OWLIE SKYWARN'S WEATHER BOOK

American Red Cross FEMA NOAA American Red Cross FEMA NOAA

Owlie Skywarn's Weather Book

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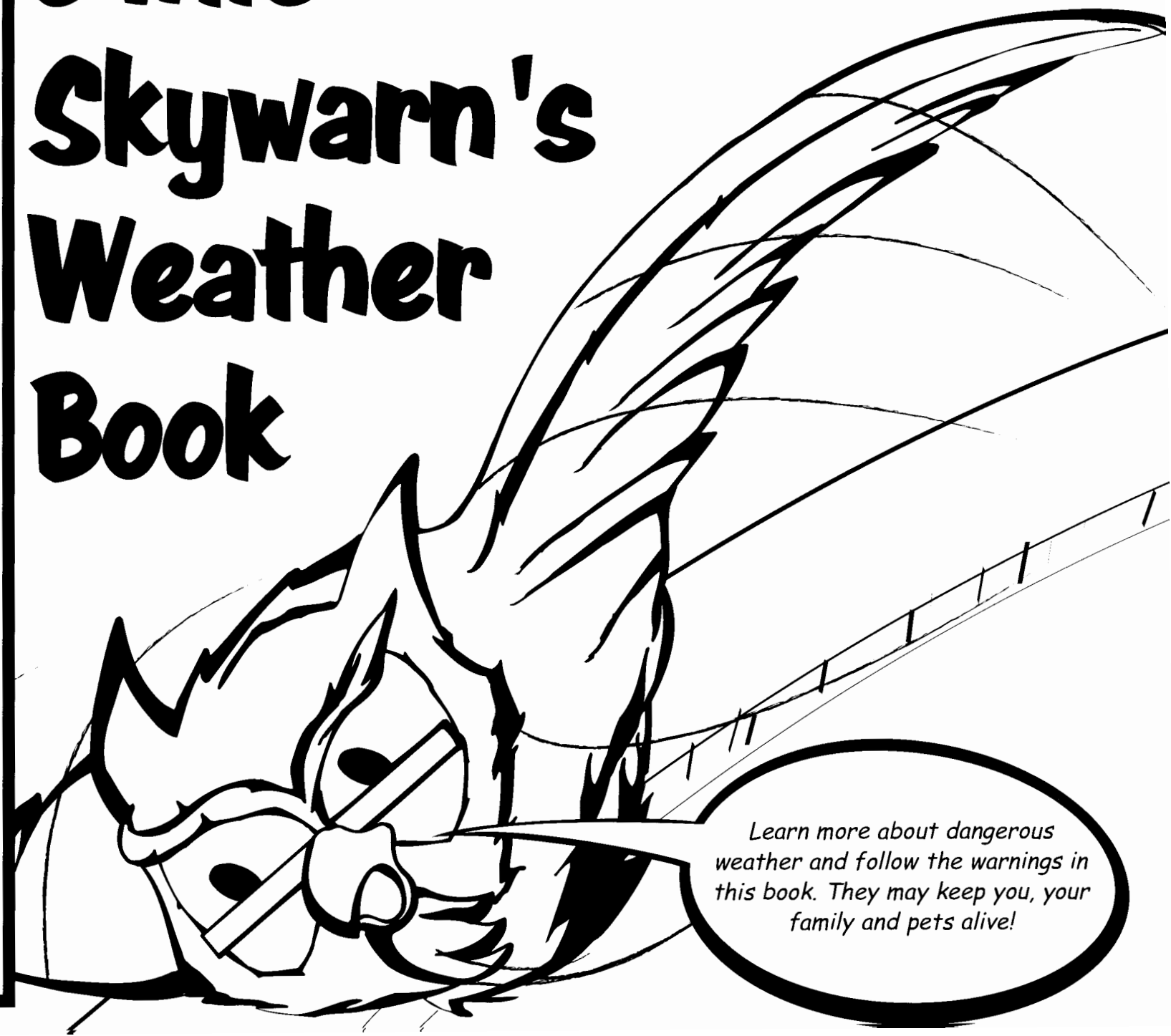
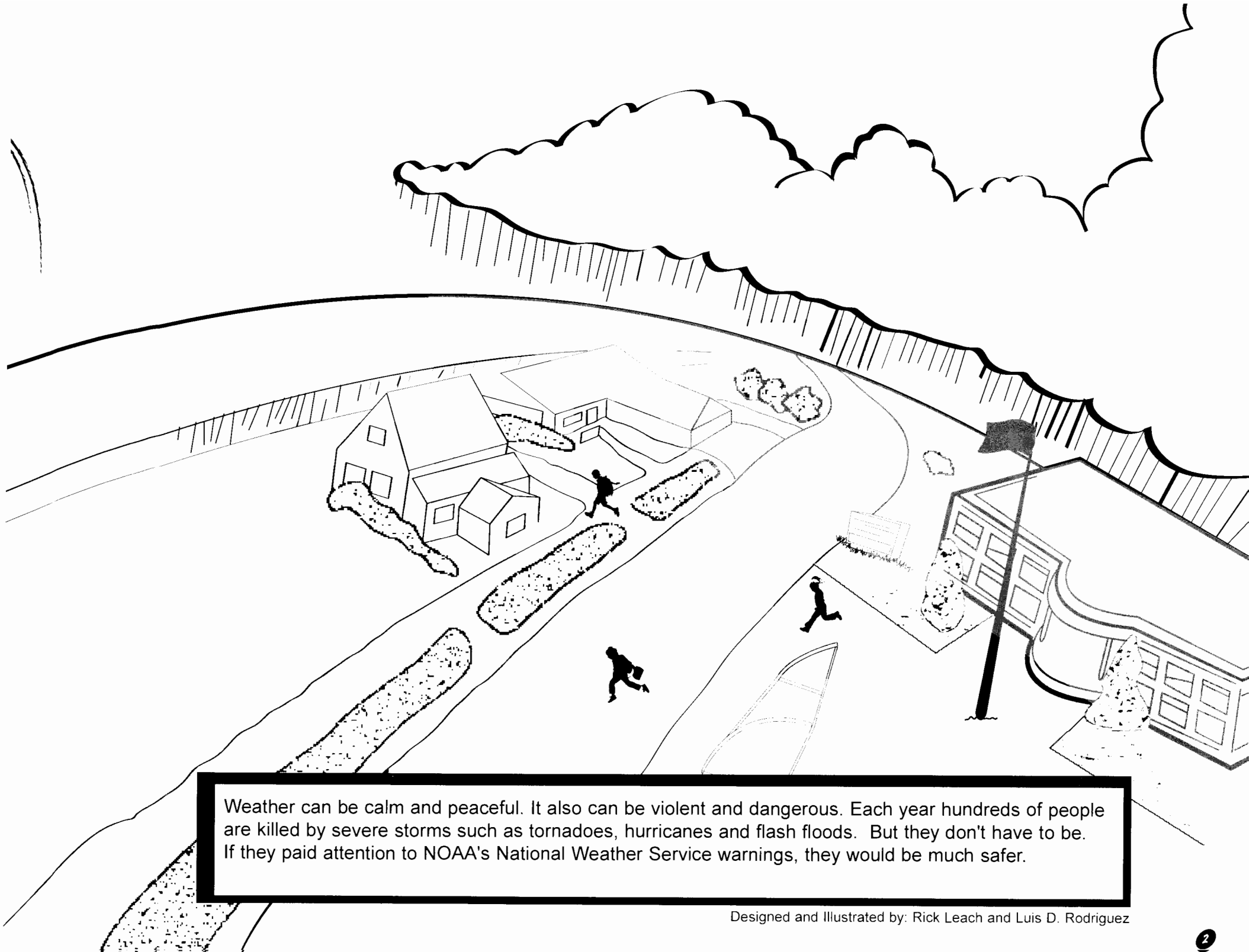




Weather can be calm and peaceful. It also can be violent and dangerous. Each year hundreds of people are killed by severe storms such as tornadoes, hurricanes and flash floods. But they don't have to be. If they paid attention to NOAA's National Weather Service warnings, they would be much safer.

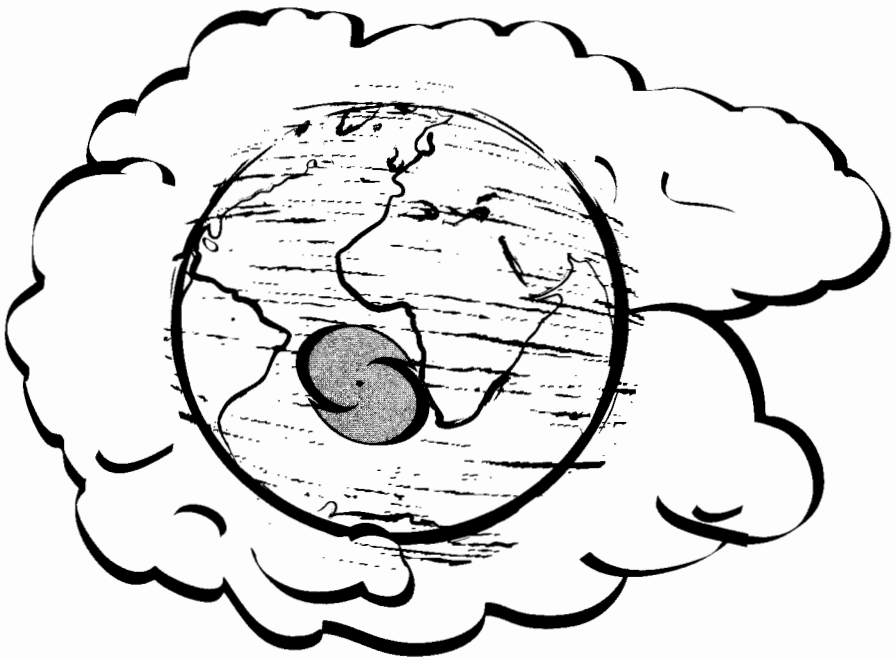
Designed and Illustrated by: Rick Leach and Luis D. Rodriguez

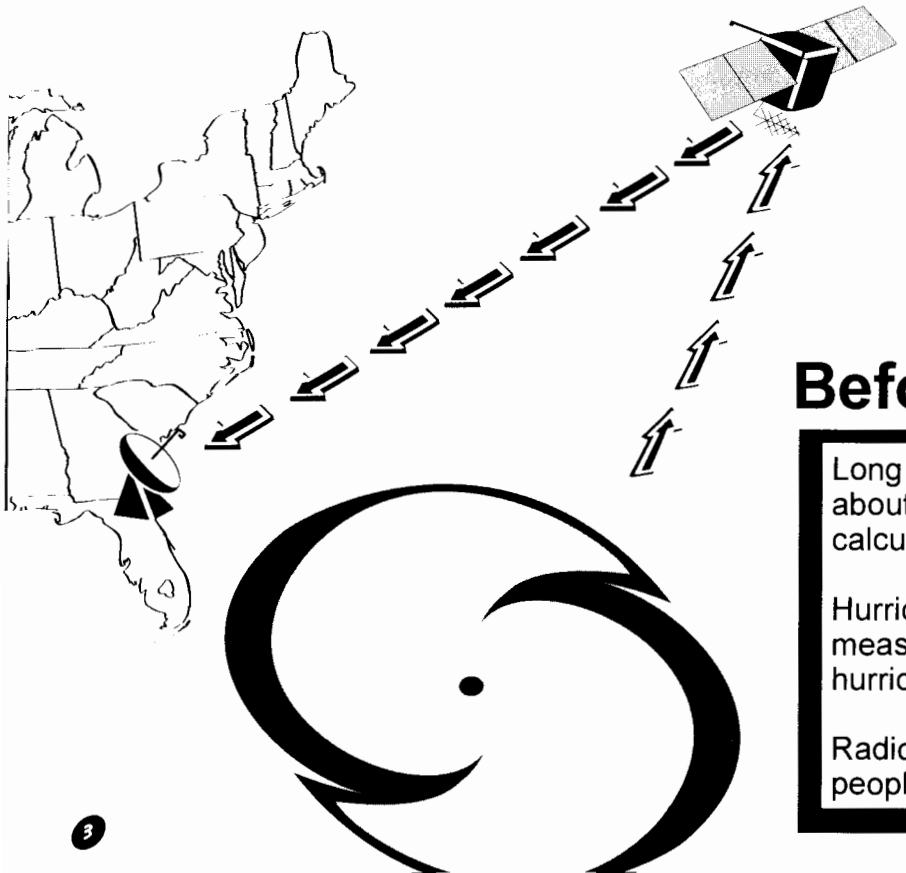
Hurricanes

The air that surrounds our planet weights 5,000,000,000,000,000 (5 quadrillion) tons! That's 13,700,000,000 (13 billion, 700 million) Empire State Buildings!

Air is moving all the time—swirling, blowing, sinking, rising. In summer and early fall, great masses of air move over the warm oceans. The oceans get hot, pick up lots of water and start swirling, blowing, sinking and rising.

A hurricane is born. If the hurricane moves toward the shore, powerful winds, high tides and flooding could wipe out cities, towns and farms.





Before the hurricane reaches you . . .

Long before a hurricane hits land, the National Weather Service knows about it. Satellites have taken pictures of the storm and computers have calculated where it is going.

Hurricane Hunter airplanes fly into the storm and report more exact measurements. As it comes closer to land, special weather radars track the hurricane.

Radio, television and more than 800 NOAA Weather Radio stations warn people about the hurricane. It may reach land. Get ready!

When weather forecasters decide the storm might reach land within 2 days, they issue a Hurricane **Watch**.

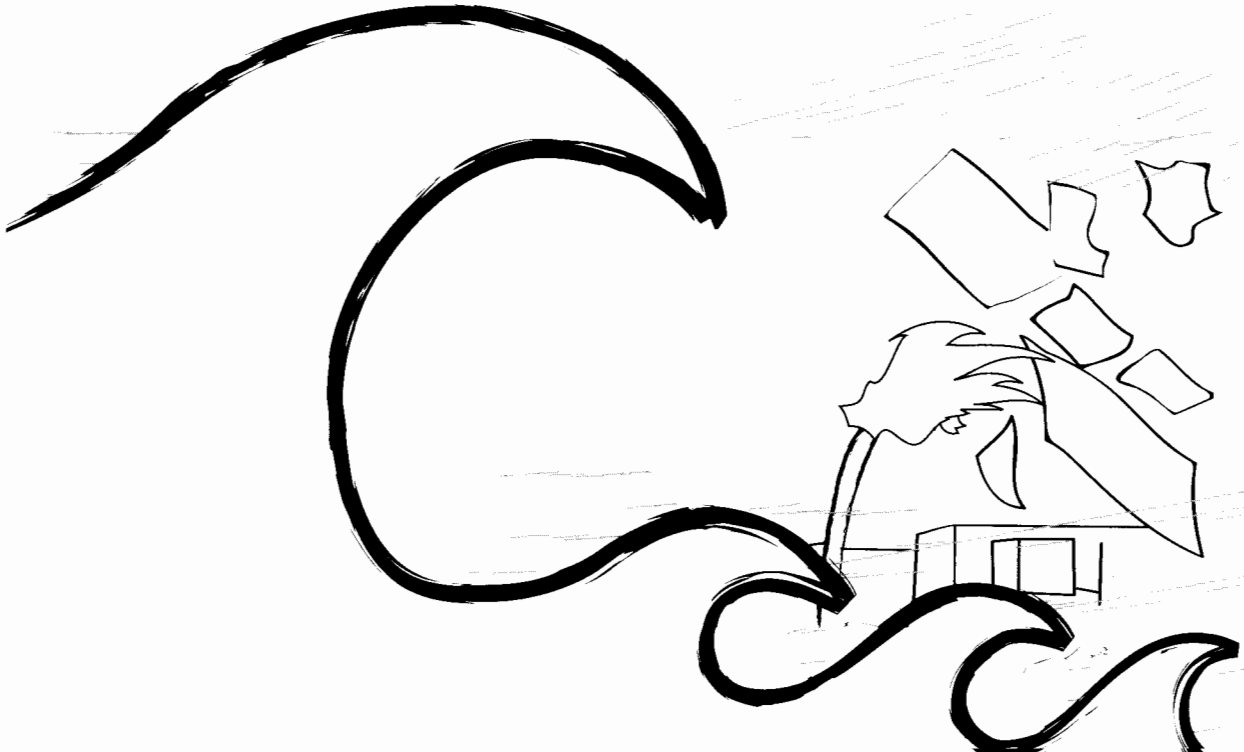
A Watch tells people who live or work near the coast that the hurricane over the ocean might reach land. The National Weather Service will tell you what is happening. Listen to the radio or television.

Hurricane Warning

When the National Weather Service puts out a **Warning**, it means a hurricane is likely to reach land near you with winds more than 73 miles an hour! That's hard enough to blow down trees and other big objects that could hit you or your home. Ouch!

A Warning also means dangerous high water and very rough seas are expected. You definitely need to get off your boat and get to safety.

Get out when you are told.



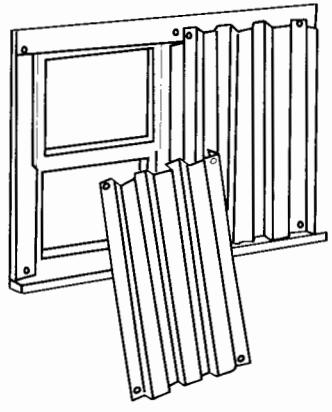
When the hurricane hits, the sea may rise as high as 25 feet above normal high tide! That is taller than six kids standing on each other's shoulders!

This extreme high tide is called the storm surge. The surge sinks boats, knocks down piers and floods houses. Most people who die during a hurricane drown because of inland flooding, not wind.

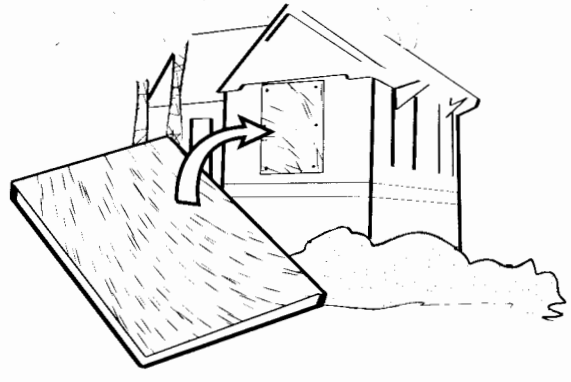
If you live near the shore, plan to go inland where it's safer.

In a big hurricane, the speed of the winds may be more than 150 miles an hour! Trees and houses are blown down. Windows in buildings are blown out. It rains hard. There may be flooding hundreds of miles from the coast as heavy rain falls. Watch out for flying debris.

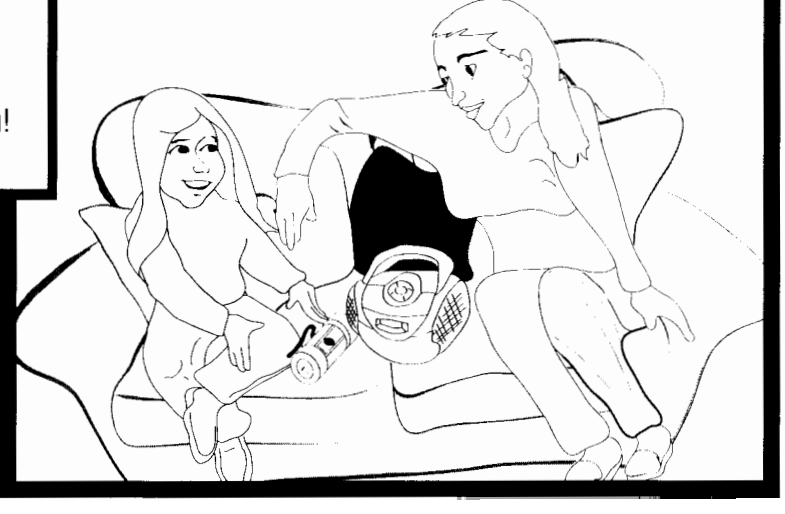
Before the Storm Comes . . .



Put boards or storm shutters over windows. Do NOT tape the windows. Taping just leaves gunk on your windows, it doesn't protect them.



Pick up all the small things laying around your yard, like toys, tools and flower pots and bring them inside. The wind could pick them up and send them slamming into windows, cars or you!



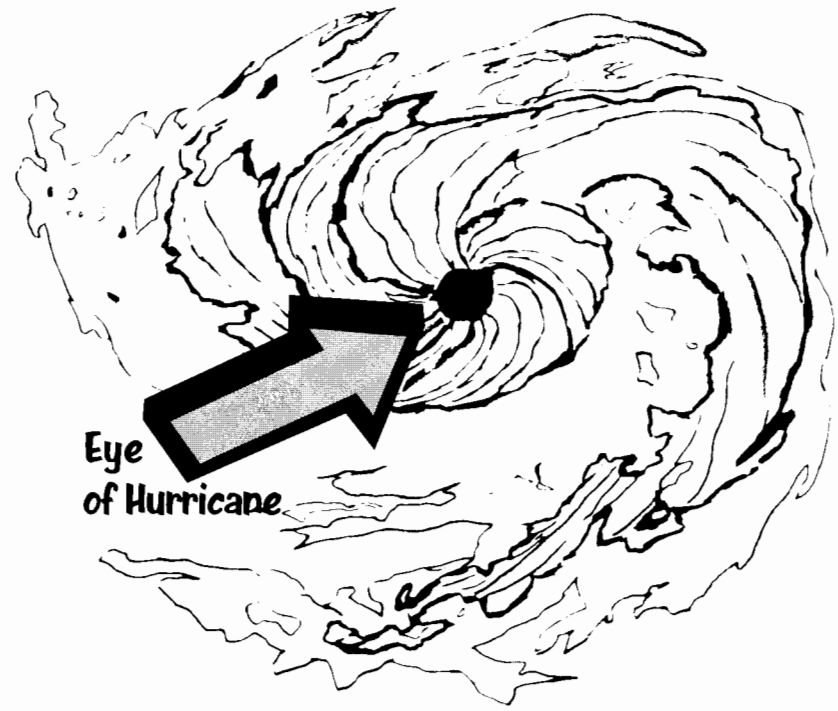
If you're not close to shore, you may plan to stay in your home to ride out the storm. Clean drains and prepare for flooding.

When the Hurricane Comes . . .

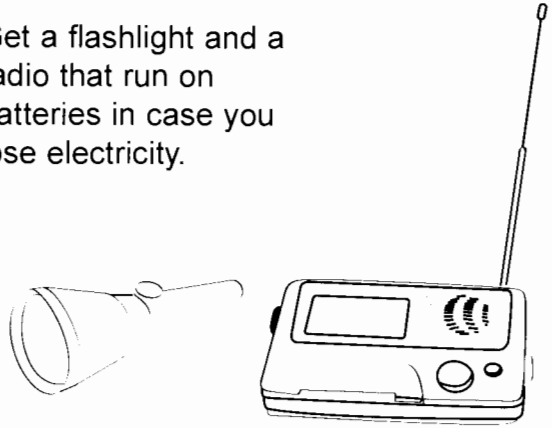
Stay indoors. Trees could fall on you. You could be blown over. Flying boards, limbs or garbage could crash into you. A live electric wire could fall on you. Intense rain may cause flooding. Often heavy rain and flooding are more dangerous than wind.

Beware of the eye of the hurricane. A hurricane is a big doughnut of wind with a calm section at the middle. That calm section is called the eye of the hurricane.

- The whole hurricane could be 300 miles across. The calm center may last from a few minutes to an hour or more.
- The sun may come out and you might think the storm is over. But it isn't. As the hurricane moves, winds will blow just as hard, but from the opposite direction.

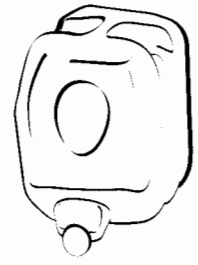


Get a flashlight and a radio that run on batteries in case you lose electricity.



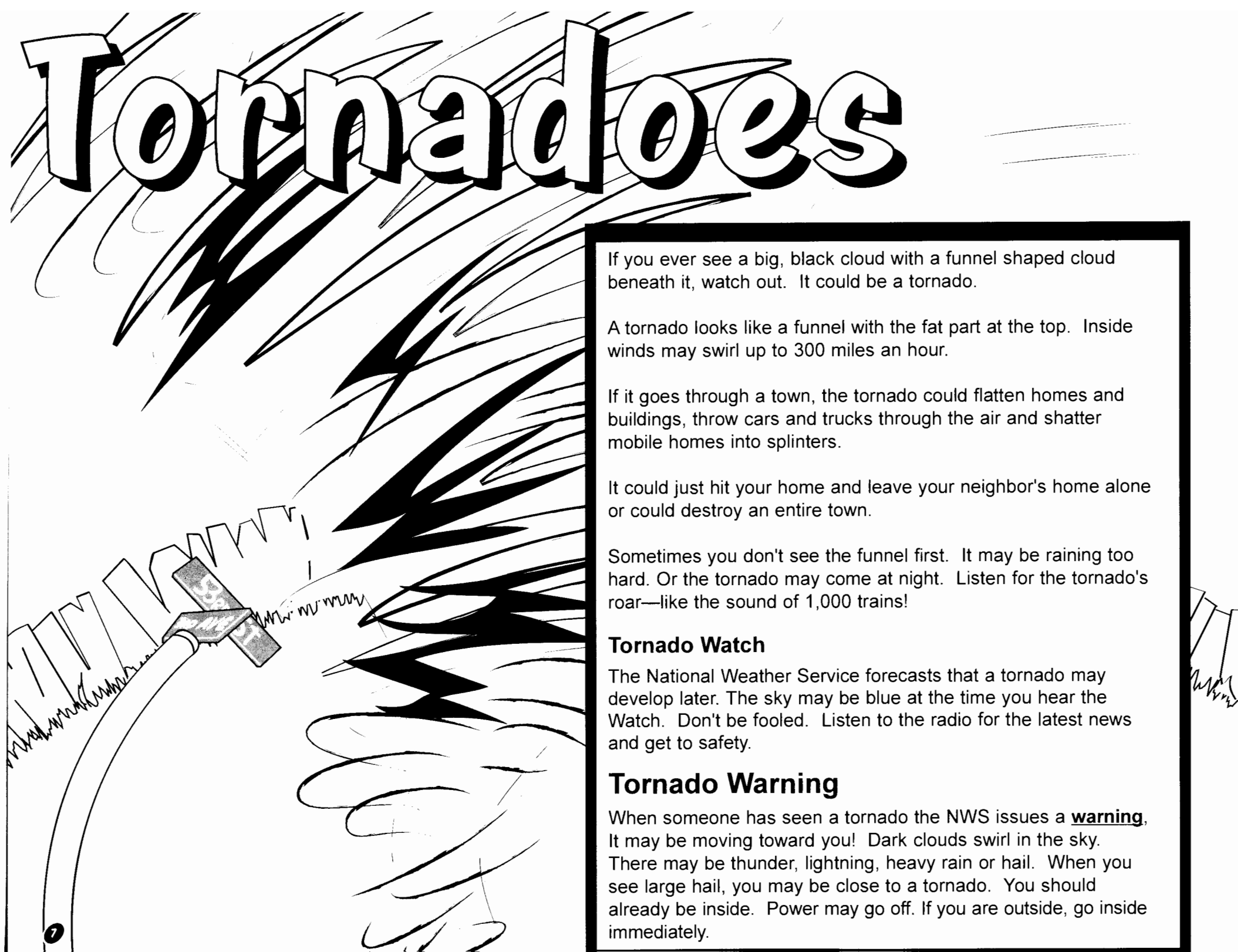
Hurricanes and Tropical Storms can kill. Don't be caught by one!

Save and clean six 2-liter soda bottles or a large water container (as shown) for each family member. When a storm warning is announced, fill up the bottles. Water pipes may break. Also, water from faucets may not be safe to drink for a while.



Get out of its way. Go inland. Do it immediately!

Tornadoes



If you ever see a big, black cloud with a funnel shaped cloud beneath it, watch out. It could be a tornado.

A tornado looks like a funnel with the fat part at the top. Inside winds may swirl up to 300 miles an hour.

If it goes through a town, the tornado could flatten homes and buildings, throw cars and trucks through the air and shatter mobile homes into splinters.

It could just hit your home and leave your neighbor's home alone or could destroy an entire town.

Sometimes you don't see the funnel first. It may be raining too hard. Or the tornado may come at night. Listen for the tornado's roar—like the sound of 1,000 trains!

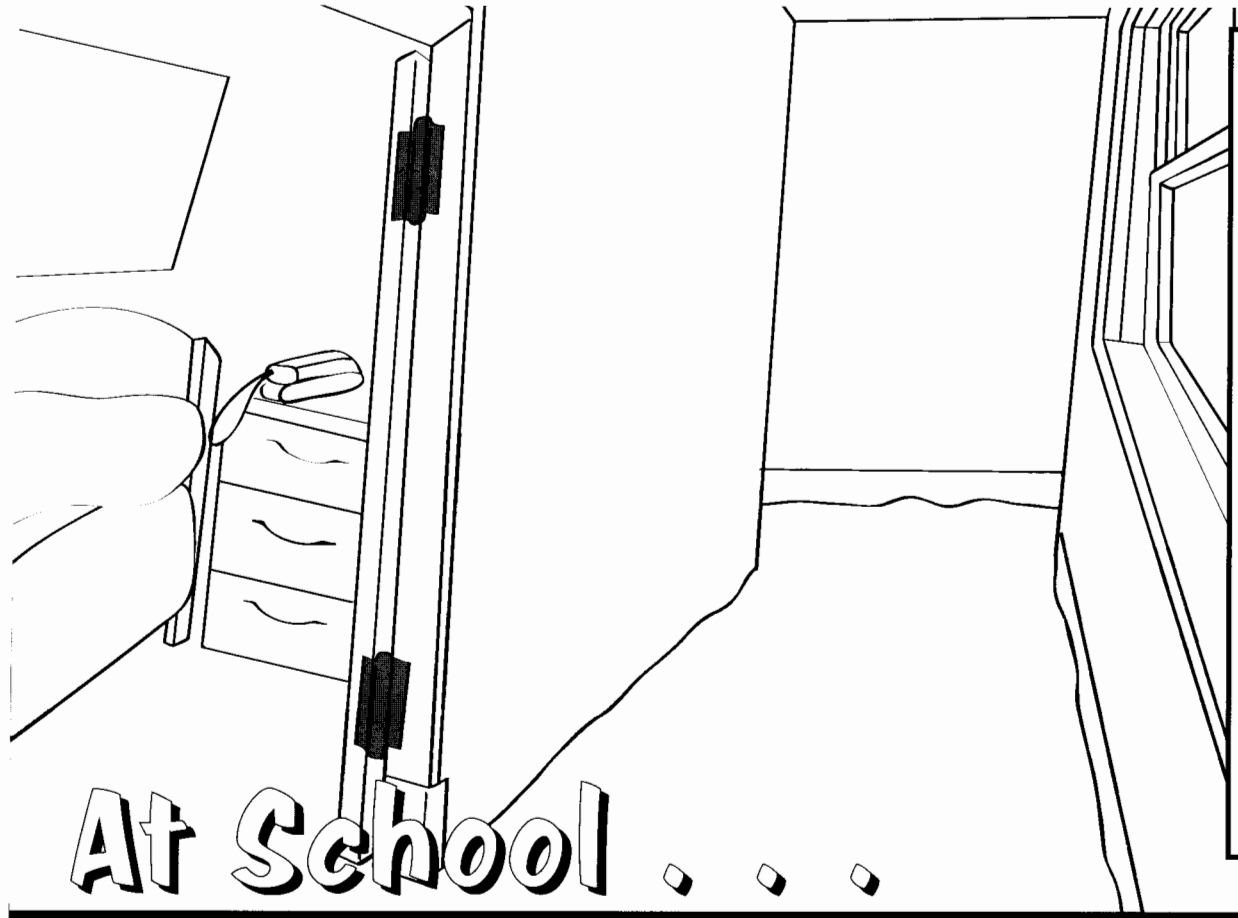
Tornado Watch

The National Weather Service forecasts that a tornado may develop later. The sky may be blue at the time you hear the Watch. Don't be fooled. Listen to the radio for the latest news and get to safety.

Tornado Warning

When someone has seen a tornado the NWS issues a **warning**, It may be moving toward you! Dark clouds swirl in the sky. There may be thunder, lightning, heavy rain or hail. When you see large hail, you may be close to a tornado. You should already be inside. Power may go off. If you are outside, go inside immediately.

What to do In Your Home . . .



At School . . .

Follow directions from your teachers.

- Go to an inside hall on the lowest floor.
- Crouch near the wall. Bend over and put your hands on the back of your head.
- Keep away from glass windows and stay out of big rooms like the gym, cafeteria, or auditorium.
- Listen to NOAA Weather Radio or a battery powered radio for warnings.

In a Store, Office or other Building . . .

- Go to the lowest level and stay away from windows and doors.
- Protect your head.

Outside or in a Car . . .

- Get out of a car and inside a house or building.
- Don't try to outrun a tornado in a car. Tornadoes can pick up a car and throw it through the air.
- If you're caught outside, crouch low in a ditch. Or crouch near a strong building.
- Cover your head with your hands.

And remember, when there's a tornado there can be a lot of lightning. Stay away from anything metal—faucets, radiators, metal sinks and tubs.

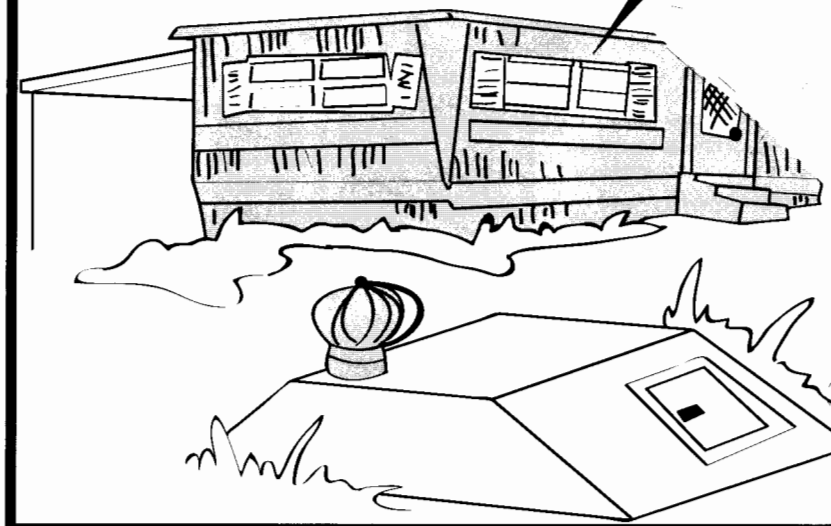
Tornadoes are scary. They pack a lot of energy, enough to blow down a whole town! But you can live through a tornado. Be smart. Know what to do, and do it.

Owlie's True Tornado Facts

In Texas a mother huddled in an inside closet with six children. A tornado ripped off the roof of their house, tore down one wall and destroyed their garage. But all seven in the closet weren't even scratched.

In 1931 a tornado in Minnesota lifted an 83-ton railroad train with 117 passengers and carried it for 80 feet.

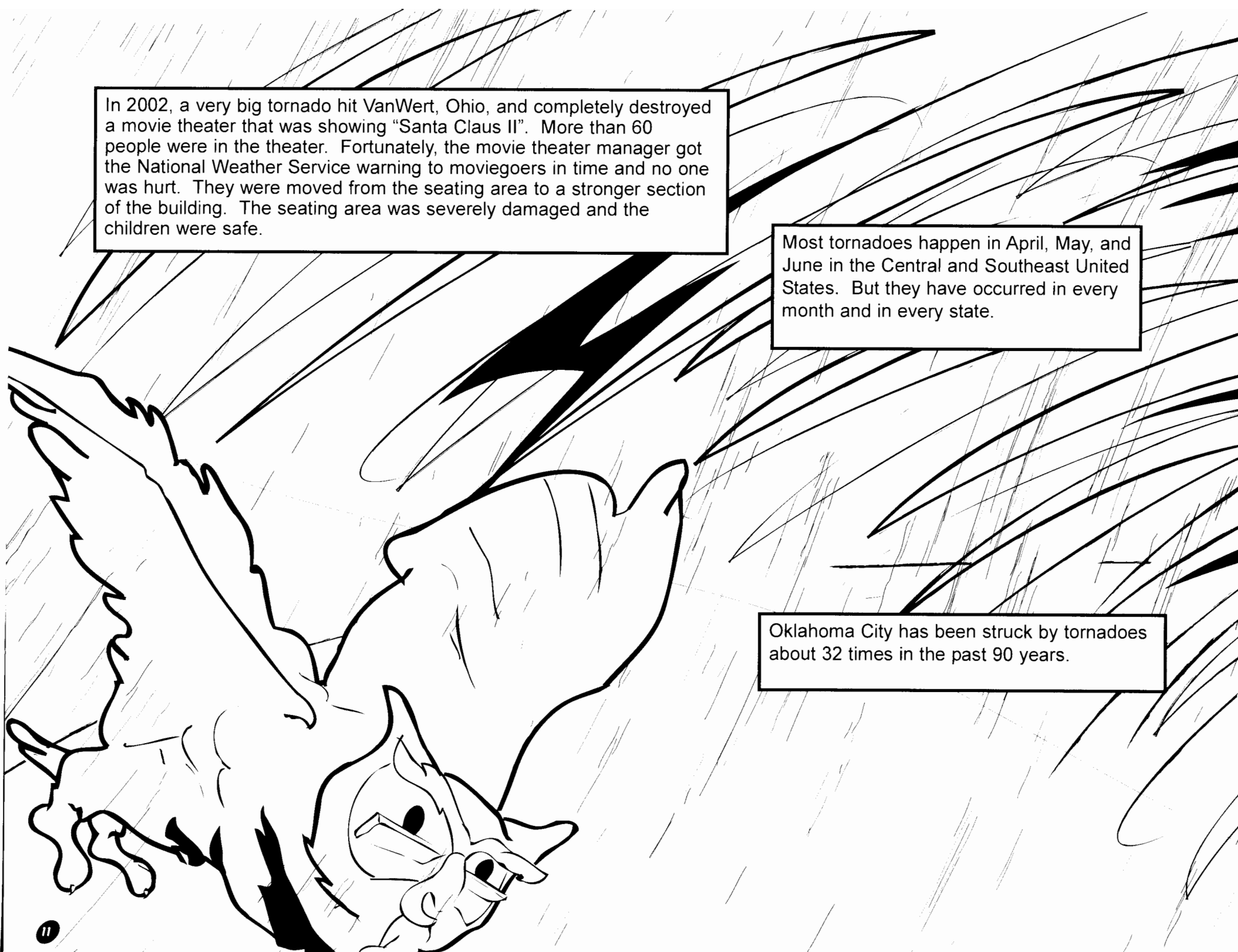
Tornadoes are rare in many parts of the United States. But they have occurred in all 50 states.

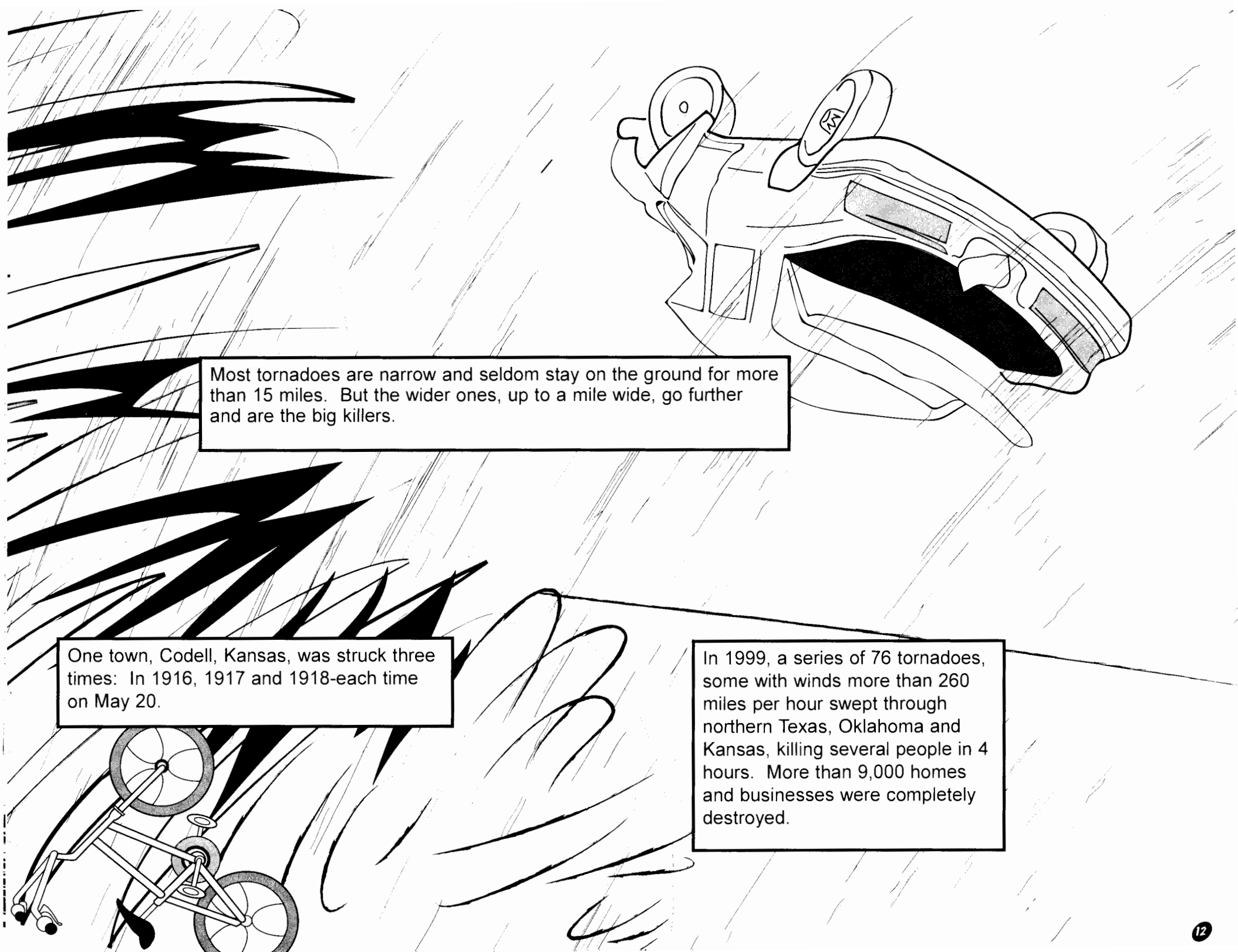


In a Mobile Home or Trailer

If you live in a mobile home, get out. Even if it is tied down, a mobile home can be shattered by a tornado. The whole thing can be lifted up and dropped. Get out and into a safer place. Some mobile home areas have storm shelters. If you cannot get to a shelter, lie in a ditch and cover your head with your hands.

In Mississippi, a mother and her daughter sought shelter in their bathtub. After the tornado hit, the only room left was the bathroom.


In 2002, a very big tornado hit VanWert, Ohio, and completely destroyed a movie theater that was showing "Santa Claus II". More than 60 people were in the theater. Fortunately, the movie theater manager got the National Weather Service warning to moviegoers in time and no one was hurt. They were moved from the seating area to a stronger section of the building. The seating area was severely damaged and the children were safe.
Most tornadoes happen in April, May, and June in the Central and Southeast United States. But they have occurred in every month and in every state.
Oklahoma City has been struck by tornadoes about 32 times in the past 90 years.



Most tornadoes are narrow and seldom stay on the ground for more than 15 miles. But the wider ones, up to a mile wide, go further and are the big killers.

One town, Codell, Kansas, was struck three times: In 1916, 1917 and 1918-each time on May 20.

In 1999, a series of 76 tornadoes, some with winds more than 260 miles per hour swept through northern Texas, Oklahoma and Kansas, killing several people in 4 hours. More than 9,000 homes and businesses were completely destroyed.

Lightning

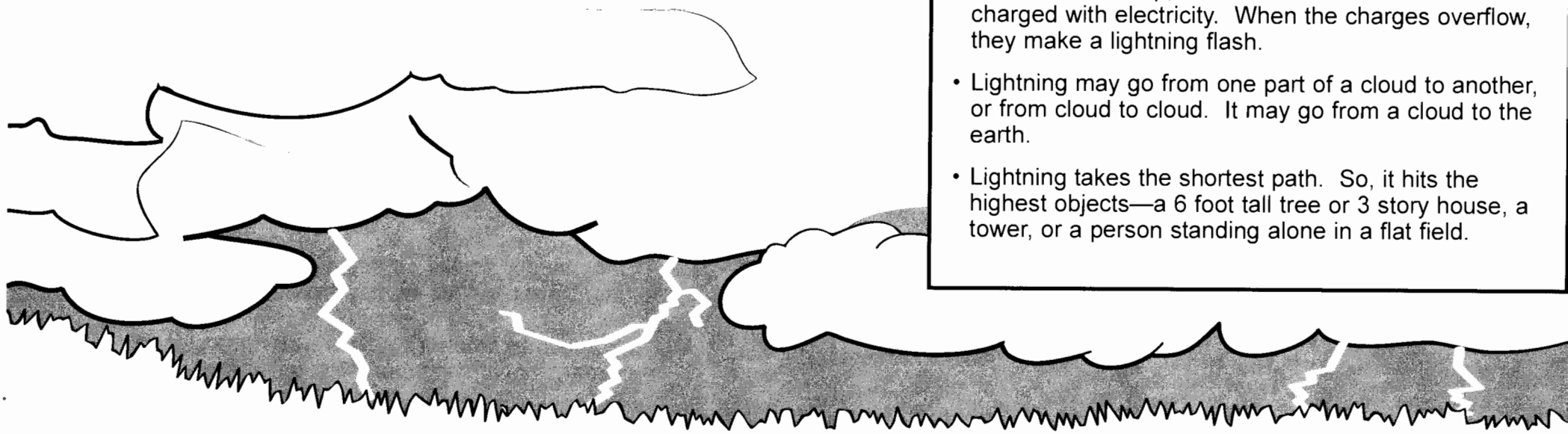
Lightning kills more people than hurricanes or tornadoes. At any moment, there are 2,000 lightning storms around the world.

Every day someone is struck by lightning. Most of these people survive—with lifelong health problems—but many are killed. In the United States about 100 people die each year from lightning or from fires caused by lightning.

In addition to lightning, thunderstorms also produce strong winds and hail. Some hail may be as big as golf balls or baseballs. Thunderstorms may occur in winter but are most common in spring and summer.

Before a Storm

- Keep an eye on the sky. On a hot day, clouds build up. They grow larger, towering higher and higher. They darken. The top of the clouds may be spread out by winds at high altitudes.
- As clouds develop, small bits in the clouds become charged with electricity. When the charges overflow, they make a lightning flash.
- Lightning may go from one part of a cloud to another, or from cloud to cloud. It may go from a cloud to the earth.
- Lightning takes the shortest path. So, it hits the highest objects—a 6 foot tall tree or 3 story house, a tower, or a person standing alone in a flat field.

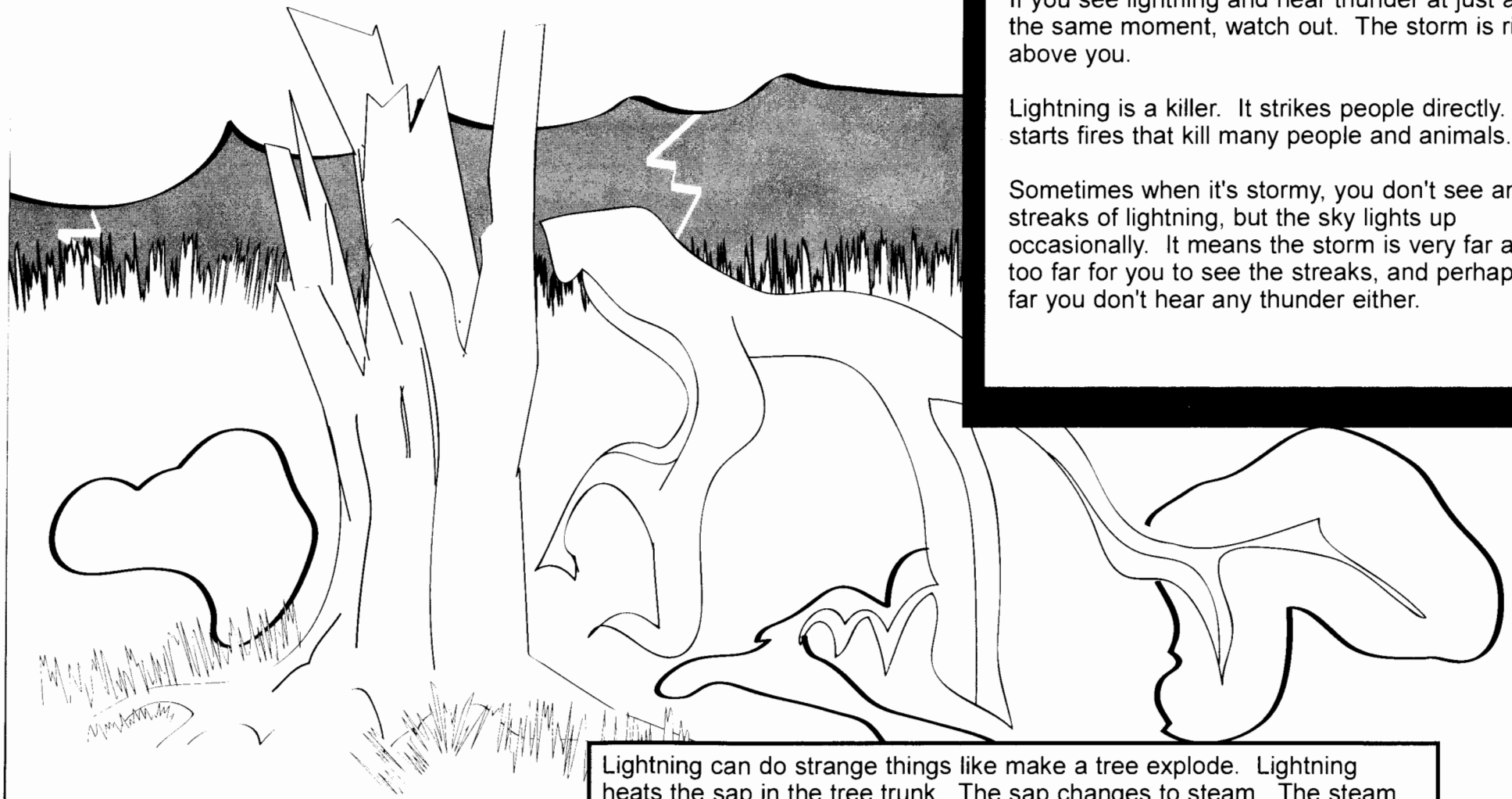


Lightning may hit the same place or person several times.

Ray Sullivan, a retired National Park Ranger, was hit 7 times by lightning. He has been knocked down, picked up and thrown into the air. He has lost his shoes and a toenail, and he can't hear as well, but at least he's still alive.

Now he lives in a mobile home with lightning rods on each end and lightning rods on trees around his home. Hopefully, lightning will follow the rods and leave Ray alone.

BOOM!



Thunder and lightning occur together. It just seems like you usually see the lightning first because light moves faster than sound.

As soon as you see lightning, count the seconds until you hear the thunder. If you count 5 seconds, the lightning was about a mile away. Sound goes about 1000 feet a second. In metric, if it takes three seconds to hear the thunder, the storm is about a kilometer away.

If you see lightning and hear thunder at just about the same moment, watch out. The storm is right above you.

Lightning is a killer. It strikes people directly. It also starts fires that kill many people and animals.

Sometimes when it's stormy, you don't see any streaks of lightning, but the sky lights up occasionally. It means the storm is very far away, too far for you to see the streaks, and perhaps so far you don't hear any thunder either.

Lightning can do strange things like make a tree explode. Lightning heats the sap in the tree trunk. The sap changes to steam. The steam expands and blows up the tree. In a herd of cows, one of a dozen might be struck. The others may be untouched. It can also kill a whole herd.

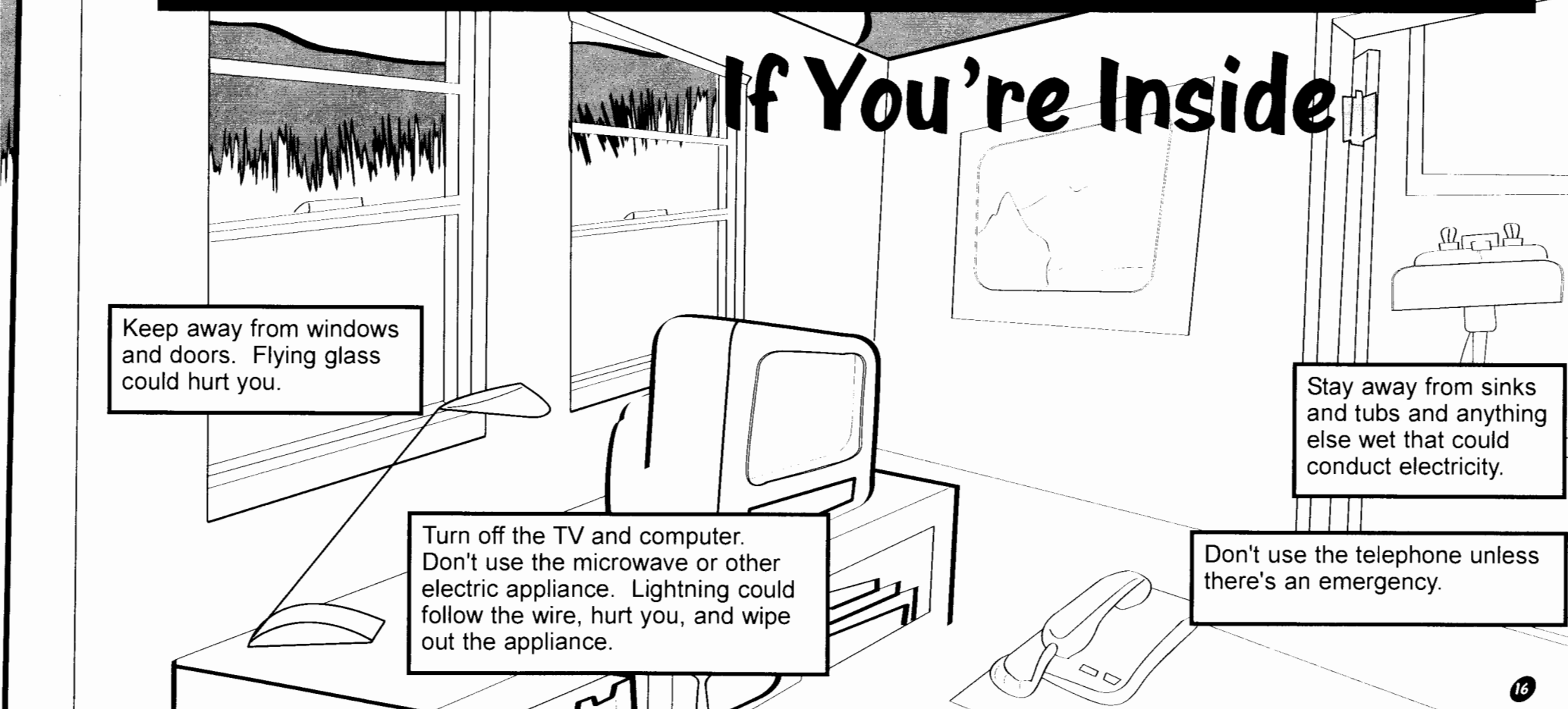
What To Do When There is Lightning

- Get into your home or a large building.
- Get inside a hard-topped car.
- If you are in a field, crouch on your knees and bend over. Don't lie down because wet ground can carry electricity.
- If you are in water, get out. Get away from the beach.

If You are Outside

- If outside, stay in the open, not under a tree or in a picnic shelter or shed. It's better to get wet than fried!
- Lightning hits the tallest object.
- Move away from anything made of metal like a framed backpack. Metal draws electricity.
- Get to the lowest point possible if you are on a hill or mountain.
- Get out of a boat and into a building.

If You're Inside



Floods and Flash Floods

Flash floods are fast moving water that can sweep you or your car away in seconds.

Floods are too much water on normally dry land. Rivers can flood after heavy rain has fallen over a long period of time. River flooding can last weeks or longer. River floods usually occur slowly enough to allow people and property to move to safety.

Flooding can occur anytime of the year. Some floods are seasonal, when winter or spring rains combine with melting snows and fill rivers with too much water too quickly. Other floods are associated with land-falling hurricanes and tropical storms in the summer and fall.

Whenever it rains heavily, there may be flash floods. Flash floods occur in mountain streams, canyons or dry washes. They also happen on low spots in cities and suburbs.

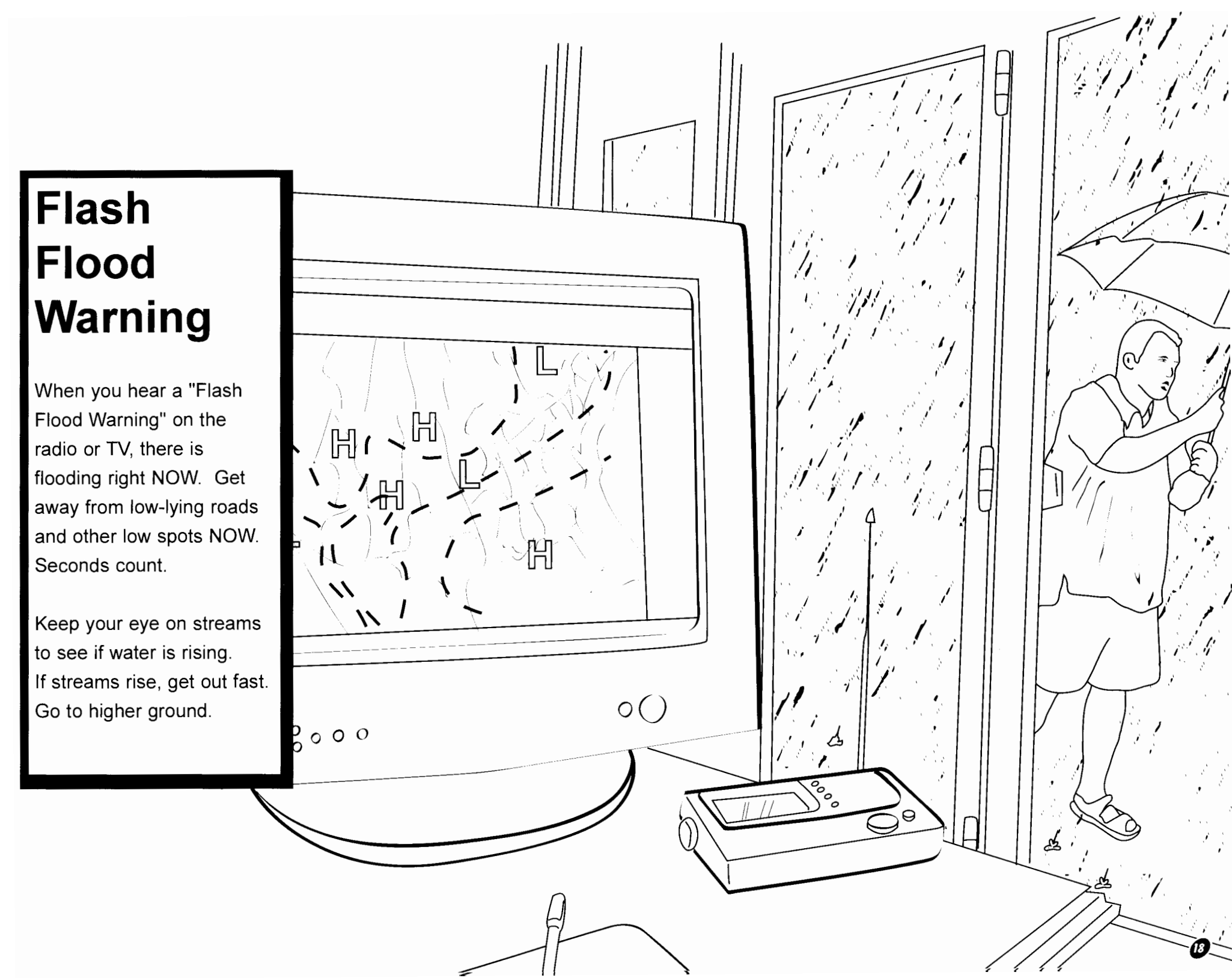
Flash floods can occur even though it's not raining where you are. It may be raining hard upstream, so hard, water cannot sink into the ground. Water rushes down to the stream which fills up past its banks and overflows.

A flash flood may come at you like a high wave of water. To save yourself and your parents, you need a plan.

Flash Flood Warning

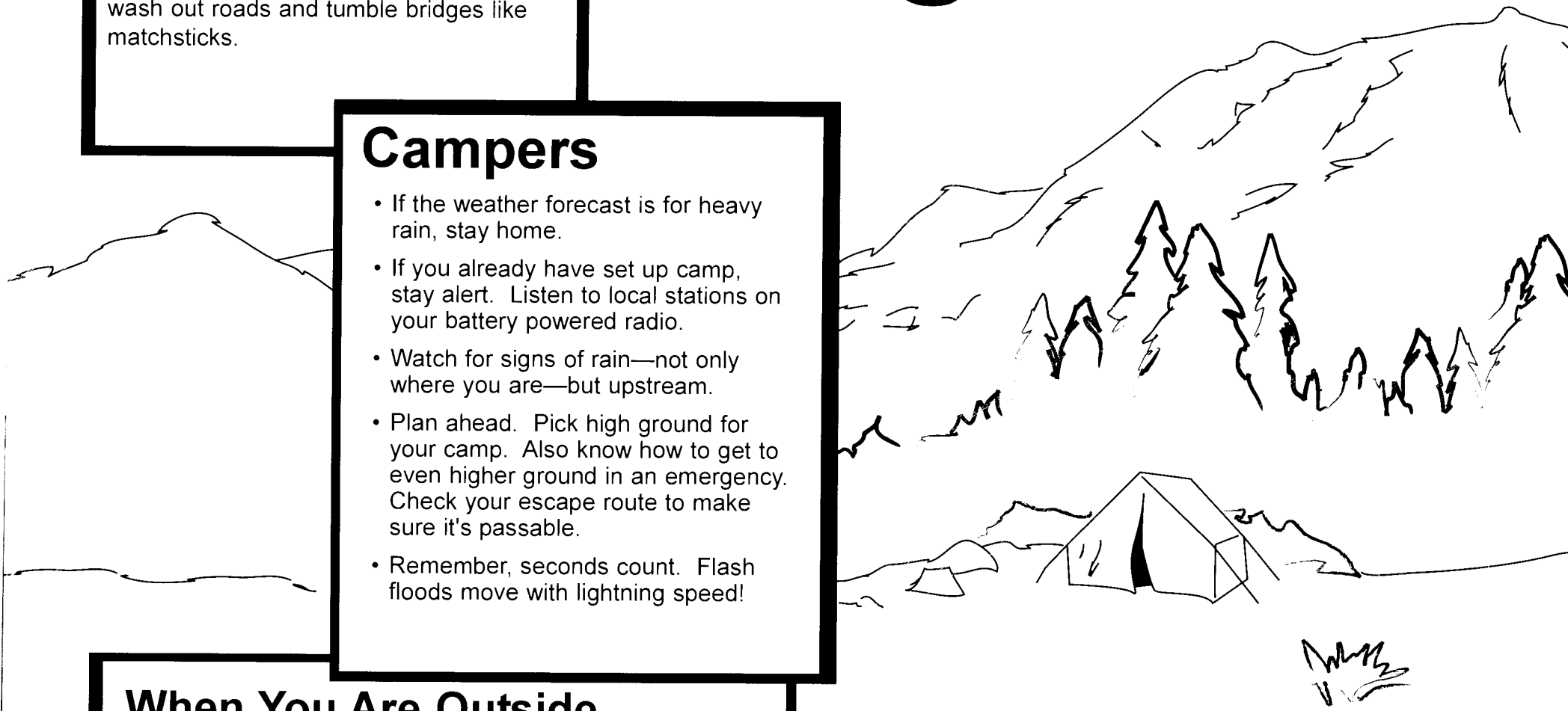
When you hear a "Flash Flood Warning" on the radio or TV, there is flooding right NOW. Get away from low-lying roads and other low spots NOW. Seconds count.

Keep your eye on streams to see if water is rising. If streams rise, get out fast. Go to higher ground.



Stay Calm

Move to higher ground—leave everything and run. A flash flood can pick up cars, campers, vans, recreational vehicles and roll them downstream. It can tumble huge boulders, uproot trees and carry them, wash out roads and tumble bridges like matchsticks.



Campers

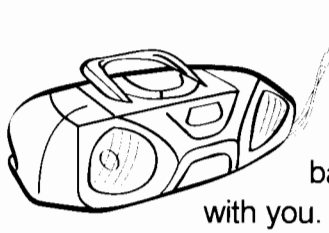
- If the weather forecast is for heavy rain, stay home.
- If you already have set up camp, stay alert. Listen to local stations on your battery powered radio.
- Watch for signs of rain—not only where you are—but upstream.
- Plan ahead. Pick high ground for your camp. Also know how to get to even higher ground in an emergency. Check your escape route to make sure it's passable.
- Remember, seconds count. Flash floods move with lightning speed!

When You Are Outside

- Keep out of storm drains, irrigation ditches, dry washes or other waterways. When it rains, the water can rush through too fast for you to escape.
- There will probably be heavy lightning. Go to higher ground, but stay off hilltops.
- Don't get under lone trees. Follow lightning safety guidelines.

In a Car or Truck

- Watch for flooding on bridges and low points in the road.
- Stay off bridges or roads under water. All of a sudden the bridge or the road could be washed out. They may not even be there under the water.
- If you are in a car, truck or other vehicle and become washed away by water, get out and swim to higher ground if you can.
- If you're riding in a car at night, be specially careful. If you drive into deep water, get out of your car. Climb to higher ground.
- If you're driving through canyon country along a stream and hear a Flash Flood Warning, leave your car and climb to higher ground. Don't try to outrun the flash flood.



In areas with frequent flash floods, keep a battery operated radio with you. Tune to a local station or stay tuned to NOAA Weather Radio. The flood may get worse. Keep away from streams and rivers.

Winter Storms

Flash floods and tornadoes can occur during any month of the year. Not so with snow storms; they occur in winter or sometimes in early spring or late fall. Usually the snow piles up slowly, so you have time to get to a safe place, but not always. In a winter storm a few flakes may fall and the next moment you see blinding snow. It's so heavy you can't see to drive or walk. It piles up deeper and deeper. All at once you may be stalled in a huge drift. You may be trapped.

Winter Storm Watch

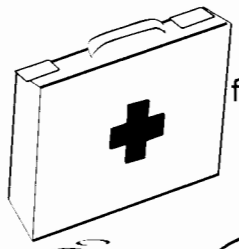
There is a chance of heavy snow, ice or sleet, ice storm, dangerously low wind chill or a blizzard within the next day or two.

Winter Storm Warning

Severe winter weather IS coming. Be alert. Stay indoors!

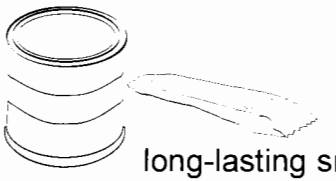
Car Safety Kit:

Tell your parents to put these things in the trunk if you live somewhere that gets deep snow even occasionally:

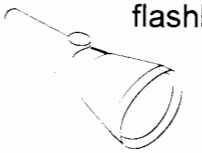


first aid kit

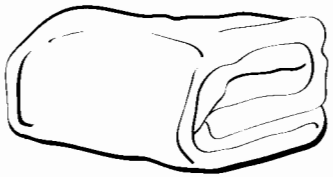
cell phone and coins for pay phone



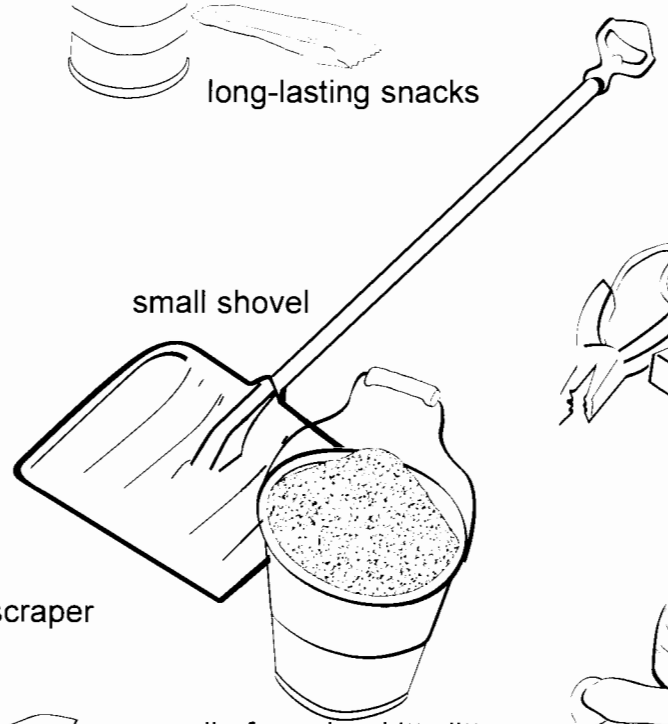
long-lasting snacks



flashlight

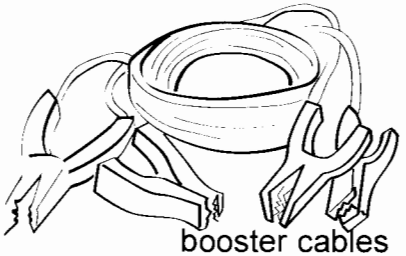


blanket

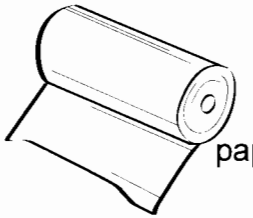


small shovel

pail of sand or kitty litter



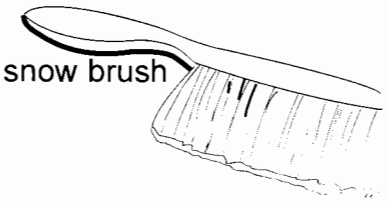
booster cables



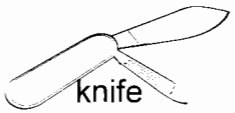
paper towels

windshield scraper

tow chain

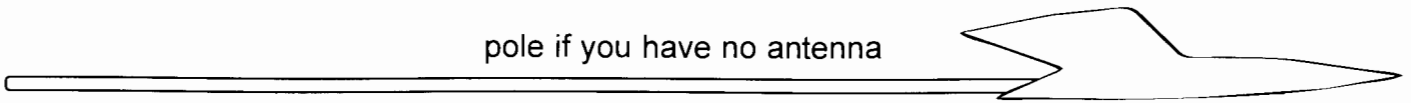


snow brush



knife

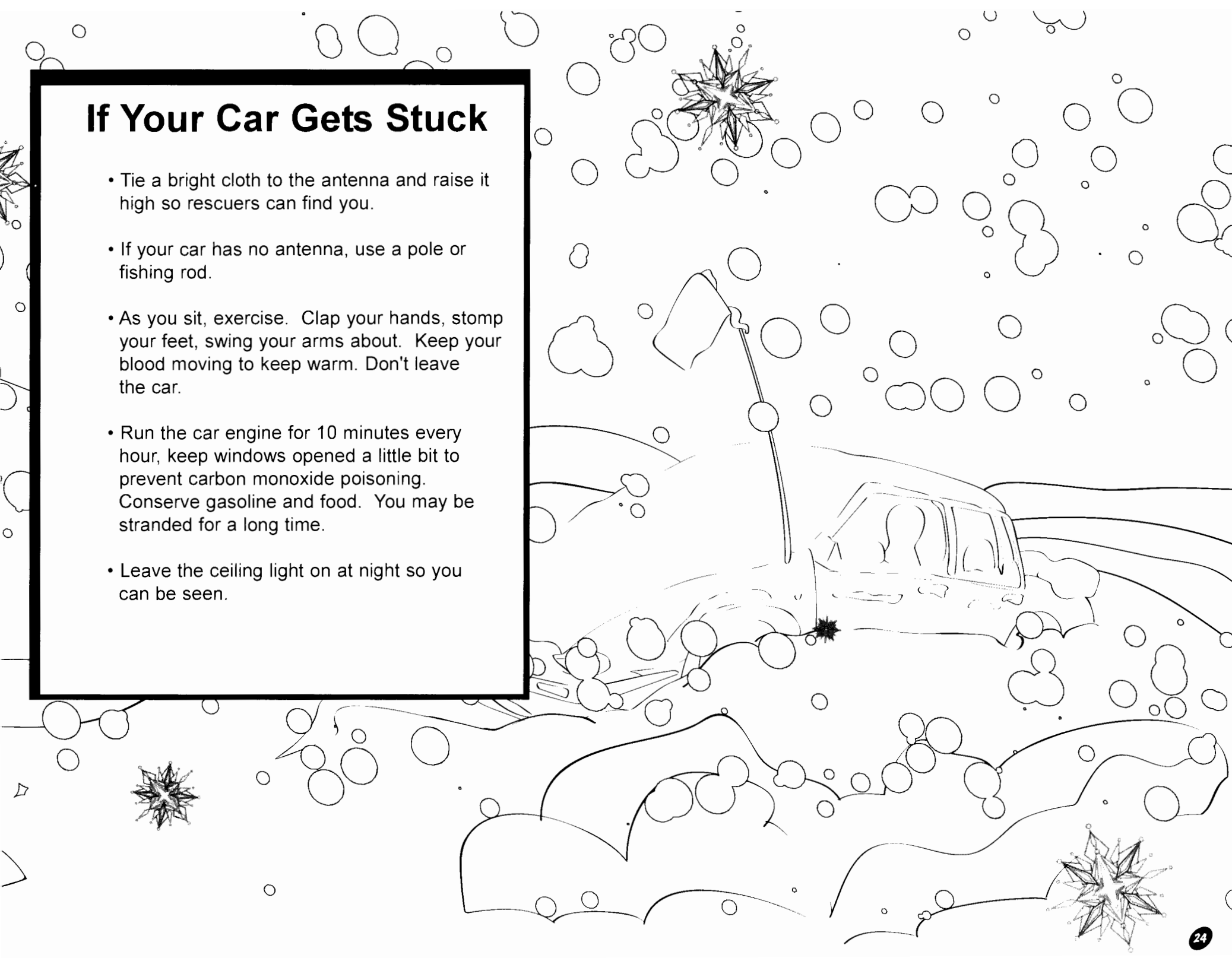
bright colored cloth



pole if you have no antenna

If Your Car Gets Stuck

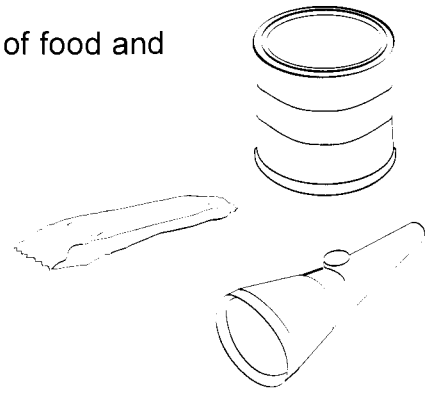
- Tie a bright cloth to the antenna and raise it high so rescuers can find you.
- If your car has no antenna, use a pole or fishing rod.
- As you sit, exercise. Clap your hands, stomp your feet, swing your arms about. Keep your blood moving to keep warm. Don't leave the car.
- Run the car engine for 10 minutes every hour, keep windows opened a little bit to prevent carbon monoxide poisoning. Conserve gasoline and food. You may be stranded for a long time.
- Leave the ceiling light on at night so you can be seen.

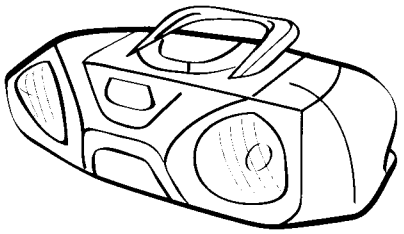


What To Do If You're at Home

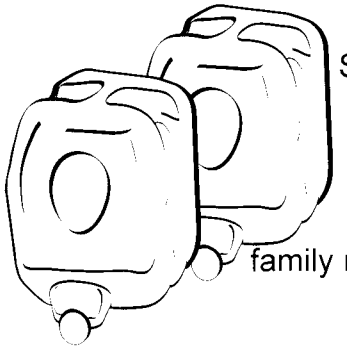
Electricity may go off. Have a way to cook and keep warm. The furnace may not work.

Have a supply of food and a flashlight.

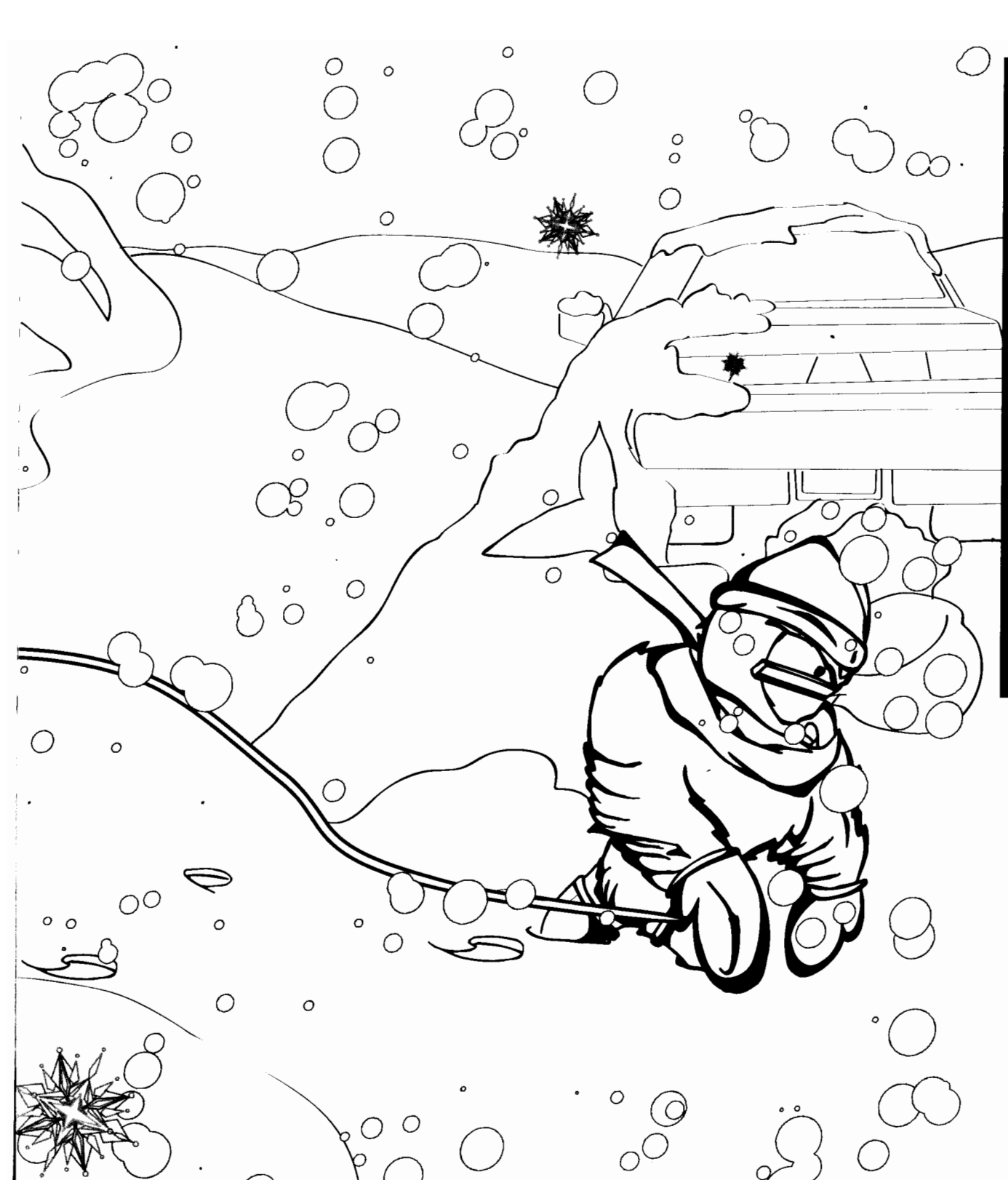




Find your battery operated radio and spare batteries.



Save and clean 6 2-liter soda bottles or a large water container (as shown) for each family member.



If you must go out in a blizzard...

- Wear mittens. They are warmer than gloves.
- Wear several layers of wool clothing and a windbreaker. Layers are warmer than a single heavy garment.
- Wear a hood that covers your mouth.
- Wear a hat and ear muffs.
- If you must go out, fasten a lifeline to yourself and to the house so you don't get lost in the blizzard.

Owlie's Snow How

In the Antarctic, there is a 30-30-30 rule. When the temperature is 30 below, and the wind is 30 miles per hour, a person can live only 30 minutes outside.

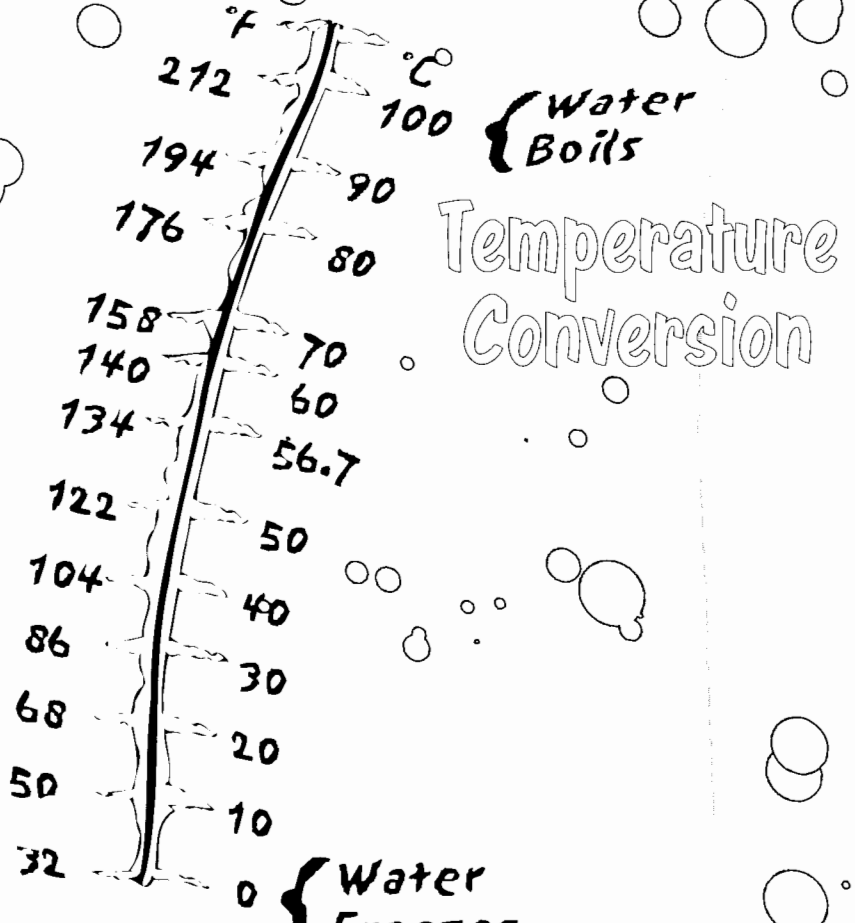
During the winter, you often hear the term "wind chill." Wind combined with air temperature makes your body feel even colder than the actual temperature. You get that feeling when you get out of the pool or ocean in the summer.

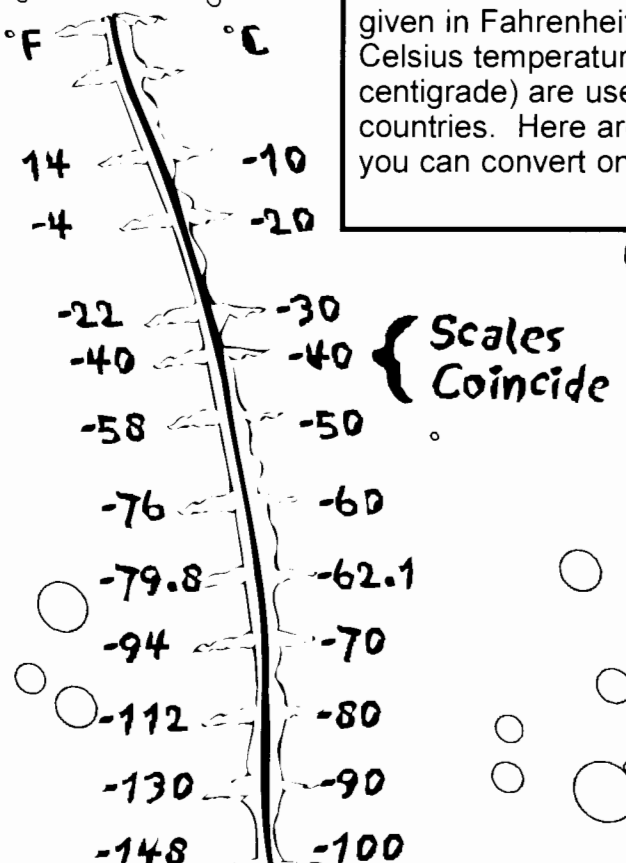
In winter, wind chill can be dangerous. For example when the outside temperature is zero degrees and the wind speed is 20 miles per hour, the wind chill makes it feel like 22 degrees below zero. Exposed skin will freeze in less than 30 minutes.

Did You Know?

- The lowest temperature in the United States was -79.8°F (-62.1C) at Prospect Creek Camp in the Endicott Mountains of northern Alaska on January 23, 1971.
- Aside from Alaska, the coldest temperature was -69.7°F (56.5C) in Rogers Pass, Montana, on January 20, 1954.
- One storm from February 13-19, 1959, dumped 189 inches of snow at Mt. Shasta Ski Bowl, California.
- The greatest snowfall in 24 hours in the United States was at Silver Lake, Colorado, on April 14-15, 1921, 75.8 inches.
- The most snow in the U.S. in one month--390 inches (32.5 feet) fell at Tamarack, California, in January 1911.
- In the winter of 1971-72, 93.5 feet (1,122 inches) of snow fell at the Rainier Paradise Ranger Station in the state of Washington.

Temperature Conversion





In the United States, temperatures are given in Fahrenheit degrees. The Celsius temperatures (also called centigrade) are used in most other countries. Here are both scales so you can convert one to another.

Lightning Quiz

Fill in the blank with the correct words. Use these words:

die **fire**
electricity **explode** **shortest** **water**
tree **tallest** **thunder** **telephone**

1. About 100 people ____ each year from lightning and the fires it causes.
2. Don't use a _____ unless there is an emergency.
3. _____ and lightning occur together.
4. Lightning can make a tree _____ by heating the sap in the tree.
5. Lightning hits the _____ objects.
6. Lightning takes the _____ path.
7. When lightning forms, clouds become charged with _____.
8. If you are outside when there is lightning, don't go under a _____.
9. When lightning strikes, it can start a _____ that kills people and animals.
10. If you are in _____ get out. Stay away from the beach.

Answers on page 41

Circle T (true) or F (false) for each sentence below.

T F 1. When there is lightning, crouch under a tree.
T F 2. When there is lightning, stay away from anything made of metal.
T F 3. Stay by the window and watch for streaks of lightning.
T F 4. In a storm, you usually see the lightning before you hear the thunder.
T F 5. When the sky lights up, but you can't see the streaks of lightning, it means the storm is over.
T F 6. When there is lightning, go to the highest spot on a hill and get out your umbrella for protection from the storm.
T F 7. Every day someone is struck by lightning.
T F 8. Lightning never strikes twice in the same place.
T F 9. If there is lightning, call all your friends to make sure they are safe.
T F 10. Lightning storms may occur in the winter but are most common in spring and summer.

List 5 rules for lightning safety.

1. _____
2. _____
3. _____
4. _____
5. _____

Winter Storm Quiz

Fill in the blank with the correct words. Use these words:

winter	antenna	snowdrift	carbon monoxide
watch	mittens	warning	layers
kitty litter	wind chill		

1. A winter storm _____ means there is a chance of heavy snow or blizzards.
2. A winter storm _____ means severe winter weather is coming.
3. If a winter storm is expected you should have sand or _____, _____ in your trunk in case your car gets stuck.
4. If a winter storm is expected, you should put a bright colored cloth on the _____so someone can find you.
5. If you keep your car engine running to keep warm, you could die from _____ _____ poisoning unless your windows are open to get fresh air.
6. If you go outside in severe weather, you will be warmer if you wear _____ of wool clothing.
7. _____ are warmer than gloves.
8. Snow storms and blizzards usually occur in_____.
9. The temperature your body feels when the actual temperature and wind are combined is called_____ _____.
10. If you are driving during a blizzard, your car could be stalled in a huge _____.

Answers on page 41

Make a list of supplies you should keep in your car to prepare for winter storms or blizzards.

_____

_____

_____

_____

Circle T (true) or F (false) for each sentence below.

T F 1. During a winter storm you can be stuck in a snowdrift.

T F 2. If your car is stuck in the snow, roll up all the windows and keep the engine running until you run out of gas.

T F 3. If you are trapped in a car, move your hands and feet as much as possible to keep warm

T F 4. An umbrella should be a part of your winter storm safety kit.

T F 5. Snow storms can occur anytime of the year.

T F 6. If your car is stuck in the snow, leave your ceiling light on at night so you can be seen.

T F 7. Booster cables and a snow brush should be part of your winter storm car safety kit.

T F 8. Wind chill is the combined effect of temperature and wind felt by your body.

T F 9. Wear gloves. They are warmer than mittens.

T F 10. If your car is stuck in a snowdrift, stand on the roof wearing brightly colored mittens and wave your arms.

Tornado Quiz

_____
_____
_____

On the lines to the left, tell what you should do if a tornado is coming.

Circle T (true) or F (false) for each sentence below.

T F 1. A tornado looks like a funnel with the fat part at the top.

T F 2. You will always notice a funnel before a tornado strikes.

T F 3. A tornado destroys everything in its path.

T F 4. A tornado may hit your home and leave your neighbor's home alone.

T F 5. A tornado can throw cars and trucks into the air.

T F 6. There will seldom be lightning during a tornado.

T F 7. Go into a large room such as the school cafeteria if there is a tornado warning.

T F 8. The sky may be blue at the time you hear a tornado watch.

T F 9. When a tornado is coming, get out of a car and go inside a house.

T F 10. When you hear a tornado warning, get in the car and drive as fast as you can in the opposite direction.

Fill in the blank with the correct word. Use these words:

funnel	**radio**	**ditch**	**train**
windows	**bathroom**	**watch**	**sky**
warning	**hail**	**mobile home**	**tornado**
black clouds	**basement**	**top**	

1. A_____ can flatten homes and buildings.
2. A tornado looks like a _____ with the fat part at the _____.
3. Before a tornado, you will probably see _____, _____.
4. A tornado _____is issued by the National Weather Service when a tornado may develop later.
5. A tornado_____ is issued by the National Weather Service when a tornado has actually been seen.
6. A tornado can sound like the roar of a_____.
7. If you are outside when you see a tornado, go to a low spot or a_____.
8. The best place to be if there is a tornado is in a _____.
9. There may be thunder, lighting, rain or_____ along with the tornado.
10. If you don't have a basement, the next best place to be is in a _____ or other small room in the center of the house.
11. Stay away from _____ during a tornado.
12. If you live in a _____ _____, get out. It can be shattered by a tornado.
13. When you hear a Tornado Watch, keep your eyes on the _____.
14. You can hear a Tornado Watch by listening to NOAA Weather_____.

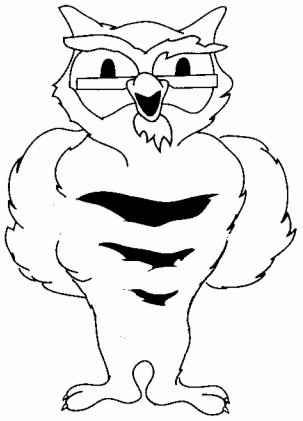
Answers on page 41

Flash Flood Quiz

Fill in the blank with the correct word. Use these words:

streams	**ground**
flash flood	**roads**
bridges	**car**

1. A flash flood can wash out _____ and bridges.
2. A _____ _____ may come to you as a high wave of water.
3. If it is raining hard, water cannot sink into the _____.
4. Flash floods most often occur in mountain _____.
5. If you are driving in deep water, get out of your _____ and climb to higher ground.
6. If you are driving in heavy rain, watch for flooding at _____ and low points in the road.



What should campers do if heavy rains are expected?

_____

_____

_____

Circle T (true) or F (false) for each sentence below.

T F 1. When you hear a flash flood warning it means there will be a flood within 24 hours.

T F 2. Flash floods usually occur along beaches.

T F 3. If you are camping and a flash flood occurs, run to higher ground.

T F 4. Along with flash floods, there is often heavy lightning.

T F 5. Drive as fast as possible through a flooded road to avoid being washed downstream.

T F 6. Never try to outrun a flash flood.

T F 7. If you are camping and you hear a flash flood warning, pack up your tent and bring all your camping gear so it will not be damaged by the flood.

T F 8. A flash flood can wash out roads and bridges and uproot trees.

T F 9. The National Weather Service will always warn you if a flash flood is expected.

T F 10. Whenever it rains heavily, there may be flash floods.

Answers on page 41

Hurricane Quiz

List 3 things you can do to prepare for a hurricane.

_____

_____

_____

Fill in the blank with the correct words. Use these words:

watch	**eye**	**radio**	**flooding**
hurricanes	**moving**	**warning**	**air**
inland	**high tides**	**oceans**	

1. The _____ that surrounds our planet weighs five quadrillion tons.
2. Air is _____ all the time. It swirls, blows, sinks and rises.
3. Air moves over warm _____ and picks up lots of moisture.
4. In summer and early fall, _____ form when air masses pick up lots of moisture.
5. Hurricanes cause _____ and _____.
6. A hurricane _____ tells people a hurricane may reach land within 2 days.
7. A hurricane _____ means a hurricane is expected within 24 hours and winds could reach up to 74 mph.
8. NOAA Weather _____ warns people about hurricanes.
9. If you live near the ocean, go _____ where it is safe.
10. The center of a hurricane is called the _____.

Answers on page 41

Circle T (true) or F (false) for each sentence below.

T F 1. High wind is called a storm surge.
T F 2. NOAA Weather Radio stations warn people about hurricanes.
T F 3. Hurricanes usually appear suddenly and surprise everyone.
T F 4. When a hurricane is expected to reach land in 2 days forecasters issue a Hurricane Warning.
T F 5. Hurricane Hunter airplanes fly into a storm to get information about the hurricane.
T F 6. Hurricane winds can reach 350 mph.
T F 7. Hurricanes cause rain, high tides and flooding.
T F 8. During a hurricane, stay under a tree.
T F 9. Put duct tape on your windows if a hurricane is coming.
T F 10. It is a good idea to have a flash light, radio and extra batteries if a hurricane is expected.

Weather Hazards

Fill in Each Space With the Most Correct Weather Hazard
Hurricane, tornado, lightning, flash flood, or winter storm

1. The path of a _____ is sometimes narrow, but very destructive.

2. Usually before a _____ hits you see a funnel extending from a dark cloud formation.

3. Usually high towering clouds develop before a _____ storm.

4. A severe _____ can occur as late as April, which happened in 1982.

5. A _____ usually occurs in valleys where there are narrow stream beds.

6. A _____ is an extensive storm that usually develops in August or September.

7. In a _____ the most dangerous hazard may be flooding.

8. When a _____ approaches, go to the basement or to an inside closet or hall.

9. When a _____ approaches, get away from the seashore, go to a safe inland location.

10. Don't try to outrun a _____ in your car.

Answers on page 41

You can protect yourself against weather hazards. Things to do or get are listed below.

After each, write in the weather hazard or hazards, that apply.

1. Go to the lowest level _____
2. Put boards over windows _____
3. Stay away from windows _____
4. Stay in your car _____
5. Get out of your car _____
6. Stay away from metal _____
7. Stay indoors _____
8. Have fresh water _____
9. Have a NOAA Weather Radio or battery powered radio _____
10. Cover your head with your hands _____

Answers on page 41

Check Yourself About Weather and Weather Warnings

Try these true or false questions. Ten right - you're a weather wizard; eight right - you're okay; six or less right take another look at the booklet. It may save your life.

T F 1. Tornadoes kill more people than any other kind of storm.

T F 2. Hurricanes are very large storm systems.

T F 3. Wind is the main cause or loss of life in a hurricane.

T F 4. Lightning never strikes twice in the same place.

T F 5. Tornadoes occur only in the Midwestern states.

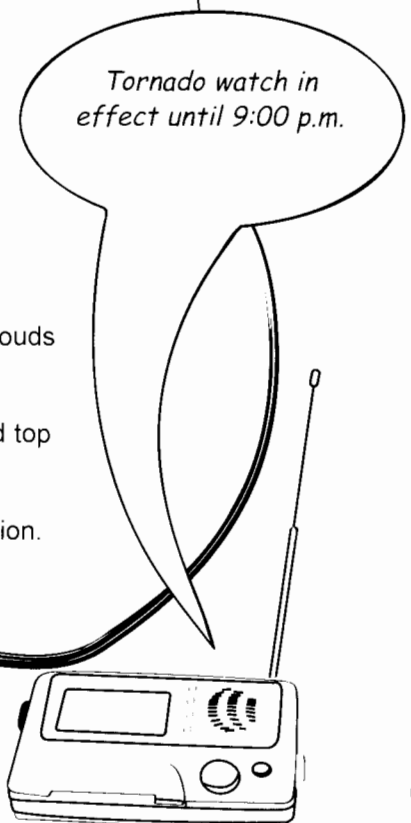
T F 6. Flash floods occur only when it's raining where you are.

T F 7. In a tornado the winds may swirl 200 - 300 miles an hour.

T F 8. Winter storms develop after several hours of winds and clouds warning you of danger.

T F 9. A safe place to be during a lightning storm is inside a hard top car.

T F 10. During a lightning storm, get under a large tree for protection.



Answers on page 41

Fill in each space with one of the answers below. Then fill in the crossword puzzle on the next page to check your answers.

Electricity, eye, floods, forecasts, funnel, hail, hurricane, lightning, radio, shortest, snowstorms, summer, surge, thunder, tornado, warning, weather, or wind chill.

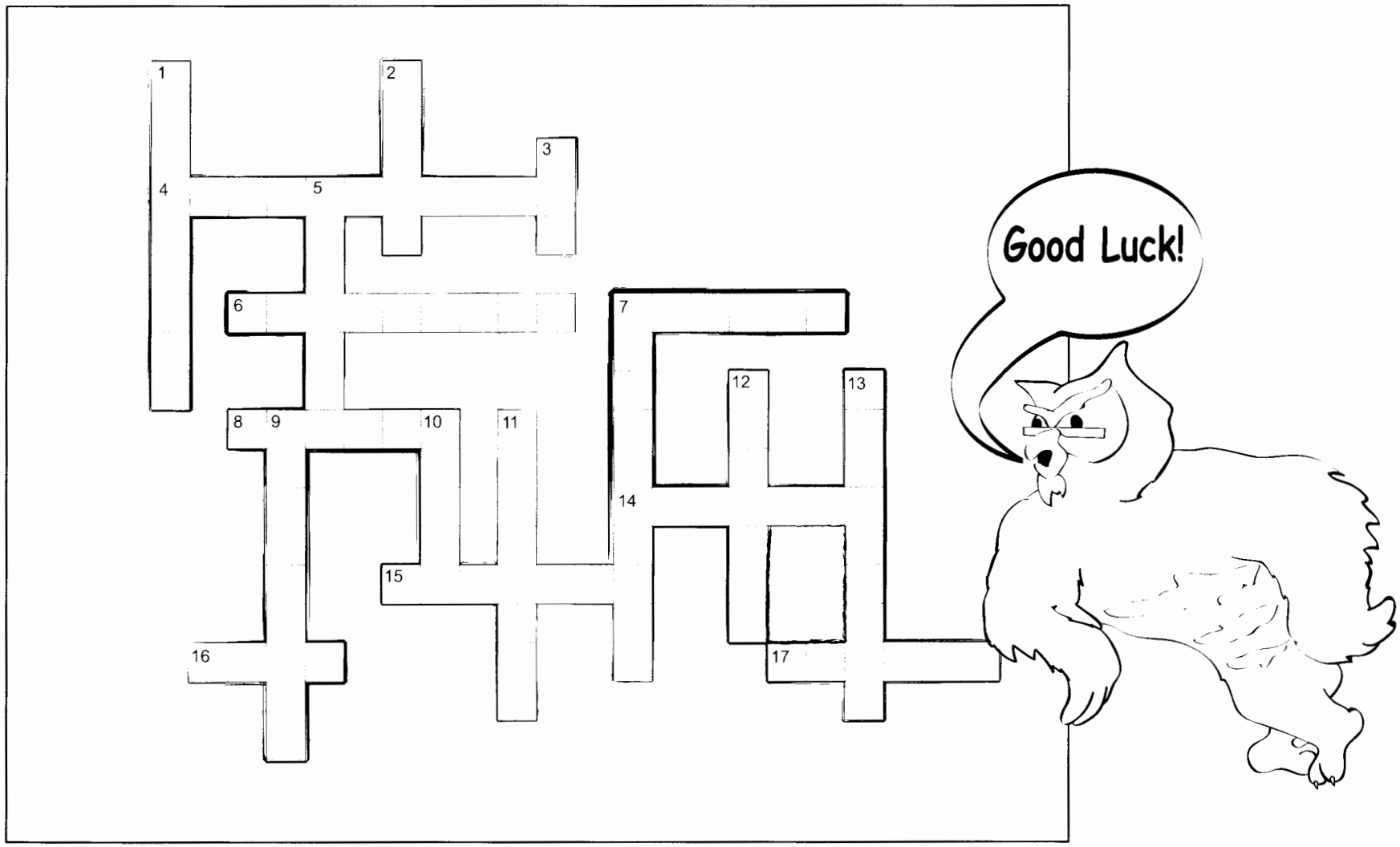
Down

1. *During a severe storm watch or listen to your local_____, it can help save lives.*
2. *Before the storm comes get a flashlight and _____with batteries in case you lose electricity.*
3. *The calm section of a hurricane is called the _____.*
5. *It packs a lot of energy, enough to blow down a whole town.*
7. *They occur in winter and sometimes in early spring or late fall.*
9. *_____kills more people than hurricanes and tornadoes.*
10. *Water 25 feet above normal high tide in a hurricane is called a storm _____.*
11. *Lightning takes the _____path.*
12. *If you hear a tornado _____ act immediately.*
13. *A _____ is a big doughnut of winds with a calm section in the middle.*

Across

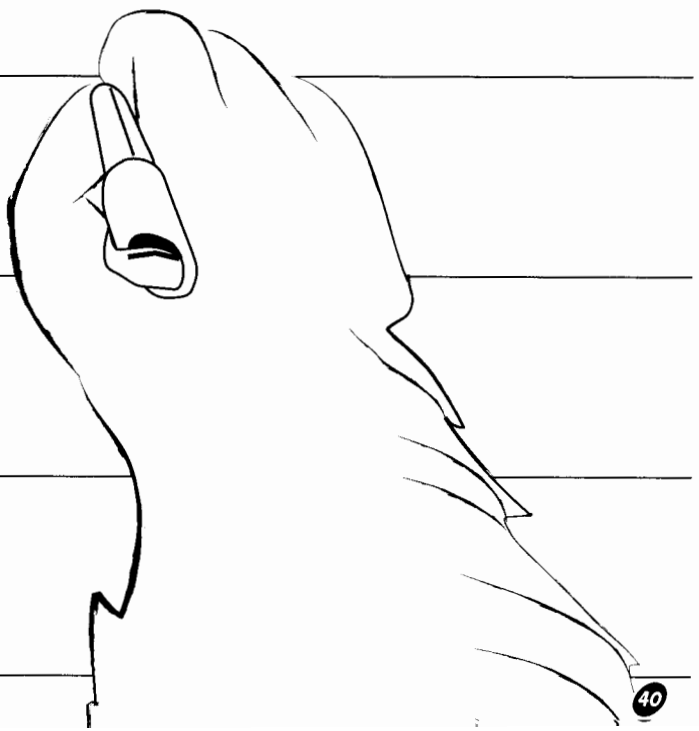
4. *Stay away from sinks and tubs and anything else wet that could conduct _____.*
6. *_____ is a measure of how cold the air feels when combined with air temperature to make your body feel even cooler than the actual temperature.*
7. *Lightning storms may occur in the winter but are most common in the spring and _____.*
8. *Flash _____ can occur even though it's not raining where you are.*
14 *_____and lightning occur together.*
15. *More than 700 NOAA _____ Radio stations broadcast hurricane watches and warnings.*
16. *Thunderstorms can be accompanied by damaging _____ as large as golf balls or baseballs.*
17. *A tornado looks like a _____with the fat part at the top.*

Fill in the crossword puzzle with the answers from the previous page. If all your answers fit, congratulations, you answered all the questions correctly!



Answers on page 41

Notes



Answers

flash flood quiz (pg 32)

1. roads, 2. flash flood, 3, ground, 4. streams, 5. car 6. bridges -- 1. T, 2. F, 3. T, 4. T, 5. F, 6. F, 7. F, 8. T, 9. F, 10. T

tornado quiz (pg 31)

1. tornado, 2. funnel and top, 3, black clouds, 4. watch, 5. warning , 6. train, 7. ditch, 8. basement, 9. hail, 10. bathroom, 11. windows, 12. mobile home, 13. sky, 14. radio -- 1. T, 2. F, 3. T, 4. T, 5. T, 6. F, 7. F, 8. T, 9. T, 10. F

crossword puzzle (pgs 37-38)

Answers: (Across)
4. Electricity, 6. Wind Chill, 7. Summer, 8. Floods 14. Thunder, 15. Weather, 16. Hail, 17. Funnel
Answers: (Down)
1. Forecasts, 2. Radio, 3. Eye, 5. Tornado. 7. Snowstorms 9. Lightning, 10. Surge, 11. Shortest, 12. Warning, 13. Hurricane

winter storm quiz (pg 30)

1. watch, 2. warning, 3, kitty litter, 4. antenna, 5. carbon monoxide, 6. layers, 7. mittens, 8. winter, 9. wind chill, 10. snowdrift -- 1. T, 2. F, 3. T, 4. F, 5. F, 6. T, 7. T, 8. T, 9. F, 10. F

hazards (pg 35)

1. Tornado, 2. hurricane, 3, hurricane, lightning and tornado, 4. winter storm and lightning, 5. flash flood, 6. lightning, 7. hurricane, lightning, winter storm, and tornado, 8. hurricane, tornado, and winter storm, 9. hurricane, tornado, winter storm and flash flood, 10. tornado

true & false (pg 36)

1. F-lightning, 2. T, 3. F- Flooding,
4. F, 5. F-anywhere 6. F, 7. T, 8. F, 9. T, 10. F

lightning quiz (pg 29)

1. die, 2. telephone, 3, thunder, 4. explode , 5. tallest, 6. shortest, 7. electricity, 8. tree, 9. fire, 10. water -- 1. F, 2. T, 3. F, 4. T, 5. F, 6. F, 7. T, 8. F, 9. F, 10. T

hurricane quiz (pg 33)

1. air, 2. moving, 3, oceans, 4. hurricanes, 5. high tides and flooding, 6. watch, 7. warning, 8. radio, 9. inland, 10. eye --
1. F, 2. T, 3. F, 4. F, 5. T, 6. F, 7. T, 8. F, 9. F, 10. T

fill in the blanks (pg 34)

1. Tornado, 2. tornado, 3. lightning, 4. winter storm, 5. flash flood 6. hurricane, 7. hurricane, 8. tornado, 9. hurricane, 10. tornado.

Resources

Web Weather for Kids: Check this out if you want to make fog, a tornado, or lightning. **http://www.ucar.edu/educ_outreach/webweather/**

Kids'Crossing: Wow! Explore this weather funhouse. Lots of weather links, too. **http://www.ncar.ucar.edu/eo/kids/**

Weather, Seasons and Climate: Play the weather game, keep a weather journal or color the seasons. **http://www.cotf.edu/ete/modules/k4/teacher/weather/weather.html**

Jetstream: Loads of information can be found on this online weather school. **http://www.srh.noaa.gov/jetstream/mesoscale/ingredient.htm**

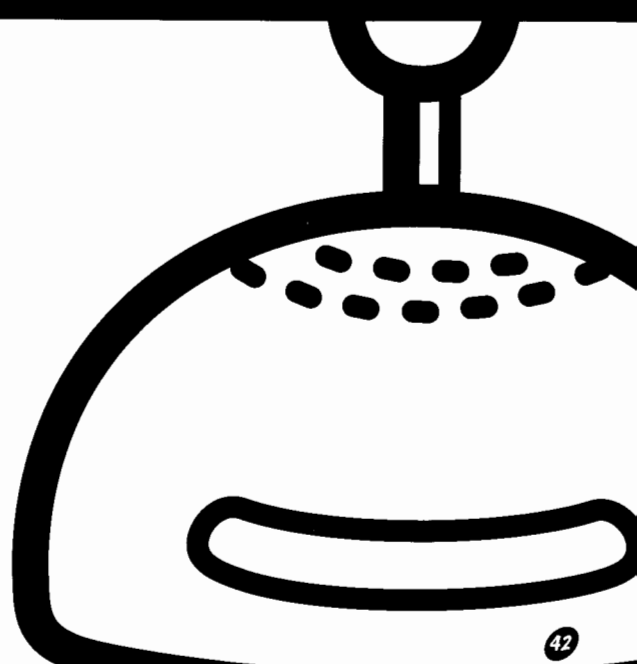
Playtime for Kids: Here you'll find coloring books, puzzles, games and other fun stuff. **http://www.nws.noaa.gov/om/reachout/fun.shtml**

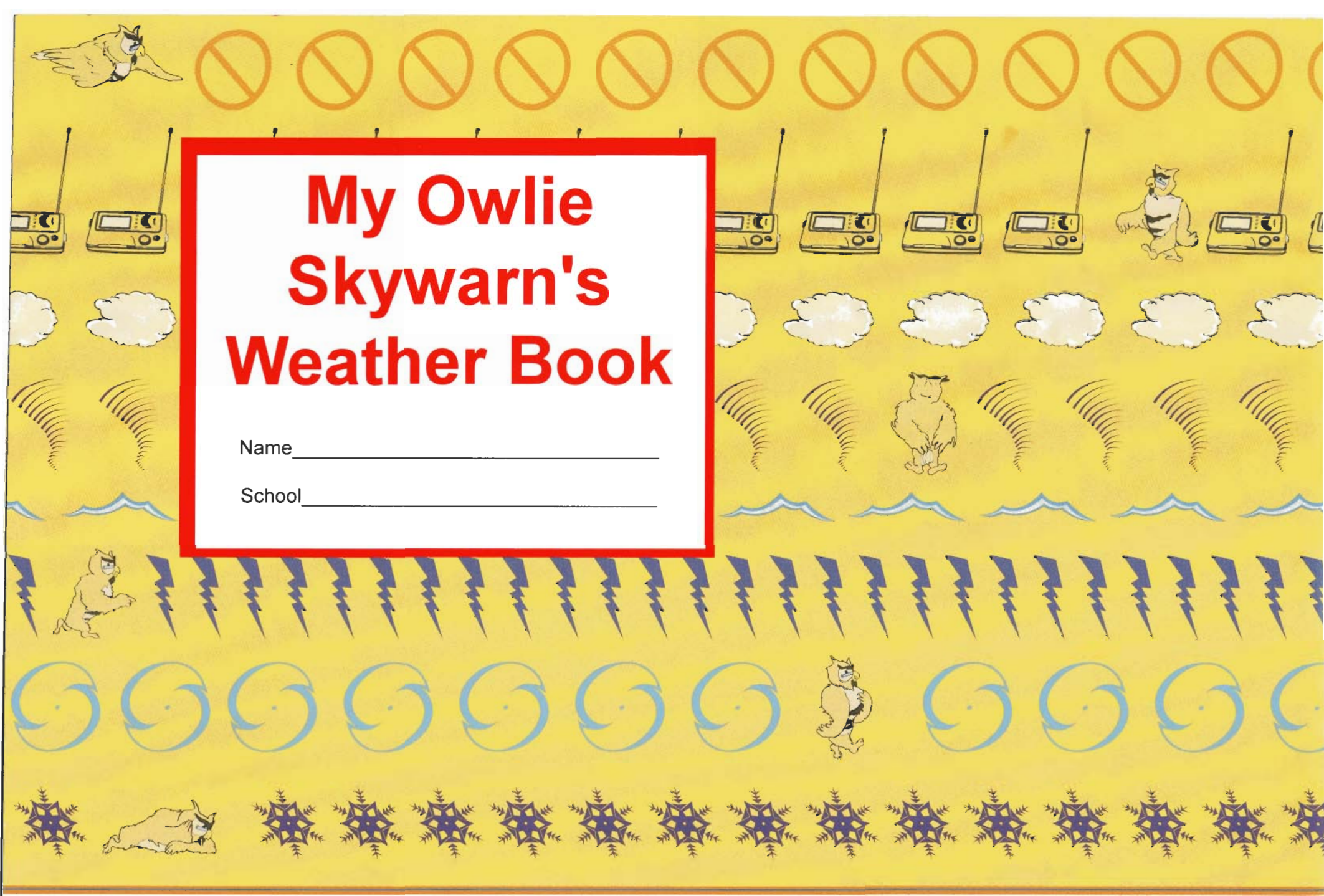
Kid's Hazards Quiz: Are you prepared? Find out by taking this fun quiz. **http://www.ngdc.noaa.gov/seg/hazard/kqStart.shtml**

SciJinks Weather Laboratory: At this Web site, you can write your own weather story or find a weather science fair topic. **http://scijinks.jpl.nasa.gov/weather/**

Franklin's Forecast: Learn how to make your own weather station; learn about El Nino and radar. **http://www.fi.edu/weather/**

Here are some web sites for some fun learning about weather





My Owlie Skywarn's Weather Book

Name_____

School_____

American Red Cross

FEMA

American Red Cross

FEMA

NOAA/PA 200451