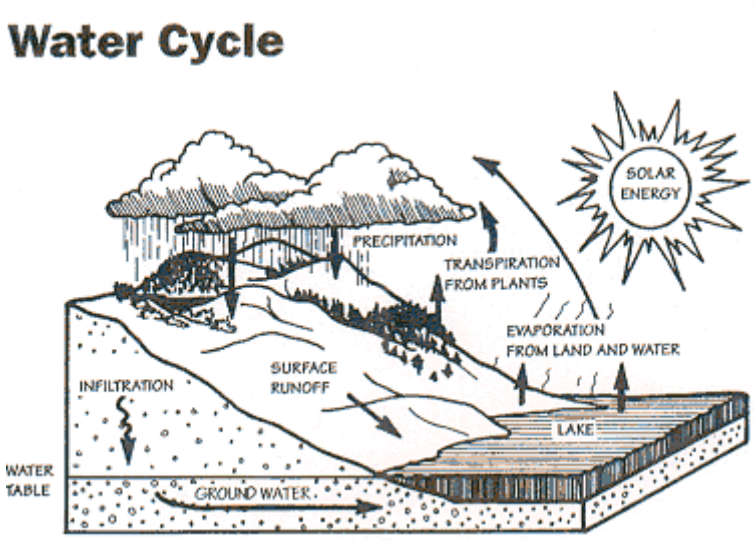
Name_____

Modeling the Water Cycle

Background Information: Water is essential for life on Earth. It is recycled through the **WATER** or **HYDROLOGIC CYCLE**, which involves the following processes:

- **EVAPORATION** – the changing of water from a liquid to a gas
- **CONDENSATION** – the changing of water from a gas to a liquid
- **SUBLIMATION** – the changing of water from solid to a gas
- **PRECIPITATION** – the process by which water molecules condense to form drops heavy enough to fall to the earth's surface
- **TRANSPIRATION** – the process by which water is carried through plants from roots to leaves, where it changes to vapor and is released to the atmosphere
- **SURFACE RUNOFF** – the flowing of water over land from higher to lower ground
- **INFILTRATION** – the process of water filling in the porous spaces of soil
- **PERCOLATION** – groundwater moving into the saturated zone below the earth's surface

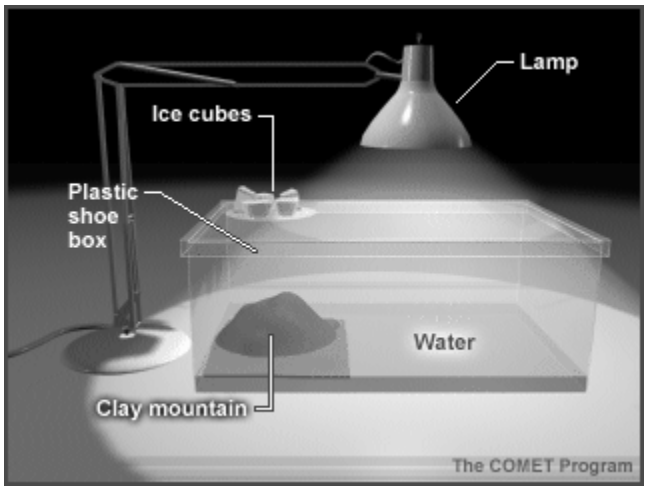
MODELS are often used to think about processes that happen too slowly, too quickly, or on too small a scale to observe directly, or that are too large to be changed deliberately, or that are potentially dangerous.



Adapted from: http://www.ucar.edu/learn/1_1_2_4t.htm

Procedure:

1. Your teacher will set up the following demonstration:



2. Observe the model. Record your observations below:

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Questions & Conclusions:

1. Which part of the investigation simulated *evaporation*?

2. Which part simulated *condensation*?

3. Which part simulated *precipitation*?

4. What is the energy source and what does it represent?

5. What processes of the water cycle are NOT represented?

6. How could we demonstrate *transpiration* in this investigation?

7. Would *condensation* occur in the box without the ice? **Explain your answer**.

8. After observing this investigation, explain why water is considered a renewable resource. (Use a dictionary to look up renewable if necessary.)

9. The system you observed is a model of the way the actual water cycle works. Why might scientists use a model like this in their research into the water cycle in the real world?

10. What are some reasons that using such a model might be a problem?

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