



# WATER CYCLE

## Narrative



### BIG IDEAS:

- Water is constantly changing form and moving through Earth's natural system.
- Water changes states as it moves through the water cycle by evaporation, condensation, precipitation, melting, and freezing.
- The water cycle is not just a big circle.

### MATERIALS:

9 dice

9 bead holders

9 different colored beads

Bead Color Key

9 station signs with PVC stands

Chenille Stems knotted at one end

Flip white board with bold marker

### Q & A — Water Cycle – 1 Minute.



**At this station, you will get to role-play as water molecules traveling in the water cycle. What do you know about the water cycle? What is the picture that comes to mind?** Students will probably think about the cloud over the ocean with the arrow pointing up and then raining down on the land. **In this activity, we are going to expand our picture of the water cycle.**

### ENGAGE — Water Movement – 3 Minutes.



**How does water move from the ocean or lake to the clouds? Does it move as a liquid? What are the processes that move water from one place to another within the water cycle?** As students generate the different ways that water moves, introduce the various hand motions:

- **Precipitation:** move hands from above your head down, wiggling fingers as you go.
- **Evaporation:** move hands from in front of you toward your head wiggling fingers.
- **Condensation:** spread hands out and bring together to make fists.
- **Flow:** move hands across body in a flowing motion. If students don't know this ask: If you poured water on a slope, what would it do?
- **Percolation:** reach hands down to the ground and twist them sideways. If students don't know this ask: If we poured water on the ground, where would the water go?

### Q & A — Water Places List – 3 Minutes.



**Now that we know how water moves and changes form, where can water go in Earth's natural system?** You are looking for the titles in bold below. If other words are suggested, write them down (they are not wrong answers) and then write the word

that you were looking for next to it. The words in parentheses represent some of the words that may be suggested.

**River** (streams)

**Lake** (ponds)

**Ocean**

**Groundwater**

**Soil**

**Glacier** (icecaps)

**Cloud** (air)

**Plant**

**Animal**

Try to have students come up with all the places water can go in Earth's natural system. If they cannot guess, ask them questions like: What other forms of water are there, other than liquid? Water can be found as a solid, gas (vapor) or liquid. How do plants get water? From the soil.

**Q & A — Where Can You Go From Each Place? – 5 Minutes.**



While passing out a chenille stem looped at the end to each student, tell the students: **Now you are going to play a game where you will be a water molecule moving from one location to another but only in ways that water can actually move in Earth's natural system. For instance, ocean water can move by evaporating and then condensing into a cloud.** Count off students by 9s. Write numbers 1-9 next to your water places list. Ask number 1s: **Where can you go and how can you get there? Go through each of the 9 places listed asking that same question to the students with the corresponding number.** (e.g.: Where might a water molecule go from the clouds? How would you get there?). Have them use hand motions to show how water would move.

**ENGAGE — Incredible Journey Game – 8 Minutes.**



Have students line up behind their station with their chenille stem. Pick up the ocean die and show them the possible sides that it can land on saying **stay, stay, stay, stay, cloud, cloud** as you turn the die. **Whatever the die lands on tells you where you go next. Every time you roll the die take a bead and put it on your chenille stem. This will be your water molecule journey record so place your beads in order as you move through the game.** Have students repeat after you: **Every time you roll the die take a bead and put it on your stem.** Tell them: **The first student in line will roll the die, take a bead to put on your chenille stem and go where it says. If you roll STAY, you will still take a bead from that station and go to the back of the line. On your mark, get set, go!**

As you walk around, remind them: **Every time you roll the die take a bead.** Ask questions at different stations: **Why do you think there is a line at the ocean? What does it mean in Earth's natural system if there is a line at the clouds? Look up, do you see clouds in our Arizona sky? Why are you stuck in groundwater?** Don't answer

the questions for them; just keep posing the questions. Students may end up staying at certain areas a long time and most won't get to all the stations. What matters is their individual journey.

Play the game until most students have about 8 beads each, or until you have about ten minutes remaining. Call the students back to the place where they were sitting.

## EXPLANATION — Wrap Up – 10 Minutes.



Put up the bead color key showing the places water can go in Earth's natural system with the bead color that represents that station.

River = baby blue	Ocean = turquoise	Soil = brown
Lake = royal blue	Groundwater = orange	Glacier = clear
Cloud = white	Plant = green	Animal = red

Have the teacher and chaperones help students tie their water molecule journey record into a bracelet. Ask students to hold up their bracelets and look around at everyone else's. **Are any of the water molecule journey's recorded in beads exactly the same as yours?** Have one student at a time stand up and recite their water journey using the bead color key. Encourage students to use hand motions from the warm-up to follow along with each journey by asking questions: **How did you move from the cloud to the ground? Precipitation!** And do the hand motions for precipitation.

### Below are some questions you can ask the students:

- Did each water molecule (student) follow the same path?
- Where were the places you got stuck? Where were you the most?
- Why do you think you stayed longer in this area? (There is a lot of water in the oceans. Oceans or seas cover about 70% of the earth's surface. And saltwater represents 97% of the water on the planet. It makes sense for many water molecules to get "stuck" in these areas)
- Did any of you go from the ocean to the clouds and back to the ocean for more than one roll? (this is called cycling)
- Did some of you get stuck in the groundwater? (Water takes longer to move through the ground than it does to move over the land surface.)
- What does it mean in Earth's natural system if there is a line at the clouds? Clouds are building up but maybe no rain is coming down ... this happens in Arizona a lot of times.
- Look at each student's journey record – did they travel in a perfect circle? Why not?

**Big Ideas to Review:**

- Is water constantly changing form and moving through Earth's natural system?
- What are the processes that move water from one place to another within the water cycle?
- Is the water cycle just a big circle?



# WATER CYCLE

Min.	ELEMENT:	What you ask (and reminders):	Big Ideas:									
1	Q & A: Water Cycle	<ul style="list-style-type: none"> <li>• <b>What do you know</b> about the water cycle?</li> <li>• What is the <b>picture</b> that comes to mind?</li> </ul>	<ul style="list-style-type: none"> <li>• The water cycle is not just a big circle.</li> </ul>									
3	ENGAGE: Water Movement	<ul style="list-style-type: none"> <li>• <b>How does water move</b> from the ocean or lake to the clouds? Does it move as a liquid?</li> <li>• What are the <b>processes that move water from one place to another</b> within the water cycle?</li> </ul>	<ul style="list-style-type: none"> <li>• Water is constantly changing form and moving through the earth system.</li> <li>• Water changes states as it moves through the water cycle by evaporation, condensation, precipitation, melting, and freezing.</li> </ul>									
3	Q & A: Water Places List	<ul style="list-style-type: none"> <li>• <b>Where can water go</b> in the natural Earth system?               <table border="0" style="margin-left: 20px;"> <tr> <td>River</td> <td>Groundwater</td> <td>Cloud</td> </tr> <tr> <td>Lake</td> <td>Soil</td> <td>Plant</td> </tr> <tr> <td>Ocean</td> <td>Glacier</td> <td>Animal</td> </tr> </table> </li> </ul> <p><b>IF hints are needed:</b></p> <ul style="list-style-type: none"> <li>• What other forms of water are there other than liquid?</li> <li>• How do plants get water?</li> </ul>	River	Groundwater	Cloud	Lake	Soil	Plant	Ocean	Glacier	Animal	<ul style="list-style-type: none"> <li>• Water is constantly changing form and moving through the earth system.</li> </ul>
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Min.	ELEMENT:	What you ask (and reminders):	Big Ideas:
5	<b>Q &amp; A:</b> Where Can You Go From Each Place?	<ul style="list-style-type: none"> <li>Where can you go and how can you get there?</li> </ul>	<ul style="list-style-type: none"> <li>Water is constantly changing form and moving through the earth system.</li> <li>Water changes states as it moves through the water cycle by evaporation, condensation, precipitation, melting and freezing.</li> </ul>
8	<b>ENGAGE:</b> Incredible Journey Whole Body Activity	<p>As they are doing the game ask:</p> <ul style="list-style-type: none"> <li>Why do you think there is a <b>line at the ocean?</b></li> <li>What does it mean in the earth system if there is a <b>line at the clouds?</b> (Arizona clouds... the kind that don't precipitate that often!)</li> </ul>	<ul style="list-style-type: none"> <li>The water cycle is not just a big circle.</li> </ul>
10	<b>EXPLANATION:</b> Wrap-Up and Big Ideas	<ul style="list-style-type: none"> <li>Hold up your water journey bracelet: Are any of the <b>water molecule journey's</b> recorded in beads exactly the <b>same as yours?</b></li> <li><b>Why do you think you got stuck in the ocean?</b></li> <li><b>Why do you think you got stuck in that cycle between clouds and the ocean?</b></li> <li><b>Why do you think you got stuck in the groundwater?</b></li> </ul> <p><b>Big ideas to review:</b></p> <ul style="list-style-type: none"> <li>Is water constantly changing form and moving through Earth's natural system?</li> <li>What are the processes that move water from one place to another within the water cycle?</li> <li>Is the water cycle just a big circle?</li> </ul>	<ul style="list-style-type: none"> <li>Water is constantly changing form and moving through the earth system.</li> <li>Water changes states as it moves through the water cycle by evaporation, condensation, precipitation, melting, and freezing.</li> <li>The water cycle is not just a big circle.</li> </ul>

