

Nova's Water Cycle Investigation: From Cloud to Stream

Learning objective: To identify and describe the key stages of the water cycle, including evaporation, condensation, precipitation, and collection.

Use this experiment record to document your understanding of the water cycle. Nova the Owl needs your help to map how water travels around our planet. Think carefully about how heat from the sun affects the state of water as it moves through the atmosphere. Ensure your explanations use scientific vocabulary correctly.

Word bank: evaporation · condensation · precipitation · collection · vapour · temperature · liquid · gas

1. The Energy Source: Explain how the sun acts as the 'engine' for the water cycle. What might happen if the sun stopped warming the Earth's surface? (3 marks)

2. Evaporation and Condensation: Describe the physical change that occurs when water turns from a liquid into a gas, and then back into a liquid. Why does this happen? (4 marks)

3. Precipitation Patterns: Compare and contrast different forms of precipitation (e.g., rain, snow, hail). What conditions determine which form falls to the ground? (3 marks)

4. Collection and Storage: Justify why the 'collection' stage is essential for sustaining life in ecosystems such as forests or oceans. (3 marks)

5. Scientific Reasoning: If you were to place a lid on a bowl of warm water, explain why droplets form on the underside of the lid. How does this model the water cycle? (4 marks)

6. Reflection: Based on your knowledge, why is the water cycle considered a 'closed system' on Earth? What might happen if a large amount of water were removed from the cycle? (3 marks)

Extension challenge: Imagine you are a single droplet of water. Write a creative narrative describing your journey through each stage of the water cycle. Use at least five scientific terms and describe the changes in your 'environment' as you transition between a gas and a liquid.