

**WINDOW TO WORLD
GEOGRAPHY
FOR CLASS 7
TEACHING GUIDE**

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Chapter 1 Earthquakes and Volcanoes

Learning Objectives:

(A) Earthquakes

- Define an earthquake and the causes leading to it.
- Name the instruments used to measure the intensity of an earthquake.
- Explain the factors that determine the intensity of an earthquake.
- Describe the impacts of an earthquake.
- Define a tsunami and identify high intensity earthquakes and tsunamis around the world and Pakistan.
- Understand ways to minimize loss of lives and damages, with reference to the 2005 Pakistan earthquake.

(B) Volcanoes

- Identify and describe different types of volcanic activity.
- Describe volcanoes in Pakistan.
- Understand the risks and benefits of living near volcanoes.

Suggested Activities/Strategies	Resources
<p>(A) Earthquakes</p> <p>1.1A What Is an Earthquake?</p> <p>How earthquakes occur</p> <ul style="list-style-type: none"> • Start the lesson by asking the following questions: <ul style="list-style-type: none"> ○ What are earthquakes? ○ Have you heard of or experienced earthquakes? • If any, let students who have experienced earthquakes share their experiences with the class. • Recap what the students had learnt about tectonic plate movements and plate boundaries in Class 6 (Refer to Class 6 Chapter 2 page 24). <ul style="list-style-type: none"> ○ Tectonic plates are huge slabs of solid rock found in the lithosphere. These plates are like jigsaw pieces resting on top of the hot mantle layer (Refer to Class 6 Chapter 2 page 24 Fig 2.2). The heat from below causes these plates to move and this movement is called tectonic shift. As a result of tectonic shifts earthquakes and volcanic eruptions take place. • Explain in simple terms that an earthquake is the shaking of the Earth's surface. Earthquakes can vary in terms of intensity and impact. Some may be so weak that they can hardly be felt, and some may be so powerful that they cause a lot of destruction. • Ask students to study Fig 1.1 and 1.2. Explain the terms used on page 3 of the textbook and discuss how earthquakes occur. The terms and their definitions are listed in the table on the next page for your reference. 	<p>Textbook pages 2–5</p> <p>Fig 1.1</p> <p>Fig 1.2</p> <p>Fig 1.3</p> <p>Fig 1.4</p> <p>Table 1.1</p>

	Explanations
Fault	Faults are fractures or cracks in the lithosphere, i.e. the Earth's crust, where movement has occurred. Usually, earthquakes occur at faults.
Focus	The focus is the point where the earthquake takes place or begins. This is the starting point of the earthquake.
Epicentre	The epicentre is the part or point of land that is directly above the focus.
Shock waves	Shock waves are caused by the shifting of rocks or land. These waves spread in all directions. They spread over a larger area if the earthquake is of greater intensity.
Aftershocks	Aftershocks are earthquakes that happen after the first major earthquake. It is usually weaker in terms of intensity.
Landslide	A landslide is a sudden and very quick movement of a large amount of loose material that moves down a slope due to the force of gravity.
Tsunami	A tsunami is a large sea wave caused by earthquakes.

- Explain how a seismograph works with the help of details given in the textbook and Fig 1.3.
- Use Table 1.1 to explain the Richter Scale.
- Ask students to study Fig 1.4. Explain that the Pacific Ring of Fire is an area in the Pacific Ocean where earthquakes and volcanic eruptions are common.

Activity I (page 5)

- Discuss and then display the students' work on the class soft board.

Extra activity

- Ask students to do research on the major earthquakes that had occurred in Pakistan the last twenty years. Tell students to draw the table below and find the details needed to fill it.

	Major earthquakes in Pakistan		
Date			
Locations or areas affected			
Epicentre			
Measure on Richter Scale			

<p>1.2A Factors that Affect the Intensity of an Earthquake Magnitude Population density and time of occurrence Distance and depth from epicentre Building materials</p> <ul style="list-style-type: none"> As outlined in the textbook, discuss the factors that affect the intensity of earthquakes. <p>Extra activity</p> <ul style="list-style-type: none"> Ask students to do research on the measures that can be taken to reduce damage from future earthquakes. Some points that they can work on are building materials, safety drills, emergency relief measures etc. 	<p>Textbook pages 5–6 Fig 1.5</p>
<p>1.3A How Earthquakes Impact People Threat of tsunamis Threat of landslides Disruption of services Destruction of property Destruction of infrastructure Loss of life</p> <ul style="list-style-type: none"> With reference to details given in the textbook, discuss the threats and damages resulting from earthquakes. <p>Activity II (page 8)</p> <ul style="list-style-type: none"> Ask the students to present their photographs and talk about them in class. 	<p>Textbook pages 7–8 Fig 1.6 Fig 1.7</p>
<p>1.4A Tsunamis The most powerful earthquakes and tsunamis known</p> <ul style="list-style-type: none"> With reference to details given in the textbook and Fig 1.8, explain what tsunamis are and how they are caused. Discuss Table 1.2 and ask students to locate the places listed in the table on the world map. Next, ask them to go to page 5 of the textbook and look at the Pacific Ring of Fire in Fig 1.4. Discuss how many of the places listed in Table 1.2 are on or near the Pacific Ring of Fire. 	<p>Textbook pages 9–10 Fig 1.8 Table 1.2</p>
<p>1.5A Ways to Reduce the Impact of Earthquakes Land use regulations Building design Infrastructure development Emergency drills Use of technology</p> <ul style="list-style-type: none"> Ask students if it is easy to predict the weather and be prepared for it. Then, ask students if it is possible to predict earthquakes. Tell students that currently, scientists are unable to predict earthquakes. 	<p>Textbook pages 10–12 Fig 1.9 Fig 1.10</p>

- Remind students that earthquakes happen as a result of plate movement, which starts deep down inside the Earth. This happens many kilometres below the surface. So, it is very difficult to know about these movements before they happen.
- Explain that even if it is impossible to predict earthquakes, some measures can be taken to reduce the impact of earthquakes.

Group work

- Divide students into small groups and assign each group to do a class presentation on any of the two strategies to reduce the impact of earthquakes below:
 - Land use regulations
 - Building design
 - Infrastructure development
 - Emergency drills
 - Use of technology
- Ask groups to read related text in their textbooks and do further research on the topics online or at the library.
- Tell students they will need to cover the following points:
 - Examples, including photographs of the strategies in actual use
 - Advantages and disadvantages of using the strategies
- Ask groups to read related text in their textbooks and do further research on the strategies online or at the library.

Extra activity

- Plan and conduct emergency drills in your school so that students understand how important it is to act fast and be safe during any calamity.

Case Study: 2005 Great Pakistan Earthquake

- Read and discuss the 2005 Great Pakistan Earthquake case study.
- Discuss why the damage was so severe.
- Also, explain that some of reasons behind the severity of the earthquake damage were natural and nothing could have been done about them.
 - The focus of the earthquake was too near the surface of the Earth, causing massive shock waves to reach the surface.
 - The earthquake occurred near densely populated areas, increasing the number of people affected.
 - There were large magnitude aftershocks that caused further damage.
- However, other factors that contributed to the severity of the earthquake damage were due to human error.
 - The buildings in the affected areas were poorly constructed and many of them collapsed during the

Textbook pages 12–13

Fig 1.11

Fig 1.12

<p>main earthquake and its aftershocks, killing the people inside.</p> <ul style="list-style-type: none"> ○ People were not prepared for the situation. There was no training to respond to emergency situations, there had not been any emergency or earthquake drills conducted to prepare people to act accordingly in any situation, there was no proper system of food, water or medicine supplies. ● Add on that it is important to understand how to respond to emergency situations and how to prepare for emergencies. <p>(B) Volcanoes 1.1B What Is Volcanism?</p> <ul style="list-style-type: none"> ● Explain that just like earthquakes, volcanoes are also natural hazards that cause destruction. ● Explain or discuss the terms in the table below. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Volcano</td> <td>A mountain or hill, which has a crater or vent through which lava and gases are erupting or have erupted.</td> </tr> <tr> <td>Volcanism</td> <td>A process by which materials such as magma and gases from the inside of the Earth are forced onto the surface of the Earth.</td> </tr> <tr> <td>Magma</td> <td>Hot fluid or semi-fluid material below the Earth's crust.</td> </tr> <tr> <td>Ridge</td> <td>A long, narrow hilltop or mountain range.</td> </tr> </table> <ul style="list-style-type: none"> ● Revise what the students studied previously on convergent plate movement, divergent plate movement and transform plate movement (Refer to Class 6 Chapter 3 pages 44–46). ● Remind them that plates move towards each other, move away from each other or slide past each other. These are called convergent plate movement, divergent plate movement and transform plate movement respectively. ● Also, revise the differences between these plate movements. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Convergent</th> <th style="width: 33%;">Divergent</th> <th style="width: 33%;">Transform</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> ● Plates move towards each other and collide ● Destructive plate boundary </td> <td> <ul style="list-style-type: none"> ● Plates move away from each other and magma rises to fill space left behind on crust ● Constructive plate boundary </td> <td> <ul style="list-style-type: none"> ● Plates slide past each other in opposite directions ● Neither constructive nor destructive plate boundary </td> </tr> </tbody> </table>	Volcano	A mountain or hill, which has a crater or vent through which lava and gases are erupting or have erupted.	Volcanism	A process by which materials such as magma and gases from the inside of the Earth are forced onto the surface of the Earth.	Magma	Hot fluid or semi-fluid material below the Earth's crust.	Ridge	A long, narrow hilltop or mountain range.	Convergent	Divergent	Transform	<ul style="list-style-type: none"> ● Plates move towards each other and collide ● Destructive plate boundary 	<ul style="list-style-type: none"> ● Plates move away from each other and magma rises to fill space left behind on crust ● Constructive plate boundary 	<ul style="list-style-type: none"> ● Plates slide past each other in opposite directions ● Neither constructive nor destructive plate boundary 	<p>Textbook pages 14–17</p> <p>Fig 1.13 Fig 1.14 Fig 1.15 Fig 1.16 Fig 1.17</p>
Volcano	A mountain or hill, which has a crater or vent through which lava and gases are erupting or have erupted.														
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<p>Types of volcanism Underwater volcanism Volcanism at destructive plate boundaries Structure of a volcano Volcanism at hot spots</p> <ul style="list-style-type: none">• Explain the types of volcanoes with the help of details given in the textbook and Fig 1.13, 1.14, 1.15 and 1.16.• Explain the structure of a volcano as given on page 15 of the textbook. <p>Group work</p> <ul style="list-style-type: none">• Divide students into small groups and assign each group to do a class presentation on one of the following topics:<ul style="list-style-type: none">○ Underwater volcanism○ Volcanism at destructive plate boundaries○ Volcanism at hot spots• Ask groups to read related text in their textbooks and do further research on the topics online or at the library.• Tell groups they will need to cover the following points:<ul style="list-style-type: none">○ Short description of the phenomenon.○ Where does the phenomenon takes place?○ What was formed as a result of the phenomenon?○ What are examples of new landforms formed by the phenomenon? <p>Frequency of volcanic eruptions Distribution of volcanoes around the world</p> <ul style="list-style-type: none">• Explain how volcanoes can be classified as active, dormant or extinct.• Refer to Fig 1.16 and ask students to point out the active volcanoes and identify where they are located.• Ask students to research and give examples of these types of volcanoes.• Sample answers:<ul style="list-style-type: none">○ Active: Kilauea, Hawaii and Mount Merapi, Indonesia○ Dormant: Mount Kilimanjaro, Tanzania and Mount Fuji, Japan.○ Extinct: Mount Thielsen, USA and Mount Slemish, Northern Ireland. <p>Activity III (page 16)</p> <ul style="list-style-type: none">• Ask students to present their maps and display them around the classroom.	
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<p>Volcanoes of Pakistan</p> <ul style="list-style-type: none"> • Ask students to read about the mud volcanoes in Pakistan as given in the textbook. • Put up a large map of Pakistan and show the location of the following volcanoes in Pakistan. <ul style="list-style-type: none"> ○ Koh-i-Sultan (Extinct magmatic) ○ Malan Island (Mud volcano) ○ Jebel e Ghurab (Mud volcano) ○ Chandragup (Mud volcano) ○ Hingol (Mud volcano) ○ Tor Zawar (Fissure vent) ○ Zalzala Koh (Mud volcano) <p>1.2B The Risks and Benefits of Living Near Volcanoes</p> <p>Risks</p> <ul style="list-style-type: none"> Destruction of life and property Threat of landslides Pollution <p>Benefits</p> <ul style="list-style-type: none"> Fertile volcanic soil Geothermal energy Building materials, minerals and precious stones Tourism <ul style="list-style-type: none"> • Ask students to first read pages 18–20 of the textbook, on the advantages and disadvantages of living near volcanoes. • Next, divide students into two groups. Tell them that they will debate on this topic. • Hold a class debate on this topic. 	<p>Textbook pages 18–20 Fig 1.18 Fig 1.19 Fig 1.20 Fig 1.21 Fig 1.22</p>
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Chapter 2 Weathering and Mass Wasting

Learning Objectives:

- Define weathering and mass wasting.
- Describe different types of weathering.
- Understand the concepts of weathering and erosion and the difference between them.
- Identify the different types of mass wasting.
- Understand the impact of weathering and erosion.

Suggested Activities/Strategies	Resources
<p>2.1 What Is Weathering and Mass Wasting?</p> <p>Weathering</p> <p>Mass wasting</p> <ul style="list-style-type: none"> • Start the lesson by asking the following questions: <ul style="list-style-type: none"> ○ What is weathering? ○ What is mass wasting? ○ What are the differences between weathering and mass wasting? • Explain the two concepts with the help of the following points. <ul style="list-style-type: none"> ○ Weathering is the breaking down of rocks and minerals on Earth’s surface by the action of natural elements such as rain or temperature. <ul style="list-style-type: none"> – Materials are not transported away – Can be mechanical or chemical – Does not cause natural disasters ○ Mass wasting is the downward movement of a large mass of loose rock, soil or snow along slopes due to the force of gravity. <ul style="list-style-type: none"> – Materials are moved to other places – Can cause natural disasters such as landslides, avalanches – Does not cause natural disasters all the time, e.g. soil creep is not a natural disaster • Reinforce that both weathering and mass wasting cause changes in land formation. • Ask students to read pages 24–25 of the textbook. <p>Activity I (page 25)</p> <ul style="list-style-type: none"> • Put up students’ work on the class soft board. 	<p>Textbook pages 24–25</p> <p>Fig 2.1</p> <p>Fig 2.2</p> <p>Fig 2.3</p>

<p>2.2 Types of Weathering</p> <p>Mechanical weathering</p> <p> Freeze-thaw action</p> <p> Alternate expansion and contraction</p> <p>Chemical weathering</p> <p> Oxidation</p> <p> Carbonation</p> <p> Hydrolysis</p> <ul style="list-style-type: none"> • Ask students to explain weathering. • Recap that weathering is the breaking down of rocks and minerals on Earth’s surface by the action of natural elements such as rain or temperature. • Explain further that this breaking down of rocks and minerals can be due to chemical or mechanical weathering. <p>Group work</p> <ul style="list-style-type: none"> • Divide students into small groups and assign them to do a class presentation on either “mechanical weathering” or “chemical weathering”. • Ask groups to read related text in their textbooks and do further research on the topics online or at the library. • Tell groups they will need to cover the following points: <ul style="list-style-type: none"> ○ The explanation for the phenomenon. ○ The names and explanations for the different processes of the phenomenon. ○ Examples and pictures of the phenomenon. • Some points are summarized below for your reference. <table border="1" data-bbox="305 1108 1112 1560"> <thead> <tr> <th data-bbox="305 1108 708 1144">Mechanical weathering</th> <th data-bbox="708 1108 1112 1144">Chemical weathering</th> </tr> </thead> <tbody> <tr> <td data-bbox="305 1144 708 1255"> <ul style="list-style-type: none"> • Freeze-thaw action • Alternate expansion and contraction </td> <td data-bbox="708 1144 1112 1255"> <ul style="list-style-type: none"> • Oxidation • Carbonation • Hydrolysis </td> </tr> <tr> <td data-bbox="305 1255 708 1459"> <ul style="list-style-type: none"> • In this process, rock break down into smaller pieces. </td> <td data-bbox="708 1255 1112 1459"> <ul style="list-style-type: none"> • In this process, rock reacts with substances in the environment like oxygen, carbon dioxide and water to produce new substances. </td> </tr> <tr> <td data-bbox="305 1459 708 1560"> <ul style="list-style-type: none"> • No new substances are formed. </td> <td data-bbox="708 1459 1112 1560"> <ul style="list-style-type: none"> • New substances are formed due to chemical reactions. </td> </tr> </tbody> </table>	Mechanical weathering	Chemical weathering	<ul style="list-style-type: none"> • Freeze-thaw action • Alternate expansion and contraction 	<ul style="list-style-type: none"> • Oxidation • Carbonation • Hydrolysis 	<ul style="list-style-type: none"> • In this process, rock break down into smaller pieces. 	<ul style="list-style-type: none"> • In this process, rock reacts with substances in the environment like oxygen, carbon dioxide and water to produce new substances. 	<ul style="list-style-type: none"> • No new substances are formed. 	<ul style="list-style-type: none"> • New substances are formed due to chemical reactions. 	<p>Textbook pages 25–29</p> <p>Fig 2.4</p> <p>Fig 2.5</p> <p>Fig 2.6a-d</p> <p>Fig 2.7</p> <p>Fig 2.8</p>
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<p>2.3 Difference Between Weathering and Erosion</p> <ul style="list-style-type: none"> • Explain that both weathering and erosion are caused by the actions of air, water, wind and temperature. • The main difference between weathering and erosion is that in weathering, weathered materials do not move. In erosion, however, the broken-down rocks or eroded material moves to another place. 	<p>Textbook page 30</p> <p>Fig 2.9</p>								

<p>2.4 Types of Mass Wasting Landslides Avalanches Soil creep</p> <ul style="list-style-type: none"> • Recap that mass wasting is the movement of a large mass of loose rock and other material along slopes and hills, due to the force of gravity. It can cause natural disasters such as landslides and avalanches, as huge amounts of material are moved. • Add on that mass wasting can occur due to the following conditions: <ul style="list-style-type: none"> ○ Steepness of the slope ○ Water movement ○ Earthquakes ○ Removal of trees and vegetation • Tell students that mass wasting can cause big changes in landforms and these changes can happen suddenly or gradually over a period of time. • Say that landslides, avalanches and soil creep are examples of mass wasting. • Explain that landslides and avalanches are dangerous examples of mass wasting caused by the force of gravity. A landslide is a sudden fall of rock and an avalanche is a sudden fall of snow. Landslides and avalanches can destroy hillsides and even bury homes and things that come on their way. • Explain that in contrast to dangerous landslides and avalanches, soil creep is the slow movement of soil or small debris that occurs on slopes that are not steep. It is more common in areas that experience freeze-thaw actions. • Refer students to the details given in pages 30–33 of the textbook and study Fig 2.10, 2.11, 2.12 and 2.13. 	<p>Textbook pages 30–33 Fig 2.10 Fig 2.11 Fig 2.12 Fig 2.13</p>
<p>2.5 Impact of Weathering and Erosion Positive impact of weathering and erosion Fertile land for agriculture Landscaping Negative impact of weathering and erosion Destruction of life and property Flooding</p> <ul style="list-style-type: none"> • Explain that just like all natural phenomena, weathering and erosion have both positive and negative impacts on humans and the environment. • Discuss with students what they know about the positive and negative impacts of weathering and erosion. Then, ask them to read pages 34–36 of the textbook. 	<p>Textbook pages 34–36 Fig 2.14 Fig 2.15 Fig 2.16</p>

<p>Group work</p> <ul style="list-style-type: none">• Divide students into small groups and assign each group to do a class presentation on either the positive or negative impacts of weathering and erosion.<ul style="list-style-type: none">○ Positive impact: Ask students to collect pictures of structures formed by weathering and erosion, the structures' location, unique features and how those structures are contributing to the tourism sector of that country.○ Negative impact: Ask students to collect information on major landslides and avalanches that happened in the last decade. They are to find out where and when the natural disasters occurred, the destruction caused, the relief measures taken in the aftermath and the current situation of the affected places.• Ask groups to read related text in their textbooks and do further research on the topics online or at the library. <p>Activity II (page 36)</p> <ul style="list-style-type: none">• Ask the students to present their letters and talk about them in class. These letters can then be displayed on the class soft board.	
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Chapter 3 Major Landforms of the Earth

Learning Objectives:

- Describe the difference between a hill and a mountain.
- Explain how all major landforms emerged through folding and faulting.
- Define plateaus and identify the types and major plateaus of the world and specify the types found in Pakistan.
- Describe the impact of plateaus on human life.
- Define plains and describe the importance of plains – river plains, flood plains, coastal plains.
- Define valley and identify the types of valleys – rivers and glaciers.
- Describe the importance of valleys as a livable part of the Earth.

Suggested Activities/Strategies	Resources				
<p>3.1 How Is a Hill and a Mountain Different?</p> <p>The formation of a hill</p> <p>The formation of a mountain</p> <ul style="list-style-type: none"> • Ask the students if they have seen any mountain or hill, where have they seen the mountain or hill, and the name of the mountain or hill. • Ask students what the difference between a mountain and a hill is. • Expected answer: Hills are smaller whereas mountains are bigger. • Ask students to read pages 40–41. • Key differences between the two landforms are summarized below for your reference. However, do note that they are not absolute differences. Some mountains may erode away over time and become hills. There are also exceptions to these differences, such as mountains with rounded tops. <table border="1" data-bbox="305 1251 1112 1801"> <thead> <tr> <th data-bbox="305 1251 708 1287">Mountains</th> <th data-bbox="708 1251 1112 1287">Hills</th> </tr> </thead> <tbody> <tr> <td data-bbox="305 1287 708 1801"> <ul style="list-style-type: none"> • Have steep slopes and summits or peaks • Have higher altitudes • Can be formed through volcanic eruptions when layers of magma get piled on the surface of the Earth • Can be formed due to the processes of folding or faulting </td> <td data-bbox="708 1287 1112 1801"> <ul style="list-style-type: none"> • Have gentle slopes and rounded tops • Have lower altitudes • Can be formed when rock debris or sand deposited by glaciers and wind accumulate • Can be formed due to the erosion of mountains when soil is carried away. This may happen over millions of years. • Can be formed when layers of magma cool and solidify. </td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Ask the students if they remember what they studied about tectonic plates, plate boundary and plate movement in the previous class (see page 7 of this document). 	Mountains	Hills	<ul style="list-style-type: none"> • Have steep slopes and summits or peaks • Have higher altitudes • Can be formed through volcanic eruptions when layers of magma get piled on the surface of the Earth • Can be formed due to the processes of folding or faulting 	<ul style="list-style-type: none"> • Have gentle slopes and rounded tops • Have lower altitudes • Can be formed when rock debris or sand deposited by glaciers and wind accumulate • Can be formed due to the erosion of mountains when soil is carried away. This may happen over millions of years. • Can be formed when layers of magma cool and solidify. 	<p>Textbook pages 40–41</p> <p>Fig 3.1</p> <p>Fig 3.2</p>
Mountains	Hills				
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<ul style="list-style-type: none"> • Recap that tectonic plates are huge slabs of rock. These plates are like giant jigsaw pieces resting on top of the hot mantle layer of Earth. The heat from below causes the plates to move and this movement is called tectonic shift. As a result of tectonic shifts, earthquakes and volcanic eruptions take place. • Remind students that plates move towards each other, move away from each other or slide past each other. These are respectively called convergent plate movement, divergent plate movement and transform plate movement. • Refer to Fig 3.2 and explain that there are oceanic and continental plates. The names of the major continental and oceanic plates are: <ul style="list-style-type: none"> ○ Pacific Plate ○ North American Plate ○ Eurasian Plate ○ African Plate ○ Antarctic Plate ○ Australian Plate ○ Indian Plate ○ South American Plate ○ Nazca Plate ○ Philippine Plate ○ Arabian Plate ○ Caribbean Plate ○ Cocos Plate ○ Scotia Plate ○ Juan de Fuca Plate <p>Activity I (page 41)</p> <ul style="list-style-type: none"> • Ask students to discuss and present their maps in class. <p>3.2 How Do All Major Landforms on Earth Emerge?</p> <ul style="list-style-type: none"> • Start the lesson by asking the following questions: <ul style="list-style-type: none"> ○ What is the meaning of landform? ○ Do you know of any landforms? If so, give some examples and name them. ○ Where are these landforms located? • Explain that in geographical terms, that landform means natural physical features on the surface of the Earth. These landforms form the terrain of Earth. • Landforms are formed through various factors such as folding, faulting and also weathering and mass wasting. 	<p>Textbook pages 41–48</p> <p>Fig 3.3(a)–(b)</p> <p>Fig 3.4</p> <p>Fig 3.5(a)–(e)</p> <p>Fig 3.5(b)</p> <p>Fig 3.6</p> <p>Fig 3.7</p> <p>Fig 3.8(a)–(c)</p> <p>Fig 3.9 (a)–(b)</p> <p>Fig 3.10</p> <p>Fig 3.11</p> <p>Fig 3.12(a)–(b)</p>
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<p>Folding Structure of a fold Folds The formation of fold mountains</p> <ul style="list-style-type: none"> Recap plate movement by explaining that plates move towards each other, move away from each other or slide past each other. These are respectively called convergent plate movement, divergent plate movement and transform plate movement. Explain that fold mountains are formed as a result of convergent plate movement. Explain the process of folding with the help of details given in the textbook and Fig 3.3(a)–(b), 3.4, 3.5(a)–(e), 3.6 and 3.7. You may wish to search online for videos that explain the process of folding and show the video in class. Explain the terms used on pages 42–43 of the textbook. The explanations are listed in the table below for your reference. 	
Anticline	An upward, arch-like fold.
Syncline	A downward, U-shaped fold.
Axial plane	A flat or level surface that divides a fold as symmetrically as possible.
Limbs	The inclined side on either side of the axial plane. They show the least curvature.
Symmetrical fold	A type of fold where the axial plane is vertical. This type of fold may have limbs of more or less equal length.
Asymmetrical fold	A type of fold where the axial plane is sloped. This type of fold has limbs of unequal length.
Overfold	A type of fold where one or both limbs have been sloped more than 90°.
Recumbent fold	A type of fold where the axial plane is almost horizontal.
Overthrust fold	A type of fold formed when extreme stress or force is applied on the recumbent fold. As a result, the fold fractures and breaks, causing a fault.
Nappe	A sheet of rock that has moved sideways over neighbouring rock layers as a result of an overthrust fold.
<ul style="list-style-type: none"> Tell students that the Himalayas, Andes and Alps are all active fold mountains. <ul style="list-style-type: none"> The Himalayas stretches through the borders of China, Bhutan, Nepal, Pakistan and India. It was formed as a result of the Indian Plate colliding northward with the Eurasian Plate. The Andes is the world’s longest mountain chain and it stretches along the west coast of South America, from Colombia in the north and through Ecuador, Peru, Bolivia, Chile and Argentina to the south. It was formed 	

<p>as a result of the Nazca Plate subducting beneath the South American Plate.</p> <ul style="list-style-type: none"> ○ The Alps stretch across Italy, Slovenia, Austria, Germany, Switzerland, Liechtenstein, Monaco and France. It was formed as a result of the African Plate colliding with the Eurasian Plate. <p>Faulting Types of faults Normal fault Reverse fault Tear fault</p> <p>Formation of rift valleys and block mountains</p> <ul style="list-style-type: none"> • Remind students that tectonic plates are constantly moving; they pull apart, collide or scrape alongside each other. • Ask students if they remember what they learnt about convergent, divergent and transform plate movement. • Explain that when these movements occur, faults are formed. The three major types of faults are normal faults, reverse faults and tear faults. • Explain the different types of faults with the help of details given in the textbook and Fig 3.8(a)–(c). • You may wish to search online for videos that explain the process of faulting and show the video in class. • Next, explain the formation of rift valleys and block mountains with the help of details given in the textbook and Fig 3.9(a)–(b), 3.10, 3.11 and 3.12(a)–(b). Some examples of block mountains are: <ul style="list-style-type: none"> ○ Sierra Nevada Mountains, California, USA ○ Harz Mountains, Germany <p>Some rift valleys are:</p> <ul style="list-style-type: none"> ○ Baikal Rift Valley, Russia ○ Rhine Rift Valley, Germany <p>3.3 What Are Plateaus?</p> <ul style="list-style-type: none"> • Explain that plateaus are flat-surfaced raised landforms that rise sharply above the surrounding area on at least one side. They are one of the four major landforms, along with mountains, plains and hills. <p>3.4 Types and Major Plateaus of the World</p> <ul style="list-style-type: none"> • Discuss the types and major plateaus of the world. • Show an outline map of the world to the class and ask students to mark out plateaus. They can refer to an atlas if necessary. • Ask students if anyone has seen the Potohar Plateau or the Balochistan Plateau in Pakistan. If so, they can share their experience with the class. • Optionally, ask students to collect pictures of different plateaus and display them on the class soft board. 	<p>Textbook page 48</p> <p>Textbook pages 49–50 Fig 3.13 Fig 3.14 Fig 3.15</p>
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<p>3.5 Importance of Plateaus</p> <ul style="list-style-type: none"> • Explain the importance of plateaus with the help of details in the textbook and Fig 3.16. 	<p>Textbook page 50 Fig 3.16</p>
<p>3.6 What Are Plains?</p> <ul style="list-style-type: none"> • Ask students what they understand by the word “plains”. • Explain that plains are one of the major landforms on Earth, found on all continents. <ul style="list-style-type: none"> ○ Plains are level stretches of land with no changes in elevation. Plains are generally lower than the land around them and may be found along a coast or inland. Plains are usually formed due to sediment deposits from rivers. 	<p>Textbook page 51</p>
<p>3.7 Importance of Plains</p> <ul style="list-style-type: none"> • Explain that plains are important for agriculture because the soil in those areas is very fertile. These areas also are used for grazing. In addition, flat lands are good for building roads and railways. 	<p>Textbook pages 51–52 Fig 3.17 Fig 3.18</p>
<p>3.8 What Are Valleys?</p> <ul style="list-style-type: none"> • Explain that a valley is a low area between hills or mountains. 	<p>Textbook page 52</p>
<p>3.9 Types of Valleys</p> <ul style="list-style-type: none"> • Explain the types of valleys with the help of the details in the textbook and Fig 3.19. • Explain that valleys can be U-shaped or V-shaped due to erosion by glaciers or rivers respectively. • Ask students to do research on valleys and name five examples and their locations. 	<p>Textbook pages 52–53 Fig 3.19</p>
<p>3.10 Importance of Valleys</p> <ul style="list-style-type: none"> • Explain the importance of valleys with the help of the details in the textbook and Fig 3.20 and 3.21. 	<p>Textbook page 53 Fig 3.20 Fig 3.21</p>
<p>Extra activity</p> <ul style="list-style-type: none"> • Divide students into three groups and assign each group to do a class presentation on either "the importance of plains", "the importance of plateaus" or "the importance of valleys". • Ask groups to read related text in their textbooks and do further research on the topics online or at the library. • Tell groups they will need to cover the following points: <ul style="list-style-type: none"> ○ Explain what plains/plateaus/valleys are. ○ Give the names and locations of some plains/plateaus/valleys. ○ Explain how plains/plateaus/valleys are important. 	

Chapter 4 People and Places Around the World – Spain

Learning Objectives:

- Identify the physical location of Spain and its major cities.
- Describe major geographical features of the country.
- Describe its population structure and density.
- Describe the cultural life of Spain.

Suggested Activities/Strategies	Resources
<p>4.1 Location of Spain</p> <p>Borders of Spain</p> <ul style="list-style-type: none"> • Start the lesson by asking the following questions: <ul style="list-style-type: none"> ○ Which country do we live in? (Pakistan) ○ Which are the countries neighbouring Pakistan? (India on the east, Afghanistan on the northwest, Iran on the west and China on the northeast.) ○ Where is the location of Pakistan? Where is it situated on a world map? (The coordinates of Pakistan are latitude 30.4° N, longitude 69.4° E. This means that Pakistan is in the northern and eastern hemisphere.) • Ask students if they have heard of Spain and if they know where the country is located. <ul style="list-style-type: none"> ○ Spain is a country in southwestern Europe. It is fourth largest country on the European continent. ○ Spain has both land and water boundaries. ○ Madrid is Spain’s capital and its largest city. Other major cities are Barcelona and Valencia. ○ To the north of Spain is the Bay of Biscay, France and Andorra. To the east are the Balearic Sea and the Mediterranean Sea. To the west is Portugal. To the south is Morocco, across the Strait of Gibraltar. • Explain the location of Spain with the help of details given in the textbook and Fig 4.2. <p>Extra activity</p> <ul style="list-style-type: none"> • Ask students to select one country from the world map and name all its neighbouring countries and water boundaries. • Ask students to share their work in class. <p>Weather in Spain</p> <ul style="list-style-type: none"> • Ask students what they think the weather in Spain would be like. • Explain that because of Spain’s large size, different places in Spain experience different climates. <ul style="list-style-type: none"> ○ Spain has three climatic zones: the Mediterranean climate, continental climate and maritime climate. 	<p>Textbook pages 59–60</p> <p>Fig 4.1</p> <p>Fig 4.2</p> <p>Fig 4.3</p> <p>Fig 4.4</p>

- Ask students to read in their textbook the description of each type of climate and the areas in Spain that experience this weather.

Activity I (page 60)

- Ask the students to present their research on the average temperature and rainfall in Spain.
- Display their work on the class soft board.

4.2 Major Geographical Features of Spain

- Ask the students if they remember what they studied in the previous chapter about landforms.
- Recap the definitions of plains, fold and block mountains and plateaus.
- Mention that many geographical features are found in Spain. Some geographical features found in Spain are listed below for your reference.

Mountains	Cantabrian Mountains Pyrenees Mountains Sistema Central Mountains Sierra de Guadalupe Mountains
Plains	Andalusian Plain
Plateau	Meseta Central Plateau
Rivers	Tagus River Douro River Ebro River Jucar River Guadiana River Guadalquivir River

- Ask students to read pages 61–62 and discuss Fig 4.5, 4.6, 4.7 and 4.8.

4.3 Population of Spain

Population density

- Ask students the following questions:
 - What do you understand by the term population?
 - Why is it important to know the population of a place?
 Students will be familiar with these terms as they have learnt it in Class 6 Chapter 8 World Population.
- Recap that in geography, “population” refers to the number of people living in a country or region.
- Remind students that two important measures of population are:
 - Population size, i.e. the number of individuals in a particular area.
 - Population density, i.e. the number of individuals living in a unit of land.

Textbook pages 61–62

Fig 4.5

Fig 4.6

Fig 4.7

Fig 4.8

Textbook page 63

Fig 4.9

Fig 4.10

- Also recap that while collecting data about population, there are many factors that are taken into consideration, such as the number of males and females, age groups, area or location, ethnicity etc.
 - These facts are shown through a country's population pyramid.
- Ask students to look at Fig 4.9. Explain that this figure shows the population pyramid of Spain for the year 2018.
 - The pyramid shows the gender and number of people of a certain age and the increase or decrease in number of a particular group.
- Ask the students to study the figures and identify what they can analyze from the data.

Extra activity

- Tell students that Madrid, capital of Spain, is one of the most densely populated cities in the world.
- Draw the table below and tell students they need to find information about Madrid to fill the table.

Madrid	
Location	
Population	
Climate	
Interesting facts about Madrid	

- Tell students they can read text in the book and search for information online or the library.
- Ask students to share their answers in class.

4.4 Cultural Life of Spain

Ethnic groups

Religion: Islamic influence in Spain

Languages

Lifestyle and food

- Ask students what they think makes up the culture of a place or country.
- Ask students if they have travelled outside of their home city/province/country. If so, ask them to share what the culture of that city/province/country was like.
 - How as it different from the culture of their home city/region/country?
 - What did they like about that culture?
 - How did they interact with the locals there?

Textbook pages 64–69
 Fig 4.11
 Fig 4.12
 Fig 4.13
 Fig 4.14
 Fig 4.15
 Fig 4.16
 Fig 4.17
 Fig 4.18
 Fig 4.19
 Fig 4.20
 Fig 4.21
 Fig 4.22
 Table 4.1

<p>Group work</p> <ul style="list-style-type: none">• Divide students into three groups and assign each group to do a class presentation on any one of the following cultural aspects of Spain:<ul style="list-style-type: none">○ Ethnic groups○ Religion○ Languages○ Lifestyle and food• Ask groups to read related text in their textbooks and do further research on the topics online or at the library.• Tell students their presentation must compare and contrast Spanish culture with Pakistani culture. <p>Activity II (page 66)</p> <ul style="list-style-type: none">• Ask the students to present their images and descriptions in class. <p>Extra activity</p> <ul style="list-style-type: none">• Tell students to imagine they are a Spanish teenager writing to a pen pal in Pakistan. The letter must cover the following points:<ul style="list-style-type: none">○ The difference in seasons and the duration of day and night throughout the year.○ The food eaten in Spain.○ The clothes they worn in Spain.○ Fruits and vegetables that are grown in Spain.○ Interesting places to visit in Spain.	
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5.3 Types of Settlements

- Before the start of the lesson, ask students to find the meanings of “urban”, “rural”, “dispersed”, “nucleated” and “suburb”.

Urban	Relating to towns or cities
Rural	Relating to the countryside
Dispersed	Spread over a wide area
Nucleated	Gathered around a central area
Suburb	Outlying area of a town/city

Rural and urban settlements

- Ask students to read page 74 and list the similarities and differences between rural and urban settlements. They can consider the following points:
 - Occupations of residents
 - Types of services available
 - Culture
 - Food
 - Lifestyle
- Explain the different functional zones inside a city.
- Ask students where they live and determine which functional zone their residence is located in (the central business district (CBD), inner city, suburb or rural-urban fringe).
- Likewise determine the functional zone of your school.

Central business district (CBD)

Inner city

Suburbs

Rural-urban fringe

- Ask students to read page 75.
- Get an outline map of the city your school is in/the nearest city and mark the different functional zones: central business district (CBD), inner city, suburbs and rural-urban fringe.
- Discuss the following points with the students:
- Read the functional zone descriptions again and discuss the following points.
 - Does the description match exactly with the zone they live in?
 - Are the prices of land cheaper or more expensive in the CBD area?
 - Are houses in inner city terraced houses with small yards?
 - What is the cost of land in the suburbs and rural-urban fringe as compared to the other zones?
 - Where are the recreational spots located?

Activity I (page 76)

- Ask students to share their work in class.

Textbook pages 74–77

Fig 5.4

Fig 5.5

Fig 5.6

Fig 5.7

Fig 5.8

Fig 5.9

Fig 5.10

Fig 5.11

Fig 5.12

<p>Nucleated and dispersed settlements</p> <ul style="list-style-type: none"> • Explain nucleated and dispersed settlements with the help of details given in the textbook and Fig 5.9, 5.10, 5.11 and 5.12. <p>5.4 Urbanization</p> <ul style="list-style-type: none"> • Explain that urbanization means that the population living in towns and cities is increasing. Statistics say that more than half of the world's population lives in urban areas and this percentage is on the rise. It is estimated that by 2050, 68% of the world's population will be living in cities. • Ask students to study Fig 5.13 and notice the upward growth trend of urban population. • Refer students to page 78 of the textbook. It is stated there in paragraph two that Singapore and Monaco have a 100% urban population. Ask students to find out which other countries have such a high rate of urbanization. Also ask students to list countries with the lowest urbanization rates. <p>Causes of urbanization</p> <p>Rural-urban migration</p> <p>Natural increase</p> <ul style="list-style-type: none"> • Ask students, "Why do you think people like to move to cities?" Have students share their views in class. • Tell students to read and discuss the push and pull factors in Table 5.2. Did the students' answers match this table? • Explain rural-urban migration and natural increase. • Refer students to the birth and death rates for Lahore on page 79 of the textbook. • Divide students into pairs and tell them to select any one city in the world. • Ensure each pair selects a different city, and also make sure both major and minor cities are selected. • Then, ask students to find out the birth and death rates of that city for the year 2015. • Based on their findings, ask students to determine whether the population of that city increased or decreased in 2015. • Next, list all the cities where the population increased and the cities where the population decreased. • Discuss the results in class. 	<p>Textbook pages 78–81</p> <p>Fig 5.13</p> <p>Fig 5.14</p> <p>Fig 5.15</p> <p>Fig 5.16</p> <p>Fig 5.17</p> <p>Table 5.2</p>
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<p>Planned and unplanned cities Planned city of Islamabad, Pakistan Planned city of Brasilia, Brazil Unplanned city of Lahore, Pakistan Unplanned city of Nairobi, Kenya</p> <ul style="list-style-type: none">• Ask the students that if they are given a task, would they make plans for the task before starting work, or would they just dive into the task immediately?• Ask students about the benefits of planning.• Tell students that similarly, some cities in the world are planned while others are unplanned.• Ask the students what they would expect to see in a planned city and what they would expect to see in an unplanned city and discuss their answers in class.• Tell students to locate Lahore, Islamabad, Brasilia and Nairobi on the world map.<ul style="list-style-type: none">○ In which continents and countries are these cities located?• Read and explain given text in the textbook with the help of Fig 5.14, 5.15, 5.16 and 5.17.• Ask students to do research and list the names of other planned cities and their location.• Print out a large outline map of the world and ask students to mark out planned cities.• Display the marked map on the class softboard. <p>5.5 Problems Large Cities Face</p> <ul style="list-style-type: none">• Ask the students the following questions:<ul style="list-style-type: none">○ What are the problems faced by large cities?○ What are the measures taken by the government to resolve the problems faced by large cities? Are the measures effective?○ As good citizens, what role can we play to address the problems faced by large cities?• List all students' answers on the board. Then, ask students to read the first half of page 82. Did their answers match the points given in the textbook?• Discuss any points that were missed by the students. <p>Activity II (page 82)</p> <ul style="list-style-type: none">• Ask students to share their postcards in class. Display them on the class soft board.	<p>Textbook pages 82–84 Fig 5.18 Fig 5.19 Fig 5.20</p>
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<p>Social problems Low housing quality Poor health Social unrest Social tension</p> <p>Environmental problems Increased vulnerability to extreme weather events Pollution</p> <ul style="list-style-type: none">• Start the lesson by explaining that large cities face two types of problems – social problems and environmental problems. <p>Extra activity</p> <ul style="list-style-type: none">• Divide students into small groups and assign each group to do a class presentation on either “social problems faced by large cities” or “environmental problems faced by large cities”.• Ask groups to read related text in their textbooks and do further research on the topics online or at the library.• Tell students the presentation must relate to the problems found in their home cities, with suggested measures to overcome these problems.	
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<ul style="list-style-type: none">○ Name other countries where agriculture and mining are significant economic activities. <p>Activity II (page 95)</p> <ul style="list-style-type: none">● Ask the students to share their answers in class. <p>Secondary activities Manufacturing Tertiary activities Services Trade Quaternary activities</p> <ul style="list-style-type: none">● Explain what secondary, tertiary and quaternary activities are with the help of the details given in the textbook and Fig 6.12, 6.13, 6.14, 6.15, 6.16, 6.17, 6.18, 6.19 and 6.20.● Ask students to name the occupations of their parents and list them on the classroom board. Then, ask students to identify the type of economic activity those occupations would fall under – primary, secondary, tertiary or quaternary. <p>Extra activity</p> <ul style="list-style-type: none">● Divide students into small groups and assign each group to do a class presentation on one of the following types of economic activities:<ul style="list-style-type: none">○ Primary activities○ Secondary activities○ Tertiary activities○ Quaternary activities.● Ask groups to read related text in their textbooks and do further research on the topics online or at the library.● Tell groups they will need to cover the following points:<ul style="list-style-type: none">○ Explain the type of economic activity and provide examples○ Name countries where this type of economic activity constitutes the main part of the economy<ul style="list-style-type: none">– What are the products or services available in these countries?– Are these countries developed or developing countries?– Why are these countries pursuing this type of economic activity?	
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- Explain the causes of pollution with the help of details given in the textbook and Fig 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8 and 7.9. Some causes of pollution are summarized in the table for your reference. You may wish to show it to students and ask them to add on to the table.

Causes of pollution	
Air pollution	<ul style="list-style-type: none"> • Toxic exhaust from vehicles and poisonous smoke from factories • Deforestation (Trees purify the air, so cutting them down worsens air pollution) • Natural causes (e.g. Volcanic eruptions, forest fires, sandstorms etc)
Water pollution	<ul style="list-style-type: none"> • Toxic wastewater from industries • Domestic wastewater (Contaminated with detergent and chemicals from cleaning products etc)
Land pollution	<ul style="list-style-type: none"> • Improper disposal of waste or rubbish (e.g. dumping used plastic bags everywhere) • Use of pesticides and chemical fertilizers • Irrigation (Causing salinization of soil)

Group work

- Divide students into three groups and assign each group to do a class presentation on either air, water or land pollution.
- Ask groups to read related text in their textbooks and do further research on the topics online or at the library.
- Tell groups they will need to cover the following points:
 - Explain the type of pollution with examples and images
 - What causes this type of pollution?
 - How does this type of pollution harm the environment, humans and other living things?
 - What can be done to minimize this type of pollution?
 - What will they, as students, do to reduce this type of pollution?

7.3 Harmful Effects of Pollution

Living organisms

Health

Global warming and climate change

Shortage of water

- Tell students that pollution creates a number of problems. It affects all living organisms, is detrimental to the health of human beings, creates global warming and climate change and lastly, causes the shortage of a precious resource – freshwater. Explain the harmful effects of pollution with the help of details given in the textbook and Fig 7.10, 7.11 and 7.12.

Textbook pages 111–113
 Fig 7.10
 Fig 7.11
 Fig 7.12

<ul style="list-style-type: none"> ○ Living organisms: Explain the food chain in simple terms and say how pollution affects animals and in turn, human beings. ○ Health: Tell students how pollution is affecting the health of human beings. Polluted air, water and land are causing a lot of problems. The polluted air we breathe in causes lung problems and respiratory diseases. The polluted water we use can poison us on the inside and cause diseases. The polluted land we live on makes for a toxic and dangerous environment to stay. ○ Global warming and climate change: Explain global warming and climate change in simple terms. ○ Shortage of water: Discuss how pollution causes the shortage of freshwater water. <p>Activity I (page 112)</p> <ul style="list-style-type: none"> ● Ask the students to share their answers in class. <p>7.4 Ways to Overcome Pollution</p> <p>Individual</p> <p>National</p> <p>International</p> <ul style="list-style-type: none"> ● Explain how pollution is a worldwide problem, and so everyone must do something to reduce pollution. Pollution affects everybody as everybody in this world is connected. We all breathe in the same air. Likewise, rivers flow through different countries, so if they get polluted anywhere, the rivers will carry that pollution to other places as they flow through different countries. Thus, everybody needs to work together to reduce pollution. ● Ask students what they can do to reduce pollution personally. ● Explain how pollution can be reduced at individual, national or international level with the help of details given in the textbook and Fig 7.13 and 7.14. ● Ask students to talk to their family members and list all the ways they are trying to reduce pollution. ● Ask students to share their answers in class. Then, ask them to prepare posters and put those up on the class soft board. <p>Extra activity</p> <ul style="list-style-type: none"> ● Ask students to take a walk around a specific area in school and note the types of pollution found in the area. ● Ask students what they think can be done to reduce pollution in that area. For example, if there are wrappers in the school garden, students can take pictures, then visit all the classes and talk to students about this problem. Show the classes where the dustbins are placed and advise them to throw the wrappers in the dustbins instead of littering. 	<p>Textbook pages 113–115 Fig 7.13 Fig 7.14</p>
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Chapter 8 Mapping Skills

Learning Objectives:

- Define scales and their types (in words, in ratio, in line).
- Use the scales to measure distance on a map, i.e. straight lines and curve lines.
- Understand the concept of direction, i.e. cardinal points (four cardinal points and four ordinal points)
- Identify types of north (true north, grid north and magnetic north).
- Define bearing.

Suggested Activities/Strategies	Resources				
<p>Revision</p> <ul style="list-style-type: none"> • Ask students if they remember what they studied about maps in Class 6. • Ask students the following questions: <ul style="list-style-type: none"> ○ What are maps? ○ How are maps useful? ○ What information can we get from maps? • Briefly revise that maps are a symbolic representation of an area. It gives details of that area. • Explain that there are many uses of maps depending on the information that they give. <ul style="list-style-type: none"> ○ They help us to locate places. ○ They give us details of what is present in that area. ○ They help us to calculate the distance between two places. ○ They let us know what roads and landmarks are present in that area. • Show an atlas and explain further the different types of maps. Explain that nowadays, we have interactive maps on smartphones such as Google Maps. • Recap the different types of maps and the information they provide that students have studied in Class 6. <table border="1" data-bbox="302 1352 1089 1862"> <thead> <tr> <th data-bbox="302 1352 594 1388"></th> <th data-bbox="594 1352 1089 1388">Information provided</th> </tr> </thead> <tbody> <tr> <td data-bbox="302 1388 594 1862">Political maps</td> <td data-bbox="594 1388 1089 1862"> <p>Generally, show:</p> <ul style="list-style-type: none"> • Countries and the national boundaries that separate one country from another • Oceans and seas <p>Depending on scale, may also show:</p> <ul style="list-style-type: none"> • Capital cities and major cities • Regional boundaries, large lakes and rivers, and major rail and road links </td> </tr> </tbody> </table>		Information provided	Political maps	<p>Generally, show:</p> <ul style="list-style-type: none"> • Countries and the national boundaries that separate one country from another • Oceans and seas <p>Depending on scale, may also show:</p> <ul style="list-style-type: none"> • Capital cities and major cities • Regional boundaries, large lakes and rivers, and major rail and road links 	<p>Class 6 Chapter 8 Mapping Skills</p>
	Information provided				
Political maps	<p>Generally, show:</p> <ul style="list-style-type: none"> • Countries and the national boundaries that separate one country from another • Oceans and seas <p>Depending on scale, may also show:</p> <ul style="list-style-type: none"> • Capital cities and major cities • Regional boundaries, large lakes and rivers, and major rail and road links 				

Thematic maps	<ul style="list-style-type: none"> • Show specific information on a theme, e.g. climatic maps give details of rainfall, temperature or atmospheric pressure etc 	<p>Textbook page 119 Fig 8.1</p>
Economic or resource maps	<ul style="list-style-type: none"> • Show different types of natural resources available • Show specific categories of economic activities 	
Physical maps	<ul style="list-style-type: none"> • Show physical features, e.g. hills, mountains, rivers, valleys and plains etc • Show elevation 	
Road maps	<ul style="list-style-type: none"> • Show roads, highways, railway tracks etc • Show buildings, places of interest, landmarks etc 	
Topographical maps	<ul style="list-style-type: none"> • Show detailed physical features of a place, e.g. shape and height of hills, mountains, plateaus etc 	
<p>8.1 Scale In words As a ratio As a line</p> <ul style="list-style-type: none"> • Tell students that maps are symbolic representations of physical features on Earth and so all features on maps are reduced in size. • Explain that as all features are drawn to scale, it is possible to calculate distances or the actual size of any feature on a map. For example, we can calculate the distance between two cities, the length of a river, the area of a piece of land etc. • Explain that scale can be shown in three ways: in words, as a ratio or as a line. • Ask students to open an atlas and notice how the scale is written. Is it written in words, as a ratio or as a line? • Show students examples of these types of scales on different maps. 		

<p>8.2 Measuring Distance Measuring straight line distance Measuring curved distances on maps</p> <ul style="list-style-type: none"> • First, read and explain how to measure distance between two points with the help of the steps given in the textbook and Fig 8.2(a), 8.2(b), 8.2(c), 8.3(a) and 8.3(b). • Provide students with atlases. Ask them to select any two cities in any country and calculate the distance between them using the straight-line method. • Ask students to select any major river and calculate its length using a non-elastic string. They can measure the length of the main river from its source to the point where it meets the sea. • In the same manner, you can also ask students to measure the length of any road, highway, stream etc. • Discuss students' answers in class and list by length the physical features the students have measured. <p>8.3 Direction</p> <ul style="list-style-type: none"> • Show students a compass and point out all the cardinal and ordinal points. • Teach students how they can use the compass to determine north and other directions. • Tell students they can refer to the details given in the textbook and Fig 8.4(a) and 8.4(b). <p>Extra activity</p> <ul style="list-style-type: none"> • Tell students to walk around the school compound and with the help of a compass, ask students to find out where in the school compound the eight cardinal and ordinal points are pointing at, e.g. the canteen is in the north, the field is in the northeast etc. • Tell students they can also try this activity at home for practice. <p>8.4 Types of North</p> <ul style="list-style-type: none"> • Explain that north is one of the four main points of a compass. As learnt in the previous section on the textbook, it is a cardinal direction, it is the opposite of south and it is perpendicular to east and west. • Tell students it is important to determine north, as the other cardinal and ordinal directions can be easily determined based on north. • Explain to students what true north, magnetic north and grid north is with the help of details given in the textbook and Fig 8.5. 	<p>Textbook pages 120–121 Fig 8.2(a) Fig 8.2(b) Fig 8.2(c) Fig 8.3(a) Fig 8.3(b)</p> <p>Textbook page 121 Fig 8.4a Fig 8.4b</p> <p>Textbook page 122 Fig 8.5</p>
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<p>8.5 Bearing Measuring bearing</p> <ul style="list-style-type: none">• Ask students, “How many degrees are there in a circle?” (360°).• Explain to students that if the cardinal directions are placed inside a circle, the circle will be divided into 4 quadrants, with north at 0 degrees, east at 90°, south at 180° and west at 270°.• Similarly, if the ordinal directions are marked in the same circle, north east will be at 45°, south east will be at 135°, south west will be at 225° and north west will be at 315°.• Explain how to measure bearing with the help of details given in the textbook and Fig 8.6.	<p>Textbook page 122 Fig 8.6</p>
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Activities and Reflecting Answer Key

Chapter 1 Earthquakes and Volcanoes

Activity I

Visit the website of the International Seismological Centre (<http://www.isc.ac.uk/iscgem/overview.php>) for a map of areas that experience earthquakes around the world.

Activity II

Students' own answers.

Activity III

Visit the website of the Smithsonian Institution's Global Volcanism Program (http://volcano.si.edu/gvp_currenteruptions.cfm) for information on recent volcanic eruptions and a map of the volcano locations.

Reflecting

A

- (a) The focus is the point of origin of an earthquake in the Earth's crust. On the other hand, the epicenter is the point on the Earth's surface directly above the focus.
- (b) Earthquakes are the sudden violent shaking of the Earth's surface/crust, whereas aftershocks are smaller earthquakes that occur after the main earthquake along line, or 1–2 fault lengths away.
2. Aftershocks can cause more damage as buildings and other infrastructure such as roads and bridges may be weakened by the main earthquake, so when an aftershock occurs, it may be powerful enough to trigger the collapse of the weakened buildings and infrastructure. The earthquake may also expose electricity cables and if flammable items such as gas, oil, chemicals and plastic come into contact with the exposed cables, fires will occur and cause damage. Aftershocks can also result in another main earthquake and trigger natural hazards such as landslides on already weakened hills. Furthermore, aftershocks are less predictable and this increases the risk of the population in the damaged area.
3. To minimize damage and loss of life, infrastructure developed with advanced engineering and emergency drills are needed. Firstly, infrastructure needs to be developed with advanced engineering so it can withstand the vibrations associated with an earthquake. In the 2005 Great Pakistan Earthquake, the buildings in the densely populated areas affected by the earthquake were poorly constructed. Many of them collapsed and the extent of damage to the physical infrastructure resulted in a high death toll for the disaster.

Secondly, emergency drills need to be held so the public knows what they are supposed to do when an earthquake occurs. Emergency drills are a form of preparedness measure where people practice necessary precautions/safety measures to take when an earthquake occurs. This creates awareness among the population and reduces panic during disasters. In the 2005 Great Pakistan Earthquake, the Pakistani people were not

prepared to face an earthquake and there was no proper system of emergency food, water and medicine supplies.

4. The combination of high rainfall, steep slopes and earthquakes is lethal for a populated area with a volcano as high rainfall can saturate the top layer of soil or ash ejected from a volcano. When an earthquake shakes the ground and the saturated material, it can trigger landslides and/or the flow of volcanic material, which could damage farmhouses, villages and even bury entire towns in their path, like what happened in Pompeii.

B

1. (a) Extinct volcanoes refer to volcanoes with no evident seismic activity and no geological evidence of seismic activity for thousands of years.
1. (b) Dormant volcanoes refer to volcanoes that are currently inactive but may erupt in the future.
1. (c) Active volcanoes refer to volcanoes that are erupting and might continue to erupt.
2. The terms might be inaccurate as a volcano or volcanic region considered dormant or extinct may erupt with little notice. Moreover, an active volcano might eventually become extinct when there is no seismic activity.
3. (a) Refer to Ch 1 p.14
3. (b) A volcano is formed by materials ejected from the mantle through a vent onto the Earth's crust. Magma from the magma chamber rises through cracks within the Earth's crust. The magma is then ejected as lava onto the Earth's surface. Sometimes, ash and rock fragments are also ejected. When the lava and other volcanic materials cool, it solidifies into a layer around the vent. After repeated eruptions, the layers build up, forming a cone-shaped, mountain-like landform called a volcano.

Chapter 2 Weathering and Mass Wasting

Activity I

Students' own answers.

Activity II

Students' own answers.

Reflecting

1. Weathering is the process where rocks and minerals on the Earth's surface are broken down without being transported away.
Erosion is the process where rocks and minerals on the Earth's surface are broken down and the broken-down fragments are being moved to another area by natural forces such as water or wind.

2.

Statements	True or False?
a. Weathering is the breaking down and transporting of rocks from one location to another.	F
b. Between landslides, avalanches and soil creeps, soil creep is the phenomenon that occurs the slowest.	T
c. A rock that breaks up because it goes through a series of expansions when the temperature rises and contractions when the temperature is low is said to be undergoing freeze-thaw action.	F
d. Having fertile land for growing crops and making landscapes more beautiful are negative impacts of weathering.	F
e. Mass wasting is named as such because of the large amount of material being moved by the force of gravity.	T
f. Chemical reactions between iron and oxygen would form a reddish substance.	T
g. The steeper a slope, the slower the flow of loose material to the ground.	F
h. Erosion can only occur when water flows through weakened rocks.	F

3. With changes in temperature during the day and night, it causes the rocks to expand and contract. During the day, temperature is higher and causes the rocks' surfaces to heat up and expand. During the night, when temperature is lower, the rocks' surfaces cool down and contract. Over time, this expansion and contraction repeats, causing cracks to form on the rocks' outer layer and weakening the rocks. Eventually, the outer layer will weather and break away from the rocks without being transported.

4. No, it is not possible. For freeze-thaw action to take place, temperatures must reach 0°C or lower for the water in the cracks of rocks to freeze. In a country where the temperature is always above 20°C, the temperature never reaches freezing point. In this environment, the water in the rocks will eventually evaporate rather than freeze and expand and thus, the freeze-thaw action of weathering is unable to take place.

5.

Compare	Contrast
Both processes occur suddenly and rapidly.	Landslides occur when weathering occurs on the slope and the broken down material is being pulled down by gravity. On the other hand, avalanches occur because the foot of mountains are eroded away, causing a lack of support for the slope and thus, snow slows down the slope.
Both processes occur because large amounts of loose material is being pulled by the force of gravity.	Landslides are mass movement/wasting of rocks and soil. However, avalanches are mass movement/wasting of snow.

6. Students' own answer.

7. Yes, water is the main cause of weathering and erosion as many of the weathering and erosion agents are states of water, for example, rain, snow and ice. Water has the ability to break down rocks as well as transport them from one location to another, causing erosion. Water is also able to infiltrate rocks easily and change the chemical composition of rocks when reacting with the different minerals inside rocks, causing chemical weathering.

Or

No, wind can also cause weathering and erosion, so it is not just water that can do that. Moreover, though water is important in the process of weathering and erosion, it is also important to note that temperature plays an important role too. For example, if the temperature is not low enough for water in the cracks of rock to freeze, it is not possible for freeze-thaw action to occur. Also, for mass wasting on slopes, the role of the force of gravity is more important than water as gravity pulls loose material to the ground fast, depending on how steep the slope is. Water only aids the process.

Chapter 3 Major Landforms of the Earth

Activity I

Visit the Wikipedia website https://en.wikipedia.org/wiki/List_of_mountain_ranges for a list of the mountain ranges of the world.

Reflecting

- 1.(a) Valley
 - 1.(b) Mountain
 - 1.(c) Plain
 - 1.(d) Plateau
2. Faulting takes place when the Earth's crust develops fractures or cracks, causing displacement of rocks to occur vertically, horizontally or diagonally. These fractures or cracks develop when rocks under tensional forces are pulled apart and stretched, or when rocks under compressional forces are crushed together.
3. For similarities, both hills and mountains are landforms that rise from the surroundings. Both may also be formed from a build-up of cooled magma. For differences, a hill does not rise above 600 m, but a mountain must be at least 600 m. The slopes of hills are gently sloping, while the slopes of mountains are steep and rugged. Hills can be formed through deposition of debris or when all the soil has been eroded from a mountain, while mountains are formed from volcanic eruptions and the processes of folding and faulting of the Earth's crust.
4. The Alps were formed when the Eurasian Plate converges with the African Plate. When the plates collide, compressional forces push the oceanic sedimentary rocks on the edges of both plates, causing the rocks to buckle and fold. As a result, the Alpine fold mountain range is formed. Through the process of folding, the Alpine fold mountain range was formed.

5.

	Plateau	Plain	Valley
Appearance	A raised flat-surfaced platform	An extensive, nearly level stretch of land next to a river or ocean	A long depression surrounded by higher grounds on the sides
Formation	Plateaus can be formed either by volcanic activity or erosion. When magma rises from the mantle, it causes the ground to swell and expand upwards. Because of this, broad and large areas of rock which are flat are pushed up to form a plateau. Also, plateaus can also be formed through a series of small volcanic eruptions where the lava flows and solidifies, slowly building up the layers of a plateau. Lastly, because of the highly erosive power of water and glaciers, it causes mountains and landforms to be cut and eroded into plateaus.	When a river floods, materials such as rocks and minerals in the river are eroded. These eroded materials are then deposited and accumulates on the side of the river when the flood breaks. A coastal plain can be formed in two ways. It could be a flat piece of land below sea level and when the sea level falls, the land is exposed, creating a coastal plain. A coastal plain can also be formed when a river carries material to the ocean. The material is deposited and accumulated over time, creating a flat or gently sloping landscape.	V-shaped valleys are formed through erosion by the rock materials in the river and the force of the river/streams. Together, they cut steep-walled and narrow depressions in the land. U-shaped valleys are formed when glaciers move downhill and erode the valley floor and sides.

6. Students' own answer.

Examples

Mountain	Plain
I would love to live on a mountain because the air is cleaner so it is healthier living there.	I would prefer living on a plain because that means that I have good soil that I can use to plant crops for eating.
I would love to live on the mountain because there are many species of living things in the mountain.	I would prefer living on a plain because that means I could allow cattle to graze and use them for food or sell them.

Chapter 4 People and Places Around the World: Spain

Activity I

Students' own answers.

Activity II

Students' own answers.

Reflecting

1. The capital of Spain is Madrid. Most of Spain's population is concentrated in major cities along the coastal areas, except for the population in Madrid, which is inland.
2. Spain has three types of climate zones. Most of Spain experiences the Mediterranean climate with hot, dry summers and mild, rainy winters.

The second climate zone is experienced by areas in the vast central plateau, or Meseta, which has a more continental-influenced climate with hot, dry summers and cold winters. Rain generally falls mostly in spring and autumn.

The third climate zone, the maritime climate, is experienced north of the Cantabrian mountains, the Basque Country, Cantabria, Asturias and Galicia with cool summers and mild winters. The weather is often cloudy with frequent rainfall.

3. The Moors influenced Spain's architecture and language.
4. The Caliphate of Cordoba extended from the south of Spain all the way to what is presently Coimbra/Toledo and Zaragoza/Lleida. Majorca also used to be part of the Caliphate.
5. In 20 years, Spain's population pyramid would become widest at the top and narrower at the bottom, indicating an ageing population, as it currently has fewer people under the age of 15 than those older. The current biggest population group of aged 35-59 will become part of the elderly population in 20 years' time. With a declining population of under 15, there will be too few young able-bodied people to help support the elderly above 64.

Chapter 5 Human Settlements

Activity I

Students' own answers.

Activity II

Students' own answers.

Reflecting

1. The Central Business District (CBD), inner city, suburbs and rural-urban fringe.

2.

Statement	Site/Situation
Town W is located in a valley with fertile soil.	Site
Town X is located next to the railway.	Situation
Town Y is located in between Town X and Town Z.	Situation
Town Z is located along a river.	Site

3.

Push factors	Pull factors
<ul style="list-style-type: none"> • Lack of educational opportunities • Lack of safety • Lower wages 	<ul style="list-style-type: none"> • Better transport links • More employment opportunities • More services • Security

4.

Option C accurately reflects the housing rent prices across different zones in an urban area. The more accessible a zone is, the higher the rent prices. The CBD is the most accessible, followed by the inner city, suburbs, then rural-urban fringe.

5.

Large cities are more likely to have nucleated settlements. This is because large cities would need to maximize space to accommodate a large population. Therefore, buildings are built close to one another. However, you might see a few dispersed settlements in large cities where there are designated green zones.

6.

Cities grow due to rural-urban migration and natural increase. Developing countries tend to have only a few major cities with many people still living in rural areas. This means that rural-urban migrants would be concentrated in these few cities, leading to higher growth rates. However, developed countries have many developed cities while fewer people live in rural areas. Rural-urban migrants are spread out over many cities, leading to slower growth rates.

It is less costly to raise a child in a developing country than in a developed country. Therefore, people in developing countries tend to have more children than in developed countries. This means that natural increase in developing countries is likely higher than in developed countries, causing higher growth rates in developing countries.

7.

Students' own answers.

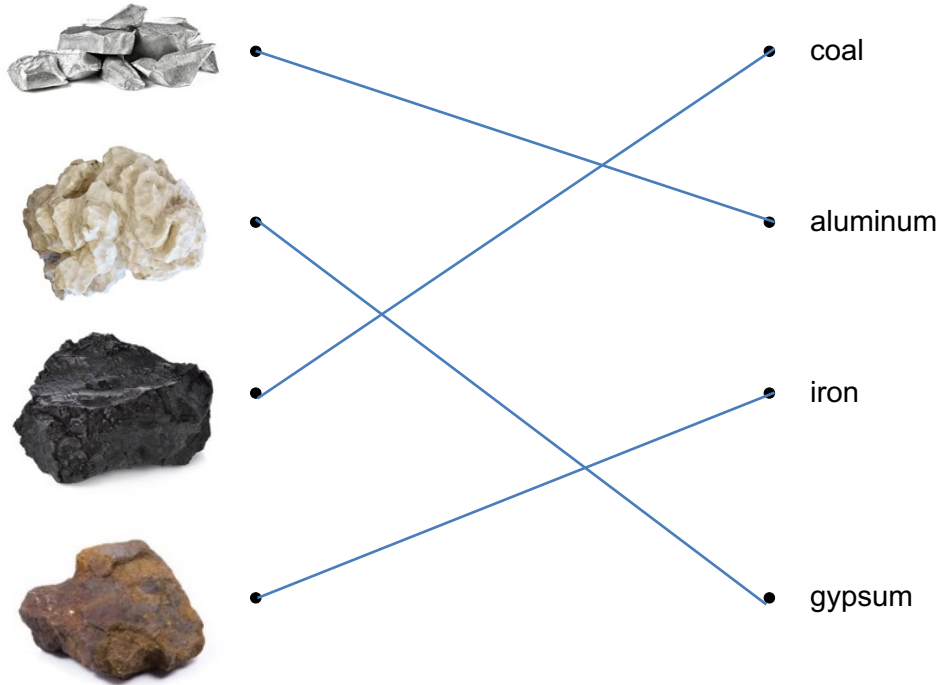
Example answers: I would rather live in a large planned city. This is because large unplanned cities face many problems like social tension, poor housing quality and pollution. These problems would ultimately affect my health and my quality of life./ I would rather live in a large unplanned city. This is because unplanned cities tend to have more affordable or zero-cost housing. This would help me especially if I am a new migrant to the city and have yet to find a job.

Chapter 6 Economic Activities

Activity I

Activity	Economic Activity	Non-Economic Activity
Playing cricket with your friends		✓
Baking cookies for sale at a charity sale	✓	
Dining at a restaurant	✓	
Washing your clothes		✓
Volunteering to teach children with special needs		✓
Taking a taxi	✓	

Activity II



Reflecting

- Rearing chickens for sale
 - Taking a bus
 - Buying books
 - Watching a movie

2.

Example	Type of activity
Education	Quaternary
Farming	Primary
Sales	Tertiary
Food processing	Secondary
Mining	Primary
Healthcare	Quaternary

3. Although both tertiary and quaternary activities refer to services, quaternary activities refer specifically to services that can only be delivered by people who have in-depth knowledge and skill in that field. Tertiary activities are more related to direct services such as retail, transportation, sales and many others. Quaternary activities include those related to research and development, education, technology and many more such as doctors, scientists and teachers.

4. Tertiary and/or quaternary activities would be the most dominant in Country X. This is because the country's population has higher levels of knowledge, skills and technology, enabling them to perform these activities. Besides, the lack of farmland would mean that Country X is unlikely to focus on primary activities.

5.

	Agriculture (% of national income)	Manufacturing (% of national income)	Services (% of national income)
Low income countries	26%	8%	39%
Lower middle income countries	15%	15%	49%
Upper middle income countries	6%	21%	55%
High income countries	1%	4%	70%
Examples of activities	Farming (accept any other reasonable answer)	Textile industry (accept any other reasonable answer)	Retail

6.

Yes, they will develop faster.	No, they may not necessarily develop faster.
<ul style="list-style-type: none"> • Services tend to generate more income than primary and secondary activities because a premium can be charged for the knowledge and skills involved. • The value of trade has been increasing over the years, which potentially means that growth may continue in the years to come. 	<ul style="list-style-type: none"> • This depends on how good other countries are at tertiary activities too. For example, if Country Y does a better job at developing its education sector than Country Z, more people may choose Country Y, leading it to develop faster. • This depends on the economic strength and the level of skills of the population. For example, if a country wants to set up technological infrastructure but do not have the money for it or skilled workers to maintain it, it would be difficult for the country to transition to tertiary activities. Instead, the country can focus on earning enough money from its primary and secondary activities first.

Chapter 7 Environmental Issues

Activity I

- Carbon dioxide levels has steadily increased from 1975 to 2018/2019, from 330 ppm to 415 ppm.
- Due to deforestation, with fewer trees around, there will be less trees available to absorb carbon dioxide in the atmosphere. Forest fires also worsen the problem by adding smoke particles and releasing even more carbon dioxide into the air. Moreover, rapid urbanisation and economic growth around the world means that there is increased production and consumption of goods and services that emit great amounts of carbon dioxide.

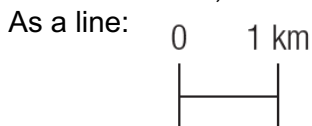
Reflecting

- Pollution is the introduction of substances into the environment that has damaging effects on living things.
- Sulphur dioxide and carbon monoxide.
- Solid waste that is on the land may be washed into water bodies. These wastes will then introduce harmful substances that can contaminate and thus pollute the waste bodies. One example is plastic waste on the beach that end up as micro-plastics in the sea. People may then end up consuming the micro plastics that fish and other sea creatures consume. Another example is common chemicals such as pesticides used in soils can become agricultural run offs and flow into nearby water bodies and result in harmful algal blooms.

4. Through the process of respiration in photosynthesis, trees take in carbon dioxide, a greenhouse gas, and turn it into oxygen. In addition, trees help to purify the air of impurities.
5. Poor agricultural practice is the excessive use of chemicals such as chemical fertilizers. For example, algae blooms in water bodies can occur due to the excessive nutrients contained in agricultural runoff. These blooms are harmful as they deplete water of oxygen and sunlight that marine creatures require for survival.
6. The greenhouse effect happens when carbon dioxide and water vapour partially restrict radiation going back from the Earth into space, preventing the Earth from becoming too cold. However, too much carbon dioxide has the effect of warming up the Earth more than normal as it traps more heat on Earth. The greenhouse effect is enhanced, resulting in global warming which means that the Earth is warmer than usual. Due to the enhanced greenhouse effect, the Earth is warmer than it was before. The Earth's temperature has increased by 0.5°C in the last 100 years. Due to the increase in temperature, ice sheets and glaciers have been observed to be melting and diminishing in size. As a result, the sea level rises. Flooding in coastal regions is also becoming more frequent. Higher temperatures will lead to higher evaporation and hence more rain and flooding, especially in the tropical regions. On the other hand, in drier seasons, the heat would be more intense and can result in extreme weather occurrences such as drought or heat wave.
7. Any of the two actions below:
 - Implement laws and regulations to make polluters pay.
 - Implement laws and regulations to control the amount and types of pollutants a factory can emit or discharge.
 - Implement education policies to inculcate environmental consciousness in schools.
 - Make households pay for rubbish collection.

Chapter 8 Mapping Skills

1. Direction is the path that someone or something moves along when going towards a place.
2. As a ratio: 1: 50,000



Straight line distance	Curved line distance
Draw a straight line to link the 2 points and draw both points on a strip of paper. Put the strip of paper against the scale to measure distance.	Use a non-elastic string to follow the curved path between two distances and mark out the two points on the string. Put the string against the scale to measure distance.

4.

	Distance	Bearing
Definition	The length of space between two points	A direction that is measured in degrees
Measuring tool	Strip of paper, string, scale	Protractor
Unit of measurement	Kilometres (km)	Degrees (°)

5.

Useful	Not useful
<ul style="list-style-type: none"> • A compass is useful when a person is lost without any identifiable landmarks or features around to help them find their way. For example, if a person has gone hiking and got lost in a forest. Since a compass relies on Earth's magnetism to function, the hiker will just need to know which direction to move in order to find the way. • A compass is also useful at sea when equipment like radars fail to work. The crew can still rely on compass directions to steer the ship. 	<ul style="list-style-type: none"> • More landmarks and features have emerged in the world, especially in cities, as the world becomes more developed. Since there are identifiable features that people can rely on to find their way, they no longer need to use a compass. • With the advancement of technology, people can rely on smartphone apps to ascertain directions, bearings and distance. Apps like Google Maps even allow people to know exactly where they are and how to get to their destination. These apps allow people to navigate much more conveniently and quickly.

Worksheets

Chapter 1 Earthquakes and Volcanoes

1. Do research and list five major earthquakes that happened around the world during the past five years. Find out the location of the earthquake, its magnitude measured on the Richter scale and its impact on the people in the affected areas.

2. How are tsunamis formed?

3. Match the following terms to the correct definitions.

Focus	●	● Refers to earthquakes that happen after the first major earthquake. These are usually weaker smaller in terms of intensity.
Epicentre	●	● Refers to an opening in the Earth's crust through which magma comes to the Earth's surface
Aftershocks	●	● Refers to the top part of the pipe in a volcano, through which magma is forced onto the Earth's surface
Vent	●	● Refers to the point of origin of an earthquake
Crater	●	● Refers to magma which has been forced onto the Earth's surface
Lava	●	● Refers to the part or point on the Earth's surface that is vertically above the focus

Chapter 2 Weathering and Mass Wasting

1. Is it caused by mechanical chemical weathering? Read the sentences below and name the type of weathering that matches the description.

- a. Water falls on big rocks, breaking them down into smaller rocks. _____
- b. Carbonic acid reacts with carbonate materials in rock and forms calcium carbonate. This weakens the rock and it wears out. _____
- c. Feldspar in granite reacts with water to create clay. _____
- d. Water seeps inside rock cracks. The water freezes and expands when it is cold, and melts when it becomes warm. Over time, the cracks become wider. _____
- e. In the day, when the temperature is higher, rocks expand. At night, when the temperature is lower, rocks contract. Over time, rocks eventually break down or crack. _____
- f. Iron present in rocks react with oxygen and water to form rust, causing rocks to turn a reddish colour. _____

2. Fill in the blanks and complete the sentences.

- a. The breaking down of rocks without them being transported to a different place is called _____.
- b. _____ is a process where loose material on slopes is dragged down to the ground.
- c. When broken down fragments are moved to another place by the action of wind, water, ice or gravity, it is known as _____.

3. Landslides, avalanches and soil creep are types of mass wasting. Explain each type of mass wasting.

Chapter 3 Major Landforms of the Earth

1. Name the five major landforms of Earth and list the processes through which they are formed.

2. Give two examples for each of the following:

- a. Volcanic mountains

- b. Fold mountains

- c. Block mountains

- d. Valleys

- e. Plateaus

3. You have answered Question 2. Now, look up the location of these landforms in an atlas. Then, mark them on an outline map of the world.

Chapter 4 People and Places Around the World – Spain

1. You have read about Spain in this chapter. Now, select any other country. Do research on the country and fill in the table below.

Country selected: _____

Location	
Capital city	
Other cities in that country	
Main rivers	
Mountains	
Climate	
Population density	
Religion	
Language	
Local food	

Chapter 5 Human Settlements

1. Study Table 5.1 on page 72 of your textbook. Now, select any other five cities in Pakistan and find out its population during the 2017 population census. Then, order these cities in ascending order according to the size of their population and fill in the table below.

City	2017 population census (million)

2. You have learnt that there are two types of settlements – rural and urban. Write where you would like to settle and what your occupation and lifestyle would be. Give reasons for selecting this area for settlement.

3. Name the area that you live in. Then, write all the advantages and disadvantages that you face as a student living in this rural/urban area.

Chapter 6 Economic Activities

1. Explain what economic activity is.

2. Listed below are some activities. Classify them as primary, secondary, tertiary or quaternary activities.

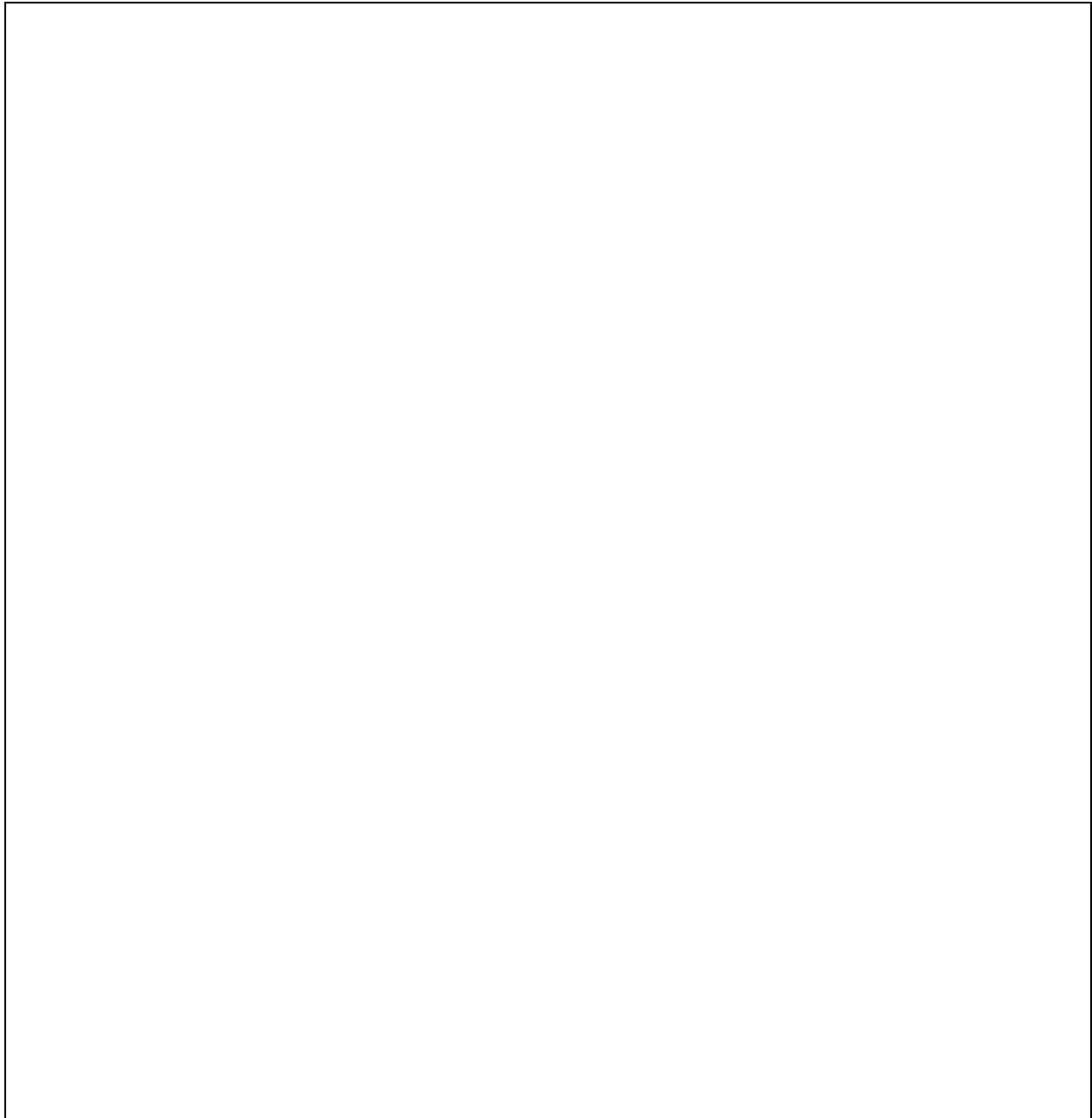
- a. _____ Farmers grow apples and sell them to the traders
- b. _____ Lawyers giving legal advice
- c. _____ Mining minerals from the earth
- d. _____ Making and selling furniture
- e. _____ Doctor diagnosing a patient
- f. _____ Teaching
- g. _____ Tour guide
- h. _____ Automobile industry

3. List the profession you would like to pursue in the future. What type of economic activity would be it categorized as?

Chapter 7 Environmental Issues

You have studied and observed that pollution is a major problem. Make a poster that explains the following points.

- Types of pollution
- Harmful effects of pollution
- Suggestions to reduce pollution

A large, empty rectangular box with a thin black border, intended for students to create a poster based on the instructions above. The box occupies most of the lower half of the page.

Chapter 8 Mapping Skills

1. Refer to a map of Pakistan and calculate the following:
 - a. Calculate the distance between the place where you live and the nearest neighbouring city. _____
 - b. Calculate the length of the longest river in your province. _____
 - c. Measure the bearing of the nearest neighbouring city from the area where you live. _____

Worksheet Answer Key

Chapter 1 Earthquakes and Volcanoes

1. Students' own answers.
2. Tsunamis can be formed by:
 - a. The movement of the sea floor during a large earthquake at the subduction zones.
 - b. An explosive underwater volcanic eruption.
 - c. An underwater landslide.
 - d. A landslide above sea level which causes materials to plunge into water.
3. Match these terms to the correct definitions.

Focus	●	●	Refer to earthquakes that happen after the first major earthquake. These are usually weaker smaller in terms of intensity.
Epicentre	●	●	Refers to an opening in the Earth's crust through which magma comes to the Earth's surface
Aftershocks	●	●	Refers to the top part of the pipe in a volcano, through which magma is forced onto the Earth's surface
Vent	●	●	Refers to the point of origin of an earthquake
Crater	●	●	Refers to magma which has been forced onto the Earth's surface
Lava	●	●	Refers to the part or point on the Earth's surface that is vertically above the focus

Chapter 2 Weathering and Mass Wasting

1.
 - a. Mechanical weathering
 - b. Chemical weathering
 - c. Chemical weathering
 - d. Mechanical weathering
 - e. Mechanical weathering
 - f. Chemical weathering
2.
 - a. weathering
 - b. Mass wasting
 - c. erosion
3. A landslide is a sudden, very quick movement of a large amount of loose material downslope due to the force of gravity.
An avalanche is the sudden, quick movement of huge masses of snow downslope due to gravity.
Soil creep is the slow movement of materials down a gentle slope due to the force of gravity.

Chapter 3 Major Landforms of the Earth

1. The major landforms are hills, mountains, plateaus, plains and valleys.
Hills may be formed when rock debris or sand deposited by glaciers and wind accumulate, or when erosion carries away all the soil of a mountain over millions of years, or when successive layers of magma cool and solidify.
Mountains may be formed by volcanic eruptions, or by the processes of folding and faulting.
Plateaus may be formed by volcanic eruptions or erosion.
Valleys may be formed by the erosion of rivers and glaciers.
2. Students' own answers
3. Teacher to provide outline map of the world and help students locate the places.

Chapter 4 People and Places Around the World – Spain

1. Students' own answers.

Chapter 5 Human Settlements

1. Students' own answers.
2. Students' own answers.
3. Students' own answers.

Chapter 6 Economic Activities

1. Any activity which involves the exchange of money or goods or things of value is called an economic activity. These are activities done to earn money or accumulate wealth.
2.
 - a. Primary activity
 - b. Quaternary activity
 - c. Primary activity
 - d. Secondary activity
 - e. Quaternary activity
 - f. Quaternary activity
 - g. Tertiary activity
 - h. Secondary activity
3. Students' own answers.

Chapter 7 Environmental Issues

Students' own answers. (The posters can be displayed around the classroom.)

Chapter 8 Mapping Skills

Teacher to check students' answers.