

Weather Basics:

1. Where does all of our weather happen? **The Atmosphere**
2. Weather needs energy to start. Where does the atmosphere's energy come from? **The Sun**
3. How far away is the Sun from the Earth? **93 million miles**
4. How hot is the sun? **9,980 degrees**
5. What does the letter "H" mean? **High Pressure**
6. What kind of weather does "H" bring? **Happy weather**
7. What does the letter "L" mean? **Low Pressure**
8. What kind of weather does "L" bring? **Lousy weather**
9. What is our weather delivery system? **Clouds**

Fronts

1. Name the 4 types of fronts. **Cold, Warm, Stationary, Occluded**
2. What are fronts? **Boundary between air masses**
3. What does a cold front look like?
4. What type of weather is associated with a cold front? **Rain, thunderstorms, or snow**
5. What happens when a warm front passes? **Warm air pushes the colder air mass.**
6. What does a warm front look like?
7. Draw a stationary front.
8. Draw an occluded front.

Measuring weather

1. What is an anemometer? **Measures wind speed**
2. What is a wind vane? **Measures wind direction**
3. What is a thermometer? **Measures temperature**
4. What is a rain gauge? **Collects how much rain has fallen**
5. What is a barometer? **Measures pressure**
6. What is the best tool for measuring snow? **Ruler**
7. What do weather balloons tell us? **Tells us the weather up through the atmosphere**
8. How does doppler radar work? **The radar sends signals and if it "hits" something it sends signal back and shows up on radar**
9. How far do satellites sit from the Earth? **23,000 miles**
10. What are the 3 types of satellites? **Visible, Infrared, Water Vapor**
11. What do computer models result in? **Computer models result in pictures/graphics/maps on what the weather could do**

Cloud Types

1. What are cirrus clouds made of? **Ice crystals**
2. How far do cirrus clouds sit in the atmosphere? **15,000-25,000 feet**
3. What are mid-level clouds composed of? **Generally water droplets**
4. Name two different types of mid-level level clouds. **Altostratus & altocumulus**
5. What clouds is difficult to detect? **Stratus**
6. At what height do stratus clouds sit? **2,000 feet**
7. What is the most common type of cloud? **Cumulus**
8. Cumulus clouds can grow up to a height of **39,000 feet.**

Severe Weather

1. What is the #1 weather killer? **Flooding**

2. How much water can knock a person over? **6 inches** How about a push a vehicle? **2 feet**
3. What how is lightning? **50,000 degrees**
4. How far can lightning strike from a storm? **25 miles**
5. How long should you wait after storm before resuming activities? **30 minutes**
6. What is hail? **Water droplets that freeze astray move up into the updraft of a cloud and are forced to the surface**
7. What is the difference between a funnel cloud and a tornado? **A funnel cloud stays in the cloud, where a tornado touches the ground**
8. What should you do during a watch? **Be prepared! Keep a close eye to the weather**
9. What should you do during a warning? **Take action! Get your safe place as fast as possible**
10. Do you know where your safe place is? Describe it. **This is the lowest level of the home or building. Put as many walls between you and the outside, which means an interior part of your home. You also want to think small. Stay away from any windows or doors.**
11. How can you get weather alerts? **First Alert Weather App, NOAA Weather Radio**

Severe Weather Safety

What to do during a watch:

Duration: **A few to several hours before severe weather**

Coverage Area: **Large sections of states or portions of a few states**

Advance Notice: **Hours to several hours**

Actions: **Have a plan!**

What to do during a warning:

Duration: **20 minutes to an hour**

Coverage Area: **Portions of counties**

Advance Notice: **Minutes**

Actions: **Take cover!**

List safe areas in a home:

- **Go to lowest level of your home**
- **Avoid windows, doors, & outside walls**
- **Get under something sturdy**
- **Cover with blankets and pillows**
- **No basement - small, interior room**

Safety away from home

Where should you go if you can? **Sturdy building**

Where should not park? **Under overpasses or bridges**

Watch out for what? **Flying debris**

What are the main severe weather months in Iowa? **May & June**

Where can you find severe weather information? **Storm Prediction Center**

Where is that source located? **Norman, Oklahoma**

Weather Instruments

Name that Instrument:

Anemometer	Thermometer	Barometer
Weather Balloon	Rain Gauge	Satellite
Doppler Radar	Wind Vane	Droppsonde

What are 3 ways we measure weather? **Personal weather stations, airport weather stations, aircraft data**

What wind direction normally brings warmer weather? **South or southwest**

What 2 things can cause errors in a rain gauge measurement? **Wind & heavy rain**

Who launches weather balloons? **NWS or National Weather Service**

Who uses droppsondes? **National Hurricane Center**

Can you name 3 lesser known weather instruments? **Psychrometer, Chilled Mirror Hygrometer, Ceiliometer, Transmissometer, Hail Pad, Wind Profiler, or Campbell-Stokes Recorder**

Tropical Systems/Hurricanes

Where do tropical systems normally start? **Around the Equator**

Name the 3 Types of Tropical Systems: **Tropical Depression, Tropical Storm, Hurricane**

On what scale are hurricanes categories? **Saffir-Simpson Scale**

How many categories are there? **5**

What categories are considered "Major Hurricanes?" **Category 3, 4, & 5**

List the Maximum Sustained Wind Range for each Category:

- Category 1: Maximum sustained winds of **74-95 mph**
- Category 2: Maximum sustained winds of **96-110 mph**
- Category 3: Maximum sustained winds of **111-129 mph**
- Category 4: Maximum sustained winds of **130-156 mph**
- Category 5: Maximum sustained winds of **157+ mph**

Where did Hurricane Michael make landfall? **Panhandle of Florida or Mexico Beach, Florida**

What was the Category? **5**

Maximum Sustained Winds: **160 mph**

Cost of damage: **\$25.1 billion**

List the 4 Tropical Storm Ingredients

- **Warm ocean water of at least 80 degrees**
- **Atmosphere unstable enough for thunderstorms (upward motion)**
- **An area of low pressure near the surface**
- **Low wind shear - the opposite of severe thunderstorms**

List the 4 Threats from Tropical Systems:

- **Storm Surge**
- **Wind**
- **Flooding**
- **Tornadoes**

Circle the area that has the most intense storms. > **Eye Wall**

Put a square around the area that has light winds. > **Eye**

Who sets the names for Tropical Systems? **World Meteorological Organization**

Why do they name these storms? **Names are memorable and make communication easier**

When are the names retired? **Storms that are partially damaging**

Which letter has the most retirements? **"I"**

The least? **"V"**

Atlantic tropical storm names rotate every **6** years.

Can a tropical system make it to Iowa? **Almost never**

What is the most rain that Iowa has gotten from a tropical system? **9.03"**

What was the name of that storm? **Carla in 1961**