








Weather Teacher's Guide © Edheads 2004

Recommended Grade levels: 4 - 9

Tips for using the site with students

-  Before using this activity in class (or at home with your kids) go through the activity once to make sure it works correctly on your computer(s).
-  If the activity does not load after clicking the 'start' button, you may be asked to download a Flash Player from Macromedia.com. Please click yes as this allows you to view the Edheads Weather Activities.
-  Your computer(s) will need to have some sort of sound output. Either speakers or headphones will work well. We strongly recommend headphones in class or particularly in a computer lab setting.
-  Students in the target grade-range will take approximately 3-5 minutes per level to complete each Report the Weather level and about 5-10 minutes per level to complete each Predict the Weather level. Each activity has three levels and each level is harder than the one before it.
-  The timer on Report the Weather is intended to add a sense of urgency to the activities. As is the case with most games, some students will do well and some will need to try again. It should not be held against students that cannot complete the activity in the time allotted. We would simply encourage those students to try again.
-  Calculating front movement: Students using Predict the Weather for the first time may not notice that a calculator is available in the game. It is in the upper left corner of the screen. About 15-20% of the students we observed using the activity tried to put the miles per hour the front was traveling into the box for distance traveled. It may be necessary for the teacher to point out the equation provided and remind the students that they have to calculate the distance the front will travel by multiplying the speed times 24 hours. If the students get this calculation wrong, it is very likely they will get the entire prediction wrong.
-  With our test classes, we did not find an advantage to the students working together, but there did seem to be a small drawback to working in groups of 2-3 students. Activity scores of students working in groups of three seemed to be lower than the scores of students working alone. This is due, in part, to the fact that the students working in groups did not take the time to read directions or information while those working alone did take the time to do this.

- ✍ Students have the ability to print their scores after finishing each activity. Teachers should make certain they know which printers the students' computers are set to print to.
- ✍ During testing, most students finished each activity at roughly the same time. All the students printing at the same time could potentially back up in a very long print queue or clog the school's network. Teachers may want to consider having students call out when they want to print, limiting the number of levels students will print scores for or having students use multiple printers.
- ✍ The purpose of the printable score sheet is to give teachers an idea of how students are performing within the site and what their knowledge level is. Many students prefer to go through an activity two to three times in order to increase their scores. Teachers may choose to ask that students only print the scores from their first time through an activity.
- ✍ Please note that some computers/printers print the score sheets a little odd. You may find that the student's answers are pushed down a half inch from where they are supposed to be. We are working hard to resolve this problem. We found this happens mostly on Mac computers. This problem will not affect the activities themselves.
- ✍ After students use the site, we recommend that teachers go back through the activities with the students (project them if you can) discussing why answers are what they are (see end of this guide for all answers). Leading questions such as "What type of weather seems to be associated with low pressure areas?" or "What direction do most of the fronts seem to move?" can encourage your students to observe more closely than they might otherwise. Also, this is a chance for teachers to gauge what students might have taken away from the activity. Weather is a VERY complex subject. This activity should complement other class activities and exploration. It is not intended to stand alone, but to be used with other classroom instruction on the topic. There is no substitute for a good teacher! (But then you knew that, didn't you?)

Printable activities for use in class

Pre and post test –

Download the Weather Pre & Post-test from:

<http://www.edheads.org/activities/weather/we-teacher.htm>

Test Answers:

Front Page:

1. C

2. A

3. B

4. D

5. B

Back Page:

6. C

7. A

8. B

9. B

10. D

Ohio Science Standards

Earth and Space Sciences

Grade 4:

Describe weather by measurable quantities such as temperature, wind direction, wind speed, precipitation and barometric pressure.

Record local weather information on a calendar or map and describe changes over a period of time (e.g., barometric pressure, temperature, precipitation symbols and cloud conditions).

Trace how weather patterns generally move from west to east in the United States.

Grade 7:

Make simple weather predictions based on the changing cloud types associated with frontal systems.

Determine how weather observations and measurements are combined to produce weather maps and that data for a specific location are one point in time can be displayed in a station model.

Read a weather map to interpret local, regional and national weather.

Scientific Inquiry

Grade 4:

Analyze a series of events and/or simple daily or seasonal cycles, describe the patterns and infer the next likely occurrence.

National Science Standards

Investigation and Experimentation

Grade 4:

Formulate predictions and justify predictions based on cause and effect relationships.

Earth Sciences

Grade 5:

Water moves in the air from one place to another in the form of clouds or fog, which are tiny droplets of water or ice, and falls to the Earth as rain, hail, sleet, or snow.

How to use weather maps and weather forecasts to predict local weather, and that prediction depends on many changing variables.

Grade 6:

Differences in pressure, heat, air movement and humidity result in changes of weather.

Motion Sciences

Grade 8:

Position is defined relative to some choice of standard reference point and a set of reference directions.

Average speed is the total distance traveled divided by the total time elapsed. The speed of an object along the path traveled can vary.

How to solve problems involving distance, time, and average speed.

To describe the velocity of an object one must specify both direction and speed.