

# Engineering Activity 1: Water Stories: Sharing Experiences

## Educator Preview

### Activity Snapshot

Learners share experiences with, and stories about, water.



### Timing | 45 minutes

Get Ready & Team Up 10 min.  
 Storytelling 25 min.  
 Reflect 10 min.  
**Total 45 min.**  
**Level Up Activities** 5–60 min. each



### Prep Snapshot\*

**Prep Time 30 min.**

- Set up Materials Table.

*\*See Materials & Preparation for full info.*



### 21st Century Skills

#### Connection

- Communication

#### Habits of Mind

- Communicate effectively.



## Guiding Question

*Why is water important?*

### Learners Will Do

Share a story or experience about water.

### Learners Will Know

Water is essential for life.



## Connecting Across Activities

| Ready, S.E.T., Go!                                                                                                                                                       | Activity 1:<br>Sharing Experiences                                        | Activity 2:<br>Water Where We Are From                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Last time</b> , learners started exploring water. As scientists, they figured out where water was located. As engineers, they designed a technology to get the water. | <b>Today</b> , learners share experiences with, and stories about, water. | <b>Next time</b> , learners will consider who uses water in their community and how, and they will make water samples. |

## Activity Resources

Access videos and digital resources using the link or QR code below. More information for teaching this curriculum is available in the [Educator Guide Introduction, pgs. iii–xxvi](#). Access more PLANETS units, research, and pathways at <https://planets-stem.org/>.



weblink: <https://hov.to/4f755d4d>

## Materials and Preparation

### Materials

#### For the educator

- *Our Ideas* poster (on paper or a shared digital document) in Prep & Setup Guide (PDF) [Examples](#) & [Template](#)
- index cards
- markers
- scissors
- tape

#### For the Materials Table

- drawing supplies (such as pencils, crayons, markers)
- building supplies (such as clay, Legos, beads, natural materials)

#### For each learner

- [Engineering Notebook \(PDF\)](#)

## Activity 1 Materials Preparation (30 min.)

### Ahead of Time

1. If you did not do so before the Ready, S.E.T., Go activity, prepare an *Our Ideas* poster by following the [Prep & Setup Guide \(PDF\)](#). Add the Guiding Question “Why is water important?” so learners can refer to it throughout the activity.
2. Learn about local water, reasons why it is important in local communities and cultures, and the history of its use in your area. This information will help you understand learners’ stories, and you can use it to provide examples and prompt learners’ thinking.



### Teaching Tip

This activity is the same in both the Science and Engineering Pathways. If your learners have already done this activity in one pathway, you do not need to repeat it.

- Learn about or reflect on the storytelling styles of learners' communities. Think about the kinds of stories learners might tell and how you can structure the activity to support them.



### Support Learner Differences



This is an opportunity to celebrate cultural stories about water. As appropriate, share one yourself, invite a community member to share, or suggest learners can share any they know.

Watch the video [Working with Indigenous Learners](#).

### In Your Space

- Place the *Our Ideas* poster in a location all learners can access. Make a plan to store it between activities.
- Set up a Materials Table with the items listed in the Materials section.
- Optional: Set the mood for the activity by playing music or water sounds.

### Get Ready & Team Up (10 min.)

- Ask: **If you did the last activity, what did you do and why?** (*As scientists, we figured out which container had water. As engineers, we designed a technology to get the water out.*)
- Say: **Our ultimate goal is to design a technology to reuse water, which will help people live in a place where water is hard to get. To start figuring this out, we're going to share what we know about why water is important.** Share the Guiding Question with learners aloud and in writing (using multiple languages as needed): **Why is water important?**
- Organize learners into groups of four.



### Support Learner Differences



If learners are new to you or each other, have them share their names, name pronunciations, and other important parts of their identities. These introductions are important for all learners and can be especially relevant for Indigenous learners, multilingual learners, and learners with different physical abilities. You can also distribute index cards and have learners write anything they want you to know but do not want to share with the whole group, such as resources that will help them learn. Lead an [inclusion activity \(pgs. xx-xxi\)](#) that is appropriate for your group (a list of possible activities is available on p. xvii). This tip is repeated because you may have new learners joining you in this and future sessions. Whenever you have new learners, repeat this strategy.

For more strategies to engage learners, refer to [Designing Instruction to Reach Diverse Learners, pgs. x-xvi](#).

### Storytelling (25 min.)

- Say: **We all have stories. They can be stories we've heard from other people, stories we've watched or read about, or stories about things we have experienced ourselves. We experience stories**



If you have learners who speak multiple languages, consider pairing learners with the same preferred language so they can share with each other in that language. Check out the [Intentional Grouping Strategies, pg. xxii](#).



every day in conversations, art, traditional craft, and online videos. Today, we're going to share stories about why water is important. These stories could be about why water is important for life, how water connects different parts of the world, how water has spiritual significance to many communities, how caring for water is an important responsibility, and how some communities have more reliable access to clean water than others.

- Have learners turn to *My Water Story*, pg. 7 in their Engineering Notebook. Say: **To start, everyone will have 15 minutes to think about a story to tell that shows why water is important. Create some art that tells your story. You can write it down or write a poem that tells it, draw it, record it on a device, create a performance about it, or build something to demonstrate it.** Note that there are drawing and building materials on the Materials Table. During this time, check in with each group. If learners are struggling, consider sharing your own short story about water to spark ideas.

- After 15 minutes, say: **Now, everyone in your group will take a few minutes to share their stories. If your story is long, you can choose one or two minutes of it to share so there is time for everyone.**



### Support Thinking

Learners may want to make up their own stories. Bear in mind that the goal of the activity is to identify why water is important to learners and communities they belong to, which made-up stories may or may not do.



### Support Learner Differences



If you have learners who speak multiple languages, have them discuss words for "water" in their preferred languages and notice similarities between languages. If you can, provide an example from a language you know. Take time to learn learners' words and use them throughout the activities.



It is possible that stories about the importance of water may bring up trauma related to the lack of access to clean safe water (e.g., the water crisis in Flint, Michigan; lack of running water in certain Indigenous communities). If you notice this, ask the learner privately what they might need at that moment. If they do not know, you can offer some ideas from the [Arizona Adverse Childhood Experiences Consortium Resource Library](#).



In this activity, you will need to strike a balance between allowing learners to share complete stories and ensuring there is enough time for everyone to share. Different cultures have different conventions for storytelling, which may involve very long stories with many parts, the significance of which is not immediately apparent. Consider the best way to approach time management, which may involve dedicating multiple sessions to this activity.



You can use storytelling as an opportunity for learners to practice social skills such as taking turns and showing respect for other people's experiences.

## Reflect (10 min.)

8. Say: **Thank you for sharing your stories. They gave us great reasons why water is important.** Point out common themes you noticed among stories. Emphasize the importance of water for life. Ask: **Is there anything else you want to share to answer the Guiding Question?** Revisit the Guiding Question: **Why is water important?**
9. Have learners record answers to the Guiding Question near it on the *Our Ideas* poster. You can
  - have each group designate a member to record responses on the *Our Ideas* poster.
  - have each learner write or draw something on a (physical or digital) index card and add it to the *Our Ideas* poster.
10. Say: **Next time, we'll use the ideas we explored today to think about water in communities we belong to and the different groups that use it.**



### Support Learner Differences

As needed, allow learners to choose other methods of sharing their ideas, such as audio recordings. Have them write the filename of each record on an index card and put the index cards on the *Our Ideas* poster. They will serve as placeholders. When necessary, you can ask, "Who has the idea named X?" and have the learner in question share the record.



### Support Thinking

Learners may bring up ideas that will be relevant in future activities, such as water quality, water filtration, and order of water reuse. As appropriate, note that the group will return to these ideas.



### Level Up!

- ✦ To explore why the chemistry of water makes it so important for life, show the video [Properties of Water](#). (5 min.)
- ✦ Refer to the *Engineering Design Process* poster. Ask: **What phases of the Engineering Design Process did you use today?** (*We identified reasons why water is important.*) (5 min.)
- ✦ Check out some great examples of the more than [2,000 NASA spin-off technologies](#) that enrich our lives—and keep water clean and usable—thanks to space exploration. (5 min.)
- ✦ Tell learners, if anyone asks them what they did today, they can tell them "We shared stories about why water is important." (5 min.)
- ✦ Read the book [We Are Water Protectors](#), which tells a story about people fighting to keep water clean. Although this is a picture book, it has a message that is important for all ages. (60 min.)

## After the Activity

1. Clean up:
  - Keep the *Our Ideas* poster for Activity 2.
  - If learners created objects related to their stories, save those objects for reference in future activities.
2. Plan for Engineering Activity 2. See the [Activity 2 Preparation on pg. 27](#).
3. Take time to reflect on the following educator prompt. **What strategies helped learners feel comfortable sharing stories?**

### Water in Extreme Environments Additional Resources

Resources include All Downloads, All Videos, Family Connections, and more.



weblink: <https://hov.to/7cb5c428>