LOCAL HAZARD RESOURCE

Tornado Preparedness

Learning Objectives

- Students will be able to explain how tornadoes form and how they behave.
- Students will be able to explain what to do during a tornado WATCH and a tornado WARNING.
- Students will learn the best ways to stay safe during a tornado.

Key Facts for Presenters

- A tornado is a violently rotating, funnel-shaped column of air that reaches down from a thunderstorm cloud to the ground.
- Tornadoes are very powerful and can destroy buildings, throw cars and trucks through the air, lift railroad cars off their tracks, uproot trees, and send objects through the air like deadly missiles. A tornado can demolish one house and leave the neighboring house nearly untouched, or devastate a whole town.
- In the U.S., tornadoes have been reported in every state, but the majority occur in the central and southern regions of the country. Most occur during late spring and early summer, between 3 and 9 pm, but tornadoes can happen at any time of year and at any time, day or night.
- Tornado winds can exceed 250 miles per hour, and they can travel on the ground at up to 70 miles per hour. Tornadoes can touch down, then seem to bounce back up and touch down again, like a pogo stick. They can spin in one place like a top, or suck things up like a vacuum cleaner. Most tornadoes last just a few minutes, but some can last more than an hour.
- Tornadoes are rated by the National Weather Service using the Enhanced Fujita (EF) scale, which ranges from EF0 to EF5 based on damage and wind estimates.
- Watch for these signs that a tornado may be about to strike:
  - A rotating, funnel-shaped cloud extending down from a thunderstorm toward the ground.
  - A cloud of debris, which can mark the location of an approaching tornado even if a funnel is not visible.
  - Debris dropping from the sky.
  - A load roar, similar to a freight train.
  - A strange quiet during or shortly after a thunderstorm – the wind dies down and the air becomes very still.
  - A change in the color of the sky.
- Weather forecasters issue a tornado WATCH when they see a thunderstorm that might form a tornado. A WATCH means that tornadoes are possible, even though the weather may be calm and bright, and can be issued several hours before a WARNING.
- Weather forecasters issue a tornado WARNING when they see a tornado on radar or get a report that a tornado has been spotted. A tornado WARNING usually comes only a short time before the tornado strikes (13 minutes, on average), and sometimes tornadoes develop without any detection, in which case there is no official warning before touchdown.

Key Facts for Presenters (continued)

- People who live in an area where tornadoes occur should prepare for this emergency by taking two key actions:
  - Stay informed by listening to news broadcasts, signing up for local text alerts, dowloading preparedness apps, and/or getting an all-hazards radio.
  - Make a plan for getting to shelter if a tornado occurs in your area, then **practice the plan** regularly.
- During a tornado WATCH, remain alert for approaching storms. Watch the sky and stay tuned to NOAA Weather Radio, commercial radio, or television for information. You can also receive weather alerts on your smartphone.
- During a tornado WARNING, get to an underground storm shelter, basement, or specially built safe room immediately. If these are not available, the safest alternative is an interior room without windows, like a closet or bathroom, on the lowest floor of your home.
- Once in the safest possible place, if a tornado is close by, kneel down and bend over as tight as a ball, with your hands over your head to protect yourself from things blown around by the wind. Stay in this position until the tornado goes away.
- A manufactured home offers virtually no protection from a tornado. People who live in a manufactured home should leave immediately when a tornado WATCH is announced and get to an underground storm shelter, basement, specially built safe room, or the safest alternative spot in a sturdy building.

PRESENTER NOTES	SCRIPT
	Ask students: ➔ *Does anyone know what causes a tornado?* **Explain** how tornadoes form and how they behave: ➔ *Tornadoes occur when the air inside a thunderstorm cloud starts spinning around. If the air spins fast enough, a funnel-shaped column of spinning air can reach down from the cloud to the ground. When it touches the ground, that's a tornado.* ➔ *Tornado winds are very strong – they can blow faster than 250 miles per hour – and that makes them very dangerous. They can knock down trees, houses, and big buildings, and even blow cars and trucks off the road.* ➔ *Sometimes tornadoes touch down, then bounce back up and touch down again somewhere else, like a pogo stick. Sometimes they just spin in one place, like a top. And sometimes they suck things up from the ground like a vacuum cleaner.*
	Ask students: ➔ *Can any of you guess how fast a tornado can travel when it is on the ground?* **Prompt** students to guess, telling them "faster" or "slower" until they get to (or close to) 70 miles per hour. **Tell** students: ➔ *That's right! Tornadoes can move fast on the ground! Most of the time they travel at about 30 miles per hour, but sometimes they travel as fast as 70 miles per hour – that's as fast as a car. And you can never tell which direction a tornado might go next. But weather forecasters can usually tell us when a tornado might be on the way, so we can be prepared.*
Check whether Wireless Emergency Alerts (WEA) are available where you are presenting.	**Explain** the difference between a tornado WATCH and a tornado WARNING: ➔ *When weather forecasters see a thunderstorm that might form a tornado, they put out a tornado WATCH. That means you should stay inside, listen to the news for weather updates, and review your plan for getting to a safety spot in case a tornado happens. They always give a time when the tornado watch will be lifted (6 pm, for example), so stay inside until then.* ➔ *When weather forecasters see a tornado on their radar or get a report that a tornado has been spotted, they put out a tornado WARNING. That means get to a safety spot inside as fast as you can, and stay there until the news tells you it's safe to come out. Most tornadoes only last a few minutes, but a really big tornado can last more than an hour.* ➔ *You can find out about tornado WATCHES and WARNINGS on TV or radio or on the Internet. In some places, grownups automatically get a text message on their cell phones when there's a tornado WARNING. Grownups can also visit the Red Cross website and download a free app that sounds an alarm when there's a tornado WARNING.* **Ask** students: ➔ *So tell me, what do you do when there's a tornado WARNING?* **Prompt** students to respond, "Get to a safety spot inside as fast as you can!"

PRESENTER NOTES	SCRIPT
	Tell students about the warning signs of a tornado: ➔ *That's right! And you should get to a safety spot if you see the warning signs of a tornado. For example, if you see leaves and dirt spinning around, that could be the start of a tornado. A change in the color of the sky, or a thunder cloud that looks like it is dropping down to the ground – those are both signs that a tornado could start soon. And another warning sign is if it gets really quite during or just after a thunderstorm – when that happens, be ready to get to a safety spot inside as fast as you can.*
	Ask students: ➔ *So, what would be a good safety spot where you won't be hit by the things that get blown around by a tornado?* **Call** on 1-2 students for a response. **Explain** the best ways to take shelter from a tornado: ➔ *The safest place to be during a tornado is an underground storm shelter, a basement, or a specially built safe room.*
	Ask students: ➔ *Do any of you have a special safe room at home?* **Call** on 1-2 students for a response. Have them describe their "safe room." ➔ **Explain** the main characteristics of a standards-compliant safe room: ➔ *Those could be safe rooms. You'd have to check. A safe room usually has concrete walls and a heavy metal door and a concrete ceiling. It's like a one-room house built inside a regular house, usually in the basement. When it's built correctly, a safe room won't get knocked down by strong winds and it will protect you from almost anything that gets blown around by a tornado.*
If your group includes students who live in manufactured homes, explain that a manufactured home provides almost no protection from a tornado. People who live in manufactured homes should seek shelter in a building or, as a last resort, in a car.	**Ask** students: ➔ *But suppose you don't have a special safe room or a storm shelter or a basement. What would be a good safety spot where you can go when there is a tornado WARNING?* **Call** on 1-2 students for a response. **Explain** alternative ways to take shelter from a tornado: ➔ *Those are good ideas. If you can't get into a safe room or a storm shelter or a basement, get into a room without windows on the bottom floor of your home, a room away from the outside walls – someplace like a bathroom or a closet or a hallway on the ground floor. Those are all good safety spots. If you can, take a battery-powered radio with you, so you can listen to the news, and stay in your safety spot until the news says it's OK to come out.* **Demonstrate** how to stay safe during a tornado: ➔ *Once you are in your safety spot, if you hear a sound like a freight train roaring by, that means a tornado is probably getting close to you. So for extra protection, kneel down on the floor and bend over as tight as a ball, then put your hands over your head to protect yourself from flying objects – like this. And stay curled up on the floor until the tornado goes away.*

PRESENTER NOTES	SCRIPT
Check ahead of time to find out if the students participate in regular tornado drills.	**Note:** Include the following segment when presenting at a school that has regular tornado drills. **Ask** students: ➔ *But what if you're not at home? For example, what if you're at school? How do you stay safe from a tornado at school?* **Call** on 1-2 students for a response. ➔ *That's great! Sounds like your school is already prepared for a tornado emergency. [Reinforce the school's procedure – evacuate to a tornado shelter or safe room, or shelter in place by curling on the floor in a safety spot within the school.]*
Note: Do not tell students to abandon a car and shelter in a ditch. THIS IS NOT CORRECT.	**Ask** students: ➔ *But what if, instead of being at home [or school], you're in a car? What can you do to stay safe from a tornado if you're in a car?* **Call** on 1-2 students for a response. **Explain** how to protect yourself from a tornado when in a car: ➔ *Those are good ideas. If you see a tornado when you're in a car, stay in your car! Park on the side of the road and keep your seat belt buckled. Then put your head down below the car windows and cover your head with your hands or with a blanket, if you have one. The car will help protect you from flying objects.* [Note: Red Cross does not yet have a policy on helmets and tornadoes. Researchers are currently examining whether wearing some types of helmets provides additional protection, but a tornado warning is not the time to be looking for a helmet. It is recommended that, if people wear helmets, they be removed by medical professionals.]
	Lead students in one of the Practice Activities below. ➔ *So, are you ready to **practice** what we've learned about being prepared for tornadoes?*
	Lead students in one of the Sharing Activities below. ➔ *Now let's **share** what we've learned about tornadoes.*
	Wrap-up with a review: ➔ *How fast can a tornado travel when it's on the ground?* **A**: *Usually about 30 miles per hour but sometimes as fast as 70 miles per hour.* ➔ *What should you do when there is a tornado WATCH?* **A:** *Listen to the news, and get ready to go to a safety spot if necessary. Stay inside until the end of the watch.* ➔ *And what should you do if there is a tornado WARNING?* **A:** *Get to a storm shelter, a basement, or a special safe room if you can. If that's not possible, get to a safety spot in your home right away and stay there until the news tells you it's safe to leave!* **Transition:** ➔ *So, now you're better prepared for a tornado. But remember, you need to share what you've learned to help everyone be prepared. So later today, tell someone what to do when there's a tornado WARNING. Even better, when you go home, share you've learned and pick out a safety spot where everyone can go in case a tornado happens.*

TORNADO PRACTICE ACTIVITIES

• Tornado Charades

Ask for three student volunteers to demonstrate the ways in which tornadoes can move. Have one student spin around like a top, have another bounce up and down like a pogo stick, and have the third pretend to be vacuuming up things from the ground.

• Tornado Simon Says

Have students stand and tell them, "We're going to play a game of Tornado Simon Says."

- When I say TORNADO WATCH, you sit in your chair and put your hand to your ear like you're staying inside and listening to the radio or TV to find out if a tornado is going to happen.
- When I say TORNADO WARNING, you sit on the floor and hug yourself like you're in your safety spot on the bottom floor of your home away from any windows.
- And when I say TORNADO!, you kneel down and bend over as tight as a ball with your hands over your head.
- Lead students first through the WATCH, WARNING, TORNADO! sequence.
  Then, for fun, mix it up a bit – WATCH, WARNING, WATCH, WARNING, TORNADO! ALL CLEAR!

• Practice Dash

Divide students into teams of 5-6 for a takeoff on "Jeopardy." Explain that you will read an answer and that the student teams will compete by having one team member race toward you for the chance to give the correct question. The first student to arrive gives the question and wins a point for his/her team if correct, or loses a point if incorrect. Encourage students to figure out the correct question as a team before sending their runner toward you. Example answers and questions:

1. A funnel-shaped column of spinning air	What is a tornado?
2. More than 250 miles per hour	How fast can tornado winds blow?
3. Listen to the news and review your plan for getting to a safety spot	What should you do when there is a tornado WATCH?
4. Get to a safety spot indoors as fast as you can	What should you do when there is a tornado WARNING?
5. A room without windows on the bottom floor	What is a safety spot to take shelter from a tornado?
6. Kneel down and bend over as tight as a ball with your hands over your head	What should you do to protect yourself when a tornado comes nearby?

TORNADO SHARING ACTIVITIES

Divide students into small groups of 5-6 each, and appoint a spokesperson for each group. Have all groups discuss one of the scenarios below, and come up with ideas for what to do in that situation. Have the group spokespersons report on each group's ideas, then lead a whole group discussion to decide on the best way to handle the situation.

• Worried about Wind

Parker and his family live in a town where there are tornado warnings almost every summer. But this summer, his cousin Ray was coming to stay with Parker for a few weeks, and Ray had only seen tornadoes on TV. Parker knew that Ray would be worried about what might happen if a tornado hit the town. He was already asking Parker what it's like to see a building smashed by the wind. Luckily, Parker had learned a lot about tornado preparedness from The Pillowcase Project. "We even talked about feeling worried," he told Ray. "Lots of people feel worried or scared when they think about what might happen in an emergency, even grownups. But there are ways to handle those feelings – they're called *coping skills* – and you can figure out good coping skills BEFORE an emergency happens!"

What could Parker teach Ray to help him cope with his thoughts and feelings about what might happen during a tornado?

Answer:
Encourage students to come up with their own ideas for helping Ray cope with his worries about tornadoes. Use the list below and/or the Coping Skills poster to generate discussion. Note: Some students may suggest "giving thanks" as a coping skill (e.g., Be thankful that you are OK), but this reaction can sometimes inhibit successful coping by masking the real impact of an emergency. Acknowledge this suggestion, but do not push students in this direction.

- Taking slow breaths to calm down when you feel worried or scared.
- Sticking with a buddy so you don't feel alone.
- Singing a favorite song or picturing a favorite story, so you don't think so much about feeling scared.
- Reminding yourself how sticking together helps everyone get through a tough situation.
- Reminding yourself of what you have done to get through tough situations in the past.
- Remembering that Parker's family is prepared for tornadoes and will show Ray how to curl up in their safe spot if a tornado happens.
- Listening to grownups for other ways to help each other feel safe.

• Our Safety Spot

What's the safest place in your home where everyone can go to be protected from a tornado? If you don't have a basement or a storm shelter or a special safe room, picture a room or a place on the bottom floor of your home that doesn't have any windows. Then go around your group and tell each other about the safety spot you've picked in your home. Help each other figure out the safest place to take shelter during a tornado.

Answer:
Encourage students to think creatively about a room or enclosed space with as few windows as possible. Remind them that there are safety spots in every home, so if your home does not have a storm shelter, basement, or safe room, you can still find a spot that's relatively safe.

REPRODUCIBLE MASTER

Tornado Preparedness

Sharing Activities

Read the activity assigned to your group. Then talk with the members of your group to come up with ideas for that situation. Help the spokesperson for your group take notes on the group's ideas. After your spokesperson shares your group's ideas with the class, join in the discussion to decide on the best ideas for the situation.

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