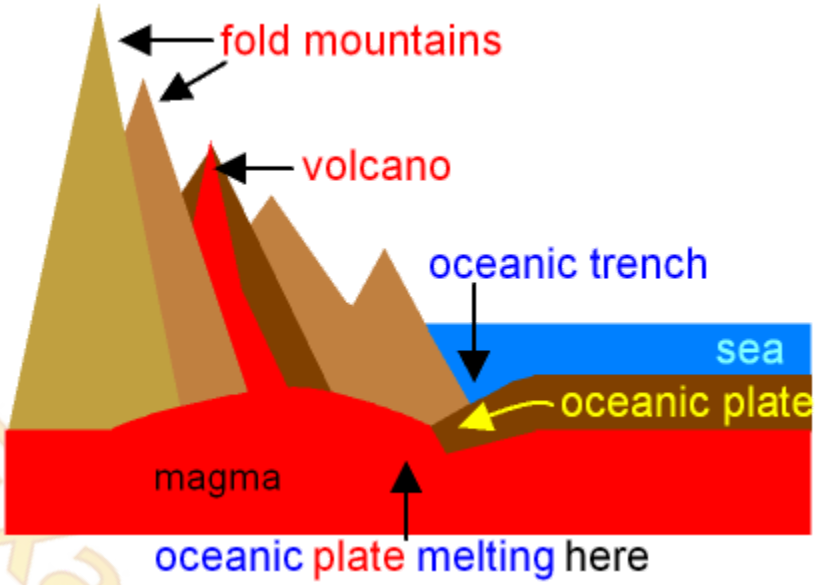
D3. Trenches & Mountains

Trenches & Mountains

Have you ever wondered why some parts of the Earth's surface are high and rocky, while others are deep and mysterious? It's all because of the incredible forces that shape our planet's crust. Let's explore two fascinating geological features: trenches and mountains, specifically formed by faults.



Trenches
Imagine diving into the deepest part of the ocean. You would find yourself in a long, narrow, and incredibly deep depression on the ocean floor called a trench. Trenches are like the Grand Canyons of the ocean, but much deeper!

Formation of Trenches
Trenches are formed at the edges of tectonic plates, which are huge pieces of Earth's crust. When one tectonic plate slides beneath another in a process called subduction, a trench is created. Subduction occurs when two plates collide, and one of them, being denser, sinks beneath the other. This sinking plate gets pulled deep into the Earth's mantle, forming the trench.

The Deepest Trench
The Mariana Trench is the deepest trench in the world, located in the western Pacific Ocean. It reaches a depth of about 36,000 feet (almost 11,000 meters), which is deeper than Mount Everest is tall!

Life in Trenches
Trenches are harsh environments with extreme pressure and little sunlight. Despite these challenges, many unique and fascinating creatures have adapted to live in this dark and mysterious world. Some of the creatures found in trenches are shrimp, giant tube worms, and bizarre-looking fish.

Mountains & Faults
Mountains, on the other hand, are magnificent landforms that tower high above the Earth's surface. They are often formed by movements in the Earth's crust along faults.

Faults

A fault is a crack or fracture in the Earth's crust where tectonic plates have moved past each other. When these plates grind or slide against each other, they create tremendous energy, leading to earthquakes.

Formation of Mountains
Mountains are formed in different ways. One common way is through a process called folding. When tectonic plates collide, immense pressure pushes the Earth's crust upward, causing it to buckle and fold, creating majestic mountain ranges.

Types of Mountains
There are different types of mountains, including volcanic mountains, which form when magma from the Earth's mantle erupts onto the surface, and fault-block mountains, which are created when blocks of the Earth's crust are uplifted along faults.

The Himalayas
The Himalayas, stretching across several countries including India, Nepal, and China, is the tallest mountain range in the world. It includes Mount Everest, which is the highest peak on Earth, soaring at an impressive height of 29,029 feet (8,848 meters) above sea level.

1. Trenches are formed at the edges of _____.
    A) Mountains
    B) Rivers
    C) Tectonic plates
    D) Valleys

2. What causes the formation of trenches?
    A) Earthquakes
    B) Subduction of tectonic plates
    C) Volcanic eruptions
    D) Glacier movements

3. The Mariana Trench is the _____ trench in the world.
    A) Shallowest
    B) Deepest
    C) Longest
    D) Widest

4. Which of the following creatures are found in trenches?
    A) Lions and tigers
    B) Shrimp and giant tube worms
    C) Monkeys and elephants
    D) Rabbits and squirrels

5. Faults are cracks or fractures in the Earth's _____.
    A) Atmosphere

B) Mantle
C) Crust
D) Core

6. What causes mountains to form?
   A) Rainfall erosion
   B) Folding of the Earth's crust
   C) Human construction projects
   D) Solar energy

7. What type of mountains are formed when magma erupts onto the Earth's surface?
   A) Fault-block mountains
   B) Folded mountains
   C) Volcanic mountains
   D) Plateau mountains

8. Which mountain range includes Mount Everest, the highest peak on Earth?
   A) The Rocky Mountains
   B) The Andes Mountains
   C) The Himalayas
   D) The Alps

9. What is the tallest mountain in the world?
   A) Mount Everest
   B) Mount Kilimanjaro
   C) Mount McKinley
   D) Mount Fuji

10. How are fault-block mountains formed?
   A) By the collision of tectonic plates
   B) By the folding of the Earth's crust
   C) By blocks of crust uplifted along faults
   D) By volcanic eruptions

ANSWERS & EXPLANATIONS

1. C - Tectonic plates.
    - Trenches are formed at the edges of tectonic plates, where they slide beneath one another.

2. B - Subduction of tectonic plates.
    - Trenches are formed through a process called subduction, which happens when one tectonic plate slides beneath another.

3. B - Deepest.
    - The Mariana Trench is the deepest trench in the world, located in the western Pacific Ocean.

4. B - Shrimp and giant tube worms.
    - Trenches are harsh environments, but many unique creatures like shrimp and giant tube worms have adapted to live there.

5. C - Crust.
    - Faults are cracks or fractures in the Earth's crust, where tectonic plates have moved past each other.

6. B - Folding of the Earth's crust.
    - Mountains are often formed by the folding of the Earth's crust due to the pressure from tectonic plate collisions.

7. C - Volcanic mountains.
    - Volcanic mountains are formed when magma erupts onto the Earth's surface and builds up over time.

8. C - The Himalayas.
    - The Himalayas is the mountain range that includes Mount Everest, the highest peak on Earth.

9. A - Mount Everest.
    - Mount Everest is the tallest mountain in the world, soaring at an impressive height of 29,029 feet (8,848 meters) above sea level.

10. C - By blocks of crust uplifted along faults.
    - Fault-block mountains are created when blocks of the Earth's crust are uplifted along faults, creating elevated landforms.