Guidelines for Teachers on Learning, Teaching and Assessment

Learning and Teaching

I. Enquiry Learning

The prime objective of adopting enquiry learning in geography lessons is to develop students to become active learners and problem-solvers. Through enquiry, students can master geographical concepts and knowledge in a more interesting and authentic way. In enquiry learning, students are encouraged to ask their own geographical questions and to seek their own answers. With the information and experience they have, students will look at an issue or a problem from different perspectives. Very often, they have to discuss and collaborate with one another in order to carry out investigation and to solve problems. In these ways, students are trained to be open-minded and are able to tolerate and respect different views of different people. They can also become more self-directed in their own learning.

In using enquiry learning in their lessons, geography teachers have to change their roles from knowledge transmitters to learning facilitators. They should assist students to examine and investigate problems or issues by providing appropriate guidance instead of leaving the students to be merely passive listeners with very low involvement and participation in the lessons. As facilitators, teachers should provide students with situations in which they can acquire the concepts and practice the skills to be learned and the direction towards which enquiry should proceed. Since the knowledge acquired by students through enquiry will sometimes be scrappy and fragmented, teachers should also provide a framework for their students to organize their study in a systematic way. This can be achieved by careful planning of the learning activities so that the knowledge to be acquired by students through investigation and enquiry can be built up step by step, forming into a complete and logical picture of knowledge in the end. A further measure to ensure that students can benefit most from enquiry learning is to give a summing up at the end of students' enquiry, outlining the concepts, ideas and skills that should have been learnt by the students.

II. Generic Skills and Geography

When engaging in enquiry learning through the study of issues, students are required to identify key questions, collect and extract information, suggest solutions to problems, make decision and develop reasoned value judgment. All these enquiry processes provide ample opportunities for the development of generic skills, especially high-order thinking skills, in students.

Geographical enquiry is particularly effective in helping students to develop high-order thinking skills like critical thinking. Through issue enquiry, students can learn how to draw out meaning from information and data, how to develop and consider alternative ways of dealing with problems, how to generate and evaluate arguments as well as how to analyze the different viewpoints for decision-making. The example below illustrates how an enquiry-based learning task helps develop students' critical thinking and problem-solving skills.

Example 1 – Enquiry-based worksheet for developing generic skills

The Air Quality of Tung Chung

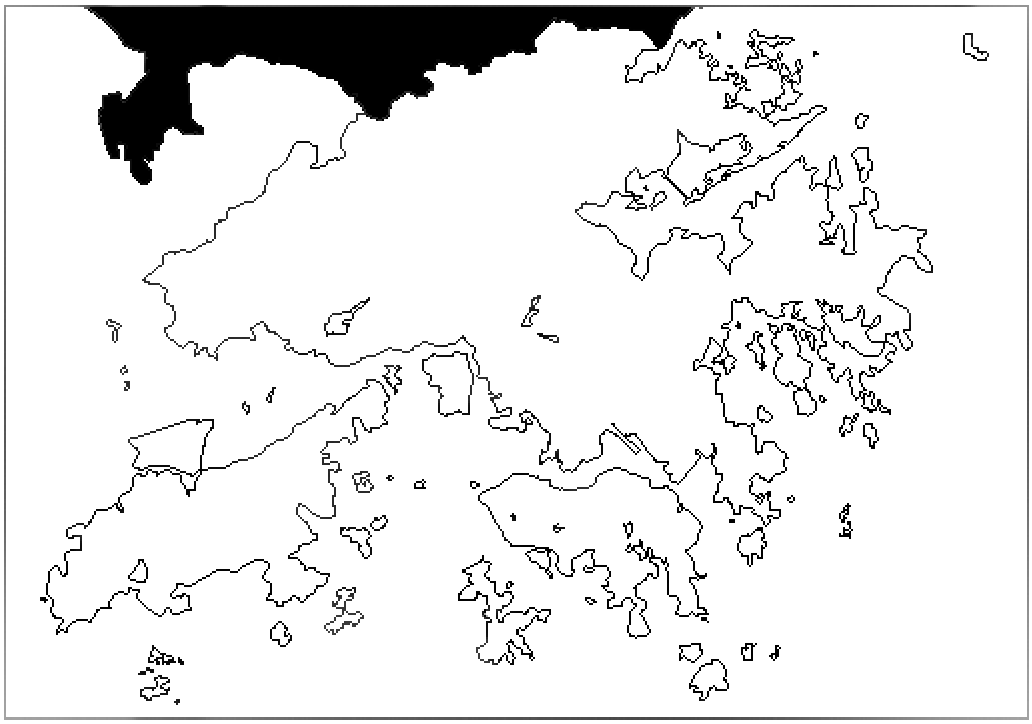
'Tung Chung Bay and the mountain between Tung Chung and Chek Lap Kok are always covered by smog,' a Tung Chung resident said. Many residents of Tung Chung are worried about the air quality of their district, which is often covered with smog and having a rather low visibility even during sunny days. According to the Environmental Protection Department, the air pollution index (API) of Tung Chung remains higher than other areas in Hong Kong. The situation is particularly worse in winter. On 30 December 1999, the API of Tung Chung reached a historical peak of 161.

Study the newspaper clipping on the previous page and answer the following questions.

* (The bracket after each question states the purpose of the question.)

1. What kind of pollution is mentioned in the newspaper clipping? *(Identification of an issue / problem)*

2. Mark the location of Tung Chung on the map below, and shade the land higher than 300 metres in brown. *(Training of map skills)*



Legend

3. Make use of your atlas to find out the main directions of summer and winter prevailing winds in Hong Kong. Mark them on the map using arrows of different colours. Do not forget to prepare a legend for the map. *(Training of map skills)*

4. Based on the map you have constructed, explain why the type of pollution mentioned in the newspaper clipping is particularly serious in Tung Chung. *(Analyzing information collected)*

5. Can you explain why the pollution problem becomes worse in winter? Try to recall what you have learnt about the climate of Hong Kong. *(Reorganization of prior knowledge and experience; Recalling what have been learnt)*

6. Working with your classmates in a small group, search for information about the various types of measures adopted by the Hong Kong SAR government to deal with this pollution problem. *(Looking for solutions to a problem from various sources and through collaboration)*

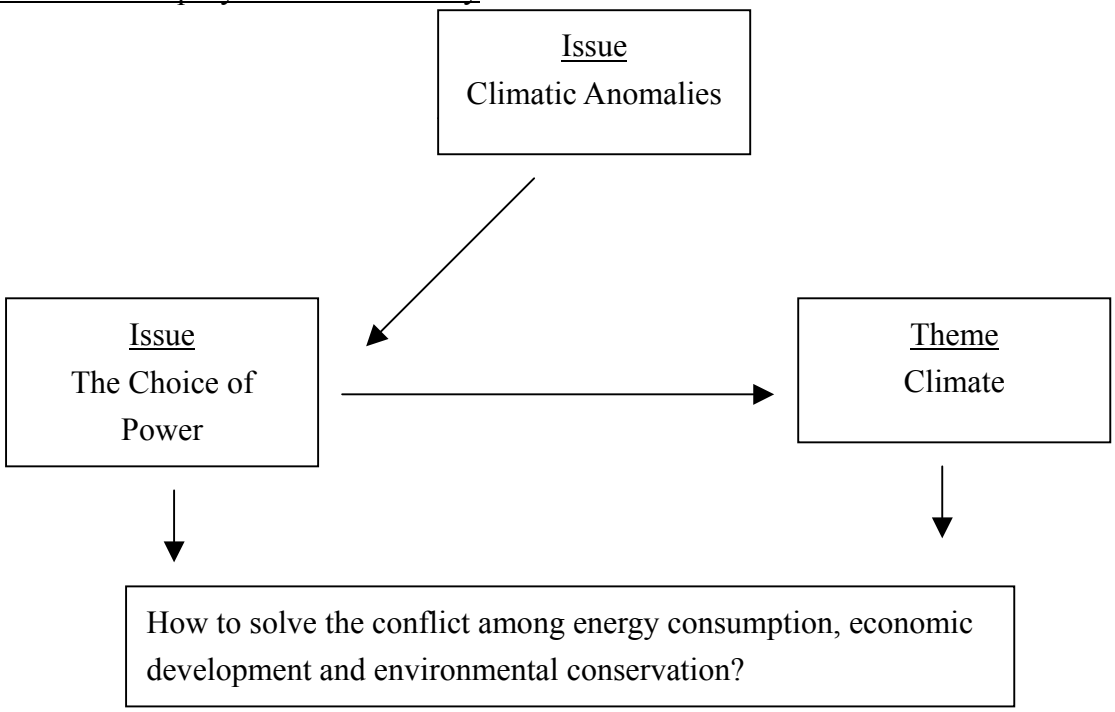
7. Evaluate with your classmates the effectiveness of the measures being adopted by the Hong Kong SAR government for this type of pollution. *(Evaluating different solutions)*

8. As a Hong Kong citizen, how can you help alleviate this problem? Why do some people/companies still ignore the importance of alleviating this pollution problem and not willing to adopt any measure? *(Understanding what others think; Making value judgment)*

III. Learning Geographical Themes and Issues in an Integrative Manner

In order to allow enquiry learning to have its greatest effect on students' learning, it is recommended that the geographical themes and issues chosen for this curriculum should be learnt in an integrative manner. In the previous section (p.14-15), an example showing how an issue and its related theme can be learnt in an integrative manner is given. However, the example is not the only possible way of combining issues and themes. The following illustrates an integration of two issues, "Climatic Anomalies' and 'The Choice of Power' with the theme 'Climate'.

From Issue Enquiry to Thematic Study



1. What is global warming?
2. What are the causes of global warming?
3. Are industrialized countries the only ones to blame for global warming? How about the roles of other countries in this issue?
4. In what ways are China and Hong Kong affected by global warming?

5. Why are some cities in China often foggy and covered with smog? Is it related to the choice of power and industrial development in China?

↓

6. In addition to human factors, what are the other factors that affect our climate?

↓

7. What is the global distribution pattern of insolation on the Earth's surface? What are the reasons for the formation of such a pattern?

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8. What are the relationships between insolation and the global distribution pattern of temperature, precipitation, wind and pressure?

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9. What are the major factors affecting the climate of low-latitude region as well as the middle- and high-latitude region?

↓

10. Why are there climatic variations in areas of similar latitudes (e.g. Malaysia and Somalia, Shandong and Xinjiang)?

↓

11. What are the impacts of climate on human beings?

↓

12. In return, how do human activities affect the climatic pattern? What can be done to alleviate the effects of this changing climatic pattern?

↓

13. In the case of China, are industrial relocation and developing alternative energy resources possible solutions to the global warming problem? Which one is better?

↓

14. Can individual countries alleviate the global warming problem alone? Why are some countries reluctant to cooperate in combating this problem?

↓

15. In what ways do individual activities relate to global warming? How can we help to alleviate this climatic phenomenon?

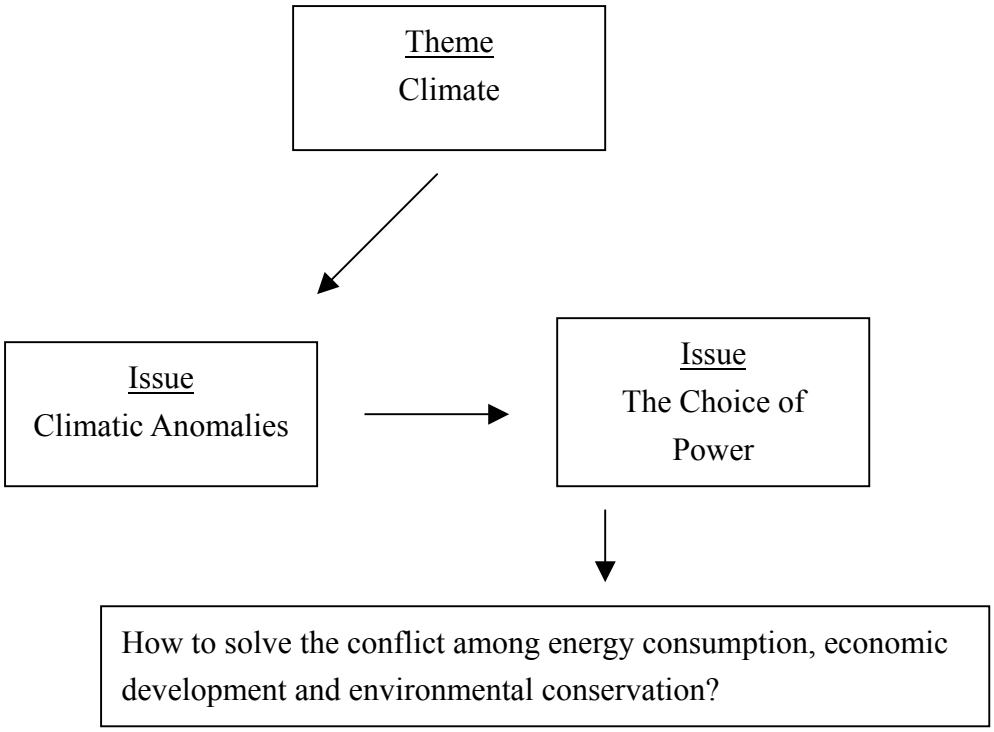
Key

Questions inside white boxes are from the theme 'Climate'.

Questions inside grey boxes are from the issue 'Climatic Anomalies'.

Questions inside black boxes are from the issue 'The Choice of Power'.

From Thematic Study to Issue Enquiry



1. What is the global distribution pattern of insolation on the Earth's surface? What are the reasons for the formation of such a pattern?

2. What are the relationships between insolation and the global distribution pattern of temperature, precipitation, wind and pressure?

3. What are the major factors affecting the climate of low-latitude region as well as the middle and high-latitude region?

4. Why are there climatic variations in areas of similar latitudes (e.g. Malaysia and Somalia, Shandong and Xinjiang)?

5. What are the impacts of climate on human beings?

6. In return, how do human activities affect the climatic pattern? What are the causes of global warming?

7. Are industrialized countries the only ones to blame for global warming? How about the roles of other countries in this issue?

↓

8. As examples, in what ways are China and Hong Kong affected by global warming?

↓

9. Why are some cities in China often foggy and covered with smog? Is it related to the choice of power and the level of industrial development here?

↓

10. In the case of China, are industrial relocation and developing alternative energy resources possible solutions to the problem? Which one is better?

↓

11. Except industrial relocation and developing alternative energy resources, what other measures should be adopted to alleviate the problem of global warming?

↓

12. Can individual countries alleviate the problem of global warming alone? Why are some countries reluctant to cooperate in combating this problem?

↓

13. In what ways do individual activities relate to global warming? How can we help to alleviate global warming?

Key

Questions inside white boxes are from the theme 'Climate'.

Questions inside grey boxes are from the issue 'Climatic Anomalies'.

Questions inside black boxes are from the issue 'The Choice of Power'.

IV. Map Skills

Maps are an important form of communication. They are the most effective medium for storing, displaying, analyzing and communicating information about places. The information on maps can also be used for problem solving. Except being the fundamental tool of geographers, map skills are also widely used in our everyday life. The use of maps to find ways and locations, to analysis issues of different scales and planning holidays are examples. Therefore, it is important to help our students to develop skills in encoding and decoding information on maps.

In most cases, the teaching of map skills should not be treated as a separate topic in geography, but should be integrated into the learning and teaching of geographical themes and issues. Teachers should develop a planned and structured program to familiarize their students with the following 4 essential properties of maps:

1. Plan view (perspective and relief),
2. Arrangement (location, direction and orientation),
3. Proportion (scale, distance and selection),
4. Map language (signs, symbols, words and numbers)

Besides, students should be encouraged to familiarize with different varieties of maps of different scales and contexts. It is expected that a Secondary Five geography graduate will be equipped with the skills of using, reading, drawing and interpreting maps.

V. Fieldwork and Life-wide Learning Experience

Life-wide learning refers to experiential learning in real contexts and authentic settings. Actually, with learning activities outside classrooms, the learning goals, aims and objectives of geography can be achieved more effectively. Fieldwork, museum visits, geography projects and exhibitions are examples of life-wide learning opportunities in geography. Of these, fieldwork is the most essential and important one.

Fieldwork can be considered as any activity which takes place outside the confinement of classroom. It is an important part in the teaching and learning processes of Geography. It provides students the opportunities to apply the knowledge/concepts that they have learnt in the classrooms to the real world. Students

can also test hypothesis and learn new knowledge/concepts during fieldwork. In addition to knowledge acquisition, different types of skills, including subject-specific skills (such as field sketching, landuse plotting) and generic skills (like problem-solving, critical thinking) can be developed through fieldwork. As such, fieldwork has important contributions to make geography real and enjoyable, and every geography student of S4-5 is entitled to have a reasonable amount of fieldwork experience throughout their two-year studies.

The practice of fieldwork should not be confined to large-scale, whole-day activities in distant locations. Actually, small-scale fieldwork conducted near the school premises could also be considered. In addition to low cost, this kind of fieldwork is easier to manage and it can be completed within a short period of time. Teachers should note that value of fieldwork lies on whether it can help students learn how to identify, to observe, to collect, to apply and to analyze, not on how long it takes or how much work the students have to complete.

VI. Project Learning and Geography

Project learning is a powerful strategy of learning and teaching. It promotes self-direction, self-regulation and self-reflection in learning. Besides being capable of assisting students in constructing knowledge, project learning is also a good medium to facilitate students' development of generic skills. This curriculum provides a lot of challenging questions, problems and issues that can arouse students' interest and curiosity to enquire. Through engaging in project work, students can apply what they have learnt in real life situations and construct new knowledge through enquiry. They can also develop generic skills like critical thinking, problem solving, collaboration and communication through these rich and authentic learning experiences.

All of the issues and most of the themes in this curriculum can be used to develop interesting project titles. The table on the next page lists a few possible suggestions for some of the themes included in this curriculum. However, teachers should always try to develop project titles based on the needs, interest and ability of their own students.

Theme	Suggested project titles
Agriculture	Is technology the pancreas to the food problem in the less developed countries in semi-arid regions?
City	Is urban encroachment the 'source' of flooding in the northwestern part of the New Territories? Should we go on reclaiming the Victoria Harbour? (* for extended learning only)
Climate	Why the 'Wind of Spring'(春風) can never pass Yumen Gate (玉門關)?
Landform and Exogenetic Processes	How come the erosive power of large rivers is the greatest at their lower courses with gentle gradient?

VII. Using information technology (IT) in Geography for interactive learning

In order to help students learn better, information technology can be used to promote interactive learning both inside and outside classrooms. Geography teachers should provide adequate and appropriate opportunities for their students to apply IT in the learning of this curriculum. With multimedia-enriched presentations, abstract concepts, such as those of weather and climate, can be explained more clearly and easily. IT also links students to the vast network of knowledge and information outside their classrooms (e.g. through the Internet). Information in various websites provides updated data for discussion and research, which highly facilitates self-learning and enquiry learning. Through the school intranet system and e-mail, students can also share ideas, discuss various geographical issues and communicate with their teachers. Learning is thus no longer confined by time and space. A list of computer software, CD-ROMs and website addresses suitable for the learning and teaching of this curriculum is included in the Appendix for teachers' reference.

Assessment

I. The Meaning of 'Assessment for Learning'

Assessment is the practice of collecting evidence of students' learning. It is embedded in the learning and teaching cycle/process as an integral part rather than a separate stage at the end of teaching. The idea of 'assessment for learning' involves the use of formative classroom assessment to improve students' learning. Therefore, it is different from 'assessment of learning', which measures what students/learners knew and can do.

'Assessment for learning' is underpinned by the confidence that all students can learn and improve. Through 'assessment for learning', teachers share the learning goals and requirements with their students. Along with continuous revision and reflection on students' performance and progress, teachers should provide feedback to their students so that they know what should be done next to improve. In these ways, assessment is used for widening the opportunities for learning rather than purely for the measurement of learning outcomes. Gradually, both the effectiveness of teaching and learning will be enhanced.

II. The Application of 'Assessment for Learning' in Geography

With the meaning of 'assessment for learning' above, it is therefore important to adopt both formative assessment and summative assessment in geography to monitor and evaluate students' progress. Formative assessment helps teachers and students to monitor and make judgments about their day-to-day learning progress. On the other hand, summative assessment is made at the end of a unit of work or a term to summarize students' performance.

The general principles of assessment for learning in geography are as follows:

- Assessment in geography should be divided into several distinguishable stages and teachers should adopted different modes of assessment to evaluate different learning outcomes. (For details, refer to Part III 'Assessment Strategies'.)

- Assessment in geography should be planned with suitable weighting on knowledge/concepts, skills, values and attitudes. Also, students' capabilities of applying their knowledge to real life situations should be evaluated.
- Assessment practices that inhibit or narrow learning opportunities should be reduced. The quality of tests, not quantity, should be counted.
- Teachers should share the learning goals with students and help them to know and recognize the standards they are aiming for.
- Involvement of students in self-assessment and peer-assessment should be encouraged. They are powerful ways of learning to improve. They help students learn about the criteria of assessment and understand teachers' expectations. (For details about self-assessment and peer-assessment, refer to Part III C.)
- Involvement of both teachers and students to review and reflect assessment data together is important and necessary. After that, students who fail to reach the minimum standard in any aspect should be given support and guidance. Besides, based on the assessment results, teachers should adjust and improve their teaching strategies.

III. Assessment Strategies

Assessment in geography can be classified into three major groups, namely short-term, medium-term and long-term.

Short-term assessment means assessment from day-to-day or week-to-week. At this stage, the steps (often small) students make in the development of knowledge, skills and understanding in individual lessons are concerned. Various types of informal assessment practices within lessons can be carried out. **Discussion, observation of students' work, questioning and on-going marking** are examples of short-term assessment. (For details about questioning and on-going marking, refer to Parts III A and III B below.) Moreover, teachers can mark students' work with them and decide together the next step (short-term target(s) for improvement) in learning.

Medium-term assessment means assessment over a topic or a term. At this stage, occasional, more in-depth and formal assessments about students' progress are necessary to supplement short-term, day-to-day assessment. **Short, end-of-unit tests, self-assessment and peer-assessment** (refer to Part III C below) are examples of assessment in this period.

Long-term assessment refers to the assessment over a year. Summative/evaluative assessment such as **yearly examinations** can be carried out. **Reports** and **portfolios** (refer to Part III D below) may be collected from students for assessment.

A. Effective Questioning Skills

In order to assess different levels of learning and understanding, different types and styles of questioning can be used in classrooms to achieve well-defined goals. Advanced preparation is needed if teachers want to give effective questioning sessions in classrooms. Some steps and recommendations for planning effective questions are suggested below.

1. In order to determine the levels of questions to be asked, teachers should first decide on their goals or purposes for asking questions.

2. Teachers should select suitable content(s) for questioning. Choose only materials that are important. Do not mislead students by choosing and emphasizing trivial and less important materials.

3. Teachers should phrase their questions carefully so that the tasks are clear to students.
   a) Avoid questions which can be answered 'yes' or 'no' directly unless there are more questions to follow to explore the reasoning. Try to ask questions which require students to give extended responses. Some examples are given below.
      ☒ Questions which can be answered 'yes' or 'no' only:
      Do regions of similar latitudes have similar climate?
      ☑ Questions that required extended responses:
      Why does climate vary in regions of similar latitudes?
   b) Do not contain answers in the questions asked and avoid implied response questions.
      ☒ Which type of factors, physical or human, is more important in affecting the agricultural characteristics of Sahel?
      ☑ What are the factors affecting the agricultural characteristics of Sahel?

c) Avoid 'guess what I am thinking' questions and allow enough flexibility in the questions.

Teacher: What are the possible cartographic methods to present these data?
Student 1: Line graph.
Teacher: Yes. Student 2, do you have any other suggestion?
Student 2: Bar graph.
Teacher: Both of you are correct. Good! Let's further discuss …

4. Try to adapt the questions to the levels of students' abilities. According to Bloom's Taxonomy, there are 6 categories of questions. From low to high level they are listed below:
   a) Knowledge;
   b) Comprehension;
   c) Application;
   d) Analysis;
   e) Synthesis;
   f) Evaluation

   Questions of higher level require much more 'brain power' and a more extensive and elaborate answer. Therefore, for lower ability students, some lower-level questions may be asked. An example is shown below.

   What is the name of the major endogenetic process the leads to the formation of an ocean trench?

   However, for higher ability students, some higher-level questions can be asked. Refer to the example below.

   How does the distribution of tectonic landform features in Asia-Pacific Region be related to plate movements?

5 Teachers should try to anticipate students' possible responses when planning questions. The following questions may provide some ideas.
   a) What type of student's response do I expect, a solution or an example?
   b) What type(s) of answer(s) will I accept, in students' languages or textbooks' words?
   c) If students do not answer, what will I do? (You may need to re-phrase your question in this situation.)
   d) If students give incorrect answers, what are my strategies then?

6. After asking a question, give students enough time to think before they answer. The suggested minimum waiting time is 15 seconds. However, occasional dead silence for a minute or two is totally acceptable.

7. After students gave their initial responses, try to elicit longer, more meaningful and more frequent responses from them. Teachers can make reflective statements to give senses of what the students said. Teachers can also invite students to give elaboration to their answers and encourage other students to comment.

8. Try to write the main questions before the lessons according to the goals of questioning and arrange them in some logical sequence, for examples, from low level to high level, and/or from specific to general. During the lessons, be flexible and add some better questions whenever appropriate.

B. On-going marking

On-going marking is an important short-term assessment mode in geography. Through this type of marking, the work of students can be monitored carefully and continuously. Feedbacks, and marks if needed, are given to students after each part of work is completed so that the teacher knows who needs extra help and suggestion. On the other hand, students receive on-going feedbacks which help them to work to higher standards.

On-going marking should focus on the positive achievement and improvement by the students. With clear and legible comments, teachers can help their students find out their strengths and weaknesses. Moreover, targets for further improvements can be set together.

In fact, a good marking practice can help to establish dialogues between teachers and students. With clear and consistently applied criteria, on-going marking can help evaluate students' work and provide quality feedback to them.

1. On-going marking and marking to criteria:

Geography teachers in a school can establish some common marking systems to grade their students' work continuously and help them to improve. After establishing these systems, teachers should help their students to understand the criteria for achieving different grades. Each time, students are helped to find out their strengths and weaknesses after their assignments are marked. Some satisfactory or high quality aspects of their work are recognized and reinforced. On the other hand, students are helped to improve and modify the unsatisfactory aspects of their work. With the criteria for achieving different grades, students can compare their current performances with the desired standards. They are then advised to take appropriate actions to close the gap between the two.

An example of marking to criteria (about the theme – 'Landform and Endogenetic Processes') is shown below. Teachers can mark students' work about plate tectonics and help them to have progress according to this table of criteria.

Grade	**Achievement**
A	Very good. You are able to apply your understanding of how endogenetic processes leading to the formation of major landform features along plate boundaries to explain the formation and characteristics of landform features in other areas.
B	Good. You are able to describe and explain how endogenetic processes form and shape the major landform features along different types of plate boundaries.
C	Average. You are able to identify the major landform features formed along plate boundaries, and can relate their formation to plate boundaries and plate movement. However, you are unable to explain clearly their relationship.
D	Below average. You are only able to identify the major landform features formed along plate boundaries, but unable to relate their formation to the different types of plate boundaries and plate movement.
E	Failed. You are unable to name and identify the major landform features formed along plate boundaries.

Grade	**Effort**
1	Well done. Your work is brilliant.
2	Good Work. You have worked well in this assignment.
3	Quite good. You have tried to finish the whole assignment and have worked well in a few parts, but you need to put more effort into your work.
4	You've tried to work in some parts of this assignment, but you need to try harder.
5	You have put very little effort into this work. Work harder.

Figure 1 Marking to Criteria.

In most cases, giving grades / marks only are insufficient if we want our students to have progress in their learning. Quality feedbacks / comments are very important in achieving this. Refer to the following paragraph for details.

2. Quality feedbacks given by teachers:

Feedbacks given by teachers are very helpful in improving students' learning. When giving feedbacks, teachers should focus on the following:

a) Teachers' comments should focus on the tasks done by the students. Feedback will be more effective if it is focus on the task and encourages students to think about the task.
b) Teachers' comments should point out the gaps between the standard and students' actual performance.
c) Teachers' comments should provide suggestions about the strategies for students to improve their work.

An example of quality feedbacks given by a teacher is shown in Figure 2.

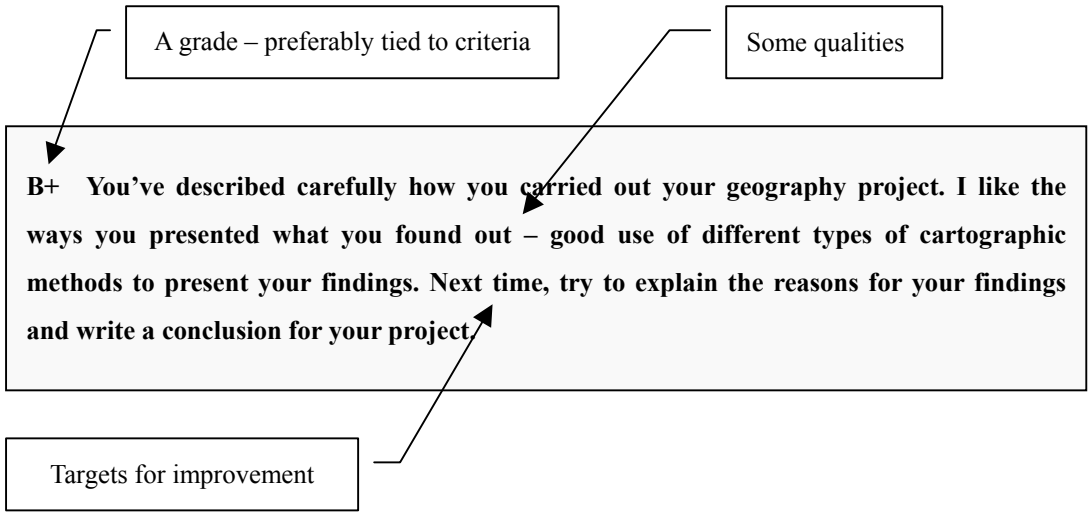


Figure 2 An example — quality feedbacks given by a teacher.

Teachers should take note of the following:

a) Provide feedbacks / comments to students about their work promptly and regularly.
b) Try to give constructive criticisms to students. These help them to understand what the tasks require, to review their current performance and to improve their future work.
c) Avoid giving critical comments that damage students' self-esteem because these comments are de-motivating.

Reminder

With the practice of on-going marking, teachers may spend more time in marking every piece of work. Therefore, the number of assignments to be marked each year should be adjusted to provide rooms for teachers to give quality feedbacks. In the end, it is quality, not quantity, that matters.

C. Involving Students in the Assessment Process – Self-assessment and Peer-assessment

1. Self-assessment

Assessment for learning involves the use of classroom assessment to improve learning. Student's self-assessment is one part of such formative classroom assessment. It may involve the analysis of student's work and reflection on his/her learning strategies.

Some steps and suggestions are shown below:

a) Teachers should give training sessions on self-assessment to their students at the beginning of a school year. During these class sessions, teachers should:
   (i) clarify what is meant by self-assessment;
   (ii) explain the objectives of learning clearly;
   (iii) inform students that self-assessment will become part of their classroom life;
   (iv) introduce self-assessment strategies to students and emphasize how these strategies can aid their learning;

b) Teachers may invite their students to participate in the development of quality criteria for self-assessment.

c) Teachers should help their students to understand the criteria so that they are capable of evaluating their own work.

d) Before doing each task, teachers should explain the learning objectives behind the task systematically.

e) Teachers may use the results of self-evaluation as a part of the final marks to a piece of work. Teachers may also discuss the work and its assessment with the students. These help the students to understand the quality criteria and their implementation more. Besides, new targets should be set after assessment.

f) Teachers should encourage their students to have self-assessment frequently and consistently. Therefore, teachers should mark out time slots for these assessment activities.

In order to encourage students' self-reflection in relation to learning objectives, teachers can create some posters of questions to be displayed in geography rooms / classrooms for use by students. Before the students employ these posters for self-evaluation, teachers should model the use of them. An example of such posters is shown in Figure 3.

A poster of questions for self-reflection
At the end of the lesson, ♦ **Do you still remember the learning objective(s)/intention?** ♦ **Anything you find interesting?** ♦ **Anything you find difficult?** ♦ **Did you learn anything new? What are they?** ♦ **Did anyone or anything help you to learn this/these new thing(s)?** ♦ **Do you need help?**

Figure 3 A poster of questions for students' self-reflection.

2. Peer-assessment

Peer assessment is another way of involving students in the assessment processes. On the basis of discussed criteria, peer-assessment enables students to apply the quality criteria in a less personal way. It is also a powerful way of learning to improve because students, as peer assessors, can see how other students have approached the task. They then learn new ideas and improve their work. Therefore, peer-assessment works better if the assessor has also produced a similar piece of work and he/she has some background knowledge about the topic.

Peer assessment may not necessarily involve giving a grade. If it is a part of formative assessment only, providing feedback/discussion with a checklist is enough. However, if it is a part of summative assessment, a grade is usually needed. Teachers may worry about the 'accuracy' and 'fairness' of peer assessment, but numerous overseas and local researches have already shown that the reliability and validity of peer assessment were surprisingly acceptable if it was well established and properly set up.

Peer-assessment, being a learning process in itself, is worthy of teachers consideration for incorporating into the learning programs of geography. It helps our students learn about the criteria of assessment, understand their teachers' expectations, know how to make judgments and give guidance. It is also a motivator of learning.

Example 2 — Involving peer-assessment in assessing geography projects

A geography teacher adopts peer-assessment in evaluating her students' geography projects. The topic of the project is 'Plate Tectonics in Asia-Pacific Region'. The teacher wants her students to have a deeper understanding on this topic and relate what they have learnt to real world examples. Besides, she hopes that her students are able to develop map and IT skills.

The steps employed by the teacher are shown below:

a) The geography teacher prepares some guidelines on doing geography project for her students to follow (Figure 4).
b) The students are encouraged to discuss the assessment criteria with the teacher before they start doing their projects.
c) Based on the discussed criteria (Figure 5), the students carry out their project work in groups and prepare a report.
d) A 'Peer-assessment Form – Contributions by Group Members' (Figure 6) is distributed to the students. They are asked to assess each of their team members in terms of their contributions to the group projects.
e) Each group will also assess other groups' geography projects according to the criteria of assessment. A 'Peer-assessment Form – Contents of the Geography Project' is given to each group for this purpose (Figure 7).
f) The teacher examines the sets of marks produced for each team project (peer-assessment within a group about the contributions of each group member + peer-assessment by other groups about the contents of the project = total marks for a group member) and moderate them where there is divergence.
g) Students receive feedback and marks for their projects.

Geography Project Guidelines

Plate Tectonics in Asia-Pacific Region

1. Form groups by yourselves (5 students in a group). Each group/team must hand in ONE geography project report on or before the deadline.
2. Every group member should engage in the following activities in order to produce the geography project:

   Brainstorming, discussions, research, development of work plan, producing the project report.
3. Refer to the discussed criteria of assessment so that you will know what your teacher is expecting from you.
4. The following are possible sources of information for your project:
   a) newspaper and magazines;
   b) books and other resources in the library ;
   c) The Internet (websites);
   d) wall displays in geography room
5. Present your findings and produce a project report (no more than 1000 words) with good use of graphs, maps, diagrams and illustrations.
6. Try to employ as much IT as you wish and the use of word processing software for typing your report is greatly preferred.

Figure 4 Geography project guidelines

	Less able students (1-2 marks for each area in the contents.)	**Average students** (3 marks for each area in the contents.)	**More able students** (4-5 marks for each area in the contents.)
Knowledge	*Students should be able to:*	*In addition to the one(s) on the left, students should also be able to:*	*In addition to the one(s) on the left, students should also be able to:*
Plate tectonics in Asia-Pacific Region	• identify the major plates and plate boundaries in Asia-Pacific Region.	• describe and explain the relationship between plate movements and the formation of different types of plate boundaries in Asia-Pacific Region.	• describe briefly the cause of plate movement and correlate it with the distribution pattern of plate boundaries in Asia-Pacific Region and the other parts of the world.
Landform features	• identify the major landform features found at the major plate boundaries in Asia-Pacific Region.	• describe the formation of the major landform features at the major plate boundaries in Asia-Pacific Region in relation to plate movement.	• relate the formation of major landform features in other parts of the world to plate movement.
Skill	*Students should be able to:*	*In addition to the one(s) on the left, students should also be able to:*	*In addition to the one(s) on the left, students should also be able to:*
Drawing of maps and diagrams	• mark landform features on a relief map and prepare an appropriate legend for the map.	• draw a sketch of the landform features observed during a field trip.	• draw a series of annotated diagrams to explain the formation of a specific landform feature.
Presentation using IT tools	• prepare a short verbal presentation aided by OHP transparencies to explain how plate movement resulted in the formation of the major landform features.	• prepare a PowerPoint presentation to explain how plate movement resulted in the formation of the major landform features.	• prepare a homepage / short animation to explain how plate movement resulted in the formation of the major landform features.

Figure 5 Rating Scale for Project Assessment

Peer-assessment Form – Contributions by Group Members:

Name: _____ Date: _____

Complete this form on your own. First fill in the names of your group members (including yourself) in the first column of the table below. Then assign each person a score from 1 to 4 in each area identified. The score should reflect each group member's contributions to the group project. After that, I (the teacher) will collect the forms from all of you and summarize the results. The results will be discussed with you later.

Use the following scoring guide to assign scores for each of your group members:

4 = The person was very helpful, made important contributions, readily volunteered to do work, had great ideas, always carried through with the work.

3 = The person was helpful, made helpful contributions, volunteered to do work.

2 = The person was a little helpful, had some ideas, did some work

1 = The person was not helpful, made very little or no contribution, did not carry through with work, did not share ideas

Name	Brainstorming	Discussions	Research	Development of a work plan	Writing project report

Figure 6 'Peer-assessment Form – Contributions of the group members'

Peer-assessment Form
Contents of the Geography Projects

Name of the group: _____ Date: _____

Complete this form with your group members and hand in one for each of the other groups in your class. Based on the discussed and agreed criteria of assessment set before (refer to Figure 5), assign scores and give comments for each group project.

Contents of the project	**Score(s)** Lowest ← → Highest				
	1	**2**	**3**	**4**	**5**
1. Plate tectonics in Asia-Pacific Region					
2. Landform features					
3. Drawing of maps and diagrams					
4. Presentation using IT tools					
5.					
6.					

Overall comments for the project:

Figure 7 'Peer-assessment Form – Contents of the Geography Project'

Example 3 — Involving self- and peer-assessment to improve the writing of geography reports

In order to help students improve the writing of geography project reports mentioned in the previous example, teachers may integrate self- and peer-assessment in the assessment processes. Below is a proposed schedule of what the teacher could do.

Procedure:

Week	Activities
1	The teacher briefs her students about the assessment procedure and runs an assessment workshop (about an hour) for the students. In this workshop, the students can involve in generating the criteria for assessment. (Figure 5)
2	Students receive their assignments together with a list of agreed assessment criteria. They then collect and analyze information. After that, they write their drafts, receive feedbacks and rewrite their drafts.
4	Students should submit their work together with their completed self-assessment form. (Figure 8)
4	All students attend a peer-assessment session. They assess their peers' work in this session. (Remarks: The names of the report writers should be covered and special seating arrangement should be organized to ensure that peer markers are not adjacent to the report writers.)
5	The teacher marks the report and calculates the total marks for each student (may be weighted in this way: teacher – 50%, self- 25% and peer – 25%). (Remarks: The teacher should assess the reports according to the same list of agreed assessment criteria developed with the students.)
5	The reports are returned to students together with the awarded marks and three sets of written feedback (teacher, self and peer).

This new assessment scheme, involving self- and peer-assessment, can be used in different types of geography assignments. It helps to improve the quality of feedback provided on the geography assignments. The incorporation of peer-assessment in the scheme can have a motivating effect on students. Students will find that this scheme encourages them to have more thought in their work and it can help them to improve their understanding about the assessment. In short, it helps our students produce better geographical assignments in the future.

Student Self-assessment Form – Geography Project Report

Name: _____ Date: _____

Consider your own effort in producing this report and complete this form. Your comments will form part of your total marks and will be used for the evaluation of your work.

1. About the contents of the report:

Based on the discussed and agreed criteria of assessment set before (Figure 5), assign scores for your group report.

Contents of the project	**Score(s)** **Lowest ← → Highest**				
	1	**2**	**3**	**4**	**5**
1. Plate tectonics in Asia-Pacific Region					
2. Landform features					
3. Drawing of maps and diagrams					
4. Presentation using IT tools					

2. About your effort and contribution to the report:

As an individual and according to your contribution to the report, give yourself scores by ticking (✓) the appropriate boxes in the following table.

	Contribution			
	Large (3 marks)	**Medium (2 marks)**	**Marginal (1 marks)**	**No (0 mark)**
Brainstorming				
Discussions				
Ideas and suggestions				
Research and data collection				
Development of a work plan				
Organization of work				
Writing the report				
Preparation for the presentation				

3. Other questions:

a) What do you like most about your report?

b) What do you like least about your report?

c) What are the things that you have learnt through producing this report?

d) If you had additional time to work on this report, would you change some parts of it? Why?

Signature: _____

Figure 8 A sample self-assessment form for students

D. Portfolios

1. What is a Portfolio?

a) A portfolio is a systematic and organized collection of students' work and other materials which exemplifies standards of work in a school or a department. It helps to monitor the growth and progress of the students' knowledge, skills and attitudes. Besides, it exhibits the efforts and achievements by students. Therefore, some people use the term 'Record of Learning Outcomes' (ROLO) instead of 'portfolio'.

b) A portfolio may contain the work of only one student at a range of levels or it may be a collection of work from different students. The materials in a portfolio may include students' written work, photographs, audio and video tapes and self-assessment records (validated by the teachers). Besides, extracts from teachers' records may also be included in a portfolio.

2. The Purposes of Developing a Portfolio

The building of portfolios helps to collect evidence of students' achievements and learning experience. It can be used to:

a) demonstrate students' progress in learning toward identified outcomes;
b) set targets for students to improve;
c) encourage self-directed learning;
d) inform parents, students and other teachers about the students' attainment.

3. Types of Portfolios

a) There are several different types of portfolios being developed and used in some schools. Some of these are:
   (i) Whole school/departmental portfolios
   (ii) Individual student portfolios
   (iii) Class portfolios

b) Individual or class portfolios usually contain a small sample of students' work. A small sample of each year's individual/class portfolios (may be work of three students at the top, middle and bottom of the ability range respectively) can be retained to put into the school or departmental portfolio. In these ways, students' attainment and progress can be monitored and recorded. Useful evidence for the monitoring and evaluation of geography curriculum can also be collected.

4. The Development of Individual Student Portfolios

a) At the beginning of portfolio development, teachers should help their students to understand the purposes and procedures of developing portfolios.

b) Teachers should ensure that students should understand it is their responsibilities to file their marked coursework into their individual containers (may be some cardboard A4 pocket folders). The following items of students' work may be put into the portfolios throughout the course/the school year:
   (i) Various types of assignments and individual investigations;
   (ii) Record of achievement in different forms of assessment, e.g. tests and annual examination papers, marked homework assignments;
   (iii) Teachers' observation report and notes about students' learning.

c) In order to establish the context of work and the nature of attainment, commentary sheets from teachers should be included in the portfolios. The contents of these commentary sheets may include:
   (i) explanation about the context and focus of the work;
   (ii) annotation about the agreed features of performance in work;
   (iii) description about how the work fulfills expectations;
   (iv) explanation about how judgments were made.

Name: _____ Date: _____

Topic/unit: _____

Objectives: _____

Context: (description of the learning activity)

_____

Why this piece of work has been selected?

_____

What features of attainment does this work show?

_____

Is there anything that this piece of work fails to show? If yes, what are they?

_____

Next step

_____

Figure 9 A sample commentary sheet.

5. Evaluation of Portfolios

a) Teachers and students can work collaboratively to determine some rules, grading and/or scoring keys for assessing a variety of portfolio components.

b) It is very important for teachers to give comments to students' work in portfolios so that they know how to improve.

c) Teachers may involve self- and peer-assessment in the evaluation of portfolios.

d) When marking students' work, teachers should take into consideration those that are not included in portfolios, such as students' oral responses in class.

6. Locations for Keeping the Portfolios

a) Portfolios can be kept in the store-room of the Geography Room if space is available. In view of their size and quantity, the storage of portfolios can be a problem to many schools. Fortunately, advancement in information technology helps to solve this problem.

b) Schools may choose to use scanners / digital cameras to change the samples of students' work into electronic form and store them in computer hard disk or CD-ROMs. Students may also record sound and videotape performance and convert them into electronic form.

E. Tests and Examinations

In preparing test and examination papers for formal, summative assessment, a balance in the types of questions is necessary. Apart from elements of factual knowledge and skills, teachers should also pay attention to components involving understanding of principles and relationships, generalization and analysis. Teachers could develop a simple tabular form to help check the frequencies of different topics and types of questions appear in the test paper (Figure 10). A list of question words in relation to the six cognitive levels (Figure 11) is also included for teachers' reference.

Topic / Cognitive Level		Climate	City	Agriculture…
Knowledge (Factual Recall)	Question No.			
	Percentage			
Comprehension	Question No.			
	Percentage			
Application	Question No.			
	Percentage			
Analysis	Question No.			
	Percentage			
Synthesis	Question No.			
	Percentage			
Evaluation	Question No.			
	Percentage			

Figure 10 A Checklist for Setting Test / Examination Paper

Cognitive Level	Related Question Words
Knowledge (Factual Recall)	Name, Fill in, Complete...key, Identify, Indicate, Assign, Find, List/state, Give
Comprehension	Define, Outline, Describe, What
Application	Which, Where, Draw/Redraw/Construct, Plot, Mark, Shade in, Delimit, Show, Calculate/Give a value, Complete...table, Derive, Rearrange
Analysis	Explain/Account for, Give reason for/Give an explanatory, How/Show how, Why, Expand, Examine, Justify, Describe and discuss, Discuss, Compare, Contrast, Compare and contrast, Match...evidence, Find out...correlation
Synthesis	Suggest way/reason/causes
Evaluation	Comment on, Assess, Evaluate, To what extent

Figure 11 A List of Question Words for Setting Test / Examination Paper

Teachers are also reminded that data-response questions are particularly suitable for assessing abilities related to the interpretation and analysis of information and making decisions. Moreover, it is advisable to incorporate a wide range of graphical and pictorial materials in the questions. Teachers are strongly reminded to avoid questions which are directly copied from workbooks or textbook activities so that students can get full mark simply by rote memorization of the answers given.

IV. Public Examinations

The Hong Kong Examinations and Assessment Authority (HKEAA) organizes the Hong Kong Certificate of Education Examination (HKCEE) to assess students' attainment. The HKEAA publishes a geography examination syllabus annually. Teachers should note that the syllabus serves to provide information to teachers and students so that they have a clear understanding of the examination requirements. It should be read alongside this document.

Given the mode of assessment adopted in HKCEE, it is neither possible nor desirable to translate all the learning objectives into assessment objectives. Teachers should note the assessment objectives of the HKEAA syllabus are based on the learning objectives suggested in this curriculum. However, teachers should not ignore the learning objectives not included in the assessment objectives.

V. Reference List for the Section 'Assessment'

Part III Assessment Strategies

A) Books:

1. Hopkin, J., Telfer, S. and Butt, G., (2000). Assessment in Practice – Raising standards in secondary geography. U.K.: Geographical Association.

B) Websites:

1. The Qualifications and Curriculum Authority (QCA) – Curriculum and Assessment – Assessment for learning (http://www.qca.org.uk/ca/5-14/afl/)

Part III A Effective Questioning

A) Websites:

1. Effective techniques of questioning (http://ss.uno.edu/ss/teachdevel/Questions/EffectQuest.html)
2. Levels and types of questions (http://www.oir.uiuc.edu/did/booklets/question/quest1.html)
3. Planning questions (http://www.oir.uiuc.edu/did/booklets/question/quest2.html)
4. Questioning Skills (http://www.cstudies.ubc.ca/facdev/services/newsletter/93/a93-1.html)

Part III B On-going Marking

A) Books:

1. Hopkin, J., Telfer, S and Butt, G., (2000). Assessment in Practice – Raising standards in secondary geography. U.K.: The Geographical Association.
2. James, M., (1998). Using Assessment for School Improvement. U.K.: Heinemann Educational Publishers.
3. Stobart, G. and Gipps, C., (1997). Assessment – A teacher's guide to the issues. U.K.: Hodder & Stoughton Educational.

B) Websites:

1. The Qualifications and Curriculum Authority (QCA) – Curriculum and Assessment – Feedback (http://www.qca.org.uk/ca/5-14/afl/feedback.asp)

Part III C Involving Students in the Assessment Process—Self-assessment and Peer-assessment

A) Books:

1. Bradford, M. and O'Connell, (1998). Assessment in Geography. UK: Frontier Print and Design Ltd.
2. Lewin, L. and Shoemaker, B.J., (1998). Great Performances – Creating classroom-based assessment tasks. U.S.A.: Association for Supervision and Curriculum Development.

B) Websites:

1. The Qualifications and Curriculum Authority (QCA) – Curriculum and Assessment - Formative assessment (http://www.qca.org.uk/ca/5-14/afl/sa_formative .asp)
2. The Qualifications and Curriculum Authority (QCA) – Curriculum and Assessment – Involving Pupils http://www.qca.org.uk/ca/5-14/afl/involving_pupils.asp

Part III D Portfolios

A) Books:

1. Butt, G., Lambert, D. and Telfer, S., (1995). Assessment Works. U.K.: The Geographical Association.
2. Hopkin, J., Telfer, S and Butt, G., (2000). Assessment in Practice – Raising standards in secondary geography. U.K.: The Geographical Association.

B) Websites:

1. Notes from Research – Portfolio Assessment (http://www.sdcoe.k12.ca.us/notes/5/portfolio.html)
2. Prince George's County Public Schools – Portfolio Assessment (http://www.pgcps.org/~elc/portfolio.html)

Appendix

Reference and Resources List

A. Periodicals

1. ***Geography Review***, quarterly publication, Philip Allan Publishers Ltd., Market Place, Deddington, Oxfordshire OX15 OSE, U.K.
2. ***Geography***, quarterly publication, The Geographical Association, 343 Fulwood Road, Sheffield S10 3BP, U.K.
3. ***Geographical***, monthly publication, The Royal Geographical Society, P.O. Box 425, Woking GU21 1GP, U.K.
4. ***Hong Kong Geographer***, quarterly publication, Hong Kong Geographical Association, Tsim Sha Tsui P.O. Box 94553.
5. ***Journal of Geography***, monthly publication, The National Council for Geographic Education, Indiana University of Pennsylvania, Indiana, PA 15705, U.S.A.
6. ***Teaching Geography***, quarterly publication, The Geographical Association, 343 Fulwood Road, Sheffield S10 3BP, U.K.
7. ***The Journal Of Environmental Education***, quarterly publication, Heldref Publications, 1319 Eighteenth St., NW, Washington, DC20036-1802, U.S.A.
8. **人文地理**(雙月刊)《人文地理》雜誌社
   [國外總發行：中國國際圖書貿易總公司北京 399 信箱]
9. **大地地理雜誌**(月刊)大地地理文化科技事業股份有限公司
   [台北縣新店市民權路 130 巷 16 號 4 樓]
10. **中國國家地理**(月刊)故鄉出版股份有限公司
    [台北市和平東路二段 107 巷 25-1 號一樓]
11. **地理教育**(雙月刊)《地理教育》雜誌社
    [發行：重慶市報刊發行局]
12. **地理學報**(雙月刊)中國北京科學出版社
    [國外總發行：中國國際圖書貿易總公司北京 399 信箱]
13. **城市環境與城市生態**(雙月刊)中國環境科學出版社
    [發行：廊坊市郵政局]
14. **國外地理文摘**(季刊)中國科學院文獻情報中心
    [發行處：新鄉市郵局]
15. **環境保護**(月刊)《環境保護》雜誌社
    [國外發行：中國國際圖書貿易總公司]

B. Dictionaries/Manuals/Atlases/Encyclopedias/Guides

	Author	Title	Year	Publisher
1.	Carol Varley & Lisa Miles	The Usborne Geography Encyclopedia	1992	Usborne Publishing Limited
2.	Crump, A.	Dictionary of Environment and Development	1991	Earthscan
3.	Elsworth, S.	A Dictionary of the Environment	1990	Paladin
4.	Dunlop, S.	Dictionary of Weather	2001	Oxford University Press, Inc.
5.	John Farndon	Dictionary of the Earth	1994	Dorling Kindersley Limited
6.	Johnston, R.J.	The Dictionary of Human Geography	2000	Blackwell Publishers
7.	Lean, G.	Atlas of the Environment	1992	Helicon
8.	Pearce, E.A. and Smith, C.G.	The Hutchinson World Weather Guide	1998	Helicon
9.	Penn, J.R.	Rivers of the world: a social, geographical, and environmental sourcebook	2001	ABC-CLIO
10.	Ritchie, D. and Alexander, E.	Encyclopedia of earthquakes and volcanoes	2001	Facts on File, Inc.
11.	Sigurdsson, H. (ed.)	Encyclopedia of volcanoes	2000	Academic Press
12.	Thomas, S.G. and Goudie, A. (ed.)	The Dictionary of Physical Geography	2000	Blackwell Publishers
13.	Whittow, J.B.	The Penguin Dictionary of Physical Geography	2000	Penguin
14.	Wright, D.	Philip's Environment Atlas	1995	George Philip
15.	中國地名委員會	外國地名譯名手冊	1993	商務印書館

	Author	Title	Year	Publisher
16.	中國地圖出版社	中華人民共和國地圖集	1996	中國地圖出版社
17.	中國地圖出版社	中國自然地理圖集	1998	中國地圖出版社
18.	中國地圖出版社	最新世界地圖集	1990	中國地圖出版社
19.	北京師範大學	中國自然災害地圖集	1992	科學出版社
20.	成都地圖出版社	中華人民共和國分省地圖集	2001	成都地圖出版社
21.	金鑒明等	環境科學大辭典	1991	中國環境科學出版社
22.	繆鑫正等	英漢中外地名詞匯	1991	商務印書館

C. Books on the Teaching of Geography

	Author	Title	Year	Publisher
1.	Alexander, M.D., Morrill, G.E. and Rawson, D.A.	Basic Skills Geography	1993	The Centre for Learning
2.	Baily & Fox	Geography Teacher's Handbook	1996	The Geographical Association
3.	Bradford, M. and Connell, C.O.	Assessment in Geography	1998	Geography Discipline Network
4.	Frew, J.	Geography Fieldwork	1993	Nelson
5.	Grimwade, K. and Martin, F.	Homework in Geography	1997	The Geographical Association
6.	Hassell, D. and Warner, H. (ed.)	Using IT to enhance Geography	1995	The Geographical Association

	Author	Title	Year	Publisher
7.	Hopkin, J., Telfer, S. and Butt, G.	Assessment in Practice – Raising standards in secondary geography	2000	The Geographical Association
8.	Lambert, D. and Balderstone, D.	Learning to teach geography in secondary school: a companion to school experience	2000	RoutledgeFalmer
9.	Lenon, B. and Cleves, P.	Fieldwork Techniques and Projects in Geography (Second Edition)	2001	Collins Educational
10.	March, M.	Geography and Education	1992	University of London
11.	May, S. and Cook, J.	Fieldwork in Action 2	1996	The Geographical Association
12.	May, S., Richardson, P. and Banks, V.	Fieldwork in Action	1993	The Geographical Association
13.	Thomas, T. and May, S.	Fieldwork in Action 3	1994	The Geographical Association
14.	Tilbury, D. and Williams, M.	Teaching and Learning Geography	1997	Routledge
15.	林培英主編	基礎教育現代化教學基本功(中學地理卷)	1997	首都師範大學出版社
16.	孫大文主編	地理教育學	1992	浙江教育出版社
17.	陸希舜主編	中學地理教學法	1992	華東師範大學出版社
18.	衛杰文主編	中學教學全書(地理卷)	1996	上海教育出版社

D. Books related to the 'Themes' and 'Issues'

	Author	Title	Year	Publisher
1.	Abraham, J.	Food and Development	1991	World Wide Fund for Nature and Kogan Page Ltd.
2.	Bishop, V.	Hazards and responses	1998	Collins Educational
3.	California Farm Water Coalition	The Water Fact Book California Agriculture and Its Use of Water	1999	California Farm Water Coalition
4.	Collier, M.	A land in motion: California's San Andreas Fault	1999	Golden Gate National Parks Association
5.	Farndon, J.	Eyewitness Science Guides – How the Earth Works (* This is a book about projects and experiments in geography).	1992	Dorling Kindersley Limited
6.	Houghton, J.	Global Warming: the complete briefing	1997	Cambridge University Press
7.	Kearey, P. and Vine, F.J.	Global Tectonics	1996	Blackwell Science Ltd.
8.	Knapp, B.	Earthquakes and Volcanoes	2000	Atlantic Europe Publishing (Company Ltd.)
9.	Knapp, B.	Plate Tectonics	2000	Atlantic Europe Publishing (Company Ltd.)
10.	Nagle, G. and Spencer, K.	Sustainable Development	1997	Hodder and Stoughton
11.	Pickering, K.T. and Owen, L.A.	An Introduction to Global Environmental Issues (Second Edition)	1997	Routledge
12.	Raw, M.	Manufacturing Industry: The Impact of Change (Second Edition)	2000	HarperCollins Publishers Ltd.

	Author	Title	Year	Publisher
13.	Raw, M. and Atkins, P.	Agriculture and Food	1995	Collins Educational
14.	Satterthwaite, D. (ed.)	The Earthscan Reader in Sustainable City	1999	Earthscan Publications Ltd.
15.	Strahler, A. & Strahler, A.	Introducing Physical Geography	1994	John Wiley & Sons, Inc.
16.	Watt, F.	Usborne Understanding Geography – Earthquakes and Volcanoes	1993	Usborne Publishing Limited
17.	Warburton, P.	Atmospheric Processes and Human Influence	1995	Collins Educational
18.	Wong, O.Y.	Environmental Conservation and Planning: Hong Kong and Overseas Encounters	1996	Woods Age Publishers
19.	Zhou, S.	China Provincial Geography	1992	Foreign Language Press
20.	人民教育出版社	中國的河流	1991	人民教育出版社
21.	張莞瑩	氣象學與氣候學	1991	北京師範大學出版社
22.	林先盛	中國地理知識	1991	中流出版社有限公司
23.	吳祖強、方如康	水，危機與困惑	1999	上海科學技術出版社
24.	阿部勝征著，馬國鳳特稿，李毓昭及張佳微譯	大地震	2000	晨星出版有限公司
25.	珍妮絲・派特・范克勞馥著，王國銓譯	不可思議的地球科學實驗室 – 地球科學篇	1998	世茂出版社
26.	孫志東、謝林平、詹頌生	可持續發展戰略導論	1997	中山大學出版社
27.	馬宗晉	中國重大自然災害及減災對策(總論)	1994	科學出版社

	Author	Title	Year	Publisher
28.	陳文山	台灣 1 億 5000 萬年之謎	2000	遠流出版公司
29.	陳仲全	干旱氣候	1991	甘肅教育出版社
30.	商務印書館	中國的河流	1995	商務印書館
31.	張家誠	中國氣候總論	1991	氣象出版社
32.	駱承政、樂嘉祥	中國大洪水–灾害性洪水述要	1996	中國書店

E. Computer Software and CD-ROMs:

	Title	Publisher
1.	Air Pollution & Reclamation	Education Department
2.	CD-ROM FACTfinders – The Earth	Zigzag Publishing
3.	CD-ROM FACTfinders – The Weather	Zigzag Publishing
4.	Earth Quest	Dorling Kindersley
5.	Environment, Hong Kong 2002	Environmental Protection Department
6.	Hazards Happen, Elements of Australian Natural Hazards	Commonwealth of Australia and Queensland University of Technology
7.	Hothouse Planet	EME
8.	Microsoft Encarta Interactive World Atlas	Microsoft
9.	The Theory of Plate Tectonics	Tasa Graphic Arts
10.	SimCity	Maxis
11.	中學地理教學軟件集	中國教育學會地理教學研究會
12.	我們的環境	香港教育署課程發展處

F. World-Wide Web Site Addresses

1. General Websites about Geography

	Address	Name of Homepage	Details
1.	http://www.ceismc.gatech.edu/BusyT/	Busy Teachers' Website	This website is designed to provide different sources of materials for teachers. Many lesson plans and classroom activities related to geology and environmental conservation can be used directly
2.	http://geography.about.com/cs/basics/	Geography Basics	This homepage includes a lot of information and links of nearly all topics in geography. Besides, many maps, photos and clip art (figures) related to geography are also provided.
3.	http://www.nationalgeographic.com	Geography Education, National Geographic Society	Geography-related lesson plans and classroom activities are provided in this homepage.
4.	http://library.thinkquest.org/10157/geoglobe.html	Geo-Globe	The Geo-Globe site contains many games related to geography.
5.	http://members.aol.com/bowermanb/101.html	Geography World	This site covers many different parts of geography. It provides linkages to a large amount of learning and teaching resources in geography, e.g. geography games, quizzes and news etc.
6.	http://www3.moe.edu.sg/ier/	Internet Educational Resources (Ministry of Education)	A lot of geography-related links are included in this homepage, such as map reading techniques and geography lesson plans.

	Address	Name of Homepage	Details
7.	http://www.uwsp.edu/geo/internet/geog_geol_resources.html	Internet Resources for Geography and Geology	A great site which provides a lot of links to a wide range of geography-related topics. Lesson plans, educational software and online field trips around the world are also included.

2. Specific websites about maps

	Address	Name of Homepage	Details
1.	http://www.centamap.com/	Centamap	A very useful website which contains maps of different parts of Hong Kong.
2.	http://www.maps.com	Maps.com – The Place for Maps Online	Online world maps, online map games and information about map skills can be found in this websites.
3.	http://www.ypmap.com/eng/	YP Map	This website contains a lot of useful maps of Hong Kong. In addition to street maps, weather maps and census maps can also be found.

3. Specific websites for the 'Themes' and 'Issues'

(a) Agriculture

	Address	Name of Homepage	Details
1.	http://www.cfwc.com/	California Farm Water Coalition	A very useful website to help teachers to teach 'Irrigation farming in Southern California'. It provides many great teaching and learning resources, such as photos, lesson plans, a 14-minute video about irrigated farming in California and an 67-page online reference book – 'The Water Fact Book: California Agriculture and Its Use of Water'.
2.	http://www.itrc.org/index.html	Irrigation Training and Research Centre	This homepage contains lots of impressive photos about irrigation facilities in California.
3.	http://www.fews.org/fews.html	USAID Famine Early Warning System	This website contains a lot of information on food and farming in Africa. Its online bulletin frequently posts articles about farming in Sahel.

(b) City

	Address	Name of Homepage	Details
1.	http://www.plannersweb.com/sprawl/home.html	Sprawl Guide	This site contains lots of information and links about the concepts of 'Sprawl'. Case studies about cities of U.S.A. are included.
2.	http://www.hkura.org/html/c100000t1.html	Urban Renewal Authority	Information about urban renewal in Hong Kong can be found in this website. Case studies are also included.

(c) Climate

	Address	Name of Homepage	Details
1.	http://www.cma.gov.cn/index.html	China Meteorological Administration	Information about weather and climate of China and other parts of the world can be found.
2.	http://www.planetholiday.com/asia/malaysia/malaysia_climate.asp	Climate & Weather Reports for Malaysia	There are climatic graphs and weather reports of some selected Malaysian cities for teaching and learning.
3.	http://www.hko.gov.hk/contente.htm	Hong Kong Observatory	In addition to weather reports and forecast, there are lots of educational resources in this homepage of Hong Kong Observatory. Newspaper articles by Hong Kong Observatory, various topics and instruments about meteorology, and a virtual tour of Hong Kong Observatory's Exhibition Hall can be found here.
4.	http://iri.columbia.edu/climate/impact/africa/	International Research Institute for Climate Prediction	The website contains details climatic information of Africa. There are also a lot of links on the climate of different parts of Africa.

	Address	Name of Homepage	Details
5.	http://www.weatherbase.com	Weatherbase	This website contains weather data of the world, such as temperature and precipitation, for teaching and learning.
6.	http://www.underground.org.hk/	Weather Underground of Hong Kong	Lots of weather maps, satellite images and links related to weather and climate can be found in this resourceful website. There is also a 'Weather Discussion Forum' for people to discuss about current issues of weather.
7.	http://www.met.tamu.edu/class/Metr304/WindandPressuredir/Wind-Press-2.html	Wind and Pressure	Some animations are provided to assist teachers to teach some difficult concepts about wind and pressure.

(d) Industry

	Address	Name of Homepage	Details
1.	http://www.netvalley.com/lef5tint.htm	Internet Valley	Information about Silicon Valley, U.S.A. and IT history is provided here. Teachers can find useful information about IT companies and academic institutions in Silicon Valley for teaching and learning.
2.	http://www.siliconvalley-usa.com	The Silicon Valley Gateway	This website contains information about educational institutions, high-tech companies and history of Silicon Valley, U.S.A.

(e) Landform and Endogenetic Processes

	Address	Name of Homepage	Details
1.	http://www.ecuador-travel.net/tour.climbing.gallery.htm	Andes Mountain Picture Gallery	Photos about Andes Mountain are given here.
2.	http://www.oupchina.com.hk/teaching/07_31/Unstable%20earth.ppt	CE – Mountain-building Processes	This is a PowerPoint presentation about plate tectonics, volcanoes, earthquakes and fold mountains. Many figures and questions about plate tectonics are included here.
3.	http://library.thinkquest.org/10131/javascriptmenu_final.html	Destination: Himalayas – Where Earth Meets Sky	Useful information, maps and figures about the formation of Himalayas and plate tectonics are found in this website.
4.	http://volcano.und.nodak.edu/vwdocs/vwlessons/plate_tectonics/introduction.html	Introduction to Plate Tectonics	A very useful website for the teaching and learning of 'Plate Tectonics'. Many interesting teaching activities and worksheets about plate tectonics are provided here.
5.	http://www.peakware.com/encyclopedia/ranges/andes.htm	Peakware – Andes Mountain Range	Relief maps and information about Andes Mountain can be found here.
6.	http://pubs.usgs.gov/publications/text/dynamic.html	This Dynamic Earth: the Story of Plate Tectonics	This site is an online textbook about plate tectonics. Many figures are included to facilitate teaching and learning.
7.	http://library.thinkquest.org/17457/gather/comics/main.html	Volcanoes Online	The website contains substantial information about volcanoes. Concepts about plate tectonics and volcanoes are explained in details. Games, comics and lesson plans related to volcanoes are also included.

	Address	Name of Homepage	Details
8.	http://volcano.und.nodak.edu/	Volcano World	A resourceful website about volcanoes. In addition to information about volcanoes of the world, volcano adventures and learning activities about volcanoes can also be found. There are materials for students to build their own volcano models.

(f) Landform and Exogenetic Processes and The Trouble of Water

	Address	Name of Homepage	Details
1.	http://www.yrcc-design.com.cn	黃河規劃設計	This website contains information, photos, maps and videos about the project of diverting water from the South to the North in China.
2.	http://library.thinkquest.org/28022/body.html	All Along A River	This website contains worksheets and case studies about rivers in the world. Teachers and students can have online trail along a river. Concepts, such as river erosion and transportation, are explained by animations in this website.
3.	http://www.grdc.sr.unh.edu/html/Stn/B13.html	Chang Jiang - Asia	There are a lot of data about different parts of Chang Jiang, such as discharge and catchment areas. Hydrographs of different parts of Chang Jiang are also provided.
4.	http://www.uwsp.edu/geo/faculty/ritter/geog101/lectures/lecture_fluvial_landforms.html	Fluvial Landforms	This website contains some photos of fluvial landforms, such as meanders, floodplain and natural levee.

	Address	Name of Homepage	Details
5.	http://www.vims.edu/~jpliu/east/changj.htm	The Yangtze River Database; VIMS; Qingdao	Photos and information about Chang Jiang can be found in this homepage. Photos, such as different courses of Chang Jiang and Three Gorges, are useful in the teaching and learning of Chang Jiang.
6.	http://www.cis.umassd.edu/~gleung/	Yellow River Home Page	Information and news about Yellow River can be found. Besides, there are a lot of impressive photos about upper, middle and lower courses of Yellow River.

(g) Climatic Anomalies

	Address	Name of Homepage	Details
1.	http://www.epa.gov/globalwarming.	EPA Global Warming Site	This website contains a lot of information about global warming, such as causes of global warming and how to alleviate this problem.
2.	http://www.panda.org/climate/	WWF – Climate Change Campaign	This website includes information about causes, impacts and solution of global climatic changes.

(h) Food and Hunger:

	Address	Name of Homepage	Details
1.	http://www.fews.net/	Famine Early Warning System Network	This homepage contains many reports and articles about famine in the world. Most of them are update and useful for classroom teaching.
2.	http://www.ucc.ie/famine/	International Famine Centre Homepage	It contains the latest famine news of the world. Links to other websites about 'famine' are also included.

(i) Natural Hazards (For websites about volcanoes, please refer to part (e) above.)*

	Address	Name of Homepage	Details
1.	http://www.tsunami.org/index.htm	Pacific Tsunami Museum Homepage	It contains many photos about tsunamis which can be used for teaching and learning.
2.	http://www.eqe.com/publications/kobe/kobe.htm	The January 17, 1995 Kobe Earthquake	Attractive photos and information about Kobe Earthquake (1995) are included in this website. It can be used as a case study of earthquakes.
3.	http://walrus.wr.usgs.gov/tsunami/	Tsunamis & Earthquakes at the USGS	This homepage contains information and animations about tsunamis
4.	http://www.crustal.ucsb.edu/ics/understanding/	Understanding Earthquakes	This website contains earthquake information, quiz and animation.
5.	http://earthquake.usgs.gov/	USGS Earthquake Hazards Program	A resourceful website about earthquakes. Current earthquake activities are reported with maps. Besides, it provides many useful resources, e.g. graphics, photos, animations, lesson plans and learning activities, for the teaching and learning of earth structure, earthquakes and plate tectonics.

(j) Sustainable City

	Address	Name of Homepage	Details
1.	http://www.info.gov.hk/epd/eindex.html	Environment Protection Department	This is the official website of the Environmental Protection Department in Hong Kong. Information, links, activities and videos about environment protection in Hong Kong can be found.
2.	http://www.sustainable-sf.org/	Sustainable City	It is a website about how to turn San Francisco into a sustainable city. It provides insights for teachers to develop their own lessons about sustainability in Hong Kong.

(k) The Choice of Power

	Address	Name of Homepage	Details
1.	http://www.fwee.org/walk.html	FWEE.org	There are many attractive educational resources and links about energy in this website. Students can also have online tours about hydro-electric power here.
2.	http://www.hknuclear.com/nflash/chi/html/gnips.htm	HKNIC – About Guangdong Daya Bay Nuclear Power Station	Information and photos about Guangdong Daya Bay Nuclear Power Station can be found in this website.

— The End —