



2016 specification
first exams in 2018

Learning Grids

for A Level AQA Geography

Component 1: Physical Geography
Section C: Hazards

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POD
9100a

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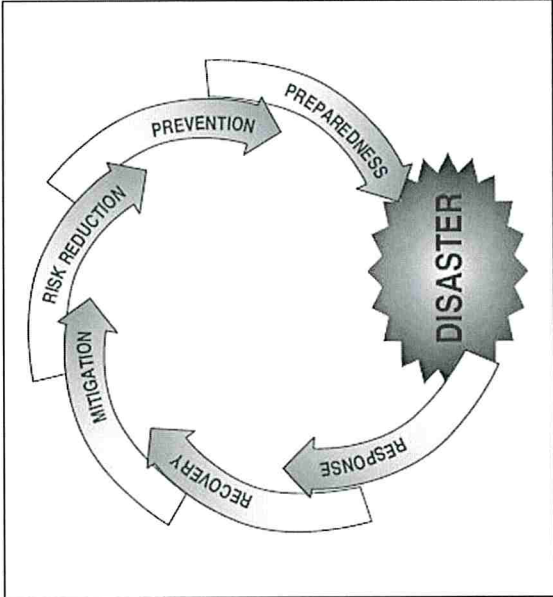
Learning Grid 1: What is a Natural Hazard?

HOD: pp. 184–189
 CAM: pp. 154–159
 ZZ-RP: pp. 2–6

Question		Answer
1	What is a hazard?	
2	How does a hazard differ from a disaster?	
3	Match the following types of hazard to their meanings.	Geophysical
		Atmospheric
		Hydrological
4	What are the 'features' of a natural hazard?	Weather hazards, e.g. (tropical) storms and extreme weather events. Water hazards, e.g. flooding. Hazards which are caused by the earth, e.g. seismic and volcanic events.
5	Why do the residents in some countries or cultures perceive risk differently?	
Why live in hazardous areas?		

Question		Answer
Why live in hazardous areas?	6	Give an example of where the benefits of living in a hazardous region outweigh the risks.
	7	Give a definition for each of the following words:
		Fatalism
Managing hazards	8	Name the term used when a group of people or a community protect themselves from hazards.
	9	How can prediction reduce the risk of a hazard?
	10	Are developed countries better prepared than developing countries?

		Question	Answer
Managing hazards	14	<p>Label the Park model with the following:</p> <ul style="list-style-type: none"> • Deterioration • Reconstruction • Rebuild • Time • Pre-disaster • Disruption • Days – weeks • Improvement 	
	15	<p>What does the Park model show?</p>	

Question		Answer
16	How might the curve of the Park model change depending on the speed of onset?	Fast onset
		Slow onset
17	Name the cycle.	
18	Who would use such a cycle?	
19	How does the cycle work?	
20	At what stage of the cycle does media focus occur?	

Managing hazards

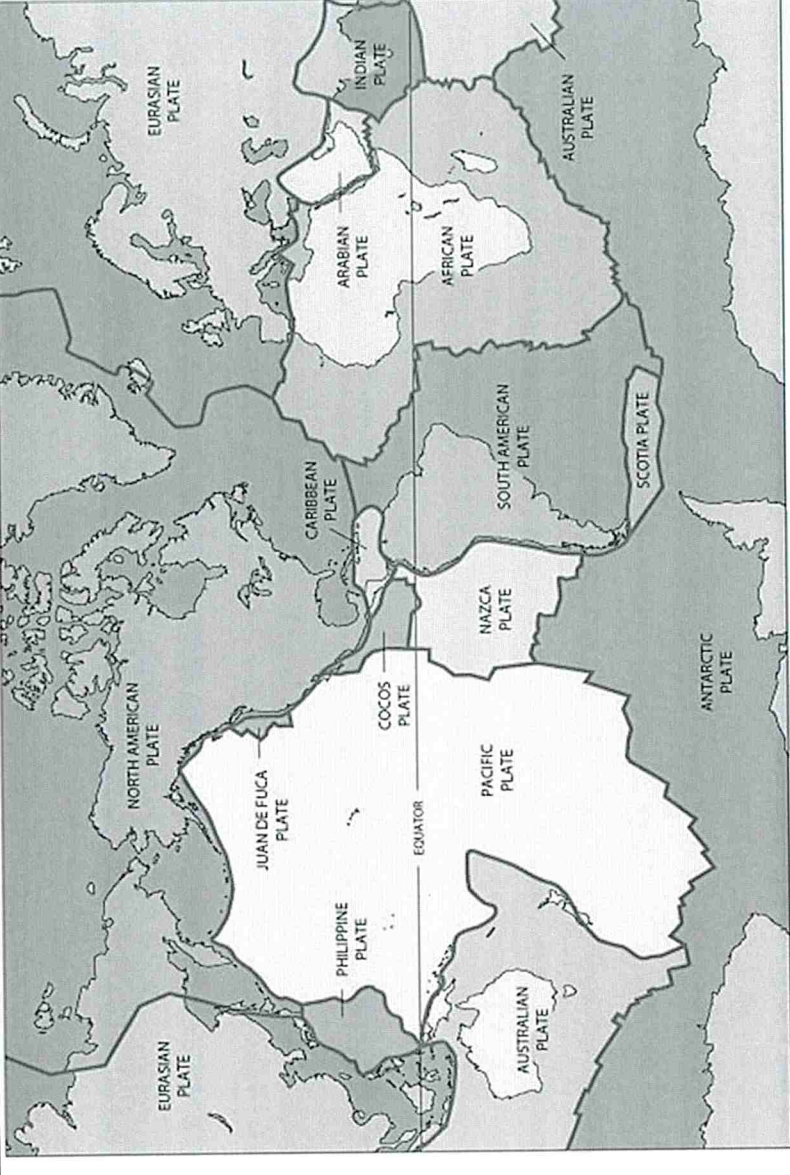
Learning Grid 2: Plate Tectonics

HOD: pp. 190–193
 CAM: pp. 159–162
 ZZ-RP: pp. 10–14

Question		Answer
1	Place the layers of Earth listed opposite in order of depth, from the centre of Earth to the surface.	Mantle
	Write 1 for the layer that is closest to the centre, and 3 for the layer that is closest to the surface, etc.	Core
		Crust
2	Place the layers of Earth listed opposite in order of density, from most dense to least dense.	Mantle
	Write 1 for the densest and write 3 for the least dense, etc.	Core
		Crust
3	Provide a brief description of the main characteristics of each of the three layers.	Mantle
		Core
		Crust
4	There are two main types of crust. Provide typical thicknesses for each type.	Oceanic crust
		Continental crust

Earth's structure

Question		Answer
5	What is the asthenosphere?	
6	What is the lithosphere?	
7	Outline why Earth's core is hot.	
	<p>Earth's structure</p>	
8	Complete the diagram by filling in the names of the major plates.	<p>Plate tectonics</p> <p style="text-align: center;">Tectonic Plates and their Margins</p>

Question		Answer
<p>9</p> <p>Plate tectonics</p> <p>Add arrows to any two plates to show the direction of their movement.</p>		
<p>10</p> <p>Plate movement</p>	<p>How do oceanic crust and continental crust differ?</p>	
<p>11</p>	<p>Who first published the theory of continental drift and plate tectonics?</p>	
<p>12</p>	<p>In what year was this published?</p>	
<p>13</p>	<p>Briefly summarise the theory as initially proposed.</p>	

Question		Answer	
14	Give two pieces of evidence which support continental drift theory.	1.	
		2.	
15	Give a more recent example of evidence used to develop the theory.		
16	Match the following theories of plate movement to their descriptions.	Gravitational sliding (ridge push)	At destructive plate margins, the oceanic plate is subducted. The plate moves due to the gravitational downwards force at the subduction zone.
		Slab pull	Occurs at ocean ridges. New land is formed at greater height; the weight of additional crust forces the crust away from the ridge.
		Convection currents	At ocean ridges, new land is created and the two plates move apart.
		Seafloor spreading	Plumes of hot material in the mantle rise towards the crust. As the magma spreads out and cools, the density increases and sinks once again, pushing two plates apart.
17	How much do tectonic plates move each year?		
18	Describe the following types of plate margin.	Destructive	
		Constructive	
		Conservative	
Plate margins and associated features			

Question		Answer		
		Plate margin	Volcanic activity	Seismic activity features
Plate margins and associated features	19	<p>Fill in the table to describe and explain the seismic and volcanic activity at the different types of plate margin, and name the features found at each type.</p>		
	20	<p>The Himalayas are examples of young fold mountains. How do young fold mountains form?</p>		


Question		Answer
21	Identify the feature in the photograph.	
22	What is the difference between an ocean ridge and a deep-sea trench?	
23	What causes a hotspot?	
24	What is the relationship between the location of hotspot volcanoes and plate margins?	

Plate margins and associated features

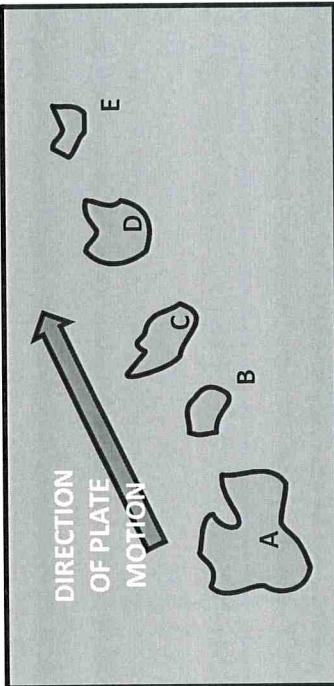

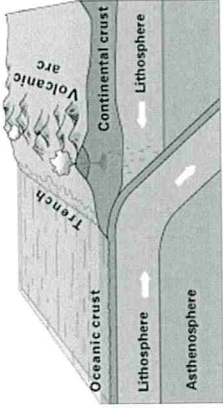
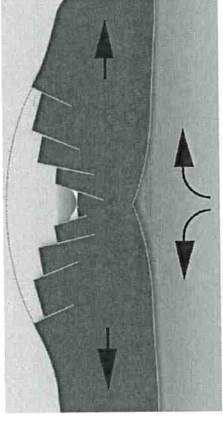
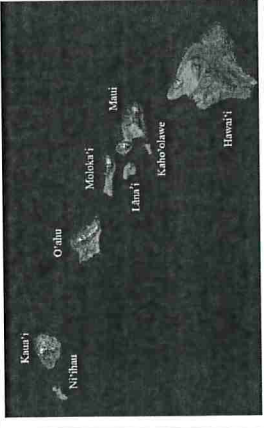
Question		Answer
25	How do chains of hotspot volcanoes form, and how does this show the direction of motion of tectonic plates?	
26	Study the sketch, showing a hypothetical hotspot island chain, and answer the questions on the right.	<div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; width: 200px;">Which island is the oldest?</div> <div style="border: 1px solid black; padding: 5px; width: 200px;">Which island is likely to still host active volcanism?</div> </div>

Plate margins and associated features

Learning Grid 3: Volcanoes


HOD: pp. 193–200
 CAM: pp. 162–169
 ZZ-RP: pp. 17–20

Question		Answer	
		Name	Reason
<p>Volcanoes – forms and characteristics</p> <p>1</p> <p>For each of the diagrams, name the feature and give a reason for its volcanicity.</p>			
			
			
			

Question		Answer	
		Statement	Lava type
Volcanoes - forms and characteristics	<p>2</p> <p>There are three main types of lava. Decide which type is being described by each statement in the table opposite.</p>	<p>This lava type is most commonly found at divergent margins.</p> <p>This lava has the highest silica content and is the most viscous.</p> <p>These two lava types are most commonly found at destructive margins.</p> <p>This lava has the lowest silica content and is the least viscous.</p>	
	<p>3</p> <p>Which type of magma typically forms the steepest-sided volcanoes, and why?</p>		
	<p>4</p> <p>Why are rhyolite volcanoes normally more explosive than basaltic volcanoes?</p>		
	<p>5</p> <p>The Hawaiian volcanoes are intraplate volcanoes. What type of eruptions are likely?</p>		
	<p>6</p> <p>Distinguish between the terms 'spatial distribution' and 'frequency' of volcanic events.</p>		
	<p>7</p> <p>The magnitude of a volcanic eruption can be measured on the Volcanic Explosivity Index (VEI). Give one factor which determines the explosivity of a volcano.</p>		

Question		Answer																									
Volcanoes - forms and characteristics	8	Active																									
		Dormant																									
		Extinct																									
Volcanic hazards	9	<table border="1"> <thead> <tr> <th>Primary effects</th> <th>Secondary effects</th> </tr> </thead> <tbody> <tr> <td></td> <td>Lava flows</td> </tr> <tr> <td></td> <td>Tsunamis</td> </tr> <tr> <td></td> <td>Mud flows (lahars)</td> </tr> <tr> <td></td> <td>Flooding</td> </tr> <tr> <td></td> <td>Nuées ardentes (pyroclastic flows)</td> </tr> <tr> <td></td> <td>Ash fallout</td> </tr> <tr> <td></td> <td>Tephra</td> </tr> <tr> <td></td> <td>Acid rain</td> </tr> <tr> <td></td> <td>Volcanic gases</td> </tr> <tr> <td></td> <td>Climate change</td> </tr> <tr> <td></td> <td>Pyroclastic events</td> </tr> </tbody> </table>		Primary effects	Secondary effects		Lava flows		Tsunamis		Mud flows (lahars)		Flooding		Nuées ardentes (pyroclastic flows)		Ash fallout		Tephra		Acid rain		Volcanic gases		Climate change		Pyroclastic events
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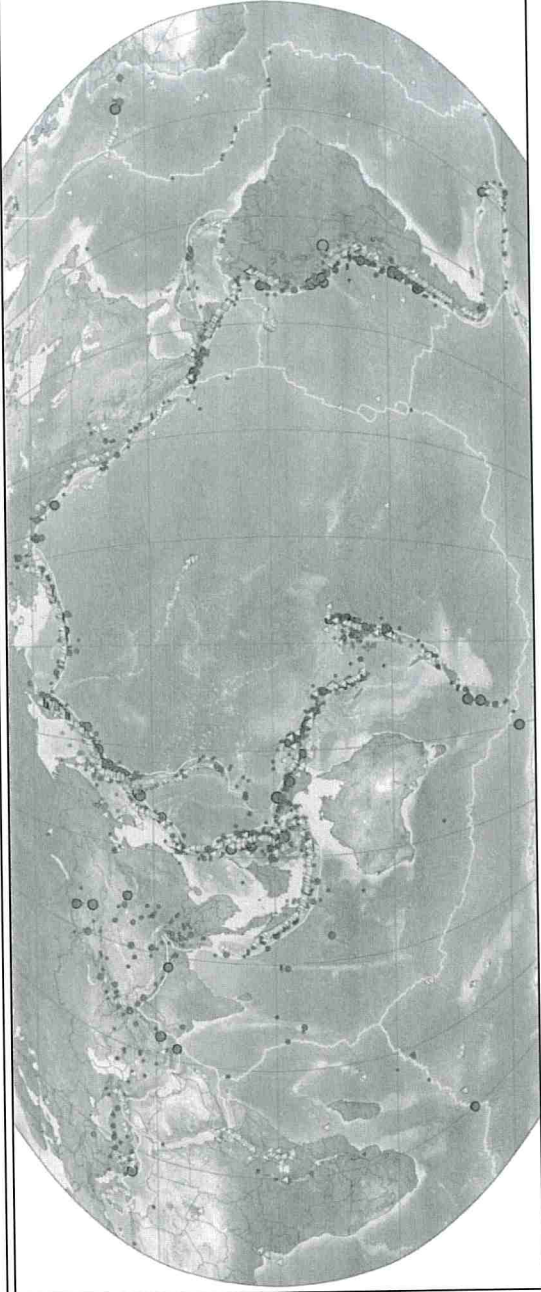
Question		Answer
13	Give an example of each type of effect.	Environmental
		Social
		Economic
		Political
14	What are the short-term and long-term responses to a volcanic eruption?	Short-term
		Long-term
15	Give an example of the following (relating to volcanoes).	Preparedness
		Mitigation
		Prevention
		Adaptation
Coping with volcanic eruptions		

Question	Answer																		
<p>Case study</p> <p>16</p> <p>You will have studied an example of a recent volcanic eruption. Mark the volcano on the map, and fill in the fact file below.</p>	 <p>Fact file</p> <table border="1" data-bbox="730 116 1455 1431"> <tr><td>Name of volcano</td><td></td></tr> <tr><td>Type of volcano (shield, composite, acid dome)</td><td></td></tr> <tr><td>Date of eruption</td><td></td></tr> <tr><td>VEI of eruption</td><td></td></tr> <tr><td>Type of plate margin</td><td></td></tr> <tr><td>Why the volcano erupted</td><td></td></tr> <tr><td>Eruption history</td><td></td></tr> <tr><td>Social impacts</td><td></td></tr> <tr><td>Economic impacts</td><td></td></tr> </table>	Name of volcano		Type of volcano (shield, composite, acid dome)		Date of eruption		VEI of eruption		Type of plate margin		Why the volcano erupted		Eruption history		Social impacts		Economic impacts	
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Question		Answer
Case study	17	Does the volcano erupt in the way that you would expect it to?
	18	Describe the social or economic status of the country.
	19	Describe the preparation for the eruption of your chosen volcano.
	20	Describe the responses to the eruption of your chosen volcano.

Learning Grid 4: Earthquakes

HOD: pp. 200–209
CAM: pp. 169–179
ZZ-RP: pp. 24–28


Question		Answer
1	What causes earthquakes?	
2	Using the map, which shows where earthquakes often occur, briefly describe the global distribution of seismicity.	

Question		Answer	
8	Name two magnitude scales which measure the amount of energy released by an earthquake.	1.	
		2.	
9	Name a scale which describes an earthquake's magnitude which considers the damage cause by the earthquake.		
10	Divide the effects of earthquakes into primary effects and secondary effects by putting a cross in the correct box.	Primary effects	
		<input type="checkbox"/>	Tsunamis <input type="checkbox"/>
		<input type="checkbox"/>	Fires <input type="checkbox"/>
		<input type="checkbox"/>	Ground shaking <input type="checkbox"/>
		<input type="checkbox"/>	Avalanches <input type="checkbox"/>
		<input type="checkbox"/>	Landslides <input type="checkbox"/>
		<input type="checkbox"/>	Liquefaction <input type="checkbox"/>
<input type="checkbox"/>	Ground rupture <input type="checkbox"/>		
Secondary effects			
11	Explain why ground rupture occurs.		
12	What is liquefaction, and why does it happen, and what is its effect on buildings?	What?	
		Why?	
		Effect?	

Question		Answer	
The effects of earthquakes	13	Discuss the causes and effects of tsunamis.	<p>Causes</p> <p>Effects</p>
	14	Discuss how the effects of earthquakes vary throughout the world.	

Question		Answer
15	What is the difference between short-term responses and a long-term responses to an earthquake?	
16	Give two ways in which earthquakes can be prepared for.	1.
		2.
17	How easily can earthquakes be predicted?	
18	Can earthquakes be prevented?	
19	Suggest how buildings can be designed to make them more resistant to earthquakes.	

Preparing for, and responding to, earthquakes

Question	Answer
<p>You will have studied an example of a recent earthquake. Mark the epicentre on the map, and fill in the fact file below.</p>	
Fact file	
Location of earthquake	
Size of the affected city or region	
Date of earthquake	
Intensity of earthquake	
Shallow/mid/deep focus	
Type of plate margin	
Why the earthquake occurred	
Earthquake history in the region	
Social impacts	
Economic impacts	

Earthquake case study

20


Question		Answer
21	What were the responses to the event?	
22	Were the responses to the event expected?	

Earthquake case study

Learning Grid 5: Tropical Revolving Storms

HOD: pp. 209–216
 CAM: pp. 179–184
 ZZ-RP: pp. 32–35

Question		Answer
1	What is a tropical revolving storm?	
2	What conditions must be present for a tropical revolving storm to form? In each case explain why these conditions are required.	
3	Place the four stages in the life cycle of a tropical revolving storm in order by placing the numbers 1 (first stage) to 4 (last stage) in the table opposite.	
		Storms - their development and locations
		Stage
		A central eye, 30–50 km across, develops – this has descending air, low winds, clear skies and anomalously high temperatures. This adds to the level of air instability, increasing the storm intensity.
		Oceanic heating and air convergence lead to the development of a low-pressure area, resulting in strong, inward-spiralling winds.
		The tropical revolving storm makes landfall and rapidly loses energy and intensity.
		Rising moist air condenses to form clouds and rainfall, releasing latent heat which increases the storm's intensity.
		Order

Question		Answer
Storms - their development and locations	4	 <p>Using the map, draw on the locations of tropical storms throughout the world.</p> <p>The storms are named differently throughout the different regions - add labels naming them.</p>
	5	Give the scale used to define the magnitude of a tropical revolving storm in the western hemisphere.
Classifying storms	6	Is this the only scale used to measure hurricanes?
	7	If a storm doesn't reach the wind speed necessary to be classed as a hurricane, what is it called?

Question		Answer																															
Classifying storms	8	<p>Study the data and answer the questions.</p> <p>Number of recorded Category 5 Atlantic hurricanes per month</p> <table border="1"> <thead> <tr> <th>Month</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>July</td> <td>1</td> </tr> <tr> <td>August</td> <td>7</td> </tr> <tr> <td>September</td> <td>19</td> </tr> <tr> <td>October</td> <td>5</td> </tr> <tr> <td>November</td> <td>1</td> </tr> </tbody> </table> <p>Frequency of Category 4 Atlantic hurricanes</p> <table border="1"> <thead> <tr> <th>Period</th> <th>Number</th> <th>Number per year</th> </tr> </thead> <tbody> <tr> <td>1851-1900</td> <td>13</td> <td>0.26</td> </tr> <tr> <td>1901-1950</td> <td>29</td> <td>0.58</td> </tr> <tr> <td>1951-1975</td> <td>22</td> <td>0.88</td> </tr> <tr> <td>1976-2000</td> <td>24</td> <td>0.96</td> </tr> <tr> <td>2001-present</td> <td>24</td> <td>1.4</td> </tr> </tbody> </table>	Month	Number	July	1	August	7	September	19	October	5	November	1	Period	Number	Number per year	1851-1900	13	0.26	1901-1950	29	0.58	1951-1975	22	0.88	1976-2000	24	0.96	2001-present	24	1.4	<p>Why do most major hurricanes occur in September?</p> <p>Discuss how the number of Category 4 hurricanes per year has changed since the 1850s, and suggest a reason why.</p>
	Month	Number																															
July	1																																
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2001-present	24	1.4																															
Predicting and coping with storms	9	How predictable are tropical storms?																															
	10	What are the three primary effects posed by tropical revolving storms?	<p>1.</p> <p>2.</p> <p>3.</p>																														
	11	Give one other hazard caused by tropical revolving storms – this might be a secondary effect.																															
	12	What is a storm surge?																															

Question		Answer	
		Factor	Explanation
13	Explain two factors that increase the damage caused by tropical revolving storms.	1.	
		2.	
14	Divide the following effects into 'social', 'economic', 'political' and 'environmental', by writing S, EC, P or EN in the boxes on the right.	Effects	
		The soil is contaminated with salt water, and vegetation is damaged.	
		There are high insurance payouts.	
		Injuries, deaths and homelessness.	
		Expensive aid provided by the government.	
15	How can communities protect themselves from the effects of tropical revolving storms?	Businesses are closed; damage needs to be repaired before they can reopen.	

Predicting and coping with storms

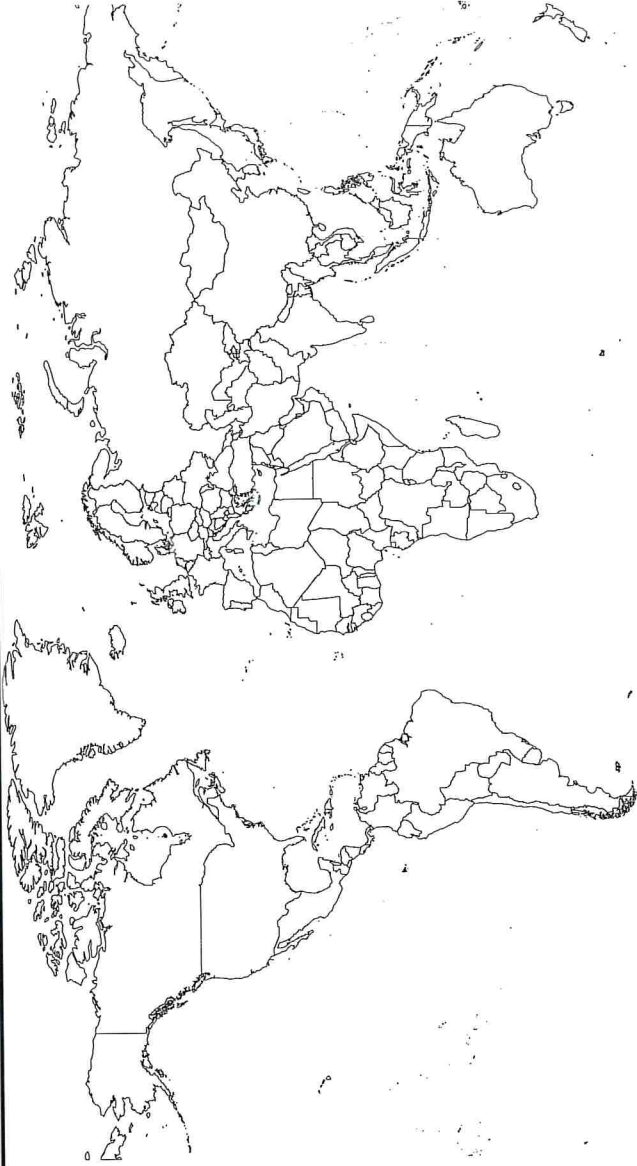
Question

Contrasting examples

16

You will have studied two contrasting tropical storms as part of your studies. Draw the storm tracks onto the map, label the storms, and fill in the fact file.

Answer



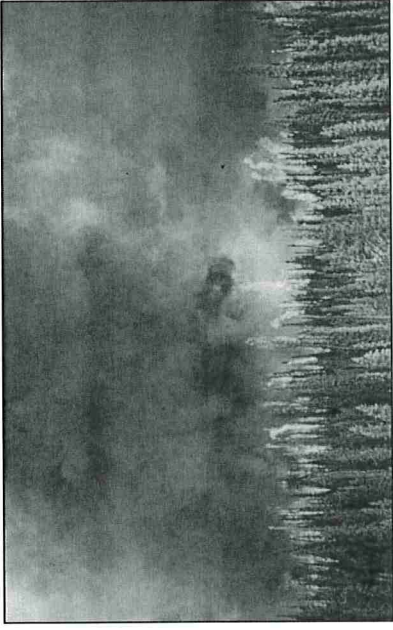

	Tropical storm 1	Tropical storm 2
Name of storm		
Dates of storm		
Intensity of storm		
Affected countries		
Number of deaths/injured		
Damage (financial cost)		

Question		Answer
17	Explain why the two storms are 'contrasting'.	Tropical storm 1 Tropical storm 2
18	What were the effects of each storm?	Tropical storm 1 Tropical storm 2
19	What were the responses to each storm?	Tropical storm 1 Tropical storm 2
20	Why were the effects and responses to each storm different?	

Contrasting examples

Learning Grid 6: Wildfires

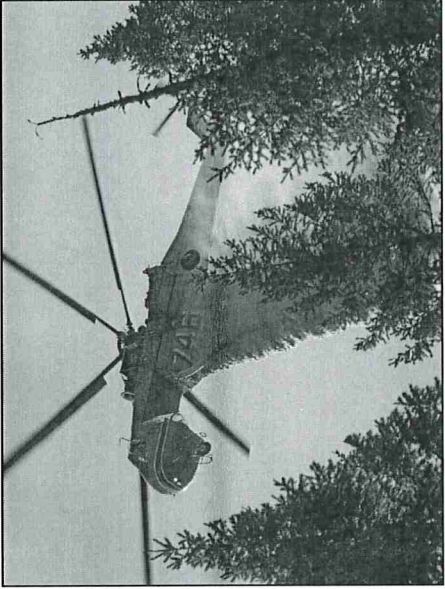
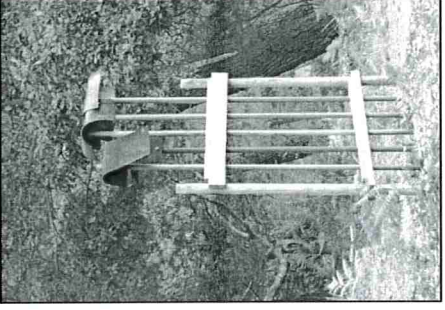

HOD: pp. 217–221
 CAM: pp. 184–189
 ZZ-RP: pp. 39–42

Question		Answer
1	What is a wildfire?	
2	Why is fire important to some ecosystems?	
3	Label each photo with the type of fire shown.	 
4	Give two areas where wildfires are common.	1.
		2.

Wildfires - types, causes and factors

Question		Answer
5	Give two ways in which fires are started.	1.
		2.
6	Explain how each factor can result in an intense wildfire.	Vegetation type
		Fuel characteristics
		Climate
		Recent weather
		Topography
7	Describe the primary effects of wildfires.	
Wildfires - types, causes and factors		
The effects of wildfires		

		Question	Answer
The effects of wildfires	8	How can wildfires increase the risk of flooding?	
	9	How can the effects that you described above be divided into the categories of environmental social, economic and political?	
	10	Why can wildfires have long-term consequences?	
Dealing with wildfires	11	How can wildfires be prepared for?	
	12	How can the risk of wildfires be reduced?	

Question		Answer	
Dealing with wildfires	13	Using the photographs, explain how forest fires can be extinguished.	  
	14	How can planting trees help reduce the negative effects of wildfire?	
Wildfire example	15	Complete the following questions on a wildfire that you have studied.	
		What/where was the fire?	
		When was the fire?	
		How was the fire started?	

Question		Answer
16	What were the effects of the wildfire?	
17	What were the responses to the fire?	
18	Were the responses appropriate to the fire?	
19	Do wildfires frequently occur in the region?	
20	Do you think that the threat of wildfires will increase in your region?	
Wildfire example		