



The Water Cycle: Earth's Never-Ending Journey

Grade 5

Name: _____

Read the science passage carefully. Then answer the questions below.

The Sky's Hidden Ocean: How Water Vapor Powers Earth's Weather



Imagine an ocean so vast, it covers the entire Earth, yet you can't see it. This invisible ocean is called **water vapor**, and it's one of the most important parts of our planet's water cycle. Water vapor is simply water in its gas form, floating high above us in the atmosphere. It gets there mainly through **evaporation**, where the sun's energy turns liquid water from oceans, lakes, and rivers into a gas. Plants also release water vapor into the air through a process called **transpiration**, like tiny natural pumps.

Even though it's invisible, there's a huge amount of water vapor in the atmosphere at any given time. If all the water vapor in the air suddenly condensed and fell as rain, it would cover the entire surface of Earth with about one inch (2.5 cm) of water! This might not sound like much, but it represents an incredible 12,900 cubic kilometers of water constantly circulating. This atmospheric water vapor is like a giant conveyor belt, moving water from one part of the world to another. Without it, many inland areas would never receive rain, as water couldn't travel far from its source.



As water vapor rises higher into the atmosphere, it cools. When it cools enough, it undergoes **condensation**, changing back from a gas into tiny liquid water droplets or ice crystals. These droplets are so small they float, forming clouds. When billions of these droplets combine and grow heavy enough, they fall back to Earth as **precipitation** – rain, snow, sleet, or hail. This completes a crucial part of the water cycle, bringing fresh water to land.



Beyond just moving water, atmospheric water vapor plays another vital role: it's a powerful natural greenhouse gas. This means it traps some of the sun's heat, preventing it from escaping back into space. This natural warming effect is essential for keeping Earth warm enough to support life. Without water vapor, our planet would be a frozen, lifeless ball. So, this invisible component of our atmosphere is not just a carrier of water, but also a key regulator of Earth's temperature and climate.

COMPREHENSION QUESTIONS

(1) **What is the primary way water vapor enters the atmosphere from oceans, lakes, and rivers?**

- (A) Condensation (B) Precipitation (C) Evaporation (D) Infiltration

(2) **How does atmospheric water vapor act like a "giant conveyor belt" for water?**

- (A) It pushes clouds across the sky with strong winds.
(B) It turns into ice and slides across the land.
(C) It transports water from oceans and lakes to inland areas.
(D) It creates rivers that flow from mountains to the sea.

(3) **In the passage, the word "transpiration" refers to:**

- (A) The process of water turning into gas from oceans.
(B) The release of water vapor from plants into the air.
(C) The formation of clouds in the atmosphere.
(D) The falling of rain from the sky.

(4)



If there were significantly less water vapor in Earth's atmosphere, what would be a likely consequence for Earth's climate?

- (A)** The Earth would become much warmer due to more direct sunlight.
- (B)** The Earth would become much colder, potentially freezing.
- (C)** There would be more frequent and heavier rainfall globally.
- (D)** Oceans would evaporate faster, leading to higher sea levels.

(5) Explain in your own words why water vapor is important for both the distribution of fresh water and Earth's temperature.

