Florida's SEVERE WEATHER AWARENESS GUIDE

GET A PLAN!

FLORIDA DIVISION OF EMERGENCY MANAGEMENT

Social Media

In order to serve those who live, work, and visit Florida in the quickest way possible, the Florida Division of Emergency Management utilizes social media to inform, notify and apprise the public of hazards, emergencies and safety information in addition to traditional forms of notification. Join our conversations, like, and follow our feeds to stay up-to-date on your area. You can find all of our information and updates here:

Check us out online at:
www.FloridaDisaster.org
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www.KidsGetAPlan.com

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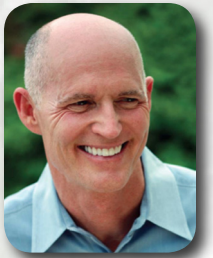

Message From Florida Governor Rick Scott

Florida is home to limitless opportunities. With our miles of coastline, our thriving communities and growing job opportunities – more and more people are making the Sunshine State their home.

As families continue to pursue their dreams in Florida, and as visitors travel here to enjoy our communities, we're working with local leaders to ensure our communities are made safe.

Severe weather can strike at any moment, and families should have a plan of their own so their loved ones know what to do should severe weather strike.

The Division of Emergency Management outlines in this guide what families need to know, and what supplies they need to stay safe, including evacuation routes, how much potable water families need, remembering important medications and creating a plan for pets.

These are few of the many tips that are laid out in this guide.

Florida is among the best places in the world where families can pursue their dreams – and to ensure your loved ones are safe and best protected from storms, use this guide and Get a Plan.

Message from the Florida Division of Emergency Management Director Bryan Koon

Follow on Twitter @BKoonFDEM

Floridians know firsthand the impacts of severe weather in our state. The last hurricane to make landfall in Florida was in 2005. The last eight years have seen an influx of new residents, many of whom have not experienced a hurricane. Memories also tend to fade with the passage of time between events, so even lifelong residents can become complacent in their preparedness.

I cannot emphasize enough how important it is to prepare for all types of hazards. I am proud to present the 2014 Severe Weather Awareness Guide. You and your family can use this guide to learn about the types of severe weather that Floridians may face. It is essential that all Floridians are prepared to effectively protect themselves in the event of severe weather. Take a few minutes today to develop a family emergency plan and build a disaster supply kit.

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A downloadable guide is available at www.FloridaDisaster.org

Severe Weather Awareness Week

MONDAY

Lightning

TUESDAY

Marine Hazards and Rip Currents

WEDNESDAY

Tornadoes and Thunderstorms

THURSDAY

Hurricanes and Flooding

FRIDAY

Temperature Extremes and Wildfires

Lightning

With an average of 1.4 million cloud-to-ground lightning strikes each year, no other state in the country has more lightning than Florida. Because thunderstorm activity peaks in the summer, Florida often has the greatest number of fatalities and injuries from lightning each year in the United States.

Thunder is a Product of Lightning

As lightning moves between the ground and thunderstorm, the air around the flash heats rapidly, to temperatures as high as 50,000^0 F – hotter than the surface of the sun. This sudden heating creates expansion of the air around the lightning bolt, breaking the sound barrier and resulting in the explosive sound we know as thunder. Because sound travels much slower than light, thunder is heard after a flash of lightning.

Lightning Safety

As a storm approaches, many people may assume lightning is too far away to pose any danger, but it can travel as far as 10 miles from a thunderstorm. If you are close enough to the storm to hear thunder, then you are close enough to be struck by lightning.

A darkening cloud is often the first sign that lightning may strike. As soon as you see lightning or hear thunder, move indoors quickly and stay away from windows, plumbing and electrical devices.

If you are caught outside when lightning occurs, the most dangerous place to be is an open area. When a substantial building is not available and lightning is imminent, get into a hard-topped vehicle, but remember to keep your hands and feet away from the side of the car, as well as the dashboard, steering wheel and windows.

Outdoor water activities such as swimming, boating and fishing are also very dangerous during lightning. Be sure to head back to land as soon as bad weather threatens.

Most people struck by lightning are not killed, but suffer significant injuries. It is important to remember that a lightning victim does not continue to carry an electrical charge and can begin receiving emergency medical care immediately.

Make Lightning

Materials You Will Need

• aluminum pie pan • small piece of wool fabric
• styrofoam plate • pencil with a new eraser • thumbtack

Process

- Push the thumbtack through the center of the aluminum pie pan from the bottom.
- Push the eraser end of the pencil into the thumbtack.
- Put the styrofoam plate upside-down on a table. Quickly, rub the underneath of the plate with the wool for a couple of minutes.
- Pick up the aluminum pie pan using the pencil as a handle and place it on top of the upside down styrofoam plate that you were just rubbing with the wool.
- Touch the aluminum pie pan with your finger. You should feel a shock. If you don't feel anything, try rubbing the styrofoam plate again.
- Once you feel the shock, try turning the lights out before you touch the pan again. You should see a spark. You made lightning!

Why Does This Happen?

Negative to positive!

Lightning happens when the negative charges, which are called electrons – in the bottom of the cloud or in this experiment your finger – are attracted to the positive charges, which are called protons, in the ground or in this experiment the aluminum pie pan. The resulting spark is like a mini lightning bolt.

The 30-30 Rule

When thunder roars, first go indoors!

Then use the 30-30 Rule to determine the threat of lightning in your area before going out again.

30 Seconds – Count the seconds between seeing lightning and hearing thunder. If the time is less than 30 seconds, lightning is still a potential threat. Seek shelter immediately.

30 Minutes – After hearing the last thunder, wait 30 minutes before leaving shelter. Many lightning deaths occur after the storm passes. Stay in a safe area until you are sure the threat has passed.

Marine Hazards/Rip Currents

Florida's weather and water can change rapidly, posing a threat to boater and swimmer safety. The day's weather can quickly bring hazards such as severe thunderstorms, strong winds, rough seas, lightning, waterspouts or rip currents.

Strong wind gusts can produce locally rough seas as high as 12 feet in a matter of moments. These conditions can possibly overturn small boats and torrential rains can reduce visibility to near zero. At the beach, rough waves can knock an unsuspecting swimmer down and make them susceptible to rip currents.

If you hear thunder, you could potentially be struck by lightning. Boaters should return to port anytime thunder is heard. If you are unable to reach safe shelter on a boat, go below deck or get as low as possible. Stay away from masts or metal objects. Those at the beach should seek shelter in a hard-topped vehicle.

A waterspout is a tornado over water that can easily overturn boats and create locally hazardous seas. Waterspouts can form during severe thunderstorms that occur over water, but they also can form during fair and relatively calm weather. These "fair weather waterspouts" may not be as strong, but can still easily damage or destroy a small boat. If caught near a waterspout, move at a 90 degree angle from its apparent movement, then seek safe harbor.

A safe and enjoyable Florida boating experience is up to you. Always plan ahead and remember these safe boating and beach practices:

- Check forecasts well ahead of time.
- Be sure everyone aboard is wearing a life jacket.

- If caught in a thunderstorm, go below deck if possible, and stay away from masts or ungrounded metal objects.
- Have a VHF marine band radio on board.
- Know the limitations of your boat. If small craft advisories or gale warnings are issued, you should postpone travel.

Rip Currents

A rip current is like a shallow river or channel of water flowing away from shore. Rip currents can last from a few minutes to a few hours, and can extend as far as 100 yards offshore Weather or ocean conditions can cause rip currents to be more frequent or stronger in intensity. Tropical storms and hurricanes can easily create rip currents in Florida, even if they are several hundred miles away. Rip currents typically form along the beach at breaks in the offshore underwater sandbar, and structures such as piers and jetties can often result in permanent rip currents alongside these structures.

Rip currents are dangerous. Rip currents pull unprepared swimmers away from shore into deeper water. If caught in a rip current swim sideways, parallel to the beach until you are out of the rip current. Then swim to shore at an angle, away from the current.

At speeds of up to five miles per hour, the force of a rip current is too strong for anyone to swim against, and attempts to swim directly back to shore, especially for a panicked and tired swimmer, can be fatal.

Know Before You Go

Before leaving home, be sure to check the expected beach and water conditions. Visit www.ripcurrents.noaa.gov/forecasts.shtml for your area's rip current outlook. The National Weather Service also issues Coastal Waters Forecasts, which include a five-day forecast of wind direction, wind speed, wave height and precipitation.

When at the beach, look for the nearest lifeguards and check with them about existing water conditions. Obey all instructions or orders from lifeguards or beach patrol. If you're going to a beach with no lifeguard on duty, look for warning flags or signs and know what the colors mean. Remember, swimming in the surf is not the same as swimming in a pool or lake. If winds are strong or the surf is rough, avoid going into the water above your knees and swim with a buddy.

DID YOU KNOW?

Rip currents claim more lives in Florida than hurricanes, floods, tornadoes and lightning combined.

Sometimes, you can look for signs of rip currents in the water:

- **A narrow channel where there is a noticeable difference in water color (appears brown from sand)**
- **A line of foam or seaweed moving in the opposite direction of the incoming waves**
- **A visible area of choppy or churning water**
- **A break in the wave pattern**

Follow these safety tips to ensure a safe and enjoyable beach trip:

- If you find yourself caught in a rip current, doing two simple things will increase your chances of survival – don't panic and don't fight the current! Just remembering the simple phrase "Don't fight...Swim left or right" could save your life.
- If possible, swim at beaches with lifeguards or beach patrol.
- If caught in a rip current, stay calm, yell for help, and swim sideways, parallel to the beach until you are out of the rip current. Then swim to shore at an angle, away from the current and towards shore.
- If you are unable to swim out of the rip current, float or calmly tread water. When out of the current, swim towards shore.
- Don't get caught in a rip current trying to save someone else. Throw the person a flotation device, yell instructions on how to escape and get help from beach patrol.

Tornadoes

Myth vs. Fact

Myth: Open the windows of a home to help equalize the pressure and minimize the damage to the home in the event of an oncoming tornado.

Fact: Although there are pressure changes within tornadoes, most of the damage to structures will be caused by the winds and the debris carried by the winds. All homes will equalize its pressure inside since no house is 100% sealed. Opening the windows will waste precious time one has to get to safety as well as create a hole for debris to enter.

Myth: Mobile homes are tornado magnets.

Fact: Tornadoes are no more inclined to hit mobile homes as they are any other building. Mobile home communities are often found in rural areas which make up the vast majority of the United States. Even though this means that the probability of a tornado hitting a mobile home community is higher than one hitting a large city, the chances that a tornado will hit any particular communiy with mobile homes are low. In addition, mobile homes are susceptible to damage. Therefore, it is extremely important to have a safe shelter you can go to in case of a tornado.

Myth: Skyscrapers and other tall buildings in big cities are protected from tornadoes.

Fact: This may seem true because large cities make up a small portion of the geographical area of the United States. This means that the probability of a tornado hitting a large city small, but not impossible. The reality is that tornadoes can form anywhere, and tall buildings and large cities do little to stop a tornado. Many cities including Miami, Orlando, Pensacola, Tallahassee, and Jacksonville have seen a tornado impact their downtown areas.

Myth: Overpasses offer suitable shelter if you are caught outside in a tornado.

Fact: Seeking shelter in an overpass is more dangerous compared to standing in an open field during an approaching tornado. Winds will be funneled under the bridge which will increase the speed. Additionally, debris also tends to collect in overpasses from a passing tornado which could cause significant harm to those seeking shelter there.
It is best to seek shelter in an interior room on the lowest floor of a sturdy building. If no building is available, lie flat on the ground and cover your head. Tornadoes do not always follow terrain, so if a tornado is coming directly toward your location, chances are that it will pass overhead. Remember, debris tends to collect in ditches and overpasses, and flash flooding may be possible as well.

Thunderstorms and Tornadoes

Thunderstorms are a frequent part of life in Florida. Thunderstorms occur in all seasons of the year, but they are more numerous during the summer. Florida has the greatest number of thunderstorms in the United States, occurring 75 to 105 days each year. Florida experiences more thunderstorms than others states because: (1) Florida is located close to large bodies of water that provide moisture; (2) Florida receives plenty of sunlight, which warms the air near the ground; and, (3) Sea breeze boundaries can move onshore and provide a source of lift for the thunderstorms.

Thunderstorms can produce dangerous hazards such as lightning, tornadoes, hail, strong winds and heavy rain that can lead to flooding. A thunderstorm is considered "severe" when it produces winds in excess of 58 mph, hail that is one inch across or larger (the size of a U.S. quarter), or if it produces a tornado.

Tornadoes develop within very strong thunderstorms when rising air currents in a storm begin to rotate. If the rotation is strong enough and can last for a long enough period of time, a funnel cloud can drop from the clouds and touch ground. Some thunderstorms may produce several tornadoes. Tornadoes also can occur near the edge of tropical cyclones, in squalls called rain bands. These tornadoes often occur more than 100 miles from the center of the tropical cyclone.

Tornadoes usually last only a few minutes, but often cause severe damage. The damage area of a tornado is usually narrow, but in its direct path winds can be as strong as 200 mph.

Sometimes, strong thunderstorm wind gusts, often called downbursts, can produce as much damage as a tornado. Downbursts can snap trees, blow down signs and cause roof damage.

Waterspouts

A waterspout is a tornado over water. Florida waterspouts come in all shapes, sizes, and intensities. Waterspouts can form year round in Florida, during the peak summer months, as well as more intense waterspouts during the winter or spring months and within hurricane or tropical storm rain bands. Waterspouts are quite common over the waters along the Florida Keys, the lagoons and rivers along the Florida Treasure Coast, and Tampa Bay. Waterspout winds can reach and exceed 40-90 mph, which is strong enough to swamp or capsize a small watercraft. All waterspouts pose a threat to boater safety, and should be avoided.

Florida Tornadoes

Most Florida tornadoes occur in the afternoon and early evening hours during the summer months of June, July and August. These tornadoes tend to be weaker in strength but can still produce damage. Stronger and more devastating tornadoes can occur in Florida mainly in the late winter and spring when strong cold fronts move through the state and provide the necessary conditions for tornadoes to form. Tornadoes have occurred in every month in Florida, even on Christmas Day.

Tornadoes can also strike at any time of day. Most of Florida's tornado-related deaths occur during overnight hours. Since 1950, only three states – Texas, Kansas and Oklahoma – have reported more tornadoes than Florida. Florida also ranks fourth in damage caused by tornadoes.

National Weather Service (NWS) meteorologists track thunderstorm development, movement and severity by using Doppler radar.

"Severe Thunderstorm Warnings" are issued when a thunderstorm in the area is capable of causing damage and is a threat to life and property.

Doppler radar also identifies the rotation inside a thunderstorm, which could be the beginning of a tornado.

However, an actual tornado is typically too small for the Doppler radar to detect. Therefore, meteorologists depend on volunteer storm spotters who report funnel clouds, tornadoes and other severe weather to the National Weather Service.

The National Weather Service will issue a Tornado Warning when a tornado has been either seen by a weather spotter or when Doppler radar indicates strong rotation inside a thunderstorm.

Thunderstorm and Tornado Safety Actions

If a Severe Thunderstorm Warning or Tornado Warning is issued for your area, seek shelter immediately! Find shelter in a small, interior room on the lowest floor of your home and stay away from windows, doors and electrical equipment. Avoid rooms that are near tall structures like trees and power lines.

Leave mobile homes and find a stronger building or house. In the classroom, seek shelter in a hallway or closet, or get underneath a desk or table and cover your head with your arms. If caught outdoors or on the road try to get as low as possible, such as in a creek bed or ditch, and cover your head.

Make A Tornado in a Tube

Materials You Will Need

- Two empty 2-liter soda bottles, clear
- water
- food coloring (optional)
- Tornado Tube Connector*

**If you cannot find a Connector, use duct or electrical tape instead*

Process

1. Remove labels, caps and plastic ring seals from the soda bottles.
2. Fill one of the bottles 3/4 full with water and add food coloring.
3. Connect the bottles by screwing the connector onto the bottle filled with water. Now, screw the empty bottle into the other side of the connector; make sure both bottles are screwed in tightly so the water does not leak. If you do not have a connector, secure the openings together with duct tape or electrical tape. *(Once connected, the bottles should make an hourglass shape)*
4. Flip the tubing upside down so the filled bottle is now on top.
5. Holding the top bottle, swirl the water for a few seconds.
6. The water should now swirl into a tornado!

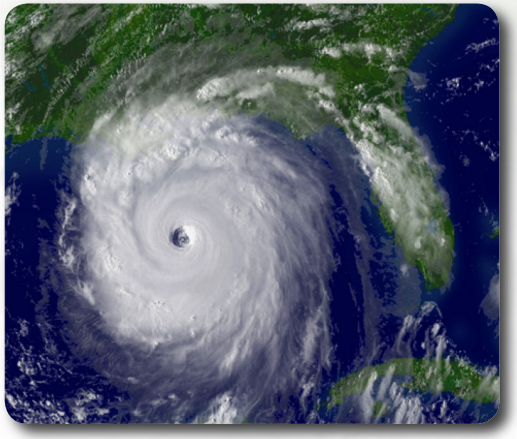
Why Does This Happen?

Gravity and motion mix up a storm!

Gravity is causing the water in the top bottle to flow into the empty bottom bottle. When the water is swirling, it creates a vortex which allows the liquid to travel in a circle around the center inside the bottle. This allows the displaced air to flow up from the center of the vortex as the water swirls around the sides and flows into the bottom bottle. Can you get the tornado in the bottle to spin both clockwise and counter-clockwise?

Hurricanes, winter storm and other low pressure systems in the northern hemisphere all have a similar counter-clockwise spin due to the Coriolis Force. This is because these hurricanes and winter storms are very large – some spanning several states. Tornadoes are also considered low pressure systems, but even the largest tornadoes are small when compared to a hurricane. The fact that tornadoes are small means that the Coriolis Force does not affect the rotation of a tornado. As a result, just like in the tornado tube, tornadoes can spin in both clockwise and counter-clockwise directions.

Hurricanes



During a typical year, several tropical storms and hurricanes will develop and move across the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea. It takes only one of these storms to produce widespread impacts across a large area, and even storms that do not make landfall in Florida can bring hazards to the state.

The Atlantic hurricane season officially begins on June 1 and continues through November 30. Although the number of tropical storms and hurricanes typically peaks during August and September, it is important to remember that Florida can be impacted by tropical weather systems at any time during the six-month-long season, and sometimess outside of the official season.

Recent hurricane seasons remind us that impacts can occur well away from the tropical cyclone center in the form of dangerous surf and rip currents. Tropical cyclones that move close to Florida will bring more direct impacts in the form of storm surge and coastal flooding, tornadoes, and freshwater flooding from heavy rain.

The strongest hurricanes can have winds in excess of 155 miles per hour. Though a hurricane's winds typically weaken rapidly following landfall, Florida's flat terrain allows the stronger winds to survive longer inland than in other parts of the country.

Freshwater flooding from torrential rains can produce a lot of damage, regardless of its intensity. Also, freshwater flooding may occur hundreds of miles away from the cyclone center, meaning that storms which do not make landfall in the state may still bring significant rainfall. All Florida residents and seasonal visitors should determine if they live within a low-lying area at risk to flooding, regardless of their location in the state.

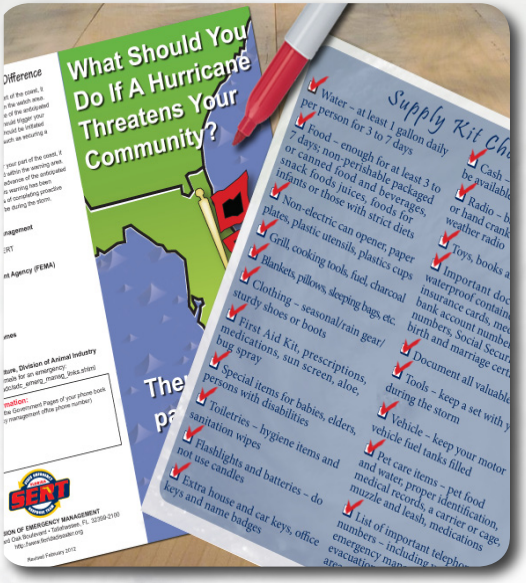
Storm surge is the term used to describe the wall of water that is pushed toward the shoreline as a hurricane moves onshore. A major hurricane can produce a surge of 10 feet or more above the normal levels. This amount of water easily can flood coastal communities with pounding waves. Worldwide, approximately 90 percent of all deaths in hurricanes are drownings in either storm surge or rainfall flooding.

Tornadoes associated with tropical systems can develop suddenly and strike a community even though the center of the hurricane may be more than 100 miles away.

Preparing for a hurricane

All Florida residents and visitors should prepare each year for the possibility of tropical storm or hurricane impacts, understand the potential hazards posed by them, and have a plan. First, determine whether you live in an evacuation zone. This information can be obtained from your local emergency management office. If you do live in an evacuation zone, know when and where

you will go to pass the storm. Have a list of emergency telephone numbers. Second, create a disaster supply kit, with non-perishable supplies, batteries for electronic devices such as your NOAA Alert Radio, and food and water to last you and your family at least three days.



When a storm threatens your community, stay informed by monitoring the latest forecasts and warnings from the National Weather Service, as well as information and advice from your local emergency management officials. The National Hurricane Center, together with your local National Weather Service forecast office, will issue Tropical Storm and Hurricane Watches and Warnings to help you prepare for a storm. Watches are issued up to 48 hours in advance of the time damaging winds are possible within the specified area. Warnings are issued up to 36 hours prior to the time when damaging winds are expected. The best way to prevent a disaster from a hurricane is to be prepared and to have a plan.

Disaster Supply Kit Checklist

- ❑ Water – at least 1 gallon daily per person for 3 to 7 days
- ❑ Food – enough for at least 3 to 7 days; non-perishable packaged or canned food and beverages, snack foods, juices, foods for infants or those with strict diets
- ❑ Non-electric can opener, paper plates, plastic utensils, plastics cups
- ❑ Grill, cooking tools, fuel, charcoal
- ❑ Blankets, pillows, sleeping bags, etc.
- ❑ Clothing – seasonal/rain gear/ sturdy shoes or boots
- ❑ First Aid Kit, prescriptions, medications, sun screen, aloe and bug spray
- ❑ Special items for babies, elders, persons with disabilities
- ❑ Toiletries – hygiene items and sanitation wipes
- ❑ Flashlights and batteries – do not use candles
- ❑ Extra house and car keys, office keys and name badges
- ❑ Cash – banks/ATMs may not be available after a storm
- ❑ Radio – battery operated or hand cranked radio, NOAA weather radio
- ❑ Toys, books and games
- ❑ Important documents in a waterproof container – include insurance cards, medical records, bank account numbers, credit card numbers, Social Security cards, birth and marriage certificates, etc.
- ❑ Document all valuables
- ❑ Tools – keep a set with you during the storm
- ❑ Vehicle – keep your motor vehicle fuel tanks filled
- ❑ Pet care items – pet food and water, proper identification, medical records, a carrier or cage, muzzle and leash, medications
- ❑ List of important telephone numbers – including your county emergency management office, evacuation sites, doctors, bank, area schools, veterinarian, etc.

Disaster Supplies

Enter the maze and collect the supplies you should include in your disaster supply kit.

- ❑ Games
- ❑ Radio
- ❑ Flashlight
- ❑ Water
- ❑ Can Opener
- ❑ Batteries
- ❑ First Aid Kit
- ❑ Important Papers
- ❑ Canned Goods

Make a list of other important supplies you would include in your disaster supply kit.

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

Enter the maze at *Start Here!* to collect your disaster supplies. When your disaster supply kit is full, you will be Prepared!

Flooding

Florida is vulnerable to flooding at any time of the year. Mostly surrounded by water, the abundant supply of moisture feeds the development of thunderstorms, which may produce heavy rains over a short period of time. When those heavy rains occur, the ground may not be able to absorb all of the rainwater and flooding may result. Due to the flat ground in portions of the state, floodwaters may sometimes remain in an area for days, weeks or even months.

Not all floods are alike. Some floods develop slowly, taking anywhere from a few hours to a few days to have an impact. On the other hand, flash floods happen quickly, sometimes in a matter of minutes.

Urban Flooding

As Florida's population increases, buildings and pavement replace the natural land. This creates more water runoff and can increase flood problems in urban areas, which can be especially dangerous and costly in these developed areas where we live and drive. Flooding can cause harm to animals and damage to any type of structure, including homes, bridges, buildings, roads, power and sewer systems.

Most flooding related deaths in the United States are due to people driving their cars into flooded areas. Moving water only as deep as a car's hubcaps can be enough to move the car off the road; and it may only take 12 to 16 inches of water to cause a car to float. Driving on flooded roads is also dangerous because the road may be washed out, or there are unseen dangers in the water that could cause damage to your vehicle and threaten your life. When you encounter a flooded roadway, it is important to remember, "Turn around. Don't drown!"

Florida has more than 2,200 miles of tidal shoreline. Because of this, many areas of Florida are also prone to coastal flooding. This may come from storm surge associated with tropical cyclones or from other causes such as strong onshore winds or higher than normal tides due to lunar effects.

Meteorologists at the National Hurricane Center, the Southeast River Forecast Center, and local Florida National Weather Service offices all watch thunderstorms and tropical systems very closely to forecast how much rainfall it may produce and how much flooding may occur. The National Weather Service will issue coastal flood advisories, watches and warnings similar to inland flood statements.

Flooding Safety Actions

- Never play in flooded areas where hidden sharp objects, electrocution and pollution are serious hazards.
- In highly flood-prone areas, keep materials such as sandbags, plywood, plastic sheeting, plastic garbage bags, lumber and shovels on hand.

- Be aware of streams, canals and areas that are known to flood so you or your evacuation routes are not cut off.
- Never drive into moving water. If you cannot see the roadway beneath the water, do not drive through it! The water may be deeper than it appears and the road may already be washed away.
- Do not use food that has come in contact with floodwaters.

- Consider purchasing a federal flood insurance policy. You can learn more about strengthening your home at flash.org and about federal flood insurance at floodsmart.gov/floodsmart.

Flooding Facts

- Six inches of water will reach the bottom of most passenger cars, causing loss of control and possible stalling.
- Two feet of rushing water can carry away most vehicles, including sport utility vehicles (SUVs) and pick-ups.
- Urban and small-stream flash floods can occur under one hour.
- Flood damages are not covered under homeowners' insurance policies. All homeowners should consider purchasing federal flood insurance.

Flash Flood

Flash floods can occur within a few minutes or hours of heavy rainfall or from a dam or levee failure. These floods can destroy structures, down trees, roll boulders, and create new waterways. Rapidly rising water can reach heights of 30 feet or more! Furthermore, flash flood producing rains can also trigger catastrophic mudslides. You may not always have a warning of these sudden and potentially deadly floods.

Urban Flood

Floods can be magnified in urban areas. As land is converted from fields and woodlands to roads and parking lots, it loses it ability to absorb rainfall. Urbanization increases runoff two to six times over what would occur on natural terrain. During periods of urban flooding, streets can become swift moving rivers, while basements can become death traps as they fill with water.

River Flood

Low lying areas near rivers, streams, lakes and reservoirs are susceptible to river floods. Some river floods occur seasonally when winter or spring rains fill river basins with too much water too quickly. Other floods can occur from slow-moving low pressure systems. Torrential rains from decaying hurricanes or tropical systems can also produce river floods.

Area Flood

Area floods are long-lived, though not usually life-threatening. Standing water in low-lying areas, such as an open field, is an example of an area flood. Significant agricultural losses and displaced livestock can occur with theses floods. In addition, stagnant water from this type of flooding can serve as a breeding ground for insects and diseases.

Studying Storm Surge

Materials You Will Need

• multi-speed fan • painter roller tray • water • small toy houses and buildings or other small items such as coins or Lego blocks, etc.

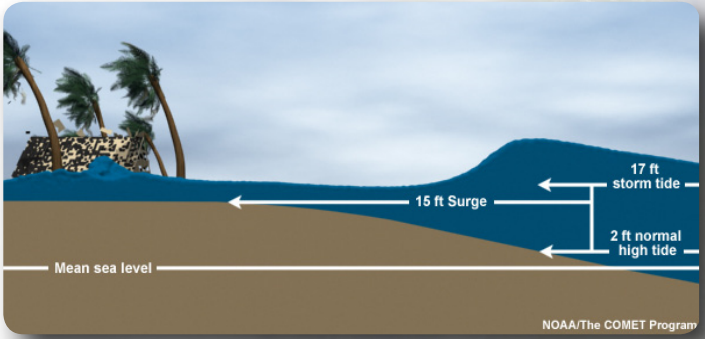
Process

1. **Fill the paint roller tray with water until it rises to about three-quarters of the way up the incline.**
2. **Position the fan on the deep side of the paint roller tray so that it blows down across the water.**
3. **Position the houses and buildings at the top of the incline.**
4. **Turn the fan on. If your fan has different setting options, test using the highest setting.**

Why Does This Happen?

Winds push the water

The wind from the fan is pushing the water, much like the winds form a hurricane push the ocean water. This wind causes the water to climb up the incline toward the houses. When the fan is on a higher speed, it simulates stronger winds so more water moves ashore. This is why storm surge is generally higher for stronger hurricanes. Can you get the water to cover the homes?



Storm surge is caused primarily by high winds pushing on the ocean's surface. The wind causes the water to pile up higher than the ordinary sea level. Low pressure at the center of a weather system also has a small secondary effect, as can the depths and shapes of the body of water. It is this combined effect of low pressure and persistent wind over a shallow water body which is the most common cause of storm surge flooding problems.

Temperature Extremes and Wildfires

Florida can experience a wide range of temperatures, from dangerously hot to dangerously cold, and it is important for everyone to stay safe during periods of temperature extremes.

When Florida's high humidity combines with warm temperatures, it may feel hotter outside than it really is. This is called the heat index.

High heat index values limit the body's ability to cool through sweating. When the heat index exceeds 105° F, conditions can become dangerous for people and animals. Sunstroke, heat cramps, heat exhaustion and heat stroke are all risks associated with high heat indices. The National Weather Service will issue heat advisories and warnings when the heat index is forecast to reach dangerous levels.

Hot Weather Safety

- Wear lightweight, light-colored clothing to help reflect heat and sunlight, and help your body maintain its normal temperature.
- Drink plenty of water, even if you don't feel thirsty. People can become dehydrated without realizing it. Stay away from highly sugared or carbonated drinks.
- Slow down and limit outdoor activities. Avoid outdoor events during the hottest part of the day (11 am–5 pm). Remain in air-conditioned places to reduce your exposure to the heat.
- Check on elders, persons with disabilities, children and animals during periods of prolonged heat.
- Protect your skin with sunscreen; also wear sunglasses and a hat, or carry an umbrella to provide shade.

Cold weather outbreaks occur in Florida at least once a year, caused by strong cold fronts that move through the state and producing below freezing temperatures and strong winds. When strong winds combine with cold temperatures, heat loss from a person's skin can be accelerated. Wind Chill can make the outside temperature feel much colder than it really is. In addition, freezing temperatures can kill crops, plants and even fish. The National Weather Service will issue wind chill advisories/warnings, along with freeze advisories/warnings, when cold weather threatens an area.

Cold Weather Safety

When cold weather is in the forecast, it is important to remember the "5 P's of Cold Weather Safety."

- **Protect People:** dress in layers and wear a hat and gloves. Stay out of the wind and to stay dry. Remember to check on young children and elders who are the most sensitive to cold weather.
- **Protect Pets:** Be sure to bring outdoor pets inside or give them a warm shelter.
- **Protect Plants:** Cover cold-sensitive plants to protect them from the dangerous temperatures.
- **Protect Pipes:** Cover pipes and allow outdoor faucets to slowly drip to prevent them from freezing and breaking.
- **Practice Fire Safety:** Use safe-heating sources indoors. Do not use fuel-burning devices such as grills; they release carbon monoxide, which is a deadly gas. Also, make sure to use space heaters according to their instructions and be attentive to open flames.

Wildfire Safety

While wildfires can start at any time of the year, the state sees a peak of activity during the early, colder part of the year – beginning in January and continuing until early to mid-June. A typical year in Florida will see over 4,600 fires burn nearly 110,000 acres of land. Since 2002, more than two million acres of forest land have been burned by wildfires.

While there are natural ways a wildfire can be ignited, most wildfires are started by humans. The most common causes of human-started fires are arson and yard waste burns that get out of control. Fires can also be caused by discarding a cigarette that has not been fully extinguished. Other causes of wildfires include campfires and bonfires not properly extinguished or windy conditions that may take hot embers from the fire to another location. The stronger the wind and the drier the ground, the faster fires will spread. Fire Weather Watches and Red Flag Warnings are issued by the National Weather Service to alert people to hazardous weather conditions that may add to the wildfire danger.

Wildfires can cause major environmental, social and economic damages. Prescribed fires are good fires that reduce the hazardous accumulations of brush to lower the risk of loss to homes, businesses, recreation areas and forests when wildfires occur. Prescribed fire also controls forest tree diseases and recycles nutrients in the soil.

Wildfires often begin unnoticed. They spread quickly, igniting grasses, trees and homes. Reduce your risk by preparing now - before wildfire strikes. Meet with your family to decide what to do and where to go if wildfires threaten your area. Find out how you can promote and practice wildfire safety by going to www.Firewise.com and www.floridaforestservice.com/wildfire/information.html.

Word Search

Find the Weather Words hidden in the box below.

Be Aware – words may be listed across, down, diagonally, backwards and upside-down!

Hidden Words

Check off the words as you find them!

- ☐ ATMOSPHERE
- ☐ CIRRUS
- ☐ CUMULUS
- ☐ CURRENT
- ☐ HURRICANE
- ☐ LIGHTNING
- ☐ METEOROLOGIST
- ☐ RIP
- ☐ SEVERE
- ☐ STORM
- ☐ TEMPERATURE
- ☐ TORNADO
- ☐ TROPIC
- ☐ WATERSPOUT
- ☐ WEATHER
- ☐ WILDFIRE
- ☐ WIND

L	I	W	Y	T	E	M	P	E	R	A	T	U	R	E
E	J	D	S	E	E	N	A	C	I	R	R	U	H	N
T	N	E	R	R	U	C	J	X	S	U	R	R	I	C
S	A	I	L	E	Y	U	L	C	J	E	K	K	R	U
C	M	C	T	L	I	G	H	T	N	I	N	G	E	P
S	T	O	R	M	D	N	I	W	M	X	W	D	H	G
S	R	C	S	C	U	M	U	L	U	S	A	Y	T	X
D	E	R	E	H	P	S	O	M	T	A	T	Z	A	M
L	U	T	S	I	G	O	L	O	R	O	E	T	E	M
S	D	T	M	B	O	Z	N	K	A	N	R	T	W	U
E	Q	R	G	J	X	G	H	K	C	G	S	R	M	R
V	E	R	I	F	D	L	I	W	Y	P	P	O	N	J
E	Z	H	C	P	P	Q	R	J	M	V	O	P	Y	D
R	J	T	O	R	N	A	D	O	N	L	U	I	O	M
E	Y	I	F	T	S	Q	S	Z	N	Z	T	C	V	R

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