

**Grade:** 4

**Subject:** Weather, Mathematics, Social Studies, Language Arts

**Objective: Students will be able to...**

1. Verify their weather forecasts
2. Use simple statistics to determine accuracy of weather forecasts.
3. Research the effects of weather on the community

### **Part 1 - Mathematics Extension**

Standard 5; Objective 1: Collect, organize, and display data to make predictions and answer questions.

Time: AM- 10 minutes activity, 25 minutes discussion

PM- 20 minutes activity, 10 minutes discussion

*Student Problem: Are we getting better at predicting the weather and how do we compare to the weather people on TV?*

Materials needed:

Internet

Weather board (White board)

Calculator

Access to Television

Procedure:

If you don't have one already make a weather board using an erasable white board. There should be a section for current conditions, for predicted conditions and a small tally section to keep track of the days the class forecasts "correctly" vs. the days that they predict conditions that were "not quite right."

Go to website <http://www.met.utah.edu/weather.html> and click on Mesowest. On this page, type in 84321 for the zip code under "Your Weather". Many weather stations in the area are available. LGU is the Identification for the Logan/Cache airport weather station. It tends to be the most reliable. Click on this station. The current conditions at the airport will be listed. There will also be past data listed from the last six hours on the same page.

Ask the students to use their knowledge that they have gained so far to determine the criteria for "close enough" to be counted as a correct forecast. List these criteria so that they are visible in the classroom.

Explain that ground-truthing is the process of checking the real conditions on the "ground" to see if what we predicted was the truth. Each day we will practice making forecasts to see how we do and if we get better with practice.

Each afternoon, have the students use this current data to make weather forecasts for the valley. It will work best if the data is recorded everyday at the same time. Before class lets out for the day, the students can report their forecast for that night and the next morning on the weather board.

The next morning, check the current conditions again and compare them to the student forecast. Determine if the forecast was “close enough” to be counted as correct.

If it was correct, congratulate the class and make a mark in the “correct” section of the weather board. If the forecast was not accurate, spend some time looking at the conditions from the day before to see if there was a clue that we missed that would have helped us predict more accurately. Discuss what could have been done differently to improve our accuracy and make a mark in the “not quite right” section of the weather board.

At the end of each week, add the number of correct days to the number of not quite right days, this will give us the total number of days we have been forecasting weather conditions. Take the sum of the “correct” days and divide that number by the number of total days. Multiply this number by 100 and we will have the percentage of time that we are right with our forecasting.

Keep this up, the longer that the students practice forecasting the better they will get.

For fun, you can assign different teams to assess various television and Internet forecasters accuracy. Use the same criteria that the class developed to determine if the forecast is close enough to be counted as correct. Watch the weather forecasts each night and write down the predictions for the next day. Compare their predictions to the conditions at the Logan/Cache airport and average the number of days they get it right.

(Remember many of the television stations write their forecasts for Salt Lake City. We are similar but sometimes different, you have to decide as a class whether or not to consider this in your assessment of the professional television forecasters.)

## **Part 2 - Language Arts Extension**

Time: 30 minutes, activity  
1 hour, writing

Standard 7: Comprehension-Students understand, interpret, and analyze narrative and informational grade level text.

Standard 8: Writing-Students write daily to communicate effectively for a variety of purposes and audiences.

*Student Problem: How does the weather make a difference? Write a new ending to a story using different weather conditions.*

Select several stories that use weather as part of the setting. They can be fairytales like “Hansel and Gretel” or “Little Red Riding-Hood”, picture books like “Cloudy with a chance of Meatballs” by Judi Barrett, novels like “Harry Potter” by J.K. Rowling, or books of poetry.

Have students read some of these stories and discuss how the story might be different if the weather conditions had been different. Have each student select another story and rewrite the story changing

the weather.

### **Part 3 - Social Studies Extension**

Time: 20 minutes, Activity  
1 week, library  
20 minutes, report

*Student Problem: How does weather affect the community?*

We know that weather conditions affect people every day. Do we wear a sweater to school? Will we need an umbrella to go to the store. We don't like being misinformed about weather, it can lead to uncomfortable and sometimes dangerous situations.

There are some people in the valley who are affected more often by weather conditions, especially those people who have to work outside.

Divide the class into small teams. Ask each team to think of one or two people or occupations that are affected by the weather. The following is a list that might help them get started:

- Construction workers
- Fishermen
- Forest Firefighters
- Pilots
- Foresters or logging crews
- Truckers
- Ranchers
- Farmers

They might also choose to research how weather affects:

- Schools
- Roads - open or closed, faster routes
- Energy use - how it changes in different weather
- Water use - how it changes in different weather

It is likely that the student teams will think of some very creative answers to this question that are not listed here. That is definitely just fine, provided they have resources available to them.

Have the teams of students research how weather affects these people. They should interview at least one person in the community involved in that profession as well as do library research and community records.

When they have completed their research, have them write a report explaining their findings or present orally to the class what they have learned.