

Teacher Information

Forecasting

I. Objectives

A. Forming Concepts (Introductory) Objectives

1. Draw examples of weather map symbols.
2. Define common weather terms.
3. Explain weather systems.

B. Interpreting Data Objectives

1. Interpret temperature, wind, pressure, and cloud maps.
2. Draw cloud positions based on pressure maps.
3. Forecast the position of clouds three days from today.

C. Applying Principles Objectives

1. Relate temperature maps to pressure maps.
2. Relate pressure maps to wind maps.
3. Relate wind chill to wind and temperature maps.

II. Interdisciplinary Uses

A. Social Studies

1. Describe how various professions (fishing, farming, roofing, etc.) are affected by accurate and inaccurate forecasting.

B. Math

1. Interpret graphical data.
2. Calculate wind chill given the formula and wind speed.

C. Language Arts

1. Create written and oral communications about accurate and inaccurate forecasting.
2. Describe in writing what a wind barb looks like.
3. Write a five-day weather forecast.

III. Science Standards Coordination

The Forecasting activity has been designed to incorporate science standards as specified by the National Science Education Standards (NSES) and the National Science Teachers Association (NSTA) Scope, Sequence, and Coordination (SS&C) of Secondary School Science. Only the major topics are listed. For further explanation of each standard see the complete documents:

NSES - National Academy Press, 2101 Constitution Ave, NW,
Washington, DC 20481

NSTA - 1840 Wilson Blvd, Arlington, VA 22201-3000

NSES	SS&C
Structure of earth systems	Water cycle
Earth in the solar system	Precipitation
Transfer of energy	Wind
Understanding about science and tech	Sun as an energy source
Science and technology in society	Water

IV. Advanced Preparation

A. Materials

1. One computer per two or three students is a recommended minimum,
2. One copy of the Student Activity Book for each student or group of students.
3. You will either need to have a printer available or copy in advance a class set of materials (Interpreting Surface Observation Symbols) needed for student use in the Forecasting "Gather Data" section.

B. Time Required Completing the Activity

1. The Get Info Section takes 20 to 30 minutes
2. The Gather Data Section takes 30 to 40 minutes
3. The Application section takes about 30 minutes

C. Teacher Familiarity

Preview these materials thoroughly. As with all these activities, before using this activity in class, review the sites and work through the activity yourself to learn about forecasting so you can answer questions or direct students to the answers.

The activity is set up so students are taken to sites containing information that will be used to answer questions regarding forecasting. The sites contain either the answers or the information from which the students can infer the answers. At the end of the activity, there is a list of enrichment activities and related web sites.

D. Select Questions for Students to Answer

It would be prudent for you to read the questions students will be expected to answer. These questions are in order of ascending difficulty. Depending on grade level and ability level, you might want to assign specific questions for your students.

E. Student Grouping

These activities can be done individually or in small groups of two or three students. Students who have Internet access can also do them at home for extra credit.

F. Software Requirements and Duplication Preparation

1. Adobe Acrobat Reader is required to download the pages. Click the "Tech Info" link on the Science with NOAA Research homepage to download Acrobat Reader.
2. Download the Teacher Information, Teacher Key, and Student Activity Book PDF files from the "Teacher Info" web page.
3. Duplicate and distribute student pages. Ideally, each student should have a copy of the Student Activity Book that should be distributed and discussed the day before the exercise.