

Pre-Visit/Post-Visit Guide

Lesson Name: Storm Chaser Engineering

Summary of Lesson:

The students are storm-chasing meteorologists on a mission. They will learn about how we collect and analyze data about the conditions that lead to thunderstorms and tornadoes. They will use what they learn along with engineering practices to help solve the real-world problem of how to better predict tornadoes by designing a tornado probe. Students will learn about air masses, fronts, and storms as they move through their training in order to design, build, and test a prototype tornado sensor using LEGO.

South Carolina Science Standards: 4.E.2B.1, 4.E.2B.2, 4.S.1A.2, 4.S.1B.1

Pre-Visit Resources

- **Teacher/Chaperone Expectations:** Please help us by letting us know of any special accommodations for your children prior to the lesson. Your assistance with classroom management and distribution of supplies will also be greatly appreciated.
- **Instructions for Teachers:** Students will work in groups of three. If you could have the students split into groups of three, it would help students get into the lesson quicker upon arrival to the lab. If your class size is not a multiple of three, one or two groups of two will work.
- **Key Vocabulary:** atmosphere, weather conditions, air masses, fronts, cumulus clouds, cumulonimbus clouds, lightning, thunderstorms, tornadoes
- **Key Questions Addressed in Lesson:** How do tornadoes work? What causes tornadoes? What are air masses? What are fronts? What are clouds? How do we collect and analyze weather data?
- **Content Preview Video:** This is a video of a storm chaser explaining a tornado as it forms in the distance. <https://www.youtube.com/watch?v=7KDz6dGQ5RE>

Post-Visit Resources

- **Writing Prompt:** Imagine that you have a friend that lived in an area of the United States that had a high average of tornadoes each year, but this friend does not take tornado warnings seriously. Write a letter to this friend and tell him/her what you know about tornadoes, how they form, and why they can be dangerous.
- **Possible Lesson Link:** This lesson centers on weather forecasting. <https://betterlesson.com/lesson/632262/7-forecasting-weather>
- **Video Link:** This is a quick cartoon featuring a storm chaser describing how tornadoes form. https://www.youtube.com/watch?v=lmWh9jV_1ac&t=97s