

Name_____ Pd._____ Date_____

INCREDIBLE JOURNEY - A Water Cycle Story

BACKGROUND:

While water does circulate from one point or state to another in the water cycle, the paths it can take are variable.

Heat energy directly influences the rate of motion of water molecules. When the motion of the molecule increases because of an increase in heat energy, water will change from solid to liquid to gas. With each change in state, physical movement from one location to another usually follows. Glaciers melt to pools which overflow to streams, where water may evaporate into the atmosphere.

Gravity further influences the ability of water to travel over, under, and above the surface of the earth. Water as a solid, liquid or gas has mass and is subject to gravitational force. Snow on mountaintops melts and descends through watersheds to the oceans of the world.

One of the most visible states in which water moves is the liquid form. Water is seen flowing in streams and rivers and tumbling in ocean waves. Water travels slowly underground, seeping and filtering through particles of soil and pores within rocks.

Although unseen, water's most dramatic movements take place during its gaseous phase. Water is constantly evaporating, changing from a liquid to a gas. Evaporation occurs when water from the ground or bodies of water move into the atmosphere. Plants give off water vapor through transpiration. The combination of evaporation and transpiration is referred to as evapotranspiration. As a vapor, water can travel through the atmosphere over the earth's surface. In fact, water vapor surrounds us all the time. Where it condenses and returns to earth depends upon loss of heat energy, gravity, and the structure of the earth's surface.

Water condensation can be seen as dew on plants or water droplets on the outside of a glass of cold water. In clouds, water molecules collect on tiny dust particles. Eventually, the water droplets become too heavy and gravity pulls the water to the earth.

Living organisms also help move water. Humans and other animals carry water within their bodies, transporting it from one location to another. Water is either directly consumed by animals or is removed from foods during digestion. Water is excreted as a liquid or leaves as a gas, usually through respiration. When water is present on the skin of an animal (for example, as perspiration), evaporation may occur.

Directions:

1. Each table group will start at the following station(s):
 - a. Blue - Soil
 - b. Red - Ocean
 - c. Black - River and Plants
 - d. Orange - Lake
 - e. Brown - Animal and Glacier
 - f. Green - Groundwater and Clouds
2. Once you get to your beginning station make sure you label this location under the "station" column of your chart.
3. Roll the die at your station. Whatever side it lands on is your new destination.
4. Record what your die lands on in the "Destination" column of Part A.
5. If your die lands on "Stay" record whatever location you are at in the "Destination" and "Location" column.
6. Record the "Phase Change" and the "Processes/What Happened" that occurs between the locations.
7. Move to the next location and repeat these steps.
8. You must roll the die a minimum of 20 times total.

Incredible Journey (Continued)

Part B: Create a pie chart to show where you spent most of your time. To find the percent of total for each location, divide the number of visits at that location by the total number of visits.

Your pie graph needs to include:

- Title of graph
- Key
- Value labels
- Color
- Locations with 0%

Location	Number of Visits	Percent of Total (number of visits divided by total visits)
Soil		
Plant		
River		
Clouds		
Ocean		
Lake		
Animal		
Ground Water		
Glacier		
Total Visits		

Part C: Answer the following questions in complete sentences.

1. Where did you spend the most time as a water droplet?

2. Infer why you think water may spend a lot of time at this location before continuing through the cycle.

3. Describe 3 ways in which the water cycle may affect your lives.

Incredible Journey (Continued)

Part D: Either write a story or draw a diagram with descriptive captions illustrating your journey through the water cycle as a water drop. Use your data to guide you in writing your story or drawing your diagram. Minimum 5 paragraphs.

Reminders:

- Be creative!!
- Be thorough - describe your entire life as a water drop!
- Be sure to include information about your phase changes and the processes that you experienced like, **evaporation, precipitation, condensation, accumulation, surface runoff, etc.**