

## Lesson II: Types of Weather:

### Parent/Guardian Instructions:

- Review the thunder and lightning storm discussion with your child (ren).
- Review the tornado discussion and find a “safe location” in your home.
- Review the flooding discussion with your child (ren).
- Review the winter storm discussion with your child (ren).

### Lesson Discussion:

**Thunderstorms:** Thunderstorms can produce lightning, high winds and hail. We have our share of thunderstorms and high wind storms throughout spring, summer and fall. The danger signs of thunderstorms include dark, towering, or threatening clouds, distant thunder and lightning.

A **severe thunderstorm watch** is issued by the National Weather Service when weather conditions are as such that a severe thunderstorm (damaging winds 58 miles per hour or more, or hail three-fourths of an inch in diameter or greater) is likely to develop. This is the time to locate a safe place in the home and tell family members to watch the sky and listen to the radio or television for more information.

A **severe thunderstorm warning** is issued when a severe thunderstorm has been sighted or indicated by weather radar. At this point, the danger is very serious and everyone should go to a safe place, turn on a battery-operated radio or television, and wait for the "all clear" by the authorities.

#### *If indoors:*

- Secure outdoor objects such as lawn furniture that could blow away or cause damage or injury. Take light objects inside.
- Shutter windows securely and brace outside doors.
- Listen to a battery operated radio or television for the latest storm information.
- Do not handle any electrical equipment or telephones because lightning could follow the wire. Television sets are particularly dangerous at this time.
- Avoid bathtubs, water faucets, and sinks because metal pipes can transmit electricity.

#### *If outdoors:*

- Attempt to get into a building or car.
- If no structure is available, get to an open space and squat low to the ground as quickly as possible. (If in the woods, find an area protected by low clump of trees--never stand underneath a single large tree in the open.) Be aware of the potential for flooding in low-lying areas.
- Avoid tall structures such as towers, tall trees, fences, telephone lines, or power lines.
- Stay away from natural lightning rods such as golf clubs, baseball bats, tractors, fishing rods, bicycles, or camping equipment.
- Stay away from rivers, lakes, or other bodies of water.
- If you are isolated in a level field or prairie and you feel your hair stand on end (which indicates that lightning is about to strike), bend forward, putting your hands on your knees. A position with feet together and crouching while removing all metal objects is recommended. Do not lie flat on the ground.

*If in a car:*

- Pull safely onto the shoulder of the road away from any trees that could fall on the vehicle.
- Stay in the car and turn on the emergency flashers until the heavy rains subside.
- Avoid flooded roadways.

**Lightning:** Right now there are over 2,000 lightning storms around the world. In the United States close to 200 people die each year from being hit by lightning or from fires caused by lightning. Lightning hits the highest objects, being houses, towers, or a person standing alone.

Here are several important facts about lightning that can help you if you are caught in a thunderstorm with lightning.

- Get off of motorcycles, bicycles, and golf carts.
- Get off from tractors and other metal farm equipment.
- Put down golf clubs and/or baseball bats.
- Stay away from open water.
- Avoid isolated tall trees.
- Do not stand in a small isolated shed or other small buildings in the open.
- Do not go near wire fences, clotheslines, metal pipes, and rails, which could carry lightning to you from a distance away.
- Do not lie flat on the ground.
- If you are in an open area go to a low place such as a ditch or valley.
- Lightning can travel along telephone lines and injure or kill you. Unless you are on a portable or cell phone, hang up until the lightning has passed.
- Your house is the safest place to be in a lightning storm. If you are inside, stay there. Avoid windows and electrical appliances.

***If someone is hit by lightning call 9-1-1 immediately and administer emergency first aid to the person.***

**Tornadoes:** Tornadoes can occur at any time of the day or night, during almost any month of the year. In Michigan tornadoes can occur at anytime, but primarily from the months of April through October. Tornadoes are the most brutal of storms. Winds speeds can reach over 200 miles per hour and can destroy anything it comes in contact with. Tornadoes can quickly form and can travel for miles along the ground, lift, and suddenly change directions and touchdown again. There is little you can do to protect your property; however, many actions can be taken to protect yourself and your family.

A **Tornado Watch** means weather conditions are favorable for the formation of a tornado. When a tornado watch is issued be prepared to watch the weather and take shelter if conditions worsen.

A **Tornado Warning** means a tornado funnel cloud has been sighted or indicated by radar. When a warning is issued you and your family should take cover immediately. Tornadoes can form and move quickly. There may not be time for the National Weather Service to issue a warning or time for the local official to accurately warn the citizens of St. Clair County of a pending tornado. It is extremely important for you to be alert during a storm.

Take shelter immediately if you observe twisting, funnel shaped clouds, large hail, strong winds, and loud roaring noise like a train or plane. Always be alert to the changing weather conditions. Take shelter immediately if you hear a tornado siren or see a funnel cloud. It is important to stay calm and tune into a portable radio for storm updates or instructions. If you live in an area where there is a designated shelter for you and your family to go it is important to know where it is before you need it.

*During a storm:*

- Stay away from windows.
- In a home or building move to a pre-designated shelter where your emergency supply kit is located.
- If underground shelter is not available, move to the inner most room on the lowest level of the building or home.
- Never try to outrun a tornado in your car; instead, leave it immediately. Find a low-lying area on the ground, (i.e. a ditch or culvert) and crouch down to the ground.
- Listen to your local radio station for current weather updates
- Do NOT call 9-1-1 for general information - only call if you have an emergency!

**Flooding:** Most Flooding is caused by slow-moving thunderstorms and heavy rains. Flooding debris or ice can accumulate at a natural or man-made obstruction and restrict the flow of water. Flash flooding can occur downstream if this obstruction should suddenly release. Find out how many feet your property is above or below possible flood levels in order to determine if you could be flooded. Losses due to flooding are not covered under most homeowner's policies. In flood-prone communities, the National Flood Insurance Program makes flood insurance available.

Know the difference between a **Flash Flood Watch** and **Flash Flood Warning**. A **Flash Flood Watch** means heavy rains are occurring or expected to occur and may soon cause flash flooding in certain areas. A **Flash Flood Warning** means heavy rain is occurring and immediately those threatened should take action.

Before a possible flood make an itemized list of personal property in your residence take pictures if possible. Keep your insurance policy and a list of personal property in a waterproof box or at a relative's house in a safe location. Open basement windows to equalize water pressure on the foundation and walls.

If you must evacuate keep these suggestions in mind.

- Disconnect any electrical appliances.
- If you are instructed to shut off water, gas and electricity, then do so.
- Leave early enough, if possible, to avoid flooded roads.
- If the water in the street outside your house is deeper than a foot, do not attempt to drive away.
- If the water outside your house is deeper than 3 feet and/or seems to be rising or flowing fast, take a flotation device (such as a couch cushion) with you when you leave. Take one device for each person leaving.
- Make sure that pets are free to swim with you, but do not attempt to carry larger pets; you could both lose your lives.

Plan ahead. Know where to go if told to evacuate. Never try to walk, swim, or drive through swift moving waters. Six inches of fast moving floodwater can knock you off of your feet, and a depth of two feet will float your car.

**Winter Storms:** Preparation for a winter storm is the best method for minimizing injury or damage during one. There will be little time to move to protected areas once a winter storm is in the immediate vicinity. Follow these important steps to prepare yourself and your family for the storm.

### *Preparing for a storm*

#### *At home:*

- Keep handy a battery-powered flashlight, NOAA weather radio and portable radio, extra food (canned or dried food is best), can opener, and bottled water (at least 3 gallons per person).
- Make sure each member of household has a warm coat, gloves, hat and water-resistant boots.
- Ensure that extra blankets and heavy clothes are available.
- Keep on hand items for infant, elderly or disabled family members.
- Be aware of potential fire and carbon monoxide hazards if you plan to use an emergency heating source such as a fireplace, wood stove or space heater.

#### *In a vehicle:*

- Ensure the vehicle is winterized by late fall. Keep the gas tank close to full.
- Have the following emergency supplies in your auto: shovel, blankets, windshield scraper, container of sand, battery booster cables, tow chain or rope, flashlight, battery-operated radio, first-aid kit and high energy snacks (e.g. nuts, raisins).
- If travel is necessary, let someone know your destination and arrival time. Take along a cell-phone in case you must call for help.

#### *Outside:*

- Avoid overexertion, such as shoveling heavy snow, pushing a car, or walking in deep snow. Sweating could lead to chill and hypothermia.
- Walk carefully on snowy, icy sidewalks.
- Wear loose-fitting, lightweight warm clothing in layers. Wear wool hat and mittens.
- Keep your clothes dry. Change wet socks and clothing quickly to prevent loss of body heat.
- Understand the hazards of wind chill. As wind speed increases, heat is carried away from a person's body more rapidly.

### *During a Storm*

#### *At home:*

- To save heat, close off unneeded rooms, cover windows at night and stuff towels or rags in cracks under doors.

- Maintain adequate food and water intake. Food provides the body with energy for producing its own heat.

*If stranded in a vehicle:*

- Attach a bright cloth to your antenna to attract attention and then remain in the vehicle.
- Run the motor about 10 minutes each hour for heat. However, open the window slightly for fresh air and make sure that the exhaust pipe isn't blocked.
- Get attention by turning on the dome light and emergency flashers when running the engine.
- Exercise by moving arms, legs, fingers and toes to keep blood circulating and to keep warm.

*If stranded outside:*

- Try to stay dry and cover all exposed parts of the body.
- Prepare a windbreak or snow cave for protection from the wind.
- Build a fire for heat and to attract attention.
- Do not eat snow. It will lower your body temperature. Melt it first.

**Parent/Guardian and Child (ren) Activity:**

- Discuss what to do before and during a thunder and lightning storm, and flooding with your child (ren).
- Discuss what to do before and during a tornado, find a “safe shelter location” in your home, what to do if you are in your car or outside.
- Discuss with your child (ren) what to do before and during a winter storm.
- Reinforce the critical weather terms –watch and warning and teach your child (ren) what the differences are.
- Complete the Tornado experiment.