

Oxford Revise | Geography | Answers

Chapter 6 The management of tectonic hazards

All exemplar answers given are worth full marks.

1.
 - a)
 - i) The country is rich enough to ensure that all households and business have the equipment necessary to cope when a tectonic hazard takes place. Japan is technologically advanced and has the expertise to build earthquake-resistant buildings.
Accept suitable alternative answers.
 - ii) *Earthquakes:* Earthquake-resistant buildings are built with rolling weights on the roofs of high buildings to reduce swaying and have strong, cross-braced steel frames and deep foundations. Automatic shelters on windows prevent broken glass falling.
Volcanic eruptions: Buildings are designed to cope with the ash deposited by a volcanic eruption, by having extra strengthened roofs and sealed windows with shutters. Concrete shelters are provided to shelter people from the lava erupted by a volcano.
 - iii) *Earthquakes:* Long term planning would require regulations that all new buildings have earthquake proof features like deep foundations and strong steel frames. There should be pre planned warning systems and evacuation routes with the emergency services being fully trained ready to help. The inhabitants should be made aware of what to do when an earthquake takes place, by having regular practice drills to keep them safe.
Volcanic eruptions: Long term planning would require regulations that all new buildings have lava proof features including extra strong roofs and sealed windows. There should be pre planned warning systems and evacuation routes with the emergency services being fully trained ready to help. The inhabitants should be made aware of what to do when an earthquake takes place, by having regular practice drills to keep them safe.
 - b) There are four main forms of tectonic hazard management. They are monitoring, prediction, protection, and planning.
 - c) Using embankments to divert lava flows. Seawalls built along tsunami-prone coastlines.
Accept suitable alternative answers.
 - d) This means getting aid to the areas affected by the tectonic hazard as quickly as possible. The main forms of aid will be emergency medicine, food, water, and temporary shelters. This may have to come from overseas aid if the country is not equipped to cope itself.
 - e) *Earthquakes:* Accurate prediction of earthquake is not always possible due to lack sometimes of clear warning signs. If an area is known to be prone to earthquakes, then there is more likely to be some long-term plans in place. Prediction plans will need an effective monitoring system to be in place. These could include a network of seismometers or tsunami monitoring systems to detect early tsunami waves following an earthquake.

Volcanic eruptions: The monitoring of active volcanoes allows more accurate prediction of a volcanic eruption taking place. This monitoring uses hi-tech equipment like seismometers to detect earthquakes which often occur just before a volcano erupts. Tiltmeters monitor ground deformation as the magma rises. Gravity meters measure changes in density and there are instruments to measure gas emissions and changes in the chemistry of underground water.

f) This question is level-marked:

Level	Marks	Description
3	6–8	<ul style="list-style-type: none"> • Accurate understanding of concepts and the interrelationship of places, environments and processes. • Applies understanding to deconstruct information and make logical connections throughout. • A balanced, well-developed argument. Judgements are supported with evidence throughout. • Uses geographical skills to obtain accurate information that supports arguments.
2	3–5	<ul style="list-style-type: none"> • Some understanding of concepts and the interrelationship of places, environments and processes. • Applies understanding to deconstruct information and make some logical connections. • Imbalanced argument with mostly relevant information. Judgements are occasionally supported with evidence. • Uses geographical skills to obtain accurate information that occasionally supports arguments.
1	1–2	<ul style="list-style-type: none"> • Isolated elements of understanding of concepts and the interrelationship of places, environments and processes. • Attempts to apply understanding to deconstruct information but this is flawed. • Unbalanced or incomplete argument with limited understanding. Judgements are supported with limited evidence. • Uses some geographical skills to obtain information with limited relevance and accuracy.
	0	No acceptable response

Example answer: *Earthquakes: The impacts of an earthquake are reduced if there is effective immediate emergency relief and that there are preparation plans which can be readily put in place. If earthquake-proof buildings are built, then the impact will be reduced. This is most likely to be in rich developed countries which are prone to earthquakes and have the necessary finance and technical know-how to build such structures. The general population must be made fully aware of what to do when an earthquake occurs. All households and businesses should have emergency supply kits. The emergency services will be well trained and have full knowledge of the warning systems, evacuation routes and refuge places of safety. Public education and public awareness campaigns through TV and social media, in schools and businesses will encourage the use of practice drills to ensure the inhabitants are fully aware of what to do in an emergency. There should be a supply of emergency medicine, food water and temporary shelters in the months after the event. This is particularly important in developing and emerging countries who are less able to help themselves.*

Volcanic eruptions: The impacts of volcanic eruption are reduced if there is effective immediate emergency relief and that there are preparation plans which can be readily put in place. If volcano-proof buildings are built, then the impact will be reduced. This is most likely to be in rich developed countries which are prone to volcanoes and have the necessary finance and technical know-how to build such structures. The general population must be made fully aware of what to do when an eruption happens. All households and businesses should have emergency supply kits. The emergency services will be well trained and have full knowledge of the warning systems, evacuation routes and refuge places of safety. Public education and public awareness campaigns through TV and social media, in schools and businesses will encourage the use of practice drills to ensure the inhabitants are fully aware of what to do in an emergency. There should be a supply of emergency medicine, food water and temporary shelters in the months after the event. This is particularly important in developing and emerging countries that are less able to help themselves.

- 2.
- a) Primary impacts are the direct effects of a tectonic event. When an earthquake occurs, the ground shakes, and this can lead to deaths and injuries due to the collapse of buildings. Secondary impacts are the events triggered by the ground shaking, such as landslides avalanches, fires, and tsunamis. These can cause massive destruction and loss of life.
 - b) The people in developing and emerging countries are more vulnerable to tectonic hazards than those in developed countries because they are less likely to live in a house which has been designed to withstand an earthquake or volcanic eruption and so will be easily destroyed. Many people will be dependent on farming and if the tectonic hazard destroys their crops, they have nothing to feed their families or to sell. These poorer countries may not have a well-developed transport infrastructure so emergency aid may take a long time to get to the area affected. This means the people will not get the necessary medicines, food, water, and shelter until it too late to help them.