

Consult 4 Kids Lesson Plans

Component:	Science
Grade Level:	K-5
Lesson Title:	Hurricane Safety
Focus:	Amazing Weather

Materials: Classroom white board, individual white boards, markers

Opening

State the Objective

In this lesson, students will have an understanding about hurricanes and learn valuable safety tips for any storm.

Gain prior knowledge by asking students, “What do you know about _____?”

A hurricane is a huge storm. It can be up to 600 miles across and have strong winds spiraling inward and upward at speeds of 75 to 200 mph. Each hurricane may last up to a week, gathering energy from warm tropical waters north of the equator. The winds rotate counter-clockwise around the “eye.” In the center of the hurricane is an “eye.” It is the calmest part of the storm. As the hurricane moves toward land, the heavy rain, strong winds and large waves can damage buildings, trees and cars. Eventually, the hurricane will lose its energy over land.

The Atlantic hurricane season is from June 1 to November 30, but most hurricanes occur during the fall months.

Content (the “Meat”)

Instruction / Demonstration (“I do” – “We do”)

1. Imagine you are above a hurricane looking down. Have students draw a picture showing huge clouds rotating counter-clockwise, swirling very fast. Remember to place the “eye” of the hurricane in the middle. There are very light winds and fair weather in the “eye.” Draw the hurricane over the ocean.
2. Ask questions about hurricane safety. Give no answers. Just ask the questions. For example: How can I keep my pet safe during a hurricane?”

*Activity → Teachable Moment(s) throughout

Tip: Teachers, listen for questions that begin with “what” or “how.”

Students Practice (“You do”)

1. Divide students into groups.
2. Students brainstorm how to be safe during a hurricane. Give each group a different topic to brainstorm: Before a Hurricane, During a Hurricane, After a Hurricane, and Hurricane Supply Checklist.
3. The U.S. Weather Bureau gives names to hurricanes. Ask students to think of 26 names, one for each letter of the alphabet, ready to name hurricanes, should they occur. For example: Able-Ben-Charlie-David-Elizabeth-Frank and so on.

- “How many hurricanes does the state of Florida have in one year?”
- “What is the best way to dodge a hurricane?”

Consult 4 Kids Lesson Plans

Closing

Review

1. Draw a picture, from a bird's eye view, of a hurricane. Include the "eye" in the middle.
2. Students brainstorm in groups various safety topics relating to hurricanes.
3. Student groups give hurricanes names.

Debrief

Three-Step Debrief

1. What was your key learning from this activity?
2. What didn't you like about this activity?
3. How can we make this activity better next time?

Reflection (Confirm, Tweak, Aha!)

- Ask students to think about what they did today.
- Ask them to comment on what they did today was something they already knew how to do. (Confirmation)
- Ask them to comment on what they did today that was like something they had done before except in one particular way which was new to them. (Tweak)
- Ask them to comment on something (if anything) they have learned today that was brand new to them.

Modification of lesson:

1. Have younger students tell their partner one way to be safe during a very bad storm.
2. Ask students to share their ideas with the class.
3. Choose a class name for a hurricane.

Consult 4 Kids Lesson Plans

Component:	Science
Grade Level:	K-5
Lesson Title:	Make Lightning!
Focus:	Amazing Weather

Materials: Styrofoam plate, thumbtack, pencil with new eraser, aluminum pie pan, small piece of wool fabric

Opening

State the Objective

The purpose of this activity is to observe lightning formation.

Gain prior knowledge by asking students, “What do you know about _____?”

Lightning is an electric current. Have you ever gotten a shock by shuffling across a carpet and then touching something made of metal? Then you have experienced the same process that makes lightning. Within a thundercloud, many small bits of ice bump into each other as they swirl around in the air. All these collisions create a negative electrical charge, just like the one that built up in you when you crossed the carpet.

After a while, the whole cloud fills up with electrical charges. Since opposites attract each other, this attraction causes a positive charge to build up on the ground beneath the cloud. The charge streaming up from high points (mountains, trees, or people) connects with a charge reaching down from the clouds, and ZAP! - Lightning strikes!

To find out how many miles away the lightning is, when you see lightning, begin counting, “One Mississippi, two Mississippi, etc.” If you counted, “Three Mississippi,” you know that when you hear the thunder, the lightning was three miles away.

Content (the “Meat”)

Instruction / Demonstration (“I do” – “We do”)

1. Ask students what they know about lightning. A few students may be afraid of the sound of thunder. Let students express their feelings.
2. Lightning is dangerous. Talk about being safe in a thunderstorm. Brainstorm safety ideas: Get into a house or car. Stay away from tall trees or poles, open areas like field, bodies of water, like lakes or the ocean, metal fences, sports equipment, bikes, etc.
3. Model the lesson for the students.

*Activity → Teachable Moment(s) throughout

Tip: Teachers, listen for questions that begin with “what” or “how.”

Students Practice (“You do”)

1. Divide students into groups. Provide materials for each group.
2. Push the thumbtack through the center of the aluminum pie pan from the bottom.
3. Push the eraser end of the pencil into the thumbtack. The pencil becomes a handle to lift the pan.
4. Put the Styrofoam plate upside-down on a table.
5. Rub the underside of the plate with the wool for one minute.
6. Rub hard and fast for 30 seconds!
7. Replace the pie pan on the Styrofoam plate.
8. Touch the pie pan with your finger. If you don’t feel anything when you touch the pan, try rubbing the plate again.
9. Try turning the light out before touching the pan. Do you see anything when you touch the pan? (You should see tiny flashes or sparks of static electricity.)

- “What does a bolt of lightning look like?”
- How many people are struck by lightning each year? (about 500)”

Consult 4 Kids Lesson Plans

Closing

Review

1. First we attached the pencil to the pie pan with a tack.
2. Then we picked up the metal pan and rubbed it vigorously with the wool cloth.
3. Next we touched the pie pan so see if we could feel a shock.
4. Finally we turned the lights out before touching the pan.

Debrief

What's Important About That?

Unlike other debriefs, focus only on one student's opinion. Begin with, "What was so important about this activity?" He may respond with, "It is important to learn about lightning." Next question, "What's so important about lightning?" Student answers, "Lightning is important because it gives us electricity." Teacher, "What is so important about electricity?" Carry on the process for up to five questions. At the end, the teacher says, "Then what I heard you say is that the importance of electricity is . . . "

Reflection (Confirm, Tweak, Aha!)

Ask students to think about what they did today.

Ask them to comment on what they did today was something they already knew how to do. (Confirmation)

Ask them to comment on what they did today that was like something they had done before except in one particular way which was new to them. (Tweak)

Ask them to comment on something (if anything) they have learned today that was brand new to them.

Modification of Lesson:

1. Younger students may need help pushing the tack through the aluminum pie plate into the eraser.
2. You can provide this step already assembled.
3. Expand the lesson by rubbing a wool cloth on an inflated balloon for 30 seconds. Hold a paper clip close to the balloon. Watch the sparks of static electricity jump from the balloon to the paper clip.

Consult 4 Kids Lesson Plans

Component:	Science
Grade Level:	K-5
Lesson Title:	Make Lightning in Your Mouth
Focus:	Amazing Weather

Materials: Wintergreen or Pop-O-Mint Lifesavers®, mirrors for each partner-pair, a dark room

Opening

State the Objective

The purpose of this activity is to demonstrate that crunching on a Wintergreen Lifesaver® creates a mini-lightning storm in your mouth. Through a hands-on demonstration, participants will see sparks of electricity and make a comparison to lightning.

Gain prior knowledge by asking students, “What do you know about _____?”

Lightning is a bright flash of electricity produced by a thunderstorm. All thunderstorms produce lightning and are very dangerous. If you hear the sound of thunder, then you are in danger from lightning.

How can lightning occur in your mouth? When you break the lifesaver apart, you’re breaking apart sugars inside the candy. The sugars release little electrical charges in the air. These charges attract the oppositely charged nitrogen in the air. When the two meet, they react in a tiny spark that you can see.

Content (the “Meat”)

Instruction / Demonstration (“I do” – “We do”)

1. Review what students know about lightning.
2. Ask, “Where does lightning form?”
3. Have students make predictions about what will happen when they break apart the Lifesaver® in their mouths. “I predict . . .”
4. Will there be more sparks if you chew more than one Lifesaver® at a time?

Students Practice (“You do”)

1. Give each student a wintergreen candy.
2. Ask the students to go into a really dark room and stand in front of the mirror.
3. Wait a few minutes until their eyes get accustomed to the darkness.
4. Ask the students to place the mint Lifesaver® in their mouths.
5. While keeping their mouths open, ask them to break the candy with their teeth and look for sparks. If they do it right, they should see bluish flashes of light.

*Activity → Teachable Moment(s) throughout

Tip: Teachers, listen for questions that begin with “what” or “how.”

- “What other candy will make sparks in my mouth?”
- How can you make the sparks keep sparking?”

Closing

Review

1. First, go into a very dark room. Have a mirror in front of you.
2. Place the candy in your mouth.
3. Keeping your mouth open, begin chewing the mint.
4. You should see bluish flashes of light.

Debrief

Three Whats

Ask the following three “what” questions:

1. What were some of the questions that you thought of?
2. What was the biggest challenge of this activity?
3. What did you learn from the group?

Consult 4 Kids Lesson Plans

Reflection (Confirm, Tweak, Aha!)

Ask students to think about what they did today.

Ask them to comment on what they did today was something they already knew how to do. (Confirmation)

Ask them to comment on what they did today that was like something they had done before except in one particular way which was new to them. (Tweak)

Ask them to comment on something (if anything) they have learned today that was brand new to them.

Modification of lesson:

1. Are sparks in your mouth every time you do the activity? Why or why not?
2. With younger children, talk about the experience of being in a dark room. Practice this, so they will feel safe.

Consult 4 Kids Lesson Plans

Component:	Science
Grade Level:	K-5
Lesson Title:	Suck an Egg into a Bottle
Focus:	Amazing Weather

Materials: Glass bottle with a long, narrow neck (an apple cider jug works well), boiled egg, lighter or matches

Opening
State the Objective
In this activity students are learning about air pressure. Students should watch as an egg somehow amazingly, can pass through a bottle that has a smaller opening than the diameter of the egg.
Gain prior knowledge by asking students, “What do you know about _____?”
Did you know that there is a recipe for weather? Here it is. In order to have weather, you need four components: temperature, pressure, volume, and density. In this activity, students are learning about air pressure. Because there are miles of air above us and it is all pushing down, the air at the bottom gets squeezed like the pressure you feel at the bottom of a swimming pool.
The egg is actually pushed inside the bottle by atmospheric pressure. The match heats the air inside the bottle causing it to expand. When the match goes out, the pressure inside the bottle drops below the outside pressure, therefore pushing the egg in from the outside. Air pressure is always trying to equalize itself.

Content (the “Meat”)	
<p style="text-align: center;">Instruction / Demonstration (“I do” – “We do”)</p> <ol style="list-style-type: none"> 1. Choose eggs that are more than 5 days old. Fresh eggs are hard to peel. Prior to the lesson, boil the egg. I would boil two or three eggs so you can repeat the activity. 2. Do this lesson with the whole class. Find a safe place to conduct the experiment far away from flammable materials. 3. Students make predictions about what will happen when you put the lighted match into the bottle. 	<p style="text-align: center;">*Activity → Teachable Moment(s) throughout</p> <p>Tip: Teachers, listen for questions that begin with “what” or “how.”</p>
<p style="text-align: center;">Students Practice (“You Do”)</p> <ol style="list-style-type: none"> 1. Put the empty bottle on a table. 2. Peel the boiled egg. 3. Light a match. Place it inside the bottle while the match is still burning. 4. Quickly put the egg over the mouth of the bottle. 5. Watch as the egg gets sucked into the bottle. 	<ul style="list-style-type: none"> • “How would this work if you used an unpeeled egg?” • “What would you do to <i>remove</i> the egg from the bottle?”

Consult 4 Kids Lesson Plans

Closing

Review

1. Peel a hard-boiled egg.
2. Drop a lighted match into a bottle.
3. Place the peeled egg over the top of the bottle.
4. Watch the egg being pushed into the bottle.

Debrief

Likes and Dislikes

1. Create a chart and list what students like and what students didn't like about the activity.
2. Share their responses.

Reflection (Confirm, Tweak, Aha!)

Ask students to think about what they did today.

Ask them to comment on what they did today was something they already knew how to do. (Confirmation)

Ask them to comment on what they did today that was like something they had done before except in one particular way which was new to them. (Tweak)

Ask them to comment on something (if anything) they have learned today that was brand new to them.

Modification of lesson:

1. Safety if your utmost priority. Keep matches with you at all times. Never leave them unattended.
2. You might have students act out how the air pressure pushes the egg into the bottle.

Consult 4 Kids Lesson Plans

Component:	Science
Grade Level:	K-5
Lesson Title:	Twister in a Jar
Focus:	Amazing Weather

Materials: Classroom white board, individual student white boards, markers, 8 oz, jar with lid, water, vinegar, clear liquid dish soap, pinch of glitter

Opening

State the Objective

The purpose of this experiment is to observe how a vortex (tornado) forms.

Gain prior knowledge by asking students, “What do you know about _____?”

A tornado is a space of very violent weather. It begins as an area of low pressure inside a thunderhead. The low pressure is caused by rising warm air. As the air rises, it pulls warm, moist air up into the cloud at very high speeds. The rising air begins to spin and soon picks up speed, whirling faster and faster. Moisture begins to condense forming a funnel. The funnel dips down from the cloud. The rain and hail in the thunderstorm cause the funnel to touch down creating a tornado. If the tornado reaches the ground, it races along, usually leaving a path of destruction. Tornadoes may last only a few minutes.

Most tornadoes in the United States occur in the Midwest, in an area known as Tornado Alley. This area includes Texas, Oklahoma, Kansas, Missouri, Nebraska, Iowa, Illinois, and Indiana.

Content (the “Meat”)

Instruction / Demonstration (“I do” – “We do”)

1. Use white boards to draw a model of a tornado. Include ground with houses and trees, funnel cloud touching the ground curving upward, increasing in width, and the funnel merging into the giant thunderstorm.
2. Clarify these terms: vortex (tornado), thunderstorm (large clouds with flat tops and dark bottoms, rain, thunder and lightning), and funnel shaped (wide at the top getting progressively more narrow at the bottom).
3. Model the activity. See procedure below.

Students practice (“You do”)

1. Divide students into groups. Provide each group with materials.
2. Fill the jar $\frac{3}{4}$ full of water.
3. Put one teaspoon of vinegar and one teaspoon of dish soap into the water.
4. Sprinkle a small amount of glitter into the mixture.
5. Close the lid and twist the jar to see a vortex or funnel shape form.

*Activity → Teachable Moment(s) throughout

Tip: Teachers, listen for questions that begin with “what” or “how.”

- “What causes the tornado to rotate?”
- “How can we keep safe during a tornado?”

Consult 4 Kids Lesson Plans

Closing

Review

1. Talk about tornados.
2. Fill jar $\frac{3}{4}$ full of water.
3. Add vinegar, dish soap and glitter.
4. Close the lid and twist the jar to see a vortex, like a tornado, form.

Debrief

WHI?

5. What were some of the questions that came up in your group?
6. How did you go about including everyone?
7. If you were to try this again, what might you do differently?

Reflection (Confirm, Tweak, Aha!)

- Ask students to think about what they did today.
- Ask them to comment on what they did today was something they already knew how to do. (Confirmation)
- Ask them to comment on what they did today that was like something they had done before except in one particular way which was new to them. (Tweak)
- Ask them to comment on something (if anything) they have learned today that was brand new to them.

Modification of lesson:

1. Model how to twist the jar. Do students need to shake the jar, or will simple rotations do the trick?
2. Talk about houses with basements. Since violent tornadoes can rip roofs off houses, where is a safe place to stay during a storm? (basement, interior room with no windows, or bathtub) Often tornados don't pick up the bathtub in the house. Do you have a basement where you live?
3. Draw a picture of people in the basement during a storm. What supplies should be in the basement to keep people comfortable? (water, food, blankets, portable radio, first-aid kit, and flashlights)