

WEATHER FORECASTING

LESSON PLAN



WOLF RIDGESM
ENVIRONMENTAL LEARNING CENTER



CLASS DESCRIPTION: An Earth Science Class

Class begins with some basic weather observation. Using these basic observations, students will learn about the major principles of weather. Demonstrations, activities and games lead them through a simple understanding of how heat and cold collisions combine with the rotation of the Earth to create wind, cloud cover, the jet stream and other components of weather. Then, using these basic principles of weather, students will learn to forecast temperature trends, cloud cover, and precipitation for 8-12 hours.

Total time: 3 hours (1 1/2 hours outdoors)

Audience: 6-20 students, 4th grade through adult

Activity level: easy

Travel: 1/4 mile

Total uphill travel: 0 feet

GUIDING QUESTION

How can making weather observations now help forecast what's changing?

CONCEPTS

1. Temperature, wind speed and direction, clouds, humidity, and air pressure are all ways to describe the current state of the atmosphere.
2. Sun provides energy for collision of warm and cold air to create weather.
3. Warm and cold air colliding creates clouds, wind, and storms.
4. Natural laws of the atmosphere help us to predict future weather conditions.

OUTCOMES

Upon completion of Weather Forecasting class students will be able to:

- Measure and describe the current state of the atmosphere, including air temperature, cloud type, and wind speed and direction.
- Recall that winds, clouds, and precipitation occur when warm and cold air collide with one another.
- Recall that low pressure systems follow the jet stream and bring storms.
- Predict the chance of rain and the trend in temperature for the next 12 hours using wind direction.
- Interpret the chance of storms in the next 24 hours based upon a surface weather map from TV or a newspaper.



Our mission is to develop a citizenry that has the knowledge, skills, motivation and commitment to act together for a quality environment.

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Wolf Ridge Environmental Learning Center and the USDA are equal opportunity providers and employers.



Equipment

- posters
- weather boards
- dryer vent tubes
- coriolis effect globe & markers
- cloud chamber, water, & matches

Nowcast Equipment:

- 10 clipboards
- 10 handbooks
- 10 bubble makers
- 10 thermometers

Water Chasers Game:

- 2 blue bins with ping pong balls
- 20 city buckets
- jet stream webbing
- 6 each red and blue hula hoops
- 10 cloud bags, warm & cold front signs

Forecast equip:

- 10 handbooks
- 16 task cards

Appendices

- Glossary
- Additional Information
- Optional Activities
- References
- Sources
- Worksheets
- Spiral Learning Sheet
- Planning Outline

Set-up (15 min.)

- Classroom/class prep description
- Safety Management

I. What do you think about weather? (20 min.)

II. What's the weather like now? (45 min.)

- A. Observation Tools
- B. Small-Group Data Collection
- C. Data Summary

III. How does air movement create weather? (70 min.)

- A. Weather Machine Skit
- B. Weather Experiment
 - 1. Builing a Cloud
 - 2. Pressure as a Major Player
- C. Pressure Calisthenics
- D. Water Chasers Game
- E Pulling it all together

IV. What might the conditions be like later? (30 min.)

- A. Analyze Data and Make 12-Hour Forecast
- B. Forecast Results and Skits

V. What do you think about weather? About forecasting? (15 min.)

Clean-up (10 min.)