

Final revision:

Science – grade 7

What is the name of the supercontinent that existed millions of years ago?

- a) Pangaea
- b) Gondwana
- c) Laurasia
- d) Rodinia

Which of the following evidence supports the theory of continental drift?

- a) Fossil similarities across continents
- b) Matching coastlines
- c) Mountain ranges
- d) Weather patterns
- e) All of the above

The theory of continental drift was proposed by:

- a) Alfred Wegener
- b) Charles Darwin
- c) Isaac Newton
- d) Nicolaus Copernicus

Which of the following is NOT a piece of evidence for continental drift?

- a) Glacial deposits in warm regions
- b) Matching rock formations
- c) Similar plant and animal fossils
- d) Earthquake patterns

Which layer of the Earth is responsible for the movement of continents?

- a) Crust
- b) Mantle
- c) Outer core
- d) Inner core

The process of continents moving apart is called:

- a) Convergent boundary
- b) continental drift.
- c) Divergent boundary
- d) Subduction zone

The movement of continents is driven by:

- a) Plate tectonics
- b) Volcanic activity
- c) Weathering and erosion
- d) Solar radiation

Which of the following is an example of a divergent boundary?

- a) The Himalayas
- b) The San Andreas Fault
- c) The Mid-Atlantic Ridge
- d) The Ring of Fire

How fast do continents typically move per year?

- a) Centimeters
- b) Meters
- c) Kilometers
- d) Miles

What is the outermost layer of the Earth called?

- a) Mantle
- b) Crust**
- c) Core
- d) Lithosphere

Which of the following is NOT a type of tectonic plate boundary?

- a) Convergent boundary
- b) Divergent boundary
- c) Isolated boundary**
- d) Transform boundary

The theory of plate tectonics explains:

- a) How continents move
- b) How earthquakes occur
- c) How mountains form
- d) All of the above**

What occurs at a convergent boundary?

- a) Plates move apart
- b) Plates slide past each other
- c) Plates collide and create mountains**
- d) Plates sink into the mantle

The collision of two continental plates can lead to the formation of:

- a) Volcanoes
- b) Trenches
- c) Rift valleys
- d) Folded mountains**

What type of boundary is responsible for the formation of the Andes Mountains?

a) Convergent boundary

b) Divergent boundary

c) Transform boundary

d) Isolated boundary

The process of one tectonic plate sliding beneath another is called:

a) Subduction

b) Seafloor spreading

c) Rifting

d) Folding

Which of the following is NOT a result of plate tectonics?

a) Earthquakes

b) Volcanic eruptions

c) Weather patterns

d) Mountain building

The Pacific Ring of Fire is known for:

a) High volcanic and earthquake activity

b) Low tectonic plate movement

c) Lack of seismic activity

d) Formation of new continents

Which of the following processes is responsible for the formation of mountains?

a) Weathering

b) Erosion

c) Deposition

d) Uplift

The wearing away of rocks by wind, water, or ice is known as:

- a) Weathering
- b) Erosion
- c) Deposition
- d) Uplift

Which of the following is an example of chemical weathering?

- a) Freezing and thawing of water
- b) Wind-blown sand eroding rocks
- c) Acid rain dissolving limestone
- d) Rivers carrying sediment downstream

The process by which sediment is dropped or deposited in a new location is called:

- a) Weathering
- b) Erosion
- c) Deposition
- d) Uplift

Which of the following is an example of erosion?

- a) Formation of sand dunes
- b) Formation of a delta
- c) Formation of a glacier
- d) Formation of a volcano

How are sedimentary rocks formed?

- a) Through the cooling and solidification of molten rock
- b) Through the compaction and cementation of sediment
- c) Through the application of heat and pressure to existing rock
- d) Through the rearrangement of mineral crystals within existing rock

The process of wind carrying away small particles of sediment is called:

- a) Abrasion
- b) Deflation
- c) Suspension
- d) Saltation

Which of the following landforms is created by glacier erosion?

- a) Sand dunes
- b) Caves
- c) U-shaped valleys
- d) River deltas

The process by which rocks and minerals are broken down into smaller pieces is called:

- a) Compaction
- b) Cementation
- c) Weathering
- d) Uplift

Which of the following is an example of a landform created by deposition?

- a) Canyon
- b) Waterfall
- c) Beach
- d) Mountain range

Which of the following is an example of a constructive force?

- a) Earthquakes
- b) Volcanic eruptions
- c) Weathering
- d) Erosion

The process of breaking down rocks into smaller pieces without changing their composition is called:

a) physical weathering

b) Chemical weathering

c) Erosion

d) Deposition

How does erosion contribute to the formation of landforms?

a) By depositing sediment in new locations

b) By wearing away existing rock and soil

c) By uplifting the Earth's surface

d) By creating earthquakes and volcanic activity

Which of the following is an example of a destructive force?

a) Weathering

b) Erosion

c) Deposition

d) Uplift

The process of deposition is most likely to occur when:

a) Erosion is high

b) Erosion is low

c) Erosion and transport are both high

d) Erosion and transport are both low

The process of rocks transforming from one type to another over time through various geological processes:

a) Water cycle

b) Carbon cycle

c) Nitrogen cycle

d) Rock cycle

Which of the following is NOT a severe weather risk?

- a) Hurricanes
- b) Tornadoes
- c) Thunderstorms
- d) Earthquakes

Which severe weather event is characterized by strong winds, heavy rain, and lightning?

- a) Tornado
- b) Blizzard
- c) Thunderstorm
- d) Earthquake

What is the primary cause of hurricanes?

- a) Earthquakes
- b) Volcanic activity
- c) Strong winds
- d) Warm ocean waters

Which of the following is a safety measure during a thunderstorm?

- a) Going outside to watch the lightning
- b) Seeking shelter in an open field
- c) Avoiding tall trees and metal objects
- d) Carrying an umbrella

Which severe weather event is associated with a rotating column of air and a funnel-shaped cloud?

- a) Tornado
- b) Blizzard
- c) Tsunami
- d) Heatwave

What is the primary cause of tornado formation?

- a) Intense heatwaves
- b) Cold fronts colliding with warm air
- c) Earthquakes
- d) Volcanic activity

Which severe weather event is a long-lasting period of unusually low rainfall that results in a shortage of water

- a) Drought
- b) Tsunami
- c) Heatwave
- d) Flash flood

What is the primary cause of floods?

- a) Drought conditions
- b) Excessive rainfall or precipitation
- c) Strong winds
- d) Earthquakes

Questions based on EOT exam coverage:

What evidence supports the conclusion that continents were once joined?

- a) Matching coastlines of Africa and South America
- b) Fossil similarities across continents
- c) Geological similarities
- d) All of the above

Answer: a) Matching coastlines of Africa and South America

How does the matching of coastlines of Africa and South America provide evidence for continental drift?

- a) It demonstrates how continents can fit together like puzzle pieces.
- b) It shows the presence of similar plant and animal fossils.
- c) It indicates the occurrence of volcanic activity along the coastlines.
- d) It supports the theory of plate tectonics.

Answer: a) It demonstrates how continents can fit together like puzzle pieces.

What is the purpose of analyzing an ocean topographic map?

- a) To identify and classify various features on the ocean floor
- b) To interpret the geological processes shaping the ocean floor
- c) To understand the distribution of underwater mountains and valleys
- d) All of the above

Answer: d) All of the above

How can ocean topographic maps help in identifying and interpreting features on the ocean floor?

- a) By providing information about the depth and elevation of underwater features
- b) By showing the presence of seafloor spreading and tectonic plate boundaries
- c) By highlighting the locations of oceanic trenches and mid-ocean ridges
- d) By allowing scientists to study the distribution of marine habitats

Answer: a) By providing information about the depth and elevation of underwater features

How do fold mountains and fault-block mountains differ?

- a) Fold mountains are formed by the folding of rock layers, while fault-block mountains are created by the movement of large blocks of crust along faults.
- b) Fold mountains are characterized by alternating ridges and valleys, while fault-block mountains have steep, uplifted blocks, and down-dropped valleys.
- c) Fold mountains are commonly found at convergent plate boundaries, while fault-block mountains are associated with divergent or transform plate boundaries.
- d) All of the above.

Answer: d) All of the above.

What is the definition of subduction and faults?

- a) Subduction refers to the process of one tectonic plate sliding beneath another, usually at convergent plate boundaries.
- b) Faults are fractures in the Earth's crust where rocks on either side have moved relative to each other.
- c) Subduction and faults are both geological processes that contribute to the movement and deformation of Earth's crust.
- d) All of the above.

Answer: d) All of the above.

How does ice act as a weathering agent?

- a) By melting rocks
- b) By eroding mountains
- c) By freezing and expanding in cracks
- d) By causing earthquakes

Answer: c) By freezing and expanding in cracks

What role does ice play in the weathering process?

- a) Widening existing cracks and fractures in rocks
- b) Dissolving rocks through chemical reactions
- c) Depositing sediment on the ocean floor
- d) Creating volcanic activity

Answer: a) Widening existing cracks and fractures in rocks

What are the main natural hazards on Earth?

- a) Earthquakes, tornadoes, and hurricanes
- b) Volcanic eruptions, landslides, and tsunamis
- c) Droughts, floods, and wildfires
- d) All of the above

Answer: d) All of the above

How can maps be used to conclude information about natural hazards?

- a) By identifying areas prone to earthquakes and volcanic activity
- b) By mapping the paths of hurricanes and tornadoes
- c) By analyzing patterns of precipitation for flood-prone regions
- d) All of the above

Answer: d) All of the above

How are sedimentary rocks classified?

- a) Sedimentary rocks are classified based on their composition and texture.
- b) Sedimentary rocks are classified according to the size of the sediment particles.
- c) Sedimentary rocks are classified based on their formation process.
- d) Sedimentary rocks are classified according to their hardness and density.

Answer: c) Sedimentary rocks are classified based on their formation process.

What are the processes involved in lithification?

- a) Compaction and cementation
- b) Erosion and deposition
- c) Weathering and transportation
- d) Melting and crystallization

Answer: a) Compaction and cementation

How do the scales used to classify and measure the strength of earthquakes differ?

- a) The Richter scale measures the amplitude of seismic waves, while the Mercalli scale assesses the intensity of earthquake effects.
- b) The Richter scale uses a logarithmic scale, while the Mercalli scale is based on observed damage and human perception.
- c) The Richter scale provides a quantitative measurement, while the Mercalli scale provides a qualitative assessment.
- d) All of the above.

Answer: d) All of the above.

What are the main differences between the Richter scale and the Mercalli scale?

- a) The Richter scale measures the energy released by an earthquake, while the Mercalli scale describes the observed effects and damage.
- b) The Richter scale is based on instrumental recordings, while the Mercalli scale relies on human observations and reports.
- c) The Richter scale provides a numerical magnitude value, while the Mercalli scale uses Roman numerals to indicate intensity.
- d) All of the above.

Answer: d) All of the above.

Which of the following is a primary volcanic hazard?

- a) Lava flows
- b) Ash fall
- c) Lahars (mudflows)
- d) Pyroclastic flows

Answer: a) Lava flows

Which of the following volcanic hazards is associated with explosive eruptions?

- a) Pyroclastic flows
- b) Volcanic gases
- c) Tsunamis
- d) Volcanic lightning

Answer: a) Pyroclastic flows

How can volcanic eruptions be predicted?

- a) Monitoring changes in ground deformation and seismic activity
- b) Analyzing changes in gas emissions from the volcano
- c) Studying historical eruption patterns of the volcano
- d) All of the above

Answer: d) All of the above

How can volcanic hazards be reduced?

- a) Implementing early warning systems for nearby communities
- b) Establishing exclusion zones around active volcanoes
- c) Conducting public education and awareness campaigns about volcanic risks
- d) Developing plans for evacuation and emergency response
- e) All of the above

Answer: e) All of the above

How can volcanic hazards be reduced?

- a) By implementing early warning systems
- b) By establishing evacuation plans
- c) By conducting public education and awareness campaigns
- d) By building barriers to redirect lava flows

Answer: a) By implementing early warning systems

List the major groups of rocks: (igneous, sedimentary, and metamorphic), differentiate between lava and magma and assign them on a volcano diagram.

The major groups of rocks are igneous, sedimentary, and metamorphic:

Igneous Rocks: These rocks are formed from the cooling of molten material called magma. Igneous rocks can be further classified into two types: **intrusive and extrusive**. Intrusive igneous rocks form underground from slowly cooling magma, while extrusive igneous rocks form on the Earth's surface from rapidly cooling lava.

Sedimentary Rocks: These rocks are formed through the accumulation and lithification (compaction and cementation) of sediments. Sediments can be derived from the weathering and erosion of pre-existing rocks or from the remains of plants and animals. Over time, these sediments are compacted and cemented together to form sedimentary rocks.

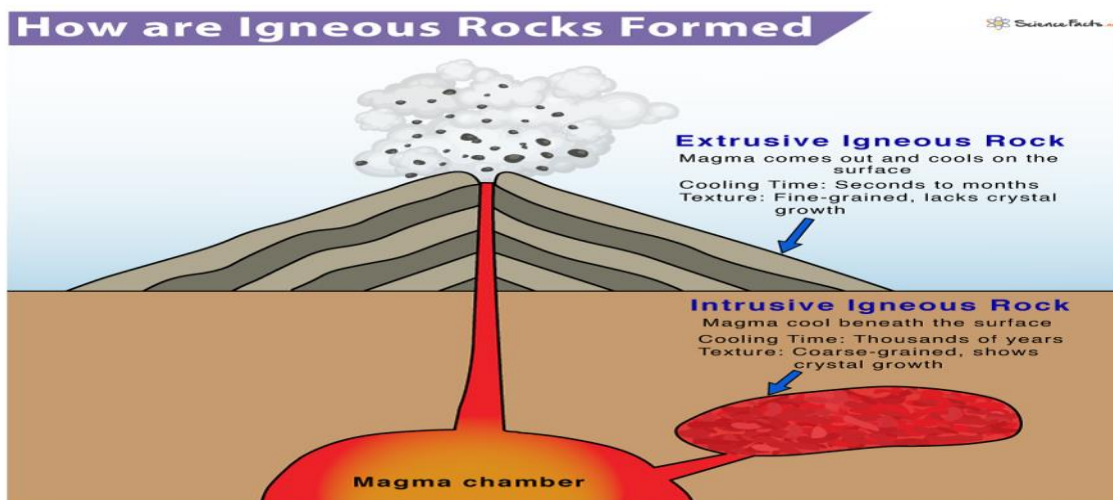
Metamorphic Rocks: These rocks are formed through the alteration of pre-existing rocks due **to high temperature, pressure, or chemical activity**. The original rocks, whether igneous, sedimentary, or metamorphic, undergo changes in their mineral composition, texture, and structure, resulting in the formation of metamorphic rocks.

Differentiation between lava and magma:

Magma: is molten rock beneath the Earth's surface. It is located in the Earth's crust or upper mantle and consists of molten rock, dissolved gases, and mineral crystals.

Lava: is magma that reaches the Earth's surface through volcanic eruptions. Once magma erupts onto the surface, it is called lava.

In a volcano diagram, magma would be represented beneath the surface of the Earth, usually within the magma chamber or conduit. Lava would be shown flowing out of the volcano's vent or crater onto the Earth's surface.



List the process that change Earth's surface (Weathering, erosion, deposition) and conclude how water and wind play a significant role in changing the Earth's surface

The processes that change Earth's surface are weathering, erosion, and deposition.

Weathering: refers to the breakdown and alteration of rocks and minerals at or near the Earth's surface. It can occur through **physical or chemical processes**, leading to the disintegration and decomposition of rocks into smaller fragments or new substances.

Erosion: is the transportation and removal of weathered materials (sediments) from one location to another by agents such as water, wind, ice, or gravity. Erosion can result in the wearing away of rocks and the formation of landforms such as valleys, canyons, and river channels.

Deposition: is the process by which eroded materials are dropped or settled in a new location. When the transporting agents, such as water or wind, lose their energy, they can no longer carry the sediments, causing them to be deposited. Deposition contributes to the formation of various landforms, such as deltas, beaches, and sand dunes.

Water and wind play significant roles in changing the Earth's surface:

Water: is a powerful agent of erosion and deposition. Running water in the form of rivers, streams, and rain contributes to the erosion of rocks and carries sediments downstream. It also shapes the landscape by creating valleys, canyons, and deltas. Water can also deposit sediments when its speed decreases, leading to the formation of sedimentary layers.

Wind: is another agent of erosion and deposition, especially in arid or desert regions. Wind erosion occurs when it picks up and transports fine-grained particles, such as sand or dust. The wind can shape the land by forming sand dunes and eroding rocks through abrasion. When the wind loses its energy, it deposits the transported sediments, creating features like sand dunes or loess deposits.

In conclusion, water and wind are essential in changing the Earth's surface. They contribute to the processes of weathering, erosion, and deposition, shaping the landforms and altering the landscape over time.

Compare and contrast between plate boundaries according to: shape, movement, and location

Divergent Boundaries:

Shape: Divergent boundaries are characterized by a V-shaped or Y-shaped configuration, where two tectonic plates move away from each other.

Movement: The plates at divergent boundaries move in opposite directions, creating a gap between them. This movement allows magma from the asthenosphere to rise, forming new crust and creating a mid-ocean ridge or a rift zone.

Location: Divergent boundaries are commonly found in the oceanic lithosphere, leading to the formation of mid-ocean ridges. However, they can also occur on land, resulting in continental rift zones.

Convergent Boundaries:

Shape: Convergent boundaries have a generally curved or arc-shaped configuration, where two tectonic plates collide or come together.

Movement: The plates at convergent boundaries can move towards each other in three possible ways: (a) oceanic-continental convergence, where an oceanic plate subducts beneath a continental plate; (b) oceanic-oceanic convergence, where one oceanic plate subducts beneath another; or (c) continental-continental convergence, where two continental plates collide and form mountain ranges.

Location: Convergent boundaries can occur both in oceanic and continental lithosphere. They are often associated with the formation of subduction zones, volcanic activity, and the creation of mountain ranges.

Transform Boundaries:

Shape: Transform boundaries have a linear or straight configuration, where two tectonic plates slide past each other horizontally.

Movement: The plates at transform boundaries move horizontally in opposite directions but do not create or destroy crust. Instead, they produce intense seismic activity, causing earthquakes.

Location: Transform boundaries commonly occur along the edges of tectonic plates. They can be found on both land and underwater, resulting in prominent fault lines.

In summary,

divergent boundaries involve plates moving **away from each other**, creating a V-shaped configuration and forming new crust.

Convergent boundaries involve plates **colliding or coming together**, resulting in a curved shape and leading to subduction or mountain formation.

Transform boundaries involve plates **sliding past each other horizontally**, creating a linear shape and causing earthquakes.

Differentiate between hurricanes and tornadoes, and assign the category of a tornado. using the "Enhanced Fujita Damage Intensity Scale"

Hurricanes:

Size and Shape: Hurricanes are large-scale tropical cyclones that typically span hundreds of miles in diameter. They have a well-defined circular shape.

Formation: Hurricanes form over warm ocean waters and are fueled by heat and

Duration: Hurricanes can last for several days to weeks as they move across the ocean and sometimes make landfall.

Impact: Hurricanes are known for their strong winds, heavy rainfall, storm surges, and potential for widespread damage. They can cause extensive destruction to coastal areas and inland regions.

Tornadoes:

Size and Shape: Tornadoes are much smaller in size compared to hurricanes. They typically have a narrow and funnel-shaped appearance.

Formation: Tornadoes form from severe thunderstorms when warm, moist air collides with cool, dry air, creating a rotating column of air.

Duration: Tornadoes are relatively short-lived, typically lasting for minutes to a few hours. They are often localized and move quickly across the ground.

Impact: Tornadoes are known for their destructive winds, which can exceed 300 miles per hour (480 kilometers per hour). They can cause significant damage to buildings, vehicles, and infrastructure along their path.

Enhanced Fujita Damage Intensity Scale:

The Enhanced Fujita Damage Intensity Scale (EF-Scale) is used to categorize tornadoes based on the damage they cause. It assesses the intensity of the tornado by evaluating the damage to structures and vegetation. The scale ranges from EF0 to EF5, with each category representing a range of wind speeds and associated damage. The EF5 category represents the most severe tornadoes, with winds exceeding 200 miles per hour (322 kilometers per hour) and causing incredible destruction.

In summary,

hurricanes are large-scale tropical cyclones that can last for days, while **tornadoes** are smaller and shorter-lived, often lasting minutes to hours.

Hurricanes have a circular shape and impact wide areas with strong winds and heavy rainfall, while **tornadoes** have a funnel-shaped appearance and cause localized, but highly destructive, winds.

The Enhanced Fujita Damage Intensity Scale categorizes tornadoes based on the damage they produce, with EF5 representing the most severe tornadoes.

Explain how volcanic eruptions can predicted and how to reduce volcanic hazards.

Predicting volcanic eruptions:

Monitoring: Scientists use instruments to track changes in ground deformation, seismic activity, gas emissions, and temperature anomalies near volcanoes to identify signs of potential eruptions.

Reducing volcanic hazards:

Early Warning Systems: Establishing monitoring networks and systems that provide timely alerts and evacuation plans to communities at risk.

Hazard Zoning: Designating and restricting human settlements in areas prone to volcanic hazards based on their potential risks.

Public Education: Educating communities about volcanic hazards, safety procedures, and preparedness measures to minimize risks and enhance response during eruptions.

Monitoring and Research: Continuously monitoring volcanic activity and conducting research to improve understanding of volcanic behavior and potential hazards.

Infrastructure Protection: Implementing measures to strengthen critical infrastructure against volcanic impacts, such as ashfall, lahars, or pyroclastic flows.

Volcanic hazards:

Mudflows: are like fast-moving rivers of mud that happen when heavy rain or melting snow mixes with volcanic materials. They can be very destructive and carry rocks and debris, causing a lot of damage.

Lava flows: are streams of hot, melted rock that move slowly from a volcano. They can destroy anything in their path because they are extremely hot.

Volcanic ash: is made up of very tiny pieces of rock that are thrown into the air during an eruption. It can travel long distances, disrupt air travel, and be harmful to breathe.

Volcanic gases: When a volcano erupts, it releases gases like sulfur dioxide, carbon dioxide, and hydrogen sulfide. These gases can be poisonous and dangerous for both the environment and people.

Landslides: Volcanic eruptions can cause landslides, which happen when rocks and soil slide down a slope. This can cause a lot of damage and be very dangerous for nearby communities.

Pyroclastic flows: are fast-moving clouds of hot gas, ash, and rocks that race down the sides of a volcano. They can be extremely destructive and very dangerous for anyone in their path.

Good luck

Presented by Miss. Manal Ibrahim