

Whitney Water Center

COVID-19 Remote Learning Programs

Remote Learning Programs

All activities will be demonstrated through Zoom with interactive discussion about the science behind the demo. At the teacher's request, a materials list will be provided for the students if they wish to participate in the activity at home. Students will need to provide their own materials from home or observe the demonstration and participate in the discussion.

Each program is a short, 20 to 30 minute science segment designed for remote classes. Length of the program can be easily modified to meet your needs by combining programs or removing activities. The videos referenced below each program can be found on [YouTube](#), [Facebook](#), and the [RWA's Whitney Water Center Learning From Home web page](#).

Buoyancy

Grade K-2 (Related Videos: Episodes 10, 19)

Have you ever noticed how the water in the bath tub rises when you get in? Through two demonstrations, students will learn what makes an object float or sink and how displacement works.

Opening Story

Who Sank the Boat? by Pamela Allen

Demonstration 1: Sinking and floating

- Using a variety of common objects, student will guess if an object will sink or float, draw their predictions and observe the results.

Demonstration 2: How many marbles does it take to sink a foil boat?

- One marble will sink, but how many marbles will it take to make a foil boat sink?

Water in My Community

Grade K-2

How is water used in your community? In this program, students will see how important water is to everyone in a community.

Activity 1: How Do I Use Water?

- Students will complete a worksheet, *How I Use Water*, at their desks. When completed, they will share their answers with the class.

Activity 2: Community workers need water for their job

- The instructor will read riddles describing a community worker. Looking at a few pictures, students will decide which worker is being described. This will be repeated for 10-15 workers.

Activity 3: Where do the community workers go for their job?

- Looking at three choices, the class will decide the best location for each worker. This will be repeated for all the workers talked about during the session.

Chromatography

Grade K-3 (Related Videos: Episode 8)

Color is all around us, and is composed of three primary colors: blue, yellow and red. Through chromatography demonstrations, students will see the primary colors and how they interact to make colors.

Opening Story

Color Dance by Ann Jonas

Demonstration 1: What are primary colors?

- Blue, yellow, and red will be “separated” using water and filter paper.

Demonstration 2: Separating color using water and filter paper

- A black circle drawn on filter paper will be separated using water to show the colors that make black.
- The demonstration can be repeated with other secondary colors as time allows.

Surface Tension 1

Grade 1-4 (Related Videos: Episodes 1, 15)

What is water made of and what creates surface tension? Students will see three demonstrations that show the strength of the surface tension of water.

Demonstration 1: Water vs. rubbing alcohol

- Water and rubbing alcohol will be placed next to each other on a sheet of wax paper to demonstrate the difference in surface tension between the two liquids.

Demonstration 2: Drops of water on a penny

- How many drops of water will fit on the top of a penny? Students will observe the size of a drop of water from a dropper and make a hypothesis about how many will fit on top of a penny. The experiment will be demonstrated so they can see how close their hypothesis was.

Demonstration 3: Drops of water on a quarter

- A quarter is bigger than a penny, how many more drops will fit on the top of a quarter?

Surface Tension 2

Grade 1-4 (Related Videos: Episodes 2, 3)

We'll review what water molecule is made of, and what creates surface tension. Students will see two demonstrations they can try at home that make the invisible force of surface tension more concrete.

Demonstration 1: Pepper boat

- Water is placed in a large container (or sink) and sprinkled with black pepper. The pepper floats on the surface tension of the water, making it easily visible. An index card cut into the shape of a “boat” is placed on the surface of the water. Liquid soap is dripped behind the paper boat. The soap breaks the surface tension, disperses the pepper, and propels the boat forward.

Demonstration 2: Floating a paper clip

- Water is placed in a clean bowl and a paper clip is used to demonstrate the presence of surface tension by floating it on the water.

Absorption

Grade 1-4 (Related Videos: Episodes 6, 7)

Do all materials absorb water? The physical properties of water: surface tension, cohesion and adhesion, work together to help paper towels absorb water. Through two demonstrations, students will see what materials absorb the best and the power of water when it is absorbed by paper.

Demonstration 1: Comparing absorption of different materials

- How do different materials absorb water? Students will see how paper, foil, construction paper, and wax paper perform. They will make a hypothesis about which will absorb best and then we will demonstrate to find the results.

Demonstration 2: Making a paper worm (stretching paper)

- Paper is made of cellulose, which water is highly attracted to. We will use the power of absorption to stretch out a folded piece of writing paper.

Oozing Oobleck***

Grade 2 & Up (***students will need to pick up supplies from school to make this at home)

After reading *Bartholomew and the Oobleck* by Dr. Seuss, your students will explore the properties of different liquids and whether those properties change when the materials are combined to make oobleck.

Opening Story

Bartholomew and the Oobleck by Dr. Seuss

Activity 1: Making Oobleck

- Students will be instructed on how to make their oobleck through Zoom.

Adhesion vs. Cohesion

Grade 2-4 (Related Videos: Episodes 4, 20)

Adhesion and cohesion are important properties of water, they control how water works throughout the natural world. Through three demonstrations, students will see which force is stronger and how they work together.

Demonstration 1: Adhesion - water sticking to a dry piece of yarn

- We will see how strong adhesion is by trying to get water to travel down a dry piece of yarn.

Demonstration 2: Cohesion - water sticking to a wet piece of yarn

- This time, we will see how strong cohesion is by trying to get water to travel down a wet piece of yarn.

Demonstration 3: Paper sticking to an upside-down container of water

- Using the force of adhesion and cohesion, we will stick a piece of paper to an upside-down container of water.

Wise Water Ways

Grade 3 & Up

Students will learn how much water a dripping faucet can waste every day and easy ways to conserve water at home and at school.

Activity 1: How do I use water?

- Students will complete a worksheet about how they use water.

Activity 2: What is conservation?

- Group discussion about the importance of conservation.
- Students will complete a worksheet where they need to identify where water is being wasted.

Demonstration 1: A leaky faucet

- There will be a demonstration about how much water drips from a leaky faucet in 24 hours.

Problem with Pollution

Grade 3 & Up

Students will learn about different ways that pollution can enter the environment and why it can be so hard to keep out of our waters.

Activity 1: What is pollution?

- Program will begin with a group discussion of what pollution is.

Activity 2: Identifying different types of pollution

- Students will look at illustrated examples of pollution and identify the type of pollution: erosion, fertilizer, trash, pesticides and oil.
- Each student will complete a worksheet where they will need to identify multiple sources of pollution within a community.

Activity 3: Fred the Fish

- The class will have an opportunity to see how pollution accumulates in a river. Students will read a card with a pollution-creating activity and then see what happens when “pollution” is added to a container of water. This demonstrates the cumulative effects of pollution on a body of water.

The Water Cycle

Grade 3-5 (Related Videos: Episodes 13, 17, 18)

The water cycle is nature’s way of cleaning water and moving it around the earth. Through four demonstrations, students will learn about evaporation, condensation and precipitation.

Demonstration 1: Evaporation through heat

- Demonstrate evaporation through a hot plate.

Demonstration 2: Condensation as hot water cools

- As the steam from evaporation rises, it will cool and condense on a hard, cool surface.

Demonstration 3: Cloud in a bottle

- All you need to make a cloud is a clear bottle, a little water, and a match.

Demonstration 4: Precipitation from a full sponge

- As a sponge fills, the weight of the water overpowers gravity and it falls down, similar to how a cloud produces rain.

Invasion of the Aliens

Grade 4 & Up

What are invasive alien species and why should we care about them? Using zebra mussels and purple loosestrife as examples, your students will learn about the problems that invasive, non-native species can cause.

Activity 1: What are invasive species?

- Group discussion about invasive species and local examples of familiar species. Students will see pictures of the examples given.

Activity 2: What makes a good invasive species?

- Students will read descriptions of what characteristics make a good invasive species.

Activity 3: Successful or Not?

- Using the criteria of what makes a good invasive species, students will look at fictional species and their descriptions to determine if they would make a successful invader.

Activity 4: How much is two million seeds?

- Purple loosestrife is an invasive species that is a prolific seed producer. Each student will individually complete the purple loosestrife worksheet, titled *How much is two million seeds*.

Macroinvertebrate Messages

Grade 4 & Up

Benthic macroinvertebrates are small critters that live on the bottom of a stream. Your students will find out how scientists use macroinvertebrates to assess the health and water quality of a stream.

Activity 1: What are macroinvertebrates?

- Group discussion about macroinvertebrates and what each one means in terms of water health and quality.
- Students will see detailed drawings of the macroinvertebrates being discussed.

Activity 2: How clean is the water?

- We will look at photos of four different river locations. Students will make individual hypotheses about which one they think is the cleanest and which one is the most polluted.
- Students will be given information about what macroinvertebrates are found at each location. They will use this information to determine the water quality at each location and compare the results to their hypotheses.