



# **Weather Or Not!**

**Georgia Science Olympiad  
2020**



# Science Olympiad



**Part I: In this section, you will explore air masses, fronts, and weather stations. Use the student sheet to record your answers.**

1. What is an [air mass](#)?
2. Describe the temperature, moisture and air pressure associated with a [Continental Polar air mass](#).
3. Describe the temperature, moisture and air pressure associated with a [Maritime Tropical air mass](#).
4. Describe a [high pressure center](#). What is another name for a center of high pressure?
5. Watch this [animation](#) on how winds flow around cyclones (pressure lows) and anticyclones (pressure highs) in the Northern Hemisphere. Draw and describe what you observe.
6. What is a [cold front](#)? Describe the characteristics before, during and after a cold front below.
7. Individual surface weather stations use a standard format to report data. Review the [weather stations symbols](#) for temperature, weather symbol, dew point, cloud cover, sea level pressure and wind. Draw and label the station symbol in this example.



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**Part II: In this section, you will explore weather forecasts.**

1. What is the importance of temperature in the formation of [rain](#), [freezing rain](#), [sleet](#) or [snow](#)? (draw the diagram shown with freezing rain, sleet, and snow)
2. What is a [Supercell Storm](#)? What dangerous conditions may develop during supercell storms? What wind and cloud conditions are prevalent in supercell storms?
3. What is the “[Jet Stream](#)” and at what altitude is the jet stream measured?
4. Describe the “[trends](#)” method of forecasting. What factors does a meteorologist using the trends method consider?
5. If a line of thunderstorms is located 60 miles to your northwest and moving southeast at 30 miles per hour, how long will it take to reach your location? Show your calculation.
6. [Hurricanes](#) are formed from thunderstorms. What 2 criteria must be met for a hurricane to develop from a thunderstorm?



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**Part III: In this section, you will explore tornadoes and run a tornado simulation.**

Click on this link to open the [Tornado Simulator](#).

1. You can manipulate the tornado diameter and pressure differential. Which factor has the most influence on the amount of damage done?
2. What is the Enhanced Fujita Scale?
3. What characteristics constitute a EF3 tornado?
4. What is the highest Fujita Scale score you can make with the tornado simulator?



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**Part IV: In this section, you will explore lightning and run a lightning simulation.**

Click on this link to open the [Zap Game: Make Your Own Lightning](#). Use [this document](#) to help you play the game.

1. What type of precipitation causes charges to separate in clouds?
2. What is the difference between cloud to ground and intra-cloud lightning?
3. What keeps the precipitation in clouds?
4. What is your highest score in the simulation?

Elementary



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**Weather Resources:** You can explore these weather resources on your own to learn more about weather and weather forecasting.



[SciJinks](#) is a fun weather resource from NOAA (National Oceanic & Atmospheric Administration). There are games, videos, and more!



[WeatherWizKids](#) is a website for kids fascinated by weather! Its run by a meteorologist especially for children. Loads of info and experiments to try at home!



[Climate Kids](#) is a resource from NASA with activities, games, and more! Click on the “mystery” button for a random activity to try.