# Modeling the Water Cycle

(adaptation for Zoom—description of original model is in Resources)

## Background

The water cycle appears in many state science standards and in the NGSS (DCI ESS2.C). Many elementary teachers (and their students) only consider precipitation, condensation, and evaporation when thinking about the water cycle. They often view the water cycle as a single, circular pathway. They rarely consider groundwater and glaciers when envisioning the water cycle.

## The Adapted Model

Find a die to roll. If you don’t have a die, you can create small slips of paper each labeled with a number from 1-6. The slips can be put in a small bag or a bowl for you to draw from.

## The Question

What paths can a particle of water take through the water cycle? (Note: Molecule would, of course, be more accurate but it is not typically introduced to elementary students until grade 5. The water cycle is often taught earlier. The term molecule has little meaning to younger children.)

## The Task

In this activity you will act as a particle of water and will move through the water cycle. Each person will start at one of the locations on the next page. Number a piece of paper from 1-20. Write the name of the location from which you are starting by the 1. Now, roll the die to find out where you (the water particle) move next. Write that location by #2. If you roll *stay,* write the same location you wrote for # 1 by #2 (e.g., You start at cloud and roll stay. Write cloud by #2.).

If you don’t have a die, use the pieces of paper you created. Draw a slip of paper from the bowl or bag each time to determine where to move next. Put the slip of paper back in the bowl or bag before picking again.

Do this for a total of 20 rounds. The list on the next page tells you where to move when rolling each number at a specific location.

**Soil**

1: plant

2: river

3: groundwater

4: clouds

5: clouds

6: stay (be at soil again)

**Plant**

1: clouds

2: clouds

3: clouds

4: clouds

5: stay (be at plant again)

6: stay (be at plant again)

**River**

1: lake

2: groundwater

3: ocean

4: animal

5: clouds

6: stay (be at river again)

**Clouds**

1.soil

2: glacier

3: lake

4: ocean

5: ocean

6: stay (be at clouds again)

**Ocean**

1: clouds

2: clouds

3: stay (be at ocean again)

4: stay (be at ocean again)

5: stay (be at ocean again)

6: stay (be at ocean again)

**Lake**

1: groundwater

2: animal

3: river

4: clouds

5: stay (be at lake again)

6: stay (be at lake again)

**Animal**

1: soil

2: soil

3: clouds

4: clouds

5: clouds

6: stay (be at animal again)

**Groundwater**

1: river

2: lake

3: lake

4: stay (be at groundwater again)

5: stay (be at groundwater again)

6: stay (be at groundwater again)

**Glacier**

1: groundwater

2: clouds

3: river

4: stay (be at glacier again)

5: stay (be at glacier again)

6: stay (be at glacier again)

## Let’s Process

* Construct an explanation.
* Recognize patterns.
* Evaluate the model.