TRB 4:2 - Investigation 6 - Collecting Weather Data

Summary

In this investigation students will collect data for two weeks. They will start seeing patterns and be able to make predictions.

Group Size

Small Groups

Materials

At least one per class:

- Rain gauge
- Thermometer
- Barometer
- Wind Meter
- Weather vane
- Cloud chart

Per student:

- Student sheet: "Weather Forecasting Data Table" (pdf)

Additional Resources

Newspapers:

- Students can bring in newspapers with daily weather maps and forecasts.

Videos:

- Check district media centers for these videos:
  - Restless Atmosphere
  - What Makes Weather?
  - Meteorology
  - Weather Class with Dr. Niel Frank
  - Weather Express
  - Weather Station Backyard Science
- There are also commercial weather videos available.

Background for Teachers

Meteorologists collect weather data daily to make forecasts. With the aid of high altitude weather balloons, weather equipment and gauges, satellites, and computers, accurate daily forecasts can be made. Collecting weather data in just one location and making a forecast requires a great deal of skill. Since air travels from one location to another, it is helpful to know what the approaching weather will be.

In this investigation, the students will collect data for two weeks. At this time they will start seeing patterns in each of the areas. They can predict what the weather will be like the next day and for the next few days. They will also write if their predictions were correct from the previous day.

Intended Learning Outcomes

1. Use science process and thinking skills
2. Manifest scientific attitudes and interests
3. Understand science concepts and principles
4. Communicate effectively using science and language and reasoning

Instructional Procedures

Pre-Assessment/Invitation to Learn

Review with the students about the instruments that meteorologists use and how they are used. Discuss why meteorologists need these instruments and how they can predict the weather.

Tell the students that for the next two weeks they will be using these instruments to see what the current weather conditions are. They will then record them on a sheet that will be given to them. They will be doing this two or three times a year to compare one season (or month) to another season (or month). They will also be making predictions of what is going to happen the next day, compare it with a professional forecast. The next day they will see how close they were to their prediction.

Instructional Procedure

Pass out student sheet.

Discuss where the instruments are going to be placed or taken outside to be read.

Decide the time(s) of the day that will be observed for data collection. You may do it once, twice, or three times a day. (Measurements need to be taken at a distance from any building that might block wind or alter temperature. The thermometers should be read in the shade of a tree or students can use an object to provide the shade.)

Each day when it is time for the instruments to be read, send out a few students to read them.

Each time the instruments need to be read, send out a new group of students to do it. Over time all students should have the opportunity to measure with all the instruments.

When the students bring the information back to the classroom, have a chart available for them to write on.

Designate a time to discuss each of the readings.

Make a prediction as to what the weather is going to be like tomorrow with the present day's data.

Compare the information with the actual meteorologist information by going to the website www.ksl.com. Write in the space if the prediction you made yesterday is accurate with today's weather.

Extensions

Language Arts-

After you have discussed each of the weather instruments, have the students find out more information about them. Tell them that they can look the information up in encyclopedias, books, and magazines. Have them write this information down by taking notes as they read. *(Standard VII, Objective 3)*

Have the students organize their notes about the weather instrument they researched. Have them write it in report form. Have them share it in class or put the reports in a binder to share with the class. *(Standard VIII, Objective 6)*

Have the students read about other ways meteorologists gather data. Have them look them up in encyclopedias, books, the Internet and magazines. Have them draw a picture of it. Present it in class or put it in a binder. *(Standard VII, Objective 3)*

Have the students write riddles about the weather instruments. Have them write words they need to know for weather. Let the class guess which weather instruments they are talking about. (Ex. I spin around and around. Sometimes I spin fast and sometimes I spin slowly. Sometimes I don't spin at all. I don't stop until I am out of air. Even you can make me spin.) *(Standard VIII, Objective 6)*

Homework & Family Connections

Students with Internet connections at home can be asked to visit weather websites.

Students can be assigned to watch the evening forecast on one of the TV news channels.

Have the students set up a weather station at home to continue their investigations about

weather.

Assessment Plan

Response questions to the data they gathered:

- Which day had the highest temperature? Lowest?
- Which day(s) had the biggest change in the weather?
- Which day(s) had the highest cloud cover percentage?
- Which weather component(s) helped you to predict the weather for next day?
- Describe the weather components on a day you enjoy.

Response questions about Utah weather:

- How does the weather in Utah vary from the high Wasatch Mountains in the north to the plateaus and deserts of southern Utah?
- On a hot August day, what direction would the wind be coming from if a storm were coming? (south)
- List three ways weather affects our outdoor activities.
- What temperature would precipitation turn into snow?
- List different types of precipitation.

Authors

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