

Lesson Plan

TLS3008 Teaching Innovation

Lesson Planning Geography--- Opportunities and Risks

Student Name : So Tsz Hin, Cheung Siu Hang, Liu Po Lam

Supervisor: Dr. LAM BICK HAR

Class Level : Form 4

Time (Duration) : (80 mins)

Name of unit/ theme : Opportunities and Risks - Is it rational to live in hazard-prone areas?

Issue/ Problem/ Topic : Tectonic Hazard -Earthquake Activities

Teaching Objectives/ Learning Outcomes (Knowledge / Skills / Attitudes) :

At the end of the lesson, students should be able to:

Knowledge:

1. Identify the major distributions of the earthquake in different regions
2. Point out the differences between intensity and magnitude in measuring earthquake

3. Illustrate the five processes involved in the formation of earthquakes
4. Explain the relationship between the seismic wave of an earthquake
5. Analysis earthquake cases in real life experiences as an example by using concepts (processes, distributions) taught in the lesson

Skills:

1. Enhance the map reading skills and photo observing skills
2. Cultivate the communication skills through group discussion

Attitude:

1. Increased understanding of the crisis in geography
2. Aware of the existence of tectonic crisis

Teaching resources / Tools / Equipment :

Worksheets x5, Power-point, Visualizer, a pair of springs, Youtube videos x3

Time (Min.)	Learning outcomes / Teaching Points / Content	Teaching Activities	Students' Tasks	Teaching Resources / Assessment / Remarks
10	Lead-in: Show the movement of three types of plate boundaries	Oreo Display 1. Use the oreo to demonstrate the three types of plate boundaries (divergent plate boundaries, convergent plate boundaries and transform plate boundaries) 2. Ask one student to demonstrate.	<ul style="list-style-type: none"> - One student will be chosen to do a demonstration, (break the upper biscuit of three pieces of oreo into two. And assist the student to demonstrate the three different types of plate boundaries with the oreo. 	Oreo

25	<p>Pre-task 1:</p> <ol style="list-style-type: none"> 1. Show the conditions of an earthquake to draw students' attention 2. Recall the knowledge of the location and distribution of the three plate boundaries (divergent plate boundaries, convergent plate boundaries and transform plate boundaries) 3. Recall the knowledge of the plate tectonics theory 	<ul style="list-style-type: none"> - Play the Youtube video 1 to draw students' attention on the earthquakes - Requires students to complete worksheet 1 - question 1a (Students can discuss with other classmates but every student needs to finish worksheet 1) - Ask students to reflect "Do you remember what the plate tectonics theory is?" for student to recall their knowledge - After recalling the knowledge of the plate tectonics theory, teacher use PPT to demonstrate content knowledge and provide the correct answer for worksheet 1 - question 1a 	<p><u>Student activity</u></p> <ul style="list-style-type: none"> - Use three different colour pens to highlight three different plate boundaries (divergent plate boundaries - blue, convergent plate boundaries - red, transform plate boundaries- yellow) <p>(Worksheet 1 - question 1a)</p> <ul style="list-style-type: none"> - Students need to answer the questions raised by the teacher according to their previous knowledge 	<p>https://www.youtube.com/watch?v=FW-TkpvKPI0</p> <p>0:00-0:33</p> <p>(Youtube Video 1)</p> <p>Plate boundaries map worksheet (Worksheet 1)</p> <p>Powerpoint</p> <p>Visualizer</p>
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	<p>4. Illustrate the definition of an earthquake</p> <p>5. Explain the process of an earthquake</p> <p>6. Students are able to rank the correct process of an earthquake</p>	<ul style="list-style-type: none"> - Ask students the question “How to explain the relationship between the springs and release of energy?” - Teacher demonstration : Microteaching link: https://drive.google.com/file/d/1XRnxc02K393pYiYmECKD15O5Oj1Urp80/view?usp=sharing - Using the springs to simulate the release of energy stored in the process of the earthquakes (e.g. Teachers use two fingers to input the energy to both sides of the springs and then release the fingers to simulate the process of releasing energy in the rocks on the convergent boundaries) - Students are required to finish the ranking worksheet (worksheet 2) 	<p><u>Group activities</u></p> <ul style="list-style-type: none"> - Students form four groups according to their seating positions - Students discuss with other classmates about how the springs can simulate the energy release process and answer the question by the teacher - Observe the teacher’s demonstration carefully - Students can discuss and finish the worksheet about formation process of an earthquake (Worksheet 2) 	<p>Worksheet 2</p> <p>Powerpoint</p> <p>Visualizer</p> <p>Blackboard</p> <p>Geography notes book</p> <p>Two springs</p>
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- Teachers write the elements of concept map on the blackboard

(Just write the causes part from the concept map P.19)

25	<p>Pre-task 2:</p> <ol style="list-style-type: none"> 1. Identify and explain the distribution of the earthquakes on the three plate boundaries 2. Interpret why earthquakes occur in the main areas (convergent plate boundary and transform plate boundary) 3. Briefly point out other factors which cause earthquakes 4. Connect the plate tectonics theory and the earthquake concept 	<ul style="list-style-type: none"> - Play the Youtube video 2 to show why the plate tectonics theory causes earthquake - Ask students the question “How to connect the plate tectonics theory and the earthquake concept?” After the discussion, explain the relationship through the videos) - Students are required to fulfill worksheet 1 - question 1b 	<p><u>Group activities</u></p> <ul style="list-style-type: none"> - Watch the Youtube video 2 to reflect the connection between the plate tectonics theory and the earthquake concept - Answer the questions raised by the teacher in groups - Each student use pencil or black pen to point the main areas which often occur the earthquake on the boundaries map worksheet in groups discussion 	<p>Powerpoint</p> <p>Plate boundaries map worksheet (Worksheet 1)</p> <p>Pictures/Photos</p> <p>Geography notebooks</p> <p>Visualizer</p> <p>https://www.youtube.com/watch?v=hEDQdof4VyE&t=23s</p> <p>00:18 - 1:16 (Youtube Video 2)</p>
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	<p>5. Identify the concept of focus, epicentre and the seismic wave</p> <p>6. Classify the damage differences created by shallow depths and deep depths of an earthquake</p> <p>7. Classify the two ways in measuring earthquake (Modified Mercalli Intensity Scale is measuring the intensity, Richter Scale is measuring the magnitude)</p> <p>8. Illustrate and explain the relation between the focus and epicentre to create the damage difference to an earthquake</p>	<ul style="list-style-type: none"> - Play the Youtube video 3 to introduce the main features of the focus, epicentre and the seismic wave - Students are required to finish the worksheet 3 with hazard pictures - Teachers raised the question by referring to the worksheet “ Is Richter Scale a only measuring way of earthquake? ” and “What Richter Scale is measuring about in the earthquake?” - Explain different ways in measuring the earthquakes (Modified Mercalli Intensity Scale is measuring the intensity, Richter Scale is measuring the magnitude) - Teachers write the elements of concept map on the blackboard 	<ul style="list-style-type: none"> - Watch the youtube video 3 to explore the relationship between earthquake and the focus, epicentre and seismic wave <p style="text-align: center;"><u>Group activities</u></p> <ul style="list-style-type: none"> - Students discuss and fulfill the worksheet 3 about the damage pictures in groups and classify them into shallow depths or deep depths of an earthquake - Reflect the measuring ways of an earthquake and answer the questions raised by the teachers in groups 	<p>Visualizer</p> <p>Worksheets 3</p> <p>Powerpoint</p> <p>Geography note books</p> <p>https://www.youtube.com/watch?v=YN_O0GA</p> <p>00:50 - 1:34</p> <p>(Youtube Video 3)</p>
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		(Write the main features part and measuring ways from the concept maps P.19)		
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20	<p>Main task and summary:</p> <ol style="list-style-type: none"> 1. Identify the tectonic hazard (earthquake) from the past papers' examples 2. Apply and explain the process of an earthquake created by the plate tectonics theory to the past papers' examples 	<ul style="list-style-type: none"> - Show the questions related to the tectonic hazard (earthquake) in DSE past papers examples worksheet (worksheet 4) - After the discussion, some students are invited to share their ideas. If the student cannot share their ideas, teachers can use guided questions to facilitate students to connect the previous concepts and apply them into the questions of worksheet 4. For example, "What the plate boundaries can be shown in the figure?" and "Do you remember the process of earthquake mentioned before in worksheet 2?" 	<p><u>Group activities</u></p> <ul style="list-style-type: none"> - Discuss with group members and answer the questions (write the key words) in the DSE past papers examples worksheet (worksheet 4). - After the discussion, some students are invited to share their ideas - Highlight the key words in the marking scheme 	<p>DSE past papers examples worksheet (worksheet 4)</p> <p>Visualizer</p> <p>Powerpoint</p>
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	<p>3. Interpret and sum up the features, process and causes of the earthquake related to plate tectonics theory</p>	<p style="text-align: center;"><u>Summary (Formative Assessment)</u></p> <ul style="list-style-type: none"> - Summarise the key concepts of an earthquake, including the distribution and process - Distribute the True or False questions worksheet (Worksheet 5) to evaluate the outcomes of learning - Finalized concept map is shown on the blackboard and PPT - Teacher raised the question “ Will earthquake trigger another tectonic hazards? ” 	<p style="text-align: center;"><u>Student activity</u></p> <ul style="list-style-type: none"> - Finish the True or False questions worksheet (Worksheet 5) individually - Evaluate their learning outcomes about the features of an earthquake through the True or False worksheet (Worksheet 5) - Discuss the effects of the earthquake (Continuation to the next lesson) 	<p>True or False worksheet (Worksheet 5)</p> <p>Visualizer</p> <p>Powerpoint</p>
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