

Layers are Laid Horizontal and in Water

Scientists use eight important rules to figure out the age of rock layers. Two of these rules help explain how rock layers are formed. The **Law of Original Horizontality** says that when layers of rock (or sediment) first form, they are always laid down in flat, horizontal layers. Over time, movements in the Earth, like earthquakes or the shifting of land, can tilt or bend these layers. Another important rule is that all rock layers are originally deposited in a **body of water**, like a river, lake, or ocean. This is because most sediments, like sand, mud, and small rocks, are carried by water before they settle and harden into rock over time. These rules help scientists understand how rock layers formed and what happened to them after they were created.

Key Words: (3-5 words per sentence)

1. _____, _____, _____, _____, _____
2. _____, _____, _____, _____, _____
3. _____, _____, _____, _____, _____
4. _____, _____, _____, _____, _____
5. _____, _____, _____, _____, _____
6. _____, _____, _____, _____, _____

Paragraph Re-Write

Law of Superposition

One important rule scientists use to figure out the age of rock layers is the **Law of Superposition**. This rule says that in a stack of rock layers, the oldest layers are at the bottom, and the youngest layers are at the top—just like a stack of pancakes. This happens because new layers of sediment are always deposited on top of older ones over time. If the layers haven't been disturbed by things like earthquakes or mountain-building, scientists can use this rule to determine the relative ages of rocks. By studying these layers, scientists can learn about Earth's history and how life has changed over millions of years.

Key Words: (3-5 words per sentence)

1. _____, _____, _____, _____, _____
2. _____, _____, _____, _____, _____
3. _____, _____, _____, _____, _____
4. _____, _____, _____, _____, _____
5. _____, _____, _____, _____, _____
6. _____, _____, _____, _____, _____

Paragraph Re-Write

Law of Intrusions

Another important rule scientists use to determine the age of rock layers is the **Law of Intrusions**. This rule states that when molten rock (magma) pushes into existing rock layers and then cools into solid rock, it is always **younger** than the layers it cuts through. These hardened magma formations are called **intrusions** and can appear as vertical or diagonal cracks within older rock layers. Since the rock layers had to be there first for the magma to push through them, scientists can use this rule to figure out which layers are older and which ones formed later. This helps geologists piece together Earth's history and understand the sequence of events that shaped the land.

Key Words: (3-5 words per sentence)

1. _____, _____, _____, _____, _____
2. _____, _____, _____, _____, _____
3. _____, _____, _____, _____, _____
4. _____, _____, _____, _____, _____
5. _____, _____, _____, _____, _____
6. _____, _____, _____, _____, _____

Paragraph Re-Write

Law of Inclusions

The **Law of Inclusions** is another important rule that helps scientists determine the age of rock layers. This rule states that any piece of rock (called an **inclusion**) found inside another rock layer must be **older** than the rock it is inside. This happens when bits of older rock break off and get trapped in molten rock or sediment before it hardens. Since the inclusions had to exist first before they were surrounded by the new rock, scientists can use this rule to figure out the order in which different layers and formations were created. This helps geologists better understand Earth's past and how different rocks formed over time.

Key Words: (3-5 words per sentence)

1. _____, _____, _____, _____, _____
2. _____, _____, _____, _____, _____
3. _____, _____, _____, _____, _____
4. _____, _____, _____, _____, _____
5. _____, _____, _____, _____, _____
6. _____, _____, _____, _____, _____

Paragraph Re-Write

Law of Uplift and Erosion

The **Law of Uplift and Erosion** helps scientists understand how rock layers change over time. This rule states that **weathering and erosion only happen above water**, meaning that land must first be **uplifted** before it can be worn down. Uplift happens when forces inside the Earth push rock layers up, creating mountains and plateaus. Once the land is exposed to air, wind, rain, and ice, weathering breaks the rocks into smaller pieces, and erosion carries them away. These broken pieces eventually settle in a body of water, where they form new layers of rock. By studying uplift and erosion, scientists can better understand how landscapes are shaped and how old different rock layers are.

Key Words: (3-5 words per sentence)

1. _____, _____, _____, _____, _____
2. _____, _____, _____, _____, _____
3. _____, _____, _____, _____, _____
4. _____, _____, _____, _____, _____
5. _____, _____, _____, _____, _____
6. _____, _____, _____, _____, _____

Paragraph Re-Write

Law of Faults

The **Law of Faults** helps scientists determine the relative age of rock layers by looking at cracks, or **faults**, in the Earth's crust. A fault is a break in the rock where movement has occurred, usually due to earthquakes or shifting tectonic plates. This law states that a fault is always **younger** than the rock layers it cuts through because the layers had to exist first before they could be broken. If a rock layer is shifted or offset by a fault, scientists know the fault happened **after** the layers formed. By studying faults, geologists can better understand Earth's history, including past earthquakes and the movement of land over time.

Key Words: (3-5 words per sentence)

1. _____, _____, _____, _____, _____
2. _____, _____, _____, _____, _____
3. _____, _____, _____, _____, _____
4. _____, _____, _____, _____, _____
5. _____, _____, _____, _____, _____
6. _____, _____, _____, _____, _____

Paragraph Re-Write

Unconformities

An **unconformity** is a **geologic mystery**—a missing part of Earth's history, like pages torn from the middle of a book. It happens when rock layers that once existed are **eroded away**, leaving a gap in the geologic record. First, **uplift** raises the land above water, exposing the rock to **weathering and erosion**, which break it down and carry it away. Later, the land **subsides** (sinks), and new layers of sediment are **deposited** on top of the eroded surface. This creates a boundary between the older, worn-down layers and the newer layers above them. Scientists study unconformities to uncover Earth's lost history and understand the forces that shaped the planet over time.

Key Words: (3-5 words per sentence)

1. _____, _____, _____, _____, _____
2. _____, _____, _____, _____, _____
3. _____, _____, _____, _____, _____
4. _____, _____, _____, _____, _____
5. _____, _____, _____, _____, _____
6. _____, _____, _____, _____, _____

Paragraph Re-Write
