Geography

Upper Secondary

Teacher Guide

Issued free to schools by the Department of Education

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Acknowledgements

Contents

Secretary's message

This teacher guide is to be used by teachers when implementing the Upper Secondary Geography Syllabus (Grades 11 and 12) throughout Papua New Guinea. The Geography syllabus identifies the learning outcomes and content of the subject as well as assessment requirements. The teacher guide gives practical ideas about ways of implementing the syllabus: suggestions about what to teach, strategies for facilitating learning and teaching, how to assess and suggested assessment tasks.

A variety of suggested learning and teaching activities provides teachers with ideas to motivate students to learn, and to make learning relevant, interesting and enjoyable. Teachers should relate learning in Geography to real people, issues and the local environment. Teaching using meaningful contexts and ensuring students participate in appropriate practical activities assists students to gain knowledge and understanding, and demonstrate skills in Geography.

Teachers are encouraged to integrate Geography activities with other subjects, where appropriate, so that students can see the interrelationships between subjects and that the course they are studying provides a holistic education and a pathway for the future.

I commend and approve the Upper Secondary Geography Teacher Guide for use in all schools with Grades 11 and 12 students throughout Papua New Guinea.

DR JOSEPH PAGELIO

Secretary for Education

Introduction

The purpose of this teacher guide is to help you to implement the Geography syllabus. It is designed to stimulate you to create exciting and meaningful teaching programs and lessons by enabling you to choose relevant and purposeful activities and teaching activities. It will encourage you to research and look for new and challenging ways of facilitating students' learning in Geography.

The teacher guide supports the syllabus. The syllabus states the learning outcomes for the subject and units; and outlines the content and skills that students will learn, and the assessment requirements.

The teacher guide provides direction for you in using the outcomes approach in your classroom. The outcomes approach requires you to consider assessment early in your planning. This is reflected in the teacher guide.

This teacher guide provides examples of learning and teaching activities, and assessment activities and tasks. It also provides detailed information on criterion-referenced assessment, and the resources needed to teach Geography. The section on recording and reporting shows you how to record students' marks and how to report against the learning outcomes.

The outcomes approach

In Papua New Guinea, the Lower Secondary and Upper Secondary syllabuses use an outcomes approach. The major change in the curriculum is the shift to what students know and can do at the end of a learning period, rather than a focus on what the teacher intends to teach.

An outcomes approach identifies the knowledge, skills, attitudes and values that all students should achieve or demonstrate at a particular grade in a particular subject (the learning outcomes). The teacher is responsible for identifying, selecting and using the most appropriate teaching methods and resources to achieve these learning outcomes.

Imagine the student is on a learning journey, heading to a destination. The destination is the learning outcome that is described in the syllabus document. The learning experiences leading to the learning outcome are to be determined by the teacher. The teacher uses curriculum materials, such as syllabus documents and teacher guides, as well as textbooks or electronic media and assessment guidelines, to plan activities that will assist students achieve the learning outcomes.

The outcomes approach has two purposes. They are:

- to equip all students with knowledge, understandings, skills, attitudes and values needed for future success
- to implement programs and opportunities that maximise learning.

Three assumptions of outcomes-based education are:

- all students can learn and succeed (but not on the same day or in the same way)
- success breeds further success
- schools can make a difference.

The four principles of the Papua New Guinean outcomes approach are:

1 *Clarity of focus through learning outcomes*
This means that everything teachers do must be clearly focused on what they want students to be able to do successfully. For this to happen, the learning outcomes should be clearly expressed. If students are expected to learn something, teachers must tell them what it is, and create appropriate opportunities for them to learn it and to demonstrate their learning.

2 *High expectations of all students*
This means that teachers reject comparative forms of assessment and embrace criterion-referenced approaches. The 'principle of high expectations' is about insisting that work be at a very high standard before it is accepted as completed, while giving students the time and support they need to reach this standard. At the same time, students begin to realise that they are capable of far more than before and this challenges them to aim even higher.
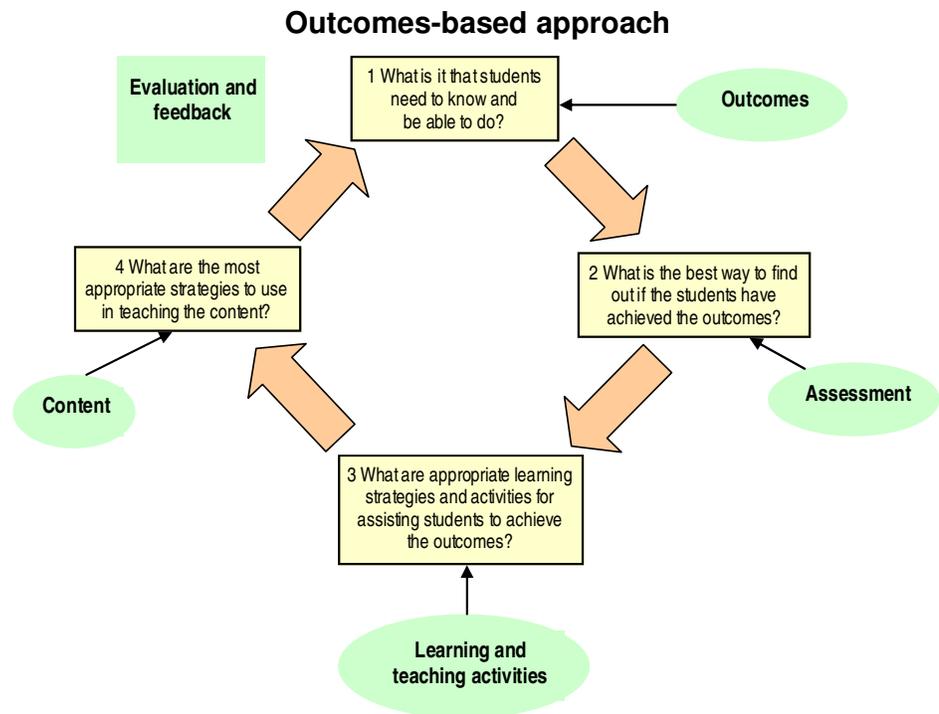
3 *Expanded opportunities to learn*
This is based on the idea that not all students can learn the same thing in the same way in the same time. Some achieve the learning outcomes sooner and others later. However, most students can achieve high standards if they are given appropriate opportunities. Traditional ways of

organising schools do not make it easy for teachers to provide expanded opportunities for all students.

4   *Planning and programming by 'designing down'*
    This means that the starting point for planning, programming and assessing must be the learning outcomes—the desired end results. All decisions on inputs and outputs are then traced back from the learning outcomes. The achievement of the outcome is demonstrated by the skills, knowledge and attitudes gained by the student. The syllabuses and/or teacher guides describe some ways in which students can demonstrate the achievement of learning outcomes.

Outcomes-based approach

Evaluation and feedback

1 What is it that students need to know and be able to do?

Outcomes

4 What are the most appropriate strategies to use in teaching the content?

2 What is the best way to find out if the students have achieved the outcomes?

Content

Assessment

3 What are appropriate learning strategies and activities for assisting students to achieve the outcomes?

Learning and teaching activities

Learning outcomes provide teachers with a much clearer focus on what students should learn. They also give teachers greater flexibility to decide what is the most appropriate way of achieving the learning outcomes and meeting the needs of their students by developing programs to suit local content and involve the community.

The outcomes approach promotes greater accountability in terms of student achievement because the learning outcomes for each grade are public knowledge; that is, they are available to teachers, students, parents and the community. It is not the hours of instruction, the buildings, the equipment or support services that are the most important aspect of the education process but rather, what students know and can do, as they progress through each grade. The outcomes approach means that learning

- has a clearer purpose
- is more interactive—between teacher and students, between students
- has a greater local context than before
- is more closely monitored and acted upon by the teacher
- uses the teacher as a facilitator of learning as well as an imparter of knowledge.

Learning outcomes

The syllabus learning outcomes describe what students know and can do at the end of Grade 12. The level of achievement of the learning outcomes should improve during the two years of Upper Secondary study, and it is at the end of the study that students are given a summative assessment on the level of achievement of the learning outcomes. The learning outcomes for Geography are listed below.

Students can:

1. describe and differentiate between the internal and external processes that shape the surface of the earth
2. describe and explain the relationships between landforms, climate and vegetation and human activities
3. explain and analyse factors influencing population change and its effect on the environment
4. compare and contrast the factors that influence urbanisation and industrialisation
5. identify and investigate resource management and environmental issues affecting Papua New Guinea and the world
6. demonstrate an understanding of geographical concepts and key ideas
7. choose and apply a range of geographical skills
8. communicate geographical information, ideas and issues using appropriate written and/or oral, cartographic and graphic forms and geographical information systems (GIS) if available.

Learning and teaching

You, as a teacher, must teach the knowledge that is included in the syllabus documents. You have to be able not only to teach what students should know, but also to interpret that knowledge for students in a way that makes it relevant to them, and enables them to begin to acquire skills of analysis and problem solving, which will support learning and teaching. You also need to give students some opportunities to apply their knowledge, to be creative and to solve problems.

Learning and teaching strategies

Students who participate in guided instruction learn more than students who are left to construct their own knowledge (Mayer 2004). You need to employ a variety of learning and teaching approaches because all students do not learn in the same way. The 'auditory learner' prefers to use listening as the main way of learning new material whereas a 'visual learner' prefers to see things written down. Students should be actively involved in their learning and therefore you need to design appropriate practical activities or experiments, using resources that can be found in your location.

In Grades 11 and 12, students will already have had a wide variety of experiences. You need to make use of your students' experiences when designing and conducting learning in class, so that learning is connected to your students' world. There are many learning and teaching strategies described in the Lower Secondary teacher guides.

The most efficient and long-lasting learning occurs when teachers encourage the development of higher-order thinking and critical analysis skills, which include applying, analysing, evaluating and creating. Attention should also be paid to developing students' affective and psychomotor skills. To make sure that this happens, you should encourage deep or rich—rather than shallow—coverage of knowledge and understandings.

Developing Geography skills

What do students do in Geography?

Geography students:

• have a holistic view of the environment and its physical, biological, social, economic and political components in time and space
• understand and interpret patterns and processes underlying landscapes at various scales
• have the skill to acquire (gather), organise, analyse and synthesise data and information in order to understand, manage and solve geographical problems
• design and conduct interviews and questionnaires, classify and summarise the resultant data and analyse and make deductions from the results

- have knowledge of key geographical and social theories and concepts and be able to apply such understanding to practical problems in the real world
- understand the concept of sampling and be able to apply descriptive and analytical statistics to geographical data
- be able to understand and use maps and diagrams and conduct critical inquiries pertaining to geographical phenomena and concepts, use various literacy, numeracy and computer-related skills
- take measurements from maps and remote sensing products, develop basic cartographical representations and use geographical information systems (GIS) to represent and analyse spatially referenced data
- interpret topographical maps, aerial and ortho photos and make meaningful deductions from these interpretations
- conduct basic field observations and measurements; represent these in the form of field notes, sketching, interpreting and analysing the results
- exhibit proficiency in self-management, interpersonal skills, and written and oral communication.

To develop these skills, students undertake 'Fieldwork' and 'Geographical inquiry'.

Fieldwork

'Fieldwork' is an essential part of the study of Geography. It is a geographical tool that facilitates the understanding of geographical processes and geographical inquiry. Fieldwork can enhance learning opportunities for a wide range of students because it caters for a variety of learning and teaching styles. Fieldwork enables students to:

- acquire knowledge about environments by observing, mapping, measuring and recording phenomena in the real world in a variety of places, including the school
- explore the geographical processes that form and transform environments
- use different kinds of geographical tools, including information and communication technology, to assist in the interpretation of, and decision-making about, geographical phenomena
- locate, select, organise and communicate geographical information
- explore different perspectives on geographical issues.

Geographical inquiry

'Geographical inquiry' involves the students in active investigation of the interrelationships between people and the spatial and ecological dimensions. The purpose of geographical inquiry is to engage students in the learning process through formulating questions, investigating widely, and building new understandings, meanings and knowledge. The process follows these key geographical questions:

- What and where are the issues or patterns being studied?
- How and why do these issues and patterns develop?
- What are the impacts of these issues and patterns?
- What is being done or what could be done to sustainably manage these impacts?

Students acquire geographical knowledge through answering these questions to develop a solution or support a position or viewpoint. The product of this inquiry leads to active and informed citizenship through examination of actions and alternative management strategies.

Geographical inquiry involves:

- planning
- researching
- identifying patterns, trends, and associations
- evaluating
- problem solving
- decision making
- recommending
- extrapolating and predicting
- developing hypotheses and forming conclusions
- communicating in a variety of formats (speaking and writing; for example, reports, essays, reviews, debates, letters, articles, presentations, web pages)
- creating products, ideas, and solutions.

What do teachers of Geography do?

The Geography teacher:

- is interested in and concerned about events and movements in the local, national and global community
- actively seeks to keep informed while also maintaining a critical stance towards sources of information
- takes a principled stand, and supports others who do so, against injustices and inequalities relating to race, gender, class, physical or mental attributes
- informs himself or herself about environmental issues as they impact upon his or her community and on communities and ecological systems globally
- values democratic processes as the best means of bringing about positive change
- engages in some form of social action to support her or his beliefs.

As a teacher, she or he will:

- model democratic values of fairness, justice and equal respect
- use a range of teaching styles that foster both individual development and group cooperation and enable learners to make the best use of their differing learning styles
- encourage her or his learners to adopt a reflecting and questioning position in relation to geographic knowledge
- teach the prescribed curriculum well with an emphasis on infusing issues dealing with human rights, relationships, self-esteem and respect for diversity
- be a critical and thoughtful teacher.

Developing a program

A teaching program outlines the nature and sequence of learning and teaching necessary for students to demonstrate the achievement of the learning outcomes. The content of the syllabus describes the learning context and the knowledge required for the demonstration of each outcome. The relevant learning outcomes for each unit or topic are stated at the beginning of the unit and the requirements of the outcomes are elaborated.

Teachers must develop programs that include appropriate learning activities to enable students to develop the knowledge and skills identified in the outcome statements.

The content prescribed in the units indicates the breadth and depth with which topics should be treated. The sequence of teaching is prescribed by the sequence of content. The learning outcomes and assessment, however, must be central to the planning of the teaching program.

Planning and programming units

The main purpose of planning and programming is to help you to arrange the presentation of the unit in an organised manner. This will help you to know what to teach and when to teach it. It is strongly recommended that you make plans with the other teachers who teach the same subject. By planning together, you will *all* have better lessons and make better use of your limited resources.

Points to consider when programming

- Which outcomes are students working towards?
- What is the purpose of this unit or topic or learning experience?
- Which learning experiences will assist students to develop their knowledge and understandings, skills, values and attitudes, in Geography?
- What are the indicators of student learning that you would expect to observe?
- How can the learning experiences be sequenced?
- How do the learning experiences in the unit relate to students' existing knowledge and skills?
- How are individual learning needs to be catered for?
- What are the literacy demands of this unit or learning experience?
- What authentic links can be made with the content of other subjects?
- How can school events and practices be incorporated into the program?
- Do the assessment methods address the outcomes and enhance the learning?
- How can the assessment be part of the learning and teaching program?

The planning process

In this teacher guide, ideas for programming and organising have been provided. These have been arranged in steps to help you teach the unit. The steps follow the thinking processes involved in the outcomes approach.

Step 1: Interpreting the learning outcomes

The first step is to read the description in the syllabus. Then study the learning outcomes and what students do to achieve the learning outcomes, in order to determine what students will know and be able to do by the end of the unit. You need to look at the action verb, concept and context of each learning outcome. This will help you to see what skills and knowledge are embedded in the outcome.

Step 2: Planning for assessment

It is necessary to plan for assessment early to ensure that you teach the content and skills students need to achieve the learning outcomes. You will have to decide when to schedule assessment tasks to allow yourself time to teach the required content and time for students to develop the necessary skills. You will also need time to mark the task and provide feedback. Practical tasks may, for example, be broken into a series of stages that are marked over several weeks as students progress with making their product. It is not appropriate to leave all the assessment until the end of the unit.

This teacher guide provides performance standards and examples of a marking guide. You should develop marking guides when you are marking tasks to ensure consistency in your assessment. You must also develop clear and detailed instructions for completing the task and make sure all students know exactly what they have to do.

Step 3: Programming a learning sequence

This step requires you to develop a program outlining a sequence of topics and the amount of time spent on each topic. If the unit involves a project, for example, you may plan to teach some theory at appropriate stages during the project, rather than teaching all the theory before the students start the project. To develop your program you need to study the topics listed in the syllabus and to think about which learning activities will best provide students with the opportunity to learn the content and practise the appropriate skills, and how long the activities will take. You will have to think about some major activities that last several weeks and smaller activities that may be completed in a single lesson.

Step 4: Elaboration of activities and content

Once you have mapped out your program for the term, you must then develop more detailed plans for each topic in the unit. All units require students to be actively engaged in learning, not just copying from the board. Make sure you develop a range of activities that suit all learning needs— some reading and writing, some speaking and listening, some observing and doing.

Browse through the textbooks and teaching resources you have access to and list the chapters, pages or items that you will use for each topic in your program. The textbooks should also provide you with ideas for activities related to the topic. You may have to collect or develop some resources for yourself. Once you have sorted out your ideas and information, you can then develop your more detailed weekly program and daily lesson plans.

This teacher guide gives some suggested learning and teaching activities for each unit and some suggested assessment tasks that you might like to use to ensure active learning. It also gives background information on some of the content.

Using the internet for classroom activities

Planning

• Where appropriate, incorporate computer sessions as part of planned learning experiences.

• Be aware that computers can be time-consuming and may require extra teacher support at unexpected times.

• Consider methods of troubleshooting, such as having students with computer expertise designated as computer assistants.

• Design activities that provide the opportunity for students to access, compare and evaluate information from different sources.

• Check protocols, procedures and policies of your school and system regarding the use of the internet.

Managing

• Ensure that all students have the opportunity to explore and familiarise themselves with the technologies, navigation tools, e-mail facilities and texts on the internet. It is likely that students will have varying degrees of expertise in searching for information and navigating the internet. Students will also have varying experiences of, and be more or less familiar with, the way texts are presented on the World Wide Web.

• Ensure that all students understand how to access the internet and how to perform basic functions, such as searching, sending and receiving e-mail.

• Students with more experience in using the internet may have information that will benefit the whole class. Provide opportunities for students to share their experiences, interests, information and understandings. As well as planning lessons to instruct students in these skills, pairing students and peer tutoring on the computer can enable more experienced students to assist other students.

• Ensure that students critically analyse geography information gathered on the internet, just as they would for any other text. They should be aware that material posted on the Web is not necessarily subject to the conventional editorial checks and processes generally applied to print-based publications. When evaluating information, students might consider:

    − the intended audience of the site

    − bias in the presentation of information, or in the information itself, including commercial or political motives

    − accuracy of information

    − balanced points of view

    − currency of information, including publishing dates

    − authority of source or author (institution, private individual)

    − ownership of the website (such as corporate, small business, government authority, academic)

    − cultural or gender stereotyping.

• Ensure that software and hardware (computer, modem) are maintained in good working order.

• Ensure that all students are given equal opportunities to use the computer.

Assessing student work containing material from the internet

- Students can download large quantities of information from the internet. In itself, such information provides very little evidence of student effort or student achievement. Students must make judgements about the validity and safety of information when working from the Web. They must consider the purpose of the text, identify bias, and consider the validity of arguments presented and the nature and quality of the evidence provided.

- When assessing student work that includes material drawn from the internet, it is therefore important to recognise how students have accessed the information, what value they place on it and how they have used it for the topic being studied in class. It is useful to look for evidence of critical evaluation, and the development of students' capacities to access, manipulate, create, restore and retrieve information.

Geography requirements

There are four units in Grade 11, which all students must complete. There are three units in Grade 12, which all students must complete. There are also two assessment tasks, which must be completed by students.

Geography requirements

Grade	Weeks	Term	Unit	Essential resources for activities and assessment
11	10	1	The Structure of the Earth	Maps, globe, blank maps, charts, atlases, textbooks, models, computer software if available, documentaries
11	10	2	Natural Processes and Disasters	Maps, globe, blank maps, charts, atlases, textbooks, models, computer software if available, documentaries
11	10	3	Oceanography	Maps, globe, blank maps, charts, atlases, textbooks, models, computer software if available, documentaries
11	10	4	Population Studies	Population Reference Bureau data sheet, maps, globe, blank maps, charts, atlases, textbooks, models, computer software if available, audiovisual, documentaries, newspapers, printed material such as journals
12	10	1	Resource Use and Management	Population Reference Bureau data sheet, maps, globe, blank maps, charts, atlases, textbooks, models, computer software if available, audiovisual, documentaries, newspapers, printed material such as journals
12	10	2	Urbanisation and Industrialisation	Population Reference Bureau data sheet, maps, globe, blank maps, charts, atlases, textbooks, models, computer software if available, audiovisual, documentaries, newspapers, printed material such as journals
12	10	3	Comparative Case Studies	Population Reference Bureau data sheet, maps, globe, blank maps, charts, atlases, textbooks, models, computer software if available, audiovisual, documentaries, newspapers, printed material such as journals

Assessing Geography

Assessment is an important part of learning and teaching. It is used to:

- evaluate and improve learning and teaching
- report achievement
- provide feedback to students on their progress
- provide feedback to stakeholders.

Criterion-referenced assessment

Assessment in Geography is criterion-referenced and measures students' achievement of the learning outcomes described in the syllabus. In criterion-referenced assessment, particular knowledge, skills or abilities are specified as criteria that must be achieved. The extent to which they are achieved is assessed and facilitated by the teacher.

Criterion-referenced assessment often takes on a problem-centred orientation, rather than a knowledge-based orientation. To achieve an outcome means having to demonstrate the attainment of skills and attitudes, not just write about them. Assessment then becomes more than just a means of judging knowledge and performance—it becomes an integral part of the learning process itself.

Criterion-referenced assessment is:

- standards or criterion-referenced; that is, outcomes are judged against pre-defined standards (see below)
- direct and authentic, related directly to the learning situation. This has the potential for motivating learning, since students can see a direct relevance between what is learnt and what is assessed.

Norm-referenced assessment

'Norm-referenced assessment' makes judgements on how well the student did in relation to others who took the test. It is often used in conjunction with a curve of 'normal distribution', which assumes that a few will do exceptionally well and a few will do badly and the majority will peak in the middle, normally judged as average.

Example of a criterion-referenced test

The driving test is the classic example of a criterion-referenced test. The examiner has a list of criteria, each of which must be satisfactorily demonstrated in order to pass; for example, completing a three-point turn without hitting either kerb. The important thing is that failure in one criterion cannot be compensated for by above-average performance in others; nor can a student fail in spite of meeting every criterion (as they can in norm-referenced assessment) simply because everybody else that day surpassed the criteria and was better than him or her. Criterion-referenced assessment has the following characteristics:

- a syllabus that describes what students are expected to learn in terms of aims, outcomes and content

- a syllabus that provides a clear sense of the syllabus standards through its aims, outcomes and content
- tasks designed to produce an image of what students have achieved at that point in the learning and teaching process relative to the outcomes
- standards of performance at different levels: the 'performance standards'
- a report that gives marks referenced to predetermined standards
- assessment tasks that refer to syllabus outcomes, content, assessment components and component weightings
- external examinations that are based on syllabus outcomes and content. External markers use standards-referenced marking guidelines developed by the Geography Examination Committee.
- assessment that is better-integrated with learning and teaching.

Criterion or standards-referenced assessment in Geography

Learning outcomes performance standards					
Learning outcomes	**Very high achievement**	**High achievement**	**Satisfactory achievement**	**Low achievement**	**Below minimum standard**
1. Describe and differentiate between the internal and external processes that shape the surface of the earth	Demonstrates extensive knowledge and understanding of internal and external processes that shape the surface of the earth, and differentiates between the processes using a wide range of examples	Demonstrates broad knowledge and understanding of internal and external processes that shape the surface of the earth, and differentiates between the processes using examples	Demonstrates knowledge and understanding of internal and external processes that shape the surface of the earth, and differentiates between the processes	Demonstrates limited knowledge and understanding of the difference between internal and external processes that shape the surface of the earth	Has failed to meet the minimum standard required
2. Describe and explain the relationships between landforms, climate and vegetation and human activities	Identifies and describes in detail and gives comprehensive logical explanations of various relationships between landforms, climate and vegetation	Identifies and describes in detail and gives good explanations of relationships between landforms, climate and vegetation	Identifies, describes and explains relationships between landforms, climate and vegetation	Describes relationships between landforms, climate and vegetation	Has failed to meet the minimum standard required
3. Explain and analyse factors influencing population change and its effect on the environment	Gives logical and detailed explanations and reasons for factors influencing population change and describes a range of effects on the environment	Gives logical explanations and reasons for factors influencing population change and describes effects on the environment	Gives explanations for factors influencing population change and identifies some effects on the environment	Identifies some factors influencing population change and identifies some effects on the environment	Has failed to meet the minimum standard required

Learning outcomes performance standards					
Learning outcomes	Very high achievement	High achievement	Satisfactory achievement	Low achievement	Below minimum standard
4. Compare and contrast the factors that influence urbanisation and industrialisation	Gives detailed explanations and reasons for similarities and differences of a wide range of examples of factors that influence urbanisation and industrialisation	Gives explanations and reasons for similarities and differences of a range of factors that influence urbanisation and industrialisation different contexts	Gives explanations for similarities and differences of factors that influence urbanisation and industrialisation contexts	Gives limited explanations for differences of factors that influence urbanisation and industrialisation contexts	Has failed to meet the minimum standard required
5. Identify and investigate resource management and environmental issues affecting Papua New Guinea and the world	Independently identifies and investigates in detail a wide range of resource management and environmental issues affecting Papua New Guinea and the world	Identifies and investigates in detail a range of resource management and environmental issues affecting Papua New Guinea and the world	Identifies and investigates some resource management and environmental issues affecting Papua New Guinea and the world	Identifies some resource management and environmental issues affecting Papua New Guinea	Has failed to meet the minimum standard required
6. Demonstrate an understanding of key geographical concepts and ideas	Demonstrates extensive knowledge and understanding of a wide range of complex geographical concepts and ideas	Demonstrates broad knowledge and understanding of a range of geographical concepts and ideas	Demonstrates knowledge and understanding of some geographical concepts and ideas	Demonstrates limited knowledge of geographical concepts and ideas	Has failed to meet the minimum standard required
7. Choose and apply a range of geographical skills	Independently selects and proficiently applies a wide range of relevant geographical skills and techniques	Selects and proficiently applies a range of relevant geographical skills and techniques	Selects and applies geographical skills and techniques	Selects and applies limited geographical skills and techniques	Has failed to meet the minimum standard required
8. Communicate geographical information, ideas and issues using appropriate written and/or oral, cartographic and graphic forms and geographical information systems (GIS) if available	Communicates complex ideas and information effectively using an extensive range of written, oral, cartographic and graphic forms	Communicates ideas and information effectively using a wide range of written, oral, cartographic and graphic forms	Communicates ideas and information using written, oral, cartographic and graphic forms	Communicates some ideas and information using a limited range of written, oral, cartographic and graphic forms	Has failed to meet the minimum standard required

Assessment *for* learning

Assessment *for* learning is often called 'formative assessment' and is assessment that gathers data and evidence about student learning during the learning process. It enables you to see where students are having problems and to give immediate feedback, which will help your students learn better. It also helps you plan your program to make student learning, and your teaching, more effective. Often it is informal—students can mark

their own work or their friend's. An example is a quick class quiz to see if students remember the important points of the previous lesson.
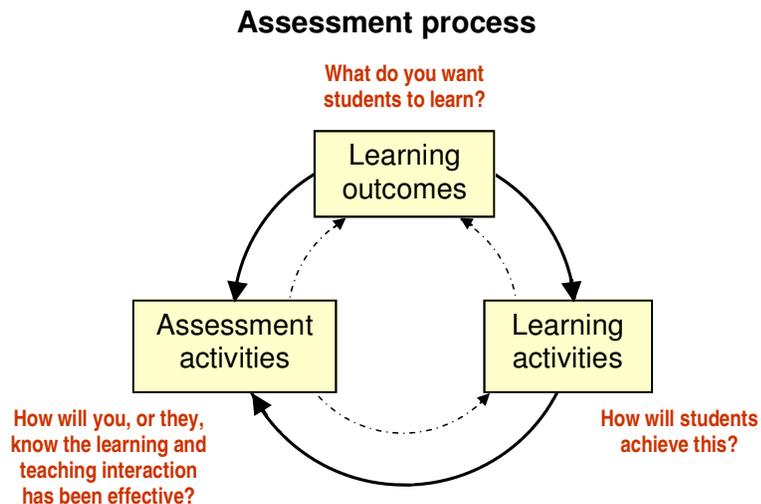
Assessment *of* learning

Assessment *of* learning is often called 'summative assessment'. Summative assessment is used to obtain evidence and data that shows how much learning has occurred, usually at the end of the term or unit. End-of-year examinations are examples of summative assessment. It is usually done for formal recording and reporting purposes.

Assessing Geography units

In Geography, the learning outcomes are assessed using the range of assessment methods specified in the syllabus. In deciding what to assess, the starting point is: 'what do you want students to do and/or learn?' and following from this: 'how will the students engage with the material?', which in turn leads to the design and development of learning tasks and activities. It is crucial that at this point the assessment tasks clearly link back to the learning outcomes and are appropriate for the learning activities.

The assessment can be used for formative and summative purposes. Assessment can be represented as follows:

Assessment process

What do you want students to learn?

Learning outcomes

Assessment activities

Learning activities

How will you, or they, know the learning and teaching interaction has been effective?

How will students achieve this?

Once it is clear what needs to be assessed and why, then the form the assessment will take needs to be determined. There are many types of assessment tasks that can be implemented; the factors that will determine choices include:

- the students—how many are there, what is expected of them, how long will the assessment task take?
- the learning outcomes of the subject and how they might be best achieved.

During the year you must set assessment tasks that ensure that all the learning outcomes of the subject have been assessed internally. Each task you set must include assessment criteria that provide clear guidelines to

students as to how, and to what extent, the achievement of the learning outcomes may be demonstrated.

Marking guides and assessment criteria help you with the marking process and ensure that your assessment is consistent across classes. It is important that marking guides and assessment criteria are collectively developed.

Students must complete the assessment tasks set. Each task must provide clear guidelines to students for how the task will be completed and how the criteria will be applied. When you set a task, make sure that:

- the requirements of the task are made as clear as possible to the student
- the assessment criteria and performance standards or marking guides are provided to the student so that they know what they have to do
- sources or stimulus material used are clear and appropriate to the task
- instructions are clear and concise
- the language level is appropriate for the grade
- it does not contain gender, cultural or any other bias
- materials and equipment needed are available to students
- adequate time is allowed for completion of the task.

Assessment methods

Although assessment components and weightings are stipulated in the syllabus, you decide which assessment method to use when assessing the learning outcomes. You should use a variety of assessment methods to suit the purpose of the assessment. Assessment can be classified into four categories:

- tests
- product or project assessments
- performance assessments
- process skills assessments

Because each has limitations, maintaining a balance of assessment methods is very important.

Tests

A 'test' is a formal and structured assessment of student achievement and progress, which the teacher administers to the class. Tests are an important aspect of the learning and teaching process if they are integrated into the regular class routine and not treated merely as a summative strategy. Tests allow students to monitor their progress and provide valuable information for you in planning further learning and teaching activities.

Tests will assist student learning if they are clearly linked to the outcomes. Evidence has shown that several short tests are more effective for student progress than one long test. It is extremely important that tests are marked and that students are given feedback on their performance.

There are many different types of tests. Tests should be designed to find out what students know, and also to find out about the development of their thinking processes and skills. Open questions provide more detailed information about achievement than a question to which there is only one answer.

Principles of designing classroom tests

Tests allow a wide variety of ways for students to demonstrate what they know and can do. Therefore:

- students need to understand the purpose and value of the test
- the test must assess intended outcomes
- clear directions must be given for each section of the test
- the questions should vary from simple to complex
- marks should be awarded for each section
- the question types (true or false, fill-in-the-blank, multiple-choice, extended response, short answer, matching) should be varied.

Tests should:

- be easy to read (and have space between questions to facilitate reading and writing)
- reflect an appropriate reading level
- involve a variety of tasks
- make allowance for students with special needs
- give students some choice in the questions they select
- vary the levels of questions to include gathering, processing and applying information
- provide enough time for all students to finish.

Product or project assessments

A 'project' can be an assessment task given to an individual student or a group of students on a topic related to the subject. The project results in a 'product' that is assessed. The project may involve both in-class and out-of-class research and development. The project should be primarily a learning experience, not solely an assessment task. Because a great deal of time and effort goes into producing a quality product from a project assignment task, you should allow class time to work on the project. A product or project:

- allows the students to formulate their own questions and then try to find answers to them
- provides students with opportunities to use their multiple intelligences to create a product
- allows teachers to assign projects at different levels of difficulty to account for individual learning styles and ability levels
- can be motivating to students
- provides an opportunity for positive interaction and collaboration among peers
- provides an alternative for students who have problems reading and writing
- increases the self-esteem of students who would not get recognition on tests or traditional writing assignments
- allows for students to share their learning and accomplishments with other students, classes, parents, or community members
- can achieve essential learning outcomes through application and transfer.

Assignments

'Assignments' are unsupervised pieces of work that often combine formative and summative assessment tasks. They form a major component of continuous assessment in which more than one assessment item is completed within the term. Any of the methods of assessment can be set as assignments, although restrictions in format, such as word limits and due dates, are often put on the assessment task to make them more practical.

Investigations

An 'investigation' involves students in a study of an issue or a problem. Teachers may guide students through their study of the issue; or individual students, or groups of students, may choose and develop an issue in consultation with the teacher. This assessment component emphasises the student's investigation of the issue in its context, by collecting, analysing, and commenting on secondary data and information. Students should be encouraged to consider and explore a variety of perspectives as they develop and state their position on the issue. Students may present the investigation for assessment in a variety of forms, including one or a combination of the following: a written report, an oral presentation, a website, linked documents, multimedia, a video or audio recording.

Criteria for judging performance

The student's performance in the investigation will be judged by the extent to which the student:

• identifies and describes the issue or problem

• describes and explains the causes and effects

• critically analyses information and outlines possible steps leading to a solution or recommendation.

Computer-based tasks

Using computers to administer student assessment can provide flexibility in the time, location or even the questions being asked of students. The most common type of computer-based assessment is based on multiple-choice questions, which can assist teachers to manage large volumes of marking and feedback.

Performance or presentation assessments

The 'presentation' provides opportunities for students to develop skills and confidence when presenting to an audience. When presentations are used for assessment purposes, *how* the students present is as important as *what* they present.

Presentations can be formal or informal. Group or individual oral presentations can be very time-consuming, both in their use of valuable lesson time and in marking. The best approach is to allocate topics or allow students to choose from a variety of topics, to develop clear criteria for presentations, and to require the rest of the class (audience) to take notes, identify key points or write an evaluation to enhance their learning.

'Spotlighting' uses individual student checklists. This method can be used to focus on a few selected aspects of student presentations or outcomes. It is

best to focus on five to six students at a time, systematically working through the class over time.

'Focused questioning' is a technique often used together with spotlighting. With focused questioning, teachers can be more aware of whether or not students understand the concepts or skills being taught.

Process skills assessments

This method of the assessment component, the 'process skills assessment', involves assessing students' understanding of concepts based on the practical skills that can be used, the evaluation of work done, and/or the reporting of information. These skills include, for example:

- interpretation skills
- evaluation skills
- reflection skills
- communication skills (such as writing, speaking and listening).

Types of assessment tasks

Using different assessment tasks is the way to make sure that students are able to demonstrate the range of their abilities in different contexts. Each category has advantages in assessing different learning outcomes. For example, a selected response assessment task, such as a series of multiple-choice questions, is able to assess all areas of mastery of knowledge, but only some kinds of reasoning.

Assessment ideas for individual students or groups

Tests	Products or projects	Performances	Process skills
Essay	Advertisements	Activities	Anecdotal records
Multiple-choice	Artefacts	Campaign speeches	Checklist observations for processes
Matching	Audiocassettes	Charades	Concept mapping
Short answer	Books	Classroom maps	Conferences: teacher and peer
True or false	Brochures	Commercials	Interviews
	Cartoons	Conferences	Learning logs
	Case studies	Cooperative learning	Observations
	Computer creations	Group activities	Oral questioning
	Crossword puzzles	Debates	Process folios
	Databases	Demonstrations	Responses to reading
	Displays	Discussions	Tailored responses
	Drawings	Explanations	Telling how they did something and justifying the approach
	Field trips	Field trips	
	Foods of a country or time	Interviews	
	Games	Weather reports	
	Graphs, charts, diagrams, interviews	Warnings	
	In-class group essays	Verbal comparisons	
	Journal	Surveys	
	Letters to parents, editor, TV station, or a	Speeches	
		Simulations	
		News reports	

Tests	Products or projects	Performances	Process skills
	business	Oral histories of events	
	Maps	Presentations	
	Models	Reports	
	Newspapers	Role play	
	Pamphlets		
	Peer editing critiques		
	Photographs		
	Portfolios		
	Posters		
	Projects		
	Proposals		
	Protest letters		
	Questionnaire		
	Research papers		
	Results of surveys		
	Student-kept charts		
	Short stories		
	Tests		
	Timelines		
	Travel folders		
	Work products		

What tasks best assess learning outcomes?

The primary goal is to choose a method or task that most effectively assesses the outcomes of the unit. Some suitable tasks are listed below for the Geography Upper Secondary learning outcomes.

Learning outcomes 1–4

1. Describe and differentiate between the internal and external processes that shape the surface of the earth.
2. Describe and explain the relationships between landforms, climate and vegetation and human activities.
3. Explain and analyse factors influencing population change and its effect on the environment.
4. Compare and contrast the factors that influence urbanisation and industrialisation.

These outcomes involve thinking critically and making judgements, developing arguments, reflecting, evaluating, assessing and judging.

Suitable tasks

- essay
- report
- journal
- letter of advice to ... (about policy, public health matters, ...)
- present a case for an interest group
- prepare a committee briefing paper for a specific meeting

- book review (or article)
- write a newspaper article
- comment on an article's theoretical perspective

Learning outcome 5

5. Identify and investigate resource management and environmental issues affecting Papua New Guinea and the world.

This outcome involves thinking critically, identifying problems, posing problems, defining problems, analysing data, reviewing, designing fieldwork, planning, applying information.

Suitable tasks

- problem scenario
- group work
- work-based problem
- prepare a committee of inquiry report
- field trip
- analyse a case

Learning outcome 6

6. Demonstrate an understanding of geographical concepts and key ideas.

This outcome involves recalling, describing, reporting, recounting, recognising, identifying, relating and interrelating.

Suitable tasks

- written examination
- oral examination
- essay
- report
- comment on the accuracy of a set of records
- devise an encyclopaedia entry
- write an answer to a question
- short-answer questions; true or false questions; multiple-choice questions (paper-based or computer-aided assessment)

Learning outcome 7

7. Choose and apply a range of geographical skills.

This outcome involves computation, taking readings, using equipment, following procedures, following protocols, carrying out instructions.

It also involves accessing and managing information: researching, investigating, interpreting, organising information, reviewing and paraphrasing information, collecting data, searching and managing information sources, observing and interpreting.

Suitable tasks

- annotated bibliography
- project

- dissertation
- applied task
- applied problem
- demonstration
- make a video (write script and produce or make a video)
- produce a poster
- field trip report
- observation of real or simulated professional practice

Learning outcome 8

8. Communicate geographical information, ideas and issues using appropriate written and/or oral, cartographic and graphic forms and geographical information systems (GIS) if available.

This outcome involves one- and two-way communication; communication within a group; and verbal, written and non-verbal communication. Arguing, describing, advocating, interviewing, negotiating, presenting; using specific written forms

Suitable tasks

- written presentation (such as an essay, report, reflective journal)
- oral presentation
- group work
- discussion or debate
- participate in a 'court of inquiry'
- observation of real or simulated professional practice

Feedback

When you assess the task, remember that feedback will help the student understand why he or she received the result and how to do better next time. Feedback should be:

- *constructive*, so students feel encouraged and motivated to improve
- *timely*, so students can use it for subsequent learning
- *prompt*, so students can remember what they did and thought at the time
- *focused on achievement*, not effort. The work, not the student, should be assessed
- *specific to the unit learning outcomes*, so that assessment is clearly linked to learning.

Types of feedback

Feedback can be:

- *informal* or *indirect*—such as verbal feedback in the classroom to the whole class, or person to person
- *formal* or *direct*—in writing, such as checklists or written commentary to individual students, in either written or verbal form

- *formative*—given during the topic with the purpose of helping the students know how to improve
- *summative*—given at the end of the topic with the purpose of letting the students know what they have achieved.

Who assesses?

Teacher assessment

Assessment is a continuous process. You should:

- always ask questions that are relevant to the outcomes and content
- use frequent formative tests or quizzes
- check understanding of the previous lesson at the beginning of the next lesson, through questions or a short quiz
- constantly mark or check the students' written exercises, class tests, homework activities and so on
- use appropriate assessment methods to assess the tasks.

Frequency of assessment

You should schedule the specified assessment tasks to fit in with the teaching of the content of the unit that is being assessed. Some assessment tasks might be programmed to be undertaken early in the unit, others at the end of the unit. You should take care not to overload classes with assessment tasks at the end of the term.

Judging student performance

Student achievement is recorded and reported against standards. You must use performance standards or marking guides, examples of which are provided in this teacher guide, when making a decision about the achievement of your students in relation to the learning outcomes. The performance standards describe the level at which the student has to be working to achieve a particular standard or mark.

Students should always have access to a copy of the assessment criteria and the performance standards, so that they know what it is they have to know and be able to do to get a good mark in a particular task. The performance standards will help you in your marking and will help your students improve their performance in the future. They are useful when providing feedback to students, as they explain what it is the student needs to do to improve.

Moderation

To make sure that you are interpreting the performance standards correctly when assessing your students, it is important to undertake Geography moderation of student work within your school and with teachers of nearby schools.

To moderate student work, a common assessment task must be used and a marking scheme developed so that all students complete the same task under the same conditions, and all teachers use the same marking scheme. Teachers can then compare (moderate) the students' work and come to a common understanding of the performance standards and the requirements for a particular mark or level of achievement.

Moderation enables you to be sure that your understanding of the required standards for levels of achievement is similar to the understanding of other teachers and that you are assessing students at the appropriate level.

Self-assessment and peer assessment

Self-assessment and peer assessment help students to understand more about how to learn. Students should be provided with opportunities to assess their own learning (self-assessment) and the learning of others (peer assessment) according to set criteria. Self-assessment and peer assessment:

- continue the learning cycle by making assessment part of learning
- show students their strengths and areas where they need to improve
- engage students actively in the assessment process
- enable students to be responsible for the learning
- help to build self-esteem through a realistic view of their abilities
- help students understand the assessment criteria and performance standards.

Managing assessment tasks for Geography

Usually, the marking of assessment tasks is done by the teacher. To reduce the amount of work it is necessary to develop a strategic approach to assessment and develop efficiencies in marking.

In Geography there are some assessment tasks that may be new to teachers and students. Below are suggestions on how to manage some of these tasks to minimise marking or presentation time.

Develop efficiency in marking

Clarify assessment criteria

Plan the assessment task carefully, and make sure that all students are informed of the criteria before they begin. Discuss the task and its criteria in class, giving examples of what is required. Distribute a written copy of the instructions and the criteria, or put them on the board. Making the assessment criteria explicit speeds marking and simplifies feedback.

Supply guidelines on what is required for the task

Supplying guidelines reduces the amount of time wasted evaluating student work that is irrelevant.

Use attachment sheets such as marking guides

An assignment attachment sheet, which is returned with the assessed work, rates aspects of the task with a brief comment. Such a system enables each student's work to be marked systematically and quickly. This strategy can be applied to posters, presentations and performances.

Assess in class

Use class time to carry out and to assess tasks. Presentations or projects that are marked by you or the students enable instant developmental

evaluation and feedback. Brief assessments of projects, stages of the design process, or practical work take less time to mark and are useful because they give immediate feedback to students on their progress and allow you to mark the project in stages with minimum effort.

Feed back to the whole class

Giving feedback to the whole class can cut down on the amount of individual feedback required. On returning assessed work, emphasise the criteria for judging the work, discuss the characteristics of good and bad answers, and highlight common strengths and weaknesses.

Set group-work alternatives

Assess one performance per group. The student's mark is the group mark, but may include a component based on the contribution of the individual. A strategy for allocating an individual mark includes each member of the group using criteria to evaluate the relative contributions of individuals, with the marks averaged for the individual.

Set clear deadlines

Set aside a time for marking. Be careful about extending this period (by allowing students to hand in work late).

Shift the responsibility

Introduce self-assessment and peer assessment

Develop in students the skills to evaluate their own work and that of their peers. With the students, use the assessment criteria against which work is judged, highlighting strengths and weaknesses. Self-assessment increases the amount of feedback students get. It can supplement or replace teacher assessment.

Treat each task differently

Every piece of work need not be evaluated to the same degree; a mark need not be the outcome in every case; and every piece of student work need not contribute to the final grade. Assessment is designed to enhance the learning and teaching experience for the teacher and the learner, not just to give marks.

Sample assessment tasks

All assessment tasks must test whether or not the student has achieved the outcome or outcomes. Each task must have clear and detailed instructions. Students must know exactly what they have to do. You should develop marking guides when you are marking tasks to ensure consistency of your assessment. The following are examples of assessment tasks and a marking guide.

Grade 11

Sample task: Field trip and associated report

Students undertake a field trip and produce a field trip report.

Learning outcomes*

Students can:

2* describe and explain the relationships between landforms, climate and vegetation and human activities, or

3* explain and analyse factors influencing population change and its effect on the environment, or

4* compare and contrast the factors that influence urbanisation and industrialisation, or

5* identify and investigate resource management and environmental issues affecting Papua New Guinea and the world

6. demonstrate an understanding of geographical concepts and key ideas

7. choose and apply a range of geographical skills

8. communicate geographical information, ideas and issues using appropriate written and/or oral, cartographic and graphic forms and geographical information systems (GIS) if available

* *Choose at least one outcome from 2, 3, 4, and 5 depending on the field trip site selected.*

** *The field trip can take place in Term 2, 3 or 4, depending on the topic selected and the local environment.*

Assessment criteria

Students will be assessed on the extent to which they:

• investigate key geographical questions

• use geographical tools on fieldwork

• demonstrate an understanding of spatial patterns and processes that operate in physical and human environments

• analyse and communicate geographical information collected.

Task specifications

• describe field trip methodology

• describe the geographical significance of the site

- outline specific features of the site (natural or built)
- write a field-trip report using appropriate maps, diagrams, charts to record observations
- interpret observations or findings

The fieldwork report

The fieldwork report should:

- have subsections with headings; for example, Introduction, Methodology, Statement of findings, Evaluation, Bibliography
- be 800–1000 words in length
- have support materials, such as maps, tables, diagrams, appendixes, sketches and images
- follow formal language conventions
- use geographical terminology.

Fieldwork activities should be carefully planned to achieve syllabus outcomes. Fieldwork activities should be integrated with the learning and teaching program to take full advantage of the enhanced understanding that can be achieved through direct observation, field measurements and inquiry learning.

Assessing the fieldwork task

Students undertake a fieldwork activity in which they apply the skills of geographical interpretation. Students observe, record, identify, choose, evaluate and critically analyse data gathered in the field. Students communicate their findings in a written report. At least one student-generated map should be included in the findings.

Example of a marking guide

Marking guides like the one below should be used to assess the tasks you set. You can tick the appropriate box, look at the performance standards and the students' overall achievement and give an on-balance assessment.

If, for example, the students gets two ticks in the Very High Achievement (VHA) column, most of their ticks in the High Achievement (HA) column, several ticks in the Satisfactory column and one tick in the Low Achievement column, then, on balance you would give the students a High Achievement and a mark between 70 and 89.

Sample marking guide

Field trip and associated report		VHA	HA	SA	LA
Criteria					
Investigate key geographical questions	How well does the student explain the purpose of the fieldwork and establish the geographical context?				
Use geographical tools on fieldwork	To what extent does the student choose and integrate field skills, maps, photographs, sketches, graphs, and statistical information, and organise them into a comprehensive report?				
Demonstrate an understanding of spatial patterns and processes that operate in physical and/or human environments	How effectively does the student show understanding of geographical concepts, patterns and processes, key ideas, and knowledge related to the fieldwork?				
Analyse and communicate geographical information collected	How well does the student outline possible implications, or suggest realistic possible future actions, or make realistic recommendations as a result of his or her fieldwork?				

Grade 12

Sample task: Analytical case study

Students undertake an analytical case study of a geographical issue or problem.

Learning outcomes*

Students can:

2* describe and explain the relationships between landforms, climate and vegetation and human activities, or

3* explain and analyse factors influencing population change and its effect on the environment, or

4* compare and contrast the factors that influence urbanisation and industrialisation, or

5* identify and investigate resource management and environmental issues affecting Papua New Guinea and the world

6. demonstrate an understanding of geographical concepts and key ideas

7. choose and apply a range of geographical skills

8. communicate geographical information, ideas and issues using appropriate written and/or oral, cartographic and graphic forms and geographical information systems (GIS) if available.

* *Choose at least one outcome from 2, 3, 4, and 5 depending on the case study selected.*

** *The case study can take place in any term depending on the topic selected.*

Assessment criteria

Students will be assessed on the extent to which they:

• demonstrate knowledge and understanding of a geographical issue or problem

• analyse and evaluate issues and information

• select and justify relevant geographical examples

• communicate information in a variety of ways.

Task specifications

• identify and describe the problem or issue

• provide the context for the study

• use maps, diagrams, charts to support explanations

• explain what has happened and why

• describe consequences or effects

The prescribed task should be an exploration of a relevant issue or problem facing society and its geographical nature. Students can select their own issue or you can set the task and issue to be investigated. The issue or problem for the prescribed task must not be repeated from year to year.

The issue selected should be topical and relevant to the students. Examples of significant issues include:

- biophysical processes involved in the sustainable management of the natural environment (such as forest clearing, urban runoff, the control and regulation of rivers, soil contamination, mass movement of soil)
- environmental issues associated with the use of natural resources (such as mining, logging or fishing)
- the maintenance of nature reserves, recreation parks, or coastal buffer zones
- the adoption and diffusion of mass consumer culture (such as brands, fashions, music, sport, leisure activities, media)
- the causes of economic instability, political tensions, religious and ethnic conflict, migration and mobility of people
- the characteristics and outcomes of, and responses to, globalisation (for example, global cultural integration, transnational corporations, global media and information technology networks, cultural sustainability, cultural imperialism, economic dominance, shrinking time and space)
- community participation in environmental planning and management
- moving towards sustainable environmental futures.

Learning activities and assessment tasks

Examples of learning activities and assessment tasks for each of the Geography units are provided in the following sections. Some examples are explained in detail.

Grade 11 units

11.1 The Structure of the Earth

Suggested activities

- describe the layers of the earth's structure and composition with accompanying diagrams
- use the surrounding environment to study and describe rock and soil properties; for example, soil profiles
- begin a glossary of geographical terms and concepts that you add to throughout each unit. Where possible, provide illustrations to make your meaning clearer
- compare the three-plate movement theories
- construct models to demonstrate plate movements and/or how a volcano works
- describe and interpret geographical information about plate tectonics and their boundaries from a number of sources
- extended paragraph writing; for example, explain how a tectonic feature is formed
- view and discuss multimedia presentations; for example, video programs on volcanoes, tsunami, earthquakes
- use extended paragraphs to describe the processes that shape the land
- construct and interpret flow charts and diagrams describing the key biophysical processes operating within a given area
- field trip to observe, collect and record data on river, glacial, wind or sea wave processes (depending on your local environment)
- explain the role of mass movement in shaping the landscape

Suggested assessment tasks

- Use the surrounding environment to study and describe rock and soil properties; for example, soil profiles.
- Extended paragraph writing; for example, explain how a tectonic feature is formed.

11.2 Natural Processes and Disasters

Suggested activities

- create a model to demonstrate how the earth's rotation creates seasons and time zones
- draw diagrams to illustrate global patterns of wind circulation
- distinguish between prevailing winds and local winds
- use wind speed and distance statistics to track or predict the path of a cyclone
- use maps to illustrate the interdependence of climate and vegetation zones
- analyse climatic data from a variety of sources
- describe the impact of climate change on the local environment and other parts of the world; for example, rising sea levels, extreme weather events
- produce a comparative table describing natural hazards and their consequences
- collect and analyse a range of data (such as statistics, photographs) about the impact of natural hazards on human lives
- observe the site of a natural hazard and describe the nature and impact of the damage (such as landslide, flood, frost)
- collect newspaper articles about disasters and hazards around the world and produce an annotated map
- identify measures used throughout the world to reduce the impact of natural hazards and disasters (for example, NGO and international aid)
- interview local authorities and compile a report on existing disaster management strategies
- draw a map of your local areas and identify areas at risk from natural hazards
- view and discuss documentaries and the like relating to disasters and hazards
- discuss the impact of a natural hazard and suggest ways to mitigate the impact with emphasis on Papua New Guinea and the Pacific

Suggested assessment tasks

- Describe the impact of climate change on the local environment and other parts of the world; for example, rising sea levels, extreme weather events.
- Produce a comparative table describing natural hazards and their consequences.
- Draw a map of your local area and identify areas at risk from natural hazards.

11.3 Oceanography

Suggested activities

- explain how the processes studied in 11.1 The Structure of the Earth contribute to the formation of sea bed landforms
- identify major ocean currents on thematic maps and explain their significance, including the impacts of El Niño and La Niña
- describe and compare marine ecosystems (using field work if possible)
- role-play a conflict situation between resource owners, government and developers
- a presentation on indigenous use of marine environments
- examine issues raised by nations concerning the use of the ocean; for example, whaling, illegal fishing, surveillance strategies
- viewpoint articles; for example, writing viewpoints on fishing methods and their sustainability
- debate; for example, deep sea mining versus conservation of marine life
- essay on one of the related issues affecting oceans
- view and discuss documentaries and the like on issues relating to the use of the oceans
- design a poster for tourists and coastal dwellers to help prevent damage to fragile marine environments such as mangroves, reefs

Suggested assessment tasks

- Research the international treaties governing ownership and control of the ocean and marine resources, including their impact on Papua New Guinea.
- Identify major ocean currents on thematic maps and explain their significance, including the impacts of El Niño and La Niña.

11.4 Population Studies

Suggested activities

- map work; for example, regional population distribution and density
- define population terms such as urban drift, migration, mortality and fertility rates and add them to your glossary
- compare, interpret and explain population statistics, pyramids and graphs
- use population statistics from various decades to explain population trends in Papua New Guinea and throughout the world

- research population policies from different countries, such as China's 'one child' policy
- use census information to create graphs to illustrate changes to Papua New Guinea's population (growth, birth rates, mortality rates and so on) and explain reasons for the changes
- predict future trends in Papua New Guinea based on census information
- analyse media articles and reports on population and write an essay which discusses the socioeconomic impact of population growth or decline (overpopulation, underpopulation, availability of resources)
- examine current HIV and AIDS statistics and report on their impact on population growth and economic development

Suggested assessment tasks

- Use population statistics from various decades to explain population trends in Papua New Guinea and throughout the world.
- Draw population pyramids using population data.
- Analyse population pyramids of developing and developed countries.
- Analyse media articles and reports on population and write an essay that discusses the socioeconomic impact of population growth or decline (overpopulation, underpopulation, availability of resources).

Grade 12 units

12.1 Resource Use and Management

Suggested activities

- research different types of fossil fuels and their use and analyse their effect on the environment
- investigate alternate energy sources like geothermal or hydro-electricity
- add definitions of greenhouse effect, global warming, climate change, ozone depletion to your glossary. Provide illustrations clarify meaning
- compare and contrast the major farming practices in developed and developing countries
- use observations of local farms or research to prepare a presentation on sustainable and unsustainable farming methods
- research and report the advantages and disadvantages of 'green revolution' and 'genetic modification' of crops
- compile statistics on global food production and supply and outline the consequences of the unequal distribution of food resources in developing and developed countries
- use maps to identify and locate metallic and non-metallic deposits
- discuss the significance of the mining and/or petroleum industry for the Papua New Guinean economy
- case study of a mine development site in Papua New Guinea, which focuses on the impacts on the local community and environment; for example, waste disposal, royalties, land rehabilitation
- use maps and aerial photographs to identify and describe major logging sites in Papua New Guinea
- case study of the logging industry in Papua New Guinea or another tropical location, focusing on the impacts on the local community and environment; for example, methods, sustainability, timber rights, soil degradation
- school and local community survey: 'attitudes to current logging practices in Papua New Guinea'
- role–play: representatives of government, logging company and resource owners to resolve conflict surrounding current practices
- discuss and debate the significance of the carbon trade concept initiated by the rainforest nations

Suggested assessment tasks

- Investigate and describe alternate energy sources; for example, geothermal or hydro-electricity.
- Compile statistics on global food production and supply and outline the consequences of the unequal distribution of food resources in developing and developed countries.
- Choose a case study of either a logging or mining industry.

12.2 Urbanisation and Industrialisation

Suggested activities

- use diagrams to describe the urban place theories and models
- add definitions of urban concepts such as urban renewal, urban decay, decentralisation to your glossary. Map and explain the distribution of world mega-cities
- research the development of ancient cities such as Sparta, Babylon
- sketch and account for land use zones in your nearest urban locality
- write a viewpoint letter to the town authority suggesting an improvement plan to the current state of the town
- case study: use maps, diagrams, statistics and other sources to compare and contrast one city from a developing country and one from a developed country, covering the following aspects:
  − internal patterns, structure and functions
  − stages of urbanisation (historical overview)
  − spheres of influence
  − challenges of living in the city
  − population
- research how the industrial revolution led to urbanisation and industrial development in Europe and Asia
- describe current trends in growth of industries in the developed and developing countries (such as downsizing, outsourcing)
- compare and contrast the growth and progress of the motor vehicle industry in a selected country and one small-scale industry in Papua New Guinea; for example, metal recycling and arts and crafts
- develop a profile of a multinational company operating in Papua New Guinea, such as Digicel and Coca Cola (field report if possible)
- explain how countries use trade protection policies to safeguard their industries
- investigate and report the welfare of workers employed by an industry
- discuss the factors that either hinder or enhance industrial growth in Papua New Guinea

Suggested assessment tasks

- Write a viewpoint letter to the town authority suggesting an improvement plan to the current state of the town.
- Develop a profile of a multinational company operating in Papua New Guinea, such as Digicel and Coca Cola (field report if possible).

12.3 Comparative Case Studies

Suggested activities

Use case studies 1 and 2 to compare and contrast developed and developing countries with Papua New Guinea by describing the physical features, land use, settlement patterns, population trends and social indicators that contrast with students' own environment. Use topographic and location maps and a range of resources, including media reports and articles, to support the case studies.

Case Study 1

Comparison of Papua New Guinea and one developed country, selected from one of the options listed in the syllabus

Case Study 2

Comparison of Papua New Guinea and one developing country, selected from one of the options listed in the syllabus

Case Study 3

A transect study: Comparison of Papua New Guinea along latitude 6°S with one of the options listed in the syllabus

Before beginning Case Study 3, conduct a trial transect of the local area (such as 1 kilometre close to the school) to demonstrate the processes involved. Map and describe all aspects of land use and physical features along the transect.

Suggested assessment tasks

- Students select their best case study to be assessed.

Recording and reporting

All schools must meet the requirements for maintaining and submitting student records as specified in the Grade 12 *Assessment, Examination and Certification Handbook*.

Recording and reporting student achievement

When recording and reporting student achievement you must record the achievement of the students in each unit and then, at the end of the year, make a final judgement about the overall achievement, or progress towards achievement, of the learning outcomes. To help you do this, descriptions of the levels of achievement of the learning outcomes are provided in the 'Learning outcome performance standards' table.

When reporting to parents, the school will determine the method of recording and reporting. In an outcomes-based system, student results should be reported as levels of achievement rather than marks.

Remember that the final school-based mark will be statistically moderated using the external exam results. The students' overall level of achievement may change.

Levels of achievement

The level of achievement of the learning outcomes is determined by the students' performance in the assessment tasks. Marks are given for each assessment task, with a total of 100 marks for each 10-week unit, or 50 marks for each 5-week unit.

The marks show the students' level of achievement in the unit, and hence their progress towards achievement of the learning outcomes. There are five levels of achievement:

- Very high achievement
- High achievement
- Satisfactory achievement
- Low achievement
- Below minimum standard

A **very high achievement** means overall that the student has an extensive knowledge and understanding of the content and can readily apply this knowledge. In addition, the student has achieved a very high level of competence in the processes and skills and can apply these skills to new situations.

A **high achievement** means overall that the student has a thorough knowledge and understanding of the content and a high level of competence in the processes and skills. In addition, the student is able to apply this knowledge and these skills to most situations.

A **satisfactory achievement** means overall that the student has a sound knowledge and understanding of the main areas of content and has achieved an adequate level of competence in the processes and skills.

A **low achievement** means overall that the student has a basic knowledge and some understanding of the content and has achieved a limited or very limited level of competence in the processes and skills.

Below the minimum standard means that the student has provided insufficient evidence to demonstrate achievement of the learning outcomes.

	Achievement level				
Total marks	Very high achievement	High achievement	Satisfactory achievement	Low achievement	Below minimum standard
600	540–600	420–539	300–419	120–299	0–119
500	450–500	350–449	250–349	100–249	0–99
400	360–400	280–359	200–279	80–199	0–79
300	270–300	210–269	150–209	60–149	0–59
200	180–200	140–179	100–139	40–99	0–39
100	90–100	70–89	50–69	20–49	0–19
60	54–60	42–53	30–41	12–29	0–11
50	45–50	35–44	25–34	10–24	0–9
40	36–40	28–35	20–27	8–19	0–7

Sample format for recording Geography assessment task results over two years

Student name:

	Grade 11 assessment task results		
Unit	Assessment task	Mark	Student mark
11.1			
11.2			
11.3			
11.4			
	Total marks Grade 11	300	

Student name:

Unit	Assessment task	Marks	Student mark
**Grade 12 assessment task results**			
12.1			
12.2			
12.3			
	Total marks Grade 11	300	
	Total marks Grade 11 and 12	600	

Learning outcomes and levels of achievement

Levels of achievement in Grade 11 and Grade 12 are recorded and reported against the learning outcomes. The performance standards for the levels of achievement are described on pages 14 and 15.

Steps for awarding final student level of achievement

1. Assess unit tasks using unit performance standards and assessment criteria.
2. Record results for each task in each unit.
3. Add marks to achieve a unit result and term result.
4. Add term marks to get a year result.
5. Determine the overall achievement using the achievement level grid.
6. Report results using the learning and teaching learning outcome performance standards.

The following is an example of reporting using the learning outcomes performance standards descriptors.

Using the learning outcomes performance standards descriptors

Student	**Lena**
Subject	**Geography**
School-based assessment	**High achievement**

This means Lena:
Demonstrates broad knowledge and understanding of internal and external processes that shape the surface of the earth, and differentiates between the processes using examples
Identifies and describes in detail and gives good explanations of relationships between landforms, climate and vegetation and human activities
Gives explanations and reasons for similarities and differences of a range of factors that influence urbanisation and industrialisation different contexts
Identifies and investigates in detail a range of resource management and environmental issues affecting Papua New Guinea and the world
Demonstrates broad knowledge and understanding of a range of geographical concepts and ideas
Selects and proficiently applies a range of relevant geographical skills and techniques
Communicates ideas and information effectively using a wide range of written and/or oral, cartographic and graphic forms and geographical information systems (GIS) if available

Resources

Geography becomes more interesting and meaningful when you use a variety of resources and local materials in your teaching. You should be always trying to adapt, improvise, make, find or write material that will be useful for lessons. Geography can be taught without expensive equipment by making use of what is around you, though there are some equipment and materials that are essential to teach the Geography syllabus.

Types of Geography resources

Materials
- textbooks, reference books, magazines, newspapers
- maps, globes
- tape measures
- camera
- diagrams, charts, posters
- worksheets, information sheets
- pamphlets, brochures
- television and radio broadcasts
- video, film, film strips
- computer software
- pictures, photographs
- models
- made or found objects

Natural and human resources
- natural sites—rivers, beaches, rock pools, forests, cliffs, caves
- community elders, teachers, parents

General guidelines for selecting and using resources

How effective a resource is depends on whether it is suitable for the knowledge or skill to be learned and the attitude of the students. Classroom organisation is the key to using resources successfully. You need to:

- prepare thoroughly. Make sure that you are familiar with the resource so that you use it with confidence and assurance. If equipment is involved, check that it is in working order, make sure that you know how to operate it and that it is available when you need it.
- use the resource at the right place and time—it should fit in with the flow and sequence of the lesson and serve a definite teaching purpose.
- (if the resource is radio, film, video or television), introduce the program by outlining the content. You might also set some questions to guide listening or viewing. Follow up after using the resource, by discussing and drawing appropriate conclusions.

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African Studies Association of Australasia and the Pacific, www.ssn.flinders.edu.au/global/afsaap/

Australian Conservation Foundation, www.acfonline.org.au

Australian Development Gateway, www.developmentgateway.com.au

American National Parks Service, www.nps.gov

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Glossary for Geography

Account	Account for: state reasons for, report on. Give an account of: narrate a series of events or transactions
Analyse	Identify components and the relationship between them; draw out and relate implications
Apply	Use, utilise, employ in a particular situation
Appreciate	Make a judgement about the value of
Assess	Make a judgement of value, quality, outcomes, results or size
Biodiversity	The variety of living organisms on earth and the recognition of the need to maintain and protect this diversity
Biosphere	The realm of earth that includes all plant and animal life forms
Cadastral map	A map which shows property boundaries
Calculate	Work out a numerical answer. In general working should be shown, especially where two or more steps are involved
Clarify	Make clear or plain
Classify	Arrange or include in classes or categories
Compare	Write about what is similar or different about two things. For a comparison, two elements or themes are required. Two separate descriptions do not make a comparison
Construct	Make; build; put together (items or arguments)
Contrast	Write about the differences between two things
Counter-urbanisation	A marked decline in the total population, or growth of the population, of large metropolitan areas and the subsequent growth of smaller urban centres at their expense. First identified in North America in the 1970s where counter urbanisation had replaced urbanisation as the dominant force shaping the nation's settlement pattern
Critically (analyse, evaluate)	Add a degree or level of accuracy, depth, knowledge and understanding, logic, questioning, reflection and quality to (analysis or evaluation)
Deduce	Draw conclusions
Define	Give the meaning or definition of a word or phrase
Demonstrate	Show by example
Describe	Write what something is like or where it is. Describe may be used for questions about resources in the exam question paper (describe the trend of the graph, the location of a settlement of a map, and so on). It may also be used when you need to describe something from memory(describe a meander). It is often coupled with other command words such as Name and describe (name the feature and say what it is like), Describe and explain (say what it is like and give reasons for)
Developing countries	A category of countries compiled by the Development Assistance Committee of the OECD including all countries and territories in Africa except South Africa, in Asia except Japan, in Oceania except Australia and New Zealand, in the Americas except Canada and the USA and the following in West Europe: Albania, Cyprus, Gibralta, Greece, Malta, Portugal, Turkey and former Yugoslavia
Devise or plan	Presentation of a particular feature such as a form or questionnaire to meet a specific requirement or requirements

Discuss	Identify issues and provide points for and/or against
Distinguish	Recognise or note or indicate as being distinct or different from; to note differences between
Draw	Make a sketch of. Often coupled with a labelled diagram (draw a diagram or illustration with written notes to identify its features)
Ecological dimension	Describes the relationship between people and the environment and the effect that they have on each other
Ecologically sustainable development	Using, conserving and enhancing the community's resources so the ecological processes are maintained so that quality of life, now and in the future, can be increased
Ecosystem	A system formed by the interaction of all living organisms (plants, animals, humans) with each other and with the physical elements of the environment in which they live
Environment	The 'total surroundings' including the components of the biophysical world, and the cultural, social, political and economic contexts of people
Environmental impact assessments	A detailed study for a proposed development that identifies and describes the environment, predicts any likely changes that might result from such a proposal, assesses the significance of any predicted changes and reports through an environmental impact statement which makes provision for community consultation
Evaluate	Make a judgement based on criteria; determine the value of
Examine	Look further into
Explain	Write about why something occurs or happens. Relate cause and effect; make the relationships between things evident; provide why and/or how
Extract	Choose relevant and/or appropriate details
Extrapolate	Infer from what is known
Exurbanisation	A process whereby people, usually affluent, move from the city to rural areas but continue to maintain an urban way of life either through long-distance commuting or technology
Geographical issues	Areas of concern that arise due to changes resulting from the interaction within environments and which can be investigated from spatial and/or ecological dimensions
Geographical processes	The combination of physical and human forces that form and transform our world
GIS	Geographical Information Systems: integrated computer tools for the handling, processing and analysing of geographical data
How	In what way? To what extent? By what means or methods? May be coupled with Show how (prove how, demonstrate how)
Identify	Pick out something from the information you have been given. Recognise and name
Insert or label	Placing specific names or details to an illustrative technique in response to a particular requirement
Interpret	Draw meaning from
Investigate	Plan, inquire into and draw conclusions about
Justify	Support an argument or conclusion. Say why you chose something or why you think in a certain way
Locate	Find out where something is placed or state where something is found or mark it on a map or diagram.
Mega cities	Very large agglomerations of at least 8 million inhabitants; the UN lists 22 mega cities of the developing world circa 2000: Mexico City, Lima, Buenos

	Aires, Rio de Janeiro, São Paulo, Lagos, Cairo, Istanbul, Tehran, Karachi, Mumbai, Bangalore, Delhi, Calcutta, Bangkok, Dhaka, Shanghai, Tianjin, Beijing, Seoul, Metro Manila, Jakarta
Nation-state	The political unit of people living in a defined territory, with government authority in their economy, political organisation and external security
Non-government organisations (NGOs)	Groups of people in the community focused around a common environmental action, political or social change, varying in complexity from CARE Australia to the Women's Federation for World Peace
Outline	Sketch in general terms; indicate the main features of
Predict	Use your knowledge and understanding, probably along with information provided to state what might happen next. Suggest what may happen based on available information
Propose	Put forward (for example, a point of view, idea, argument, suggestion) for consideration or action
Recall	Present remembered ideas, facts or experiences
Recommend	Provide reasons in favour
Recount	Retell a series of events
Spatial dimension	Describes where things are and why they are there
Spatial exclusion	Refers to the defence of luxury lifestyles which have resulted in restrictions in spatial access and the freedom of movement of other urban dwellers. It is manifest in 'high security suburbs', 'walled estates' and security-conscious retail-business complexes
Spatial interdependence	The degree to which phenomena depend on each other for development and/or survival. Spatial interdependence implies that a spatial association exists
Spatial patterns	A key theme in geography that includes the concepts of location, distribution, spatial organisation and spatial differentiation
Suggest	Set down your ideas on or knowledge of. Often coupled with why (requires a statement or an explanatory statement referring to a particular feature or features)
Summarise	Express, concisely, the relevant details
sustainability	The ability to meet the needs of the present generation without compromising the ability of future generations to meet their needs
Synthesise	Putting together various elements to make a whole
Transnational corporations (TNCs)	Large business enterprises with a number of branches operating in several countries but with usually a central head office in a developed country, whose powers transcend national boundaries
Urban village	Distinctive residential districts comprising a clustering of people with a common culture and forming an identifiable community
World city	A large city that has outstripped its national urban network and become part of an international global system; centres of political power, world trade and communications, leaders in banking and finance, stage, world entertainment and sporting spectacles, the headquarters of NGOs and tourist meccas. They are command centres in the borderless domain of the new global economy

Glossary for assessment

Syllabus outcomes, criteria and performance standards, and examination questions all have key words that state what students are expected to be able to do. A glossary of key words has been developed to help provide a common language and consistent meaning in the syllabus and teacher guide documents.

Using the glossary will help teachers and students understand what is expected in response to examinations and assessment tasks.

Glossary of key words for assessment

Account	Account for: state reasons for, report on. Give an account of: narrate a series of events or transactions
Analyse	Identify components and the relationship between them; draw out and relate implications
Apply	Use, utilise, employ in a particular situation
Appreciate	Make a judgement about the value of
Assess	Make a judgement of value, quality, outcomes, results or size
Calculate	Ascertain or determine from given facts, figures or information
Clarify	Make clear or plain
Classify	Arrange or include in classes or categories
Compare	Show how things are similar or different
Construct	Make; build; put together (items or arguments)
Contrast	Show how things are different or opposite
Critically (analyse, evaluate)	Add a degree or level of accuracy, depth, knowledge and understanding, logic, questioning, reflection and quality to (analysis or evaluation)
Deduce	Draw conclusions
Define	State meaning and identify essential qualities
Demonstrate	Show by example
Describe	Provide characteristics and features
Discuss	Identify issues and provide points for and/or against
Distinguish	Recognise or note or indicate as being distinct or different from; to note differences between
Evaluate	Make a judgement based on criteria; determine the value of
Examine	Inquire into
Explain	Relate cause and effect; make the relationships between things evident; provide why and/or how
Extract	Choose relevant and/or appropriate details
Extrapolate	Infer from what is known
Identify	Recognise and name
Interpret	Draw meaning from
Investigate	Plan, inquire into and draw conclusions about

Justify	Support an argument or conclusion
Outline	Sketch in general terms; indicate the main features of
Predict	Suggest what may happen based on available information
Propose	Put forward (for example, a point of view, idea, argument, suggestion) for consideration or action
Recall	Present remembered ideas, facts or experiences
Recommend	Provide reasons in favour
Recount	Retell a series of events
Summarise	Express, concisely, the relevant details
Synthesise	Putting together various elements to make a whole