

JSD 3D Learning Activity Template

Title: Tools of a Meteorologist

Utah Science with Engineering Education Standard (SEEd): 6.3.2 Investigate the interactions between air masses that cause changes in weather conditions. Collect and analyze weather data to provide evidence for how air masses flow from regions of high pressure to low pressure causing a change in weather. Examples of data collection could include field observations, laboratory experiments, weather maps, or diagrams.

Key crosscutting concept(s) (CCC): Cause

Key science and engineering practice(s) (SEP): Investigate

The Tools of a Meteorologist

Background Information

For students to predict the weather they need to know the simple weather patterns. To know the simple weather patterns they need to know the simple instruments used by meteorologists that measure the elements of weather. These simple instruments that 6th graders need to know are the thermometer, barometer, weather vane, anemometer, and rain gauge. When the students have learned the identity of these instruments, they need to know how they work and how to interpret the information they have gathered. In this lesson you will learn how to teach what these instruments are, how they are used, data that can be collected from the use of these instruments, and why we keep records of the data. Later in another lessons we will interpret the data.

Instructional Procedures

Tell the students that today they are going to learn more about these weather instruments and how meteorologists use them by watching a weather newscast from a local TV station.

1. Have the students make the weather instruments. (See the science webpage.)
2. Have the students learn about each of the weather instruments. (See the science webpage.)
3. Have the students learn about fronts, clouds, air masses, weather maps, and Beaufort Scale. (See the science webpage.)
4. Tell the students how they can find what the current readings are for each weather instrument. (See the science webpage.)

5. Have the students get out their journals and tell them they are going to take notes of what they see in the local weather broadcast. Tell them to look for the instruments they use, the order they present the information, and what is the final idea they want to present to us. Right now, we are not interested in the numbers they show, just the type of information they are giving us.
6. Show a clip of a weather report from weather broadcast from a local news station. (See the science webpage.)
7. Have the class members write down what the meteorologist showed as part of his/her weather presentation.
4. They may write:
 - The current day's past statistics (kind of precipitation, amount of precipitation, air temperature—highs and lows, and wind speed).
 - The present conditions (kind of precipitation, air temperature, wind direction, wind speed, cloud cover, and air pressure—rising, dropping, or stable).
 - What tomorrow's weather is going to be (kind of precipitation, amount of precipitation, air temperature—highs and lows, wind speed, wind direction, and cloud cover).
5. Discuss what they observed about the weather broadcast.
6. Pass out the worksheet *What Did The Meteorologist Say To Us?*
7. Ask the students, "How did the meteorologist know what the past weather conditions were? (They used the weather instruments we talked about.)"
8. Ask the students, "How did the meteorologist know what the present weather conditions were? (They used the weather instruments we talked about.)"
9. Ask the students, "What are the instruments he used to tell us about the weather of the day?" (The rain gauge or ruler, thermometer, anemometer, and others they may name.)
10. Ask the students, "Why are these weather instruments important?" (They tell us what the past weather was and what the present weather is.)
11. Ask the students, "Why is it important to us to know what the present weather is?" (We know what we need to wear to be comfortable out in the weather.)

12. Ask the students, “Why do you think it is important that we keep track of the weather and record it day by day?” (Some will give guesses to this question, but the students may not directly know this answer. You may want to help them along with more questioning to get to the right answer.)
13. When they can’t answer it totally correct, tell the students that meteorologists use the past weather data to watch for patterns. They watch the patterns of the temperature, wind direction, wind speed, the kind of precipitation, the amount of precipitation, and the barometric pressure and make weather predictions.
14. Ask the students, “Are there other instruments the meteorologist used for presenting the weather to us?” (Yes, he used satellite pictures.)
15. Tell the students they are going to learn about weather patterns by keeping a record of the basic elements of weather by using these tools we have talked about.
16. After the discussion, have the students fill out the sheet below.

Name _____

What Did The Meteorologist Say To Us?

1. How did the meteorologist know what the past weather conditions were?

2. How did the meteorologist know what the present weather conditions were?

3. What are the instruments he used to tell us about the weather of the day?

4 Why are these weather instruments important?

5. Why is it important to us to know what the present weather is?

6. Why do you think it is important that we keep track of the weather and record it day by day?
