From Puddle to Cloud: The Urban Water Adventure Activity Guide

This engaging activity introduces children to the natural water cycle including evaporation, condensation, precipitation, and collection. It also is an introduction to the fundamentals of the urban water cycle. Through hands-on mural creation, interactive storytelling, and group collaboration, participants will explore how water travels through the environment and urban systems, including storm drains, pipes, and water treatment plants. The activity highlights the importance of clean water, water conservation, and the role these systems play in daily life, especially in cities like Houston, where managing water resources is essential.

Designed for individuals, small groups, classrooms, and community settings, the activity helps participants visualize the water cycle and understand its connections to urban infrastructure. By creating a collaborative mural and telling stories of a raindrop's journey, participants gain foundational knowledge of how water moves through natural and manufactured systems. This project fosters creativity, teamwork, and environmental awareness, making it an accessible and meaningful learning experience for all ages.

Activity Guide For: Parents, Youth Groups, Afterschool Programs, Nonprofits (NGOs), NGOs, Libraries, Museums, Zoos/Aquariums, Religious Youth Groups, Nature Centers, Homeschooling Families, Teachers, and Schools

Grade Level: K-3 (Early Elementary)

Approximate Activity Duration: 160 minutes. Time estimate is a guidepost as projects can be self-paced and adjusted based on the learning environment.

Subject: Science and Art Integration

Topic: The Water Cycle

Objective:
Children will:

- Understand the basic stages of the urban water cycle (evaporation, condensation, precipitation, and collection).
- Collaboratively create a mural representing the water cycle.

- Develop storytelling skills by describing water's journey through the cycle.

Materials Needed:

- Large roll of butcher paper or poster board
- Attachment A *From Puddle to Cloud: The Urban Water Adventure*
- Attachment B Vocabulary List
- Attachment C Vocabulary Labels
- Attachment D Story Prompt Cards
- Attachment E Simple Water Cycle Diagram
- Attachment F Water Cycle Shapes
- Colored markers, crayons, and water safe paints
- Glue sticks or slightly water down glue and paintbrushes
- One Water Houston videos HoustonOneWater.org
- Protective smocks or aprons for children
- Stickers of raindrops, clouds, and sun shapes (optional)

Materials to Prepare in Advance:

- Cut the butcher paper or arrange poster board to the desired size. Using the simple water cycle diagram **(Attachment E)** lightly sketch the general outline of the water cycle. This provides a guide for children without limiting their creativity.
- For larger groups, consider creating a list of the children for each small group.
- Print *From Puddle to Cloud: The Water Adventure.* **(Attachment A)**
- Print the Vocabulary List for each child. **(Attachment B)**
- Print Vocabulary Labels of the water cycle for the mural. **(Appendix C)**
- Print out Story Prompt Cards. **(Attachment D)**
- Print Simple Water Cycle Diagrams for each group. **(Attachment E)**
- Print out Water Cycle Shapes and pre-cut some shapes **(Appendix F)**
- Art Supplies:
    - Gather and organize markers, crayons, paint, glue sticks, and stickers in bins or trays for easy access for each group.
    - Ensure smocks or aprons are available for children.
- Reference Materials:
    - Check out OneWaterHouston.org for program information and gather your own visual aids, such as online videos, pictures of clouds, puddles, and rivers.

Activity Guide

Introduction (10 minutes)

Objective: Introduce the concept of the water cycle.

- Review the Vocabulary List and the sample sentences. (**Attachment B**)
- Discuss the stages of the water cycle using *From Puddle to Cloud: The Water Adventure*. (**Attachment A**)
- Show children the mural space and explain that they will work together to create a big picture of the water cycle.

Guided Discussion and Planning (10 minutes)

Objective: Plan the mural collaboratively.

- As a class, brainstorm the parts of the water cycle. Write their ideas on a board.
- Assign sections of the mural to different groups
- Use the Vocabulary List to reinforce key terms. (**Attachment B**)

Mural Creation (50 minutes)

Objective: Create a water cycle mural.

- Set up the children in groups to work on different parts of the water cycle. The groups can take turns drawing on the mural and decorating the Water Cycle Shapes for each part of the water cycle. (**Attachment F**)
- Give each group Simple Water Cycle Diagrams as a reference. (**Attachment E**)
- Example Groups
    - Group 1: Puddles, raindrops, lake, or river at the start of the water cycle
    - Group 2: Sun, its rays and directional arrows to represent evaporation.
    - Group 3: Raindrops and clouds for condensation and precipitation.
    - Group 4: Water and raindrops flowing though the storm drains into a water treatment plant.
    - Group 5: Water coming out of faucets and flowing back to the drains to rivers and oceans.
- Use precut Water Cycle Shapes and stickers to support children with motor difficulties.
- Label each part of the water cycle using the Vocabulary Labels on the mural with group input. (**Attachment C**)

Storytelling Activity (30 minutes)

Objective: Create stories about water's journey.

- Give each child one of the Story Prompt Cards. (**Attachment D**)
- Use the Sentence Starters for children having difficulty starting the task.

- Children can create short, simple sentences about water's journey through the cycle.
- Invite children to share their stories with the group or share with a small group, pointing to the mural to illustrate their narratives.

Closure (10 minutes)

- Gather around the mural and review each part of the water cycle.
- Ask the children to reflect on what they learned and share their favorite part of the activity.
- Add a picture to your organization's social media or newsletter with the hashtag #HoustonOneWater and #houstonpublicworks

Accommodations:

Students with Disabilities:

- Provide adaptive tools like large grip crayons or paint brushes.
- Allow children with motor challenges to use stickers or stamps for decoration.
- Assign peer buddies to assist with drawing or labeling.
- Use audio descriptions and repeat instructions as needed.
- Use the Sentence Starters prompt cards to support children.

English Language Learners (ELLs):

- Pair ELLs with peers who can assist with translations or explanations.
- Use bilingual vocabulary cards and visuals to reinforce key terms.
- Provide sentence frames for storytelling (e.g., First, I was ___. Then the sun made me ___.).
- Offer a glossary of water cycle terms in their home language alongside English.
- Use the Sentence Starters prompt cards to support children.

Attachment A

From Puddle to Cloud: The Urban Water Adventure

[Note to parents and instructors: The narrative can be enhanced using symbols and icons that represent the urban water cycle.]

Hi, I'm Drop the Raindrop! Let me tell you about my big adventure through the urban water cycle and the city where you live.

_____

Morning in the Puddle

I started my day in a big puddle outside the city. The warm sun shines down on me, and I feel myself getting lighter and lighter. As I warm up, I turn into vapor and float up into the sky. This is called evaporation, and it's my first step in the water cycle!

_____

High Up in the Clouds

Up in the sky, I cool down and turn back into tiny water drops. This is called condensation. I join a fluffy cloud filled with lots of other raindrops. We float over the city as a cloud, and it is so fun to see all the people, buildings, streets, and parks below. Have you heard of something called climate change? As the planet warms up, more and more raindrops can hang together in the sky.

_____

Falling to the Ground

Suddenly, the cloud gets very full of my raindrop friends, and we can't hold on anymore. It is time for something called precipitation, and all of us raindrops fall to the ground as a little rain! I landed in a lake with billions of my other friends and begin to flow down a river.

_____

Down the River, Rest Stop at a Lake and to the Treatment Plant

We all flow down the river and eventually come to have a rest stop at a lake. Then some of us take a detour to head through large pipes that take us to the City's big treatment plant to get cleaned.

_____

Getting all Cleaned Up at the Treatment Plant

After we were sucked up into the pipes, we arrived at the treatment plant where we get cleaned up and ready to go to work in the city and at your home. Machines and people work hard to make sure I was clean and safe to drink.

_____

Helping the People of Houston

After I am all cleaned up, I travel through more pipes to houses, schools, and parks. I can even come out of a faucet in a kitchen where someone can use me to fill a glass of water. It feels good to help people!

_____

Back to the Treatment Plant

After being used, I go down another drain into the city's sewer system. I travel to a different treatment plant, where I get cleaned again before being sent to a river or the bayou where I return to nature.

_____

The Cycle Never Ends

After all that traveling, I know the sun will warm me up again soon, and I'll float back into the sky to start the cycle all over again.

That's my story! The water cycle isn't just for lakes and clouds—it happens in the city, too. I help plants, animals, and people every step of the way. Where do you think I'll go next?

Attachment B

Vocabulary List

Water Cycle: The water cycle is like a big adventure, where water goes from puddles to clouds and back to rivers!

Evaporation: When the sun shines on water in a place like a puddle or lake, some water goes up into the air as evaporation, starting its journey in the water cycle.

Condensation: When water vapor cools down in the sky, it makes tiny drops that form clouds—this is called condensation.

Climate Change: When the entire planet gets warmer over time, year after year.

Precipitation: When clouds get full of water, the water falls back to the ground as precipitation, like rain or snow.

Cloud: Clouds in the sky are made of tiny drops of water that were once part of puddles, rivers, or oceans.

Sun: The sun helps the water turn into water vapor so it can float up into the sky.

Raindrop: Every raindrop that falls on the ground is part of the water cycle, helping plants and animals.

Vapor: Water changes into vapor when it heats up, floating into the air to become part of the clouds.

Water Cycle: The water cycle keeps going, bringing water to places like lakes and cities.

Reservoir: A reservoir is a big lake made by people to store water that we use for drinking and cleaning.

Water Treatment Plant: At the water treatment plant, dirty water is cleaned so we can use it safely in our homes.

Sewer: Water from homes and buildings goes into sewers under the street, where it travels to special places to be cleaned.

Storm Drain: When it rains, water flows into the storm drain, which takes it to rivers or treatment plants.

Attachment C

Vocabulary Labels

Evaporation
Condensation
Precipitation
Cloud
Sun
Raindrop
Vapor
Reservoir
Water Treatment Plant
Sewer
Storm Drain
Evaporation
Condensation
Precipitation
Cloud

Attachment D

Story Prompt Cards

Open-Ended

What happens to a puddle when the sun shines on it? Where do you think the water goes?

_____

_____

Imagine you are a puddle on a sunny day. What do you feel like as you start to evaporate?

_____

_____

Pretend you are a little water droplet floating up into the sky. What happens when you cool off?

_____

_____

Think about a rainy day. Where does all the rain go after it falls from the clouds?

_____

_____

What would it be like to fall from the sky as a raindrop? Where do you think you would land?

_____

_____

Where do you see water gathering in your neighborhood after it rains?

What do you think happens to the water in a lake or river after it collects there?

Why do you think we need water treatment plants? What do they do to help us?

Imagine you are water traveling through pipes under the city. What would you see along the way?

Tell the story of a raindrop going through the water cycle. Where does it go, and what does it do?

Why do you think the water cycle never stops? How does it help people, animals, and plants?

If you could be a part of the water cycle, which part would you be? Why?

_____

_____

Sentence Starters

When the sun warms the water, it turns into _____. This is called _____.

When water vapor cools down, it turns into tiny drops. These drops form _____ in the sky.

When a cloud gets too full of water, the water falls down as _____.

After rain falls, water collects in places like _____, _____, and _____.

Storm drains take water from the streets to _____.

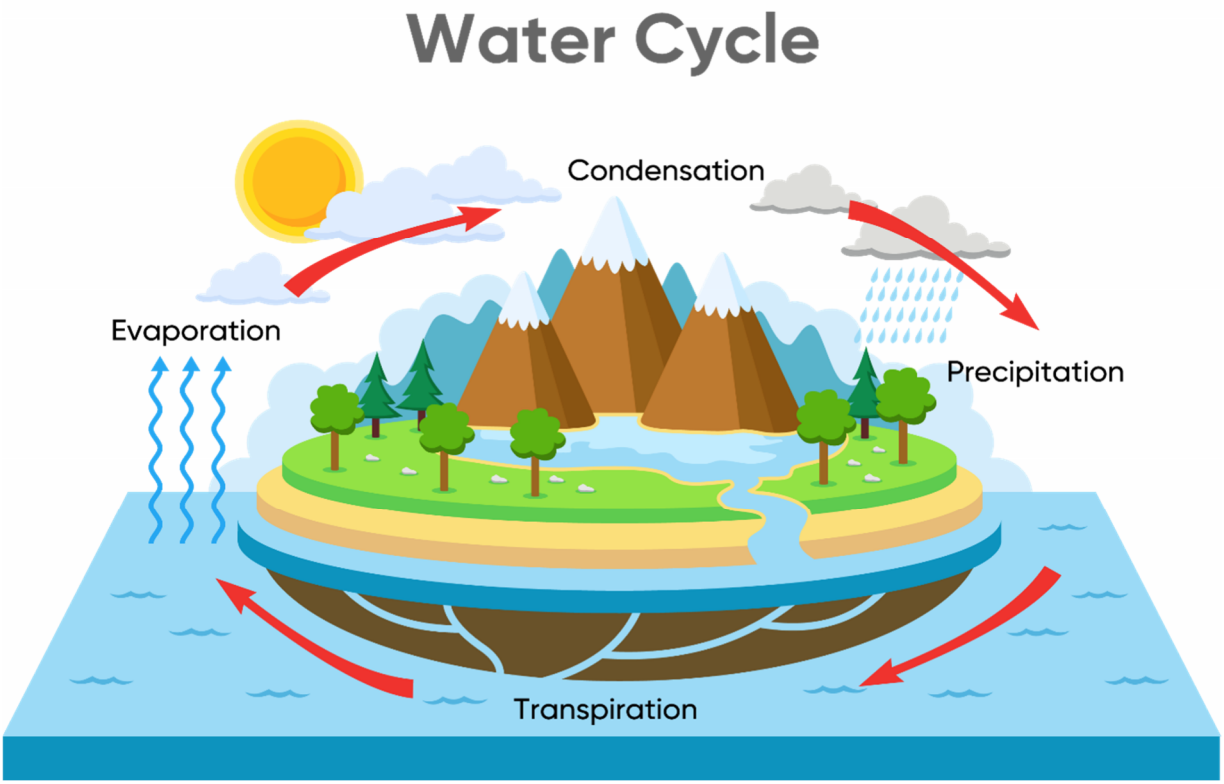
Clean water comes out of the faucet because it travels through _____. from the treatment plant.

My favorite part of the water cycle is _____, because _____.

Attachment E

Simple Water Cycle Diagrams

[Example Diagram]



Attachment F

Water Cycle Shapes

[Example Shapes]