

GEOGRAPHY TIPS

EXTREME NATURAL EVENT(S) (AS 91007)

Demonstrate geographic understanding of environments that have been shaped by extreme natural event(s)

**WHAT IS THIS ASSESSMENT ABOUT?**

The aim of this standard is to introduce students to some basic physical geography that helps to shape environment(s) and to investigate the way that people interact with these environment(s). This is done though the investigation of an extreme natural event. It is linked to AO 1 and AO2 at Level 6 or:

*-understand that natural and cultural environments have particular characteristics and how environments are shaped by processes that create spatial patterns.*

*-understand how people interact with natural and cultural environments and that this interaction has consequences.*

**WHAT IS AN EXTREME NATURAL EVENT?**

A natural event is one caused by natural physical processes not people. While these are common many are of a small scale only. However, some occur at a large scale with extensive consequences and are classified as ‘extreme’. There are many different ENE that can be used. The most common ones are the result of geomorphological processes (earthquakes, volcanic eruptions and tsunamis), climatological processes (cyclones) or hydrological (floods). While others can qualify, care should be taken that they are of a large enough scale to meet the criteria of the standard.

**HOW MANY TYPES OF EXTREME NATURAL EVENTS SHOULD BE CHOSEN?**

The intention is for one main type of ENE to be chosen to study so that this can be done in detail. In many cases a natural event will result in secondary events eg an earthquake can lead to a tsunami. The intention is to concentrate on only ONE ENE but does not preclude mention of others that may result from it.

**WHICH ENE TO CHOOSE?**

It is always better to choose ENEs that have meaning for students. A student in Auckland is more interested in the possibility of a volcanic eruption while one in Wellington or Christchurch is more interested in the possibility of an earthquake. A school with many Pasifika students will have a greater appreciation of the effects of cyclones and tsunamis.

**HOW MANY CASE STUDIES SHOULD BE USED?**

A case study refers to a particular environment that has been significantly changed by the ENE. A minimum of two different environments should be used to illustrate the effects of the ENE since this is plural in the AS. This means you can either have one event affecting 2 different environments (a cyclone that affects 2 different islands/countries) or two events affecting 2 different places (2 volcanic eruptions affecting different environments).

When natural events also affect people and/or their property they become natural hazards. Since this AS investigates the effect of an ENE on cultural environments it is important that case studies used are also natural hazards. There is no limit as to the number of different environments chosen – while more will give a better appreciation of the general effect of that hazard it becomes problematic for students to remember more information and to study them in the depth required for an excellence answer.

If time is an issue one suggestion is to do one case study in depth together as a class and then allow students to choose another to study themselves. This at least offers more information that can be used in assessment and helps especially for the higher grades.

**WHICH CASE STUDIES TO CHOOSE**

**If doing only one case study**

It can be argued that recent external assessments for ENE can be answered using only one case study – however be careful in your choice of case study if this is your intention. Make sure the case study is large enough that different environments within it can be studied. For example, if you are using the case study of the Christchurch Earthquake you should look at how it affected the centre of the city compared to the outskirts. If studying a cyclone then look at how it affected one country or region as well as another. Also make sure that all of the aspects of the standard can be covered by this case study. A student studying volcanic eruptions and using Ruapehu as an example will not have as broad an understanding of that ENE as would be gained from studying the larger eruption of Pinatubo. This can also be a problem if the case study chosen is historic. Students should be aware of how people respond to disasters at the present time so if your case study is more than 15 years old it may pay to include another case study even if only for the response of people aspect.

**If doing two case studies**

It is best to choose 2 different environments that show different effects of the same ENE. There are several ways you can do this:

* Use a small scale event in New Zealand compared to a larger one overseas.
* Use a large scale one in the past and a smaller scale one that is current
* Use an event where little warning/preparation was given compared to another where warning/preparation prevented a lot of loss of life.

For many students the possibility of fitting this into a field trip to the environment brings it alive. A trip to Tarawera, the site of New Zealand’s worst volcanic eruption helps them remember the consequences better. A trip looking at the effects of the Napier or Christchurch earthquake on the landscape is another example.

**STARTING THE UNIT**

While it is not stated in the standard it has become common practice to include general information about Extreme Natural Events in the standard. For this reason it is good practice to start this unit by:

* Defining what an Extreme Natural Event is
* Defining the difference between an Extreme Natural event and a Natural Hazard.
* Being able to name examples of different ENE (do not need details)
* Suggesting ways that ENE can be differentiated (how form, size, effects etc)
* Making sure students are able to interpret cartoons, graphs and diagrams on ENE.

Although this will not be included in assessment this is also a good opportunity to discuss the ENE that affect NZ and how prepared we are for it. Many schools include a look at the worst natural hazards that have affected NZ in the last 150 years that can promote good discussion. It is also an ideal opportunity to mention the role of Civil Defence and how well prepared they are in case of such a disaster. Use the site at <http://www.civildefence.govt.nz/>.

This is also an ideal time to make geography come alive by looking at ENEs happening in the world at the time. A good site for this is <http://hisz.rsoe.hu/alertmap/index2.php>

You may also wish to diversify into looking at the worst natural disasters in the world. Good examples of these can be found at:

<http://www.youtube.com/watch?v=T5wHtcSJgbE>

<http://msn.co.nz/slideshow_ajax.aspx?sectionid=9020&sectionname=slideshowajax&subsectionid=178811&subsectionname=dirnaturaldisasters>

<http://www.youtube.com/watch?v=Kg-6whkbZXs>

**HOW TO TEACH THE UNIT**

There are several different ways this can be approached.

* Teach general information on the ENE first and then look at each case study in turn.
* Teach the criteria one by one and look at how the ENE has affected each case study.
* Teach general information on the ENE with reference to one case study first and then get students to do their own research on a different case study themselves.

**ASPECTS TO BE COVERED**

* **Natural and Cultural characteristics (features) of the environments that make them vulnerable to extreme natural events.**

This means what it is about the environment studied that means that an extreme natural event is likely to happen and have consequences. It is important that you cover at least 2 natural and 2 cultural characteristics. What you cover is dependent on the ENE chosen. For example:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Volcanic Eruptions and Earthquakes** | **Tsunami and Cyclones** | **Floods** |
| **Natural** | Location relative to plate margins | Height of the Land/ location relative to coastline | Shape of a river valley |
| **Cultural** | How many and where people live/work  Use of the environment for tourism /farming / trade etc  The level of preparation of people for the disaster | | |

**What students should be able to do:** Draw an annotated map of their environments showing reasons it is vulnerable. Write a paragraph saying why it is vulnerable.

* **Natural processes that operate to produce the extreme natural event**

It is important that students understand that a process is a series of connected actions or events. This happens first, then this and then that, showing the event from its first formation to the aftermath of the event and it finally ending. Note also that the bullet point uses processes in the plural. Teach at least 2 separate natural processes to fulfill this requirement eg a volcanic eruption results from both subduction and volcanism. An earthquake results from processes within the earth and processes on the earth.

**What students should be able to do:** Draw a series of annotated diagrams that explain how the ENE was formed due to named processes. Write a paragraph.

* **Effects of the extreme natural event on the natural environment**

Students need to classify effects according to relief, vegetation, soils and climate. Based on both case studies they should be able to name at least one example of each as well as link this to how the ENE led to this (cause and effect).

**What students should be able to do:** Draw an annotated map to show where in each environment the effects occurred. Draw diagrams that describe the effects and explain how the ENE caused this. Write paragraphs.

* **Effects of the extreme natural event on the cultural environments**

Students need to classify effects in several ways so that they have at least one example of each. These include:

* Effects on people and effects on place (buildings and infrastructure)
* Social Effects and economic effects (social being people’s physical and mental health and well being and economic to do with jobs, money, business and infrastructure)
* Positive effects and negative effects
* Short Term effects and long term effects (recovery and rehabilitation)

**What students should be able to do:** Draw annotated diagrams that show at least 3 different effects on cultural environments. Write paragraphs.

* **How different groups of people have responded to the effects of the extreme natural event**

It is important to note that this is about groups of people not individuals so it is best to identify at least 3 different groups of people who are affected by the ENE. Then for each one explain how they have responded and why. Examples of groups to use include:

* Indigenous people - Local residents
* Non local residents - Rescuers
* Governments - Tourists/ visitors
* Business owners - Scientist
* Farmers

This is about the response of the people or how they felt and what they did - not just how they are affected. It should include ideas such as being frightened, anxious, angry, excited, what they did to reduce effects like evacuation or closing windows, wanting to ensure future events reduced (mitigated), how they have had to change their lifestyle. Reasons for these include how directly involved they are, distance from ENE, education, experience, stage of the ENE.

**What students should be able to do:** Draw a speech bubble for 3 groups to say how they felt and what they did and why. Draw annotated diagrams showing 3 ways different groups responded. Write paragraphs. Questions are related to either how TWO group responded to all stages of the disaster or how TWO or more groups responded differently to one stage of the disaster (before / during or after).

**OTHER FACTORS TO CONSIDER**

It is important to appreciate the difference between ‘describe’ (what it is like) and ‘explain’ (why it is like this). For Merit students must go beyond the describe to the explain. For example for effects on the natural environment they must not just say what those effects were but link them to how the ENE made them like this. For excellence the descriptor word is ‘fully explain’ so in this case not only must they say why it is like this but it needs to be a good, detailed explanation.

For Excellence students must also include geographic terminology and concepts in an answer. Most students at this level are likely to use those terms that make it an academic answer. It means using terms like subduction, rehabilitation, convergence, mitigation and social and economic effects. In other words it reads well and seems organized. One way to encourage this is to keep a glossary of ‘useful’ terms while completing this unit.

It is good practice to apply the key concepts in geography to each unit. Get students to include this in the paragraphs they write where they both define the concept and put it into context of the answer. In this case several stand out as being easy in this respect such as:

**Process** – how the ENE forms

**Environment –** the common characteristics of the region with respect to the ENE

**Pattern –** the location of ENE globally

**Perspective**- How different groups view the ENE in different ways

I**nteraction** – How the natural environment interacts with the cultural environment

**Change** – How a ENE makes an environment different after it happens

**Sustainability** – How well a region can cope with an ENE into the future.

Achievement can only occur when case study evidence is supplied so it is vital students refer to named examples in answers. For higher grades students should also be encouraged to learn about 10 facts (names, dates, statistics) of each case study that they can use in an answer. For Excellence these need to be used throughout.

It is also important to make sure students understand the term ‘annotated’ diagrams. This means more than a few labels but short sentences on the diagram.

**WHAT THE ASSESSMENT LOOKS LIKE**

At the time of writing this assessment consists of 3 questions. Each question is marked out of 8 making a possible total for the exam of 24 marks. The borderline between grades (known as the cut scores) can be moved according to the difficulty’ of the exam each year but is generally:

**Cut Scores**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Not Achieved** | **Achievement** | **Achievement with Merit** | **Achievement with Excellence** |
| **Score range** | 0 – 7 | 8 – 13 | 14 – 18 | 19 – 24 |

There are rumours that this exam may move towards one question only, broken into parts as per Level 2 geography. It pays to check the assessment specifications which will give more detail on this. They can be assessed at:

<http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/assessment-specifications/geography-l1/>

This site is also useful in that it indicates to students what they need to bring to the examination.

Previous years examinations indicate that questions are selected from the criteria rather than cover all of it. A resources provided section can also be used to gauge student understanding so students should be prepared to tackle unknown material in the form of tables, maps, diagrams, pictures and cartoons as well.

**HOW TO APPLY OTHER ACHIEVEMENT STANDARDS**

By studying this unit students will gain information that can be used in Internal Assessments. For example a 1.5 Research Standard can investigate the preparation of people for an ENE or a 1.7 global can look at the global pattern of an ENE. This can be especially useful as a reassessment opportunity since much of the content has been taught.

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