

Details



Completion Time: Several months

Permission: Download, Share, and Remix

Who Is The Best Forecaster?

Overview

Students will undertake a long term project to evaluate the effectiveness of different local forecasters, match the forecast with the actual weather and analyze which forecaster is best.

Objectives

Students will compare the accuracy of different weather forecasts. Students will compile and analyze their own data gaining a better understanding of the challenges involved in weather forecasting.

Lesson Preparation

Students will need access to local weather forecasts and the actual weather conditions for each day. It could be a homework assignment or the teacher could provide the students in class with methods of reading the forecasts. Depending on the level of the students, different numbers of forecasts could be required as well as different time frames for the comparisons. Also depending on the student level, different methods of analysis can be used. Students will need to record their data and observations, these could be designed by the students themselves or directed by the teacher, again depending on the level of the student.

Procedure

Weather forecasts are based on weather and satellite data collected by NOAA (National Oceanic and Atmospheric Administration) and occasionally a few other sources. This data includes temperature, humidity, air pressure, wind speed and wind direction. This data is fed into a few super computer models (programs) which then produce a prediction of the weather. Human weather forecasters then compare different models' forecasts, satellite and radar images and their own expertise and then develop their own forecast for a given area. The public can get these forecasts from

Materials

- Internet access
- Local newspapers
- Method to determine local weather conditions

many sources; such as the local radio and television stations, The Weather Channel, various Internet sites, the National Weather Service (NWS), Accuweather, local papers and many others. Often these forecasts do not agree with each other.

This will be a long term project in which students will compare the accuracy of different forecasters and compare the forecasts to what actually occurs. Students will then compile and analyze their data. Most data originates with NOAA's NWS so students should include NWS as one of their forecast. Also notice that some of the sources may actually get their forecasts from the same source. Forecasts will generally include high and low temperatures, precipitation, cloud cover, wind speed and wind direction. It will be more manageable for students to just pick one of these to work with, rather than several of them. Also, high and low temperatures will be easiest for students to work with since they are set numeric values. Students will need to have some way to determine the actual conditions for the day to compare with the forecasts. The following websites are a starting point for students.

<http://www.nws.noaa.gov>
<http://www.weatherbug.com>
<http://www.weather.yahoo.com>
<http://www.accuweather.com>
<http://www.weather.com>
<http://www.intellicast.com>

Entering the data into an Excel spreadsheet is a good way to record and analyze the data, depending on the level of the students.

Extension

- Students can investigate the different computer models which are used to make forecasts.
- Students can make their own forecasts.
- Students could pick a location other than their hometown.

Resources

<http://www.ssec.wisc.edu/data/>
<http://www.noaa.gov>
<http://www.nws.noaa.gov/>
<http://www.nws.noaa.gov/glossary/>
<http://www.ametsoc.org/amsedu/dstreme/>

Assessment

N/A

Credits

Kirk Beckendorf, kirkbeckendorf@gmail.com.

Based on a project by Jonas Asuma, University of Wisconsin-Madison.



National Science Education Standards (NSES):

Content Standards, Grades 5-8

Content Standard A: Science As Inquiry

- a. Abilities necessary to do scientific inquiry

Content Standard G: History and Nature of Science

- a. Science as a human endeavor

Content Standards, Grades 9-12

Content Standard A: Science As Inquiry

- a. Abilities necessary to do scientific inquiry

Content Standard E: Science and Technology

- a. Abilities of technological design

Content Standard G: History and Nature of Science

- a. Science as a human endeavor