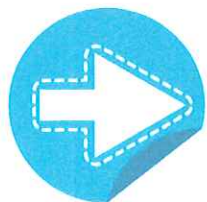
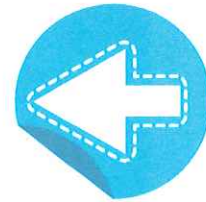


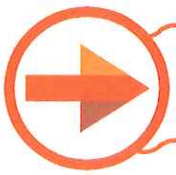


Meeting 19 Weather



Here are three fun ways to explore the weather with your Helping Hands. Adapt the activities to meet the needs of your Helping Hands or create your own activities.





The following activities partially fulfill the requirements for the Weather award.

ACTIVITY

1

DIY Barometer

20

MINUTES



MATERIALS NEEDED

- Dry erase board or large sheet of paper
- Funnels
- Ping pong balls
- Water bottles
- Paper towels
- Balloons, three per child
- String
- Rubber bands
- Canning or other glass jars
- Scissors
- Straws
- Masking tape
- Index cards
- Markers or pens

WHAT YOU DO

Write the following key points on the board and briefly explain them:

- **Air pressure:** Air pressure is the force of tiny particles of air pushing on you or an object. The air particles are invisible but they still take up space and have weight. Changes in temperature make the air pressure heavier or lighter.
- **Warm air:** Warm air expands so there are fewer air molecules in the atmosphere. This causes low air pressure. Low air pressure leads to clouds or rain.
- **Cool air:** Cool air contracts which means the air molecules become smaller and take up less space. This means more air molecules can be packed into the atmosphere. This causes high air pressure. High air pressure usually leads to sunny, clear days.
- **Barometer:** A barometer is a tool that measures air pressure.

Give each child an empty cup or cylinder to lay down on a table. Roll a piece of paper towel into a small ball about half the size of the opening and place it in front of the cup's opening. Have the children try to blow the ball into the cup. No matter how hard they blow, they won't be able to do it. There's no more room in the cup for the air they're blowing, so it will flow right back out, pushing the ball away from the cup.

Give each child two balloons and two pieces of string. Have them blow up the balloons, tie the ends, and attach a string to each one. Have the children hold one balloon by the string in each hand and position the two balloons so they are at nose level and 6 inches (15 cm) apart. Have the children blow hard into the space between the balloons. This lowers the air pressure. The pressure of the surrounding air is now higher and it will push the balloons together.

Now have the children make a barometer to take home and monitor the air pressure. Give each child a balloon and have them cut off the narrow part so they have the widest part of the balloon to work with. Next, give them a glass jar, straw, tape, index card, and pen. Then have them stretch the balloon over the glass jar and secure it onto the jar with a rubber band. Tape the straw onto the balloon lid; the straw should be one quarter of the way on the lid, with the tape about 1 inch (2 cm) from the end of the straw. Have the children write "high, sunny weather" on the top of their index card and "low, stormy weather" on the bottom.

When the children go home, they will tape the index card on the wall and place the barometer next to it with the straw pointing toward the center of the card. When air pressure is high, the straw will move up because air will be pressing the balloon into the jar. When air pressure is low, the straw will move down because air inside the jar will be expanding and pushing up against the balloon.

These activities were adapted from "Top Ten Air Pressure Experiments to Mystify Your Kids—Using Stuff from Around the House" by Aurora Lipper (Mechanical Engineering, January 2008).



Twister in a Bottle

WHAT YOU DO

10
MINUTES

2

ACTIVITY

MATERIALS NEEDED

- Water
- Clear plastic bottle with a cap, one per child
- Glitter
- Dish washing liquid

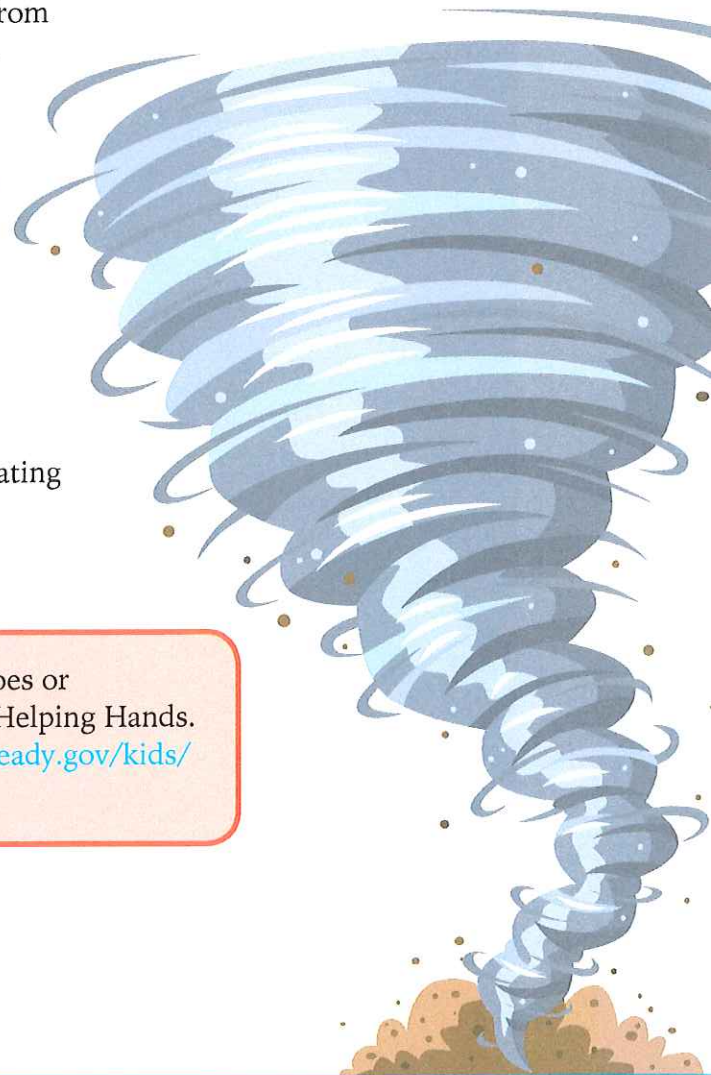
Read Mark 4:38-39 (CEB): “But Jesus was in the rear of the boat, sleeping on a pillow. They woke him up and said, ‘Teacher, don’t you care that we’re drowning?’ He got up and gave orders to the wind, and he said to the lake, ‘Silence! Be still!’ The wind settled down and there was a great calm.” Talk about God’s strength and discuss storms that the Helping Hands have experienced.

Show a couple photos of tornadoes. Explain that tornadoes can occur anywhere in the world, but that the Great Plains of the central U.S. is an ideal environment for severe thunderstorms that can lead to tornadoes. This area is called tornado alley. These storms are caused when dry, cold air moving south from Canada meets warm, moist air traveling north from the Gulf of Mexico. Tornadoes can form at any time of year, but May and June are usually the peak months.

Have each Helping Hand fill a plastic bottle with water until it is about three quarters full and then add a few drops of dish washing liquid. Put in a few pinches of glitter so the tornado will be easier to see. Screw the cap on tightly. Then turn the bottle upside down and hold it by the neck. Quickly spin the bottle in a circular motion for a few seconds. Then stop to see if a tornado has formed in the water. It may take a few tries to form a tornado. Explain that by rotating the bottle, they are generating centripetal force which causes a water vortex to appear.

TIP

Do you live in an area that experiences tornadoes or hurricanes? Share storm safety tips with your Helping Hands. For information in English and Spanish, visit ready.gov/kids/know-the-facts/tornado.



ACTIVITY

3

Watercolor Cumulus Clouds

15
MINUTES

MATERIALS NEEDED

- Dry erase board or large sheet of paper
- Markers
- Pictures of different types of clouds
- Newspaper
- Watercolor paper, 9 × 12 in (23 × 30.5 cm) or larger
- Watercolor paintbrushes, 1 in (2.5 cm)
- Watercolor paint
- Water
- Plastic cups
- Paper towels
- Pencils

WHAT YOU DO

Ahead of time: Cover the tables with newspaper.

List the following types of clouds on the board and discuss them with the Helping Hands. (This information is adapted from extension.illinois.edu.) As you discuss the different types of clouds, show the Helping Hands pictures of each type of cloud:

- Cumulus clouds are fluffy clouds that look like puffs of cotton. Cumulus clouds that do not get very tall are indicators of nice weather. If they do grow tall, they can turn into thunderstorms. Cumulus clouds sit fairly close to the ground.
- Stratus clouds look like flat sheets of clouds. These clouds can mean an overcast day or steady rain. They may stay in one place for several days.
- Cirrus clouds are high, feathery clouds. They are up so high that they are actually made of ice particles. They are indicators of good weather when they are scattered in a clear blue sky.

Give each child a sheet of watercolor paper. Have the children draw a line across the paper about three inches from the bottom (it doesn't have to be straight). Then have them dip their brushes into water and evenly coat the area above the line with water (nothing above the line should be dry). This will be the sky. While the coat of water is still wet, have the kids paint it with whatever colors they choose for the sky. This technique is called wet on wet, and they should keep both their brushes and paper damp. The watercolor will bleed and fill up the area designated for the sky. While the paper and paint are still wet, have the children crumple up pieces of tissue and dab the areas of the sky where they want clouds to be. The tissue will remove some of the paint, creating a cloud effect. They should dab all the way to the line they drew. Remind them that clouds go all the way to the horizon. Once they've finished the clouds, have the children paint the land or sea on the remaining unpainted section of the paper.



Award: Weather

To complete this award, check the requirements on p. 142 and add activities as needed.