'

Performance Standard/ Criteria	Advanced 11	Proficient 10	Progressing 9-5	Not yet 4-1	Score ___/30
Identify individuals and groups who have made important contributions to PNG (10 marks)	Identified all the prominent figures and produced biography for each of them	Identified some prominent figures with their biographies	Identified less than 3 prominent figures with their biographies	Identified only one prominent with his/her biography	
Evaluate the nature of these contributions (10 marks)	<ul style="list-style-type: none"> - Exceptional title - Well and detailed explanation of all these persons contributions to development of PNG 	<ul style="list-style-type: none"> - Very good title - Good explanation of all these persons contributions to development of PNG 	<ul style="list-style-type: none"> - Sound title - Fair explanation of these persons contributions to development of PNG 	<ul style="list-style-type: none"> - Fair title - Poor explanation of these persons contributions to development of PNG 	
Monuments/ sculptures of the important persons who contributes to the development of PNG (10 marks)	Excellent sculpture with all details of the person as presented in the photograph and correct caption embedded onto the sculpture	Very good sculpture with all details as presented in the photograph	Good sculpture but a few details missing according to the photograph	Fair sculpture with a lot of details missing as it is not according to the photograph	

Glossary

Terms	Definitions
Assessment	Activities teachers use to help students learn and to measure and monitor their progress towards the attainment of expected levels of proficiency.
Assessment As Learning	Assessment is used to help students understand and reflect on what they have learnt or are having difficulties with, identify areas of strengths and weaknesses, and set clear, measurable, and attainable personal goals to improve their own learning.
Assessment For Learning	A common form of assessment. It is an ongoing assessment process that arises out of the interaction between teaching and learning. Also referred to as formative assessment.
Assessment Of Learning	Provides a summary of students learning over a given period of time and is generally carried out at the end of a course of study. Also referred to as summative assessment.
Assessment Strategies	Different ways or approaches of assessing students work.
Authentic Assessment	A type of broad assessment that involves students actively engaged in completing a task that represents the achievement of a learning objective or standard. Authentic assessment takes place in real life situations.
Benchmarks	Benchmarks are more detailed descriptions of a specific level of performance expected of students at particular ages, grades, school levels or levels of development. They are the specific components of the knowledge, process, skill, concept, principle, or idea identified by a content standard.
Content Standards	Content Standards are broadly stated expectations of what (content) students should know. They describe the knowledge, skills, values, and attitudes that students should attain.
Curriculum Integration	Curriculum integration in teaching and learning refers to an approach or methodology that cuts across and draws on multiple subject areas to focus on a topic or theme.
Diagnostic Assessment	An assessment given to identify child's strengths and learning needs for improvement.
Evidence Outcomes	Evidence outcomes are indicators that indicate students' mastery of essential knowledge, skills, values and attitudes at the end of each grade or school level.
Formative Assessment	A form of assessment used throughout a unit of study in teaching and learning to measure student's understanding and progress.
Monitoring	General supervision over the teaching and learning of the standards.
Performance Assessment	A form of assessment that is focused on measuring students' mastery of knowledge, skills, values and attitudes taught and learnt in each lesson.
Performance Standards	Performance standards are the indicators of quality that specify how competent a students' demonstration or performance must be.
Proficiency	Mastery of the essential knowledge, skills, values and attitudes in the content standards and benchmarks.

Rubrics	It is a scoring guide used to assess the quality of students responses in an assessment often presented in a table with evaluative criteria at certain levels of achievement.
Self-Assessment	A judgment for official purposes for teachers to make about their abilities, principles or decisions.
Standard	A standard is a level of quality or achievement, especially a level that is thought to be acceptable. It is something used to measure or estimate the quality or degree of something, for example, how good a piece of work is.
Standards-Based Curriculum	Describes what all students should know and be able to do at the end of a grade or school level. The main idea behind standards-based curriculum is standards.
Standards-Based Education	An academic program in which clearly defined academic content and benchmarks are aligned. It spells out what schools and communities need to do to ensure achievement of expectations. The main idea behind standards-based education is standards.
Standards-Based Assessment	A systematic and ongoing process of collecting and interpreting information about students' achievements.
21st Century Skills	Refers to a broad set of knowledge, skills, work habits, and character traits that are believed by educators, school reformers, college professors, employers, and others to be critically important to success in today's world, particularly in collegiate programs and contemporary careers and workplaces.

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Appendices

Appendix 1: Bloom's Taxonomy

Level of Understanding	Key Verbs
Creating Can the student create a new product or point of view?	Construct, design, and develop, generate, hypothesize, invent, plan, produce, compose, create, make, perform, plan, produce, assemble, formulate,
Evaluating Can the student justify a stand or decision?	Appraise, argue, assess, choose, conclude, critique, decide, defend, evaluate, judge, justify, predict, prioritize, provoke, rank, rate, select, support, monitor,
Analyzing Can the student distinguish between the different parts?	Analyzing, characterize, classify, compare, contrast, debate, criticise, deconstruct, deduce, differentiate, discriminate, distinguish, examine, organize, outline, relate, research, separate, experiment, question, test,
Applying Can the student use the information in a new way?	Apply, change, choose, compute, dramatize, implement, interview, prepare, produce, role play, select, show, transfer, use, demonstrate, illustrate, interpret, operate, sketch, solve, write,
Understanding Can the student comprehend ideas or concepts?	Classify, compare, exemplify, conclude, demonstrate, discuss, explain, identify, illustrate, interpret, paraphrase, predict, report, translate, describe, classify,
Remembering Can the student recall or remember the information?	Define, describe, draw, find, identify, label, list, match, name, quote, recall, recite, tell, write, duplicate, memorise, recall, repeat, reproduce, state,

Appendix 2: 21st Century Skills

Ways of Thinking	<p>Creativity and innovation</p> <ul style="list-style-type: none"> i. Think creatively ii. Work creatively with others iii. Implement innovations <p>Critical thinking, problem-solving and decision making</p> <ul style="list-style-type: none"> i. Reason effectively and evaluate evidence ii. Solve problems iii. Articulate findings <p>Learning to learn and meta-cognition</p> <ul style="list-style-type: none"> • Self-motivation • Positive appreciation of learning • Adaptability and flexibility
Ways of Working	<p>Communication</p> <ul style="list-style-type: none"> • Competency in written and oral language • Open minded and preparedness to listen • Sensitivity to cultural differences <p>Collaboration and teamwork</p> <ul style="list-style-type: none"> • Interact effectively with others • Work effectively in diverse teams • Prioritise, plan and manage projects
Tools for Working	<p>Information literacy</p> <ul style="list-style-type: none"> • Access and evaluate information • Use and manage information • Apply technology effectively <p>ICT literacy</p> <ul style="list-style-type: none"> • Open to new ideas, information, tools and ways of thinking • Use ICT accurately, creatively, ethically and legally • Be aware of cultural and social differences • Apply technology appropriately and effectively
Living in the World	<p>Citizenship – global and local</p> <ul style="list-style-type: none"> • Awareness and understanding of rights and responsibilities as a global citizen • Preparedness to participate in community activities • Respect the values and privacy of others <p>Personal and social responsibility</p> <ul style="list-style-type: none"> • Communicate constructively in different social situations • Understand different viewpoints and perspectives <p>Life and career</p> <ul style="list-style-type: none"> • Adapt to change • Manage goals and time • Be a self-directed learner • Interact effectively with others

Appendix 3: Teaching and Learning Strategies

Strategy	Teacher	Students
<p>Case study Used to extend students' understanding of real life issues</p>	Provide students with case studies related to the topic of the lesson and allow them to analyse and evaluate.	Study the case study and identify the problem addressed. They analyse the problem and suggest solutions supported by conceptual justifications and make presentations. This enriches the students' existing knowledge of the topic.
<p>Debate A method used to increase students' interest, involvement and participation</p>	Provide the topic or question of debate on current issues affecting a bigger population, clearly outlining the expectations of the debate. Explain the steps involved in debating and set a criteria/ standard to be achieved.	<p>Conduct researches to gather supporting evidence about the selected topic and summarising the points.</p> <p>They are engaged in collaborative learning by delegating and sharing tasks to group members.</p> <p>When debating, they improve their communication skills.</p>
<p>Discussion The purpose of discussion is to educate students about the process of group thinking and collective decision.</p>	<p>The teacher opens a discussion on certain topic by asking essential questions.</p> <p>During the discussion, the teacher reinforces and emphasises on important points from students responses. Teacher guide the direction to motivate students to explore the topic in greater depth and the topic in more detail.</p> <p>Use how and why follow-up questions to guide the discussion toward the objective of helping students understand the subject and summarise main ideas.</p>	<p>Students ponder over the question and answer by providing ideas, experiences and examples.</p> <p>Students participate in the discussion by exchanging ideas with others.</p>
<p>Games and simulations Encourages motivation and creates a spirit of competition and challenge to enhance learning.</p>	Being creative and select appropriate games for the topic of the lesson. Give clear instructions and guidelines. The game selected must be fun and build a competitive spirit to score more than their peers to win small prizes.	<p>Go into groups and organize.</p> <p>Follow the instructions and play to win</p>

<p>Observation Method used to allow students to work independently to discover why and how things happen as the way they are. It builds curiosity.</p>	<p>Give instructions and monitor every activity students do</p>	<p>Students possess instinct of curiosity and are curious to see the things for themselves and particularly those things which exist around them. A thing observed and a fact discovered by the child for himself becomes a part of mental life of the child. It is certainly more valuable to him than the same fact or facts learnt from the teacher or a book. Students</p> <ul style="list-style-type: none"> • Observe and ask essential questions • Record • Interpret
<p>Peer teaching and learning (<i>power point presentations, pair learning</i>) Students teach each other using different ways to learn from each other. It encourages; team work, develops confidence, feel free to ask questions, improves communication skills and most importantly develop the spirit of inquiry.</p>	<p>Distribute topics to groups to research and teach others in the classroom.</p> <p>Go through the basics of how to present their peer teaching.</p>	<p>Go into their established working groups.</p> <p>Develop a plan for the topic.</p> <p>Each group member is allocated a task to work on.</p> <p>Research and collect information about the topic allocated to the group. Outline the important points from the research and present their findings in class.</p>
<p>Performance-related tasks (dramatization, song/lyrics, wall magazines) Encourages creativity and take on the overarching ideas of the topic and are able to recall them at a later date</p>	<p>Students are given the opportunity to perform the using the main ideas of a topic.</p> <p>Provide the guidelines, expectations and the set criteria</p>	<p>Go into their established working groups.</p> <p>Being creative and create dramas, songs/lyrics or wall magazines in line with the topic.</p>
<p>Project (individual/group) Helps students complete tasks individually or collectively</p>	<p>Teacher outline the steps and procedures of how to do and the criteria</p>	<p>Students are involved in investigations and finding solutions to problems to real life experiences. They carry out researches to analyse the causes and effects of problems to provide achievable solutions. Students carefully utilise the problem-solving approach to complete projects.</p>
<p>Use media and technology to teach and generate engagement depending on the age of the students</p>	<p>Show a full movie, an animated one, a few episodes form documentaries, you tube movies and others depending on the lesson.</p> <p>Provide questions for students to answer before viewing</p>	<p>Viewing can provoke questions, debates, critical thinking, emotion and reaction.</p> <p>After viewing, students engage in critical thinking and debate</p>

Appendix 4: Lesson Plan Template

Strand:

Unit:

Content Standard:

Benchmark:

Topic 1:

Lesson Topic:

Grade:

Length of Lesson:

Essential KSAVs

Knowledge:

Skill(s):

Values:

Attitudes:

Performance Indicator:

Materials:

Instructional (lesson) Objective(s): By the end of the lesson, students will be able to:

-
-
-

Essential Questions:

-
-

Lesson Procedure

Teacher Activities	Student Activities
Introduction (time in minutes)	
Body (time in minutes)	
Modeling	
Guided Practice	
Independent Practice	
Conclusion (time in minutes)	

Appendix 5: Assessment Strategies

Strategy	Description
Analogies	Students create an analogy between something they are familiar with and the new information they have learned. When asking students to explain the analogy, it will show the depth of their understanding of a topic.
Classroom presentations	A classroom presentation is an assessment strategy that requires students to verbalize their knowledge, select and present samples of finished work, and organize their thoughts about a topic in order to present a summary of their learning. It may provide the basis for assessment upon completion of a student's project or essay.
Conferences	A conference is a formal or informal meeting between the teacher and a student for the purpose of exchanging information or sharing ideas. A conference might be held to explore the student's thinking and suggest next steps; assess the student's level of understanding of a particular concept or procedure; and review, clarify, and extend what the student has already completed.
Discussions	Having a class discussion on a unit of study provides teachers with valuable information about what the students know about the subject. Focus the discussions on higher level thinking skills and allow students to reflect their learning before the discussion commences.
Essays	An essay is a writing sample in which a student constructs a response to a question, topic, or brief statement, and supplies supporting details or arguments. The essay allows the teacher to assess the student's understanding and/or ability to analyse and synthesize information.
Exhibitions/ demonstrations	An exhibition/demonstration is a performance in a public setting, during which a student explains and applies a process, procedure, etc., in concrete ways to show individual achievement of specific skills and knowledge.
Interviews	An interview is a face-to-face conversation in which teacher and student use inquiry to share their knowledge and understanding of a topic or problem, and can be used by the teacher to explore the student's thinking; assess the student's level of understanding of a concept or procedure and gather information, obtain clarification, determine positions, and probe for motivations.
Learning logs	A learning log is an ongoing, visible record kept by a student and recording what he or she is doing or thinking while working on a particular task or assignment. It can be used to assess student progress and growth over time.
Observation	Observation is a process of systematically viewing and recording students while they work, for the purpose of making programming and instruction decisions. Observation can take place at any time and in any setting. It provides information on students' strengths and weaknesses, learning styles, interests, and attitudes.
Peer assessment	Assessment by peers is a powerful way to gather information about students and their understanding. Students can use set criteria to assess the work of their classmates.

Performance tasks	During a performance task, students create, produce, perform, or present works on “real world” issues. The performance task may be used to assess a skill or proficiency, and provides useful information on the process as well as the product.
Portfolios	A portfolio is a collection of samples of a student’s work, and is focused, selective, reflective, and collaborative. It offers a visual demonstration of a student’s achievement, capabilities, strengths, weaknesses, knowledge, and specific skills, over time and in a variety of contexts.
Questions and answers (oral)	In the question–and–answer strategy, the teacher poses a question and the student answers verbally, rather than in writing. This strategy helps the teacher to determine whether students understand what is being, or has been, presented, and helps students to extend their thinking, generate ideas, or solve problems.
Quizzes, tests, examinations	A quiz, test, or examination requires students to respond to prompts in order to demonstrate their knowledge (orally or in writing) or their skills (e.g., through performance). Quizzes are usually short; examinations are usually longer. Quizzes, tests, or examinations can be adapted for exceptional students and for re-teaching and retesting.
Questionnaires	Questionnaires can be used for a variety of purposes. When used as a formative assessment strategy, they provide teachers with information on student learning that they can use to plan further instruction.
Response journals	A response journal is a student’s personal record containing written, reflective responses to material he or she is reading, viewing, listening to, or discussing. The response journal can be used as an assessment tool in all subject areas.
Selected responses	Strictly speaking a part of quizzes, tests, and examinations, selected responses require students to identify the one correct answer. The strategy can take the form of multiple-choice or true/false formats. Selected response is a commonly used formal procedure for gathering objective evidence about student learning, specifically in memory, recall, and comprehension.
Student self-assessments	Self-assessment is a process by which the student gathers information about, and reflects on, his or her own learning. It is the student’s own assessment of personal progress in terms of knowledge, skills, processes, or attitudes. Self-assessment leads students to a greater awareness and understanding of themselves as learners.
Posters	
Video analysis	
Reflective writing	
Projects	
Observation reports	

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