

## INSPIRE GK12 Lesson Plan



<b>Lesson Title</b>	Weather Forecasting: From Then to Now
<b>Length of Lesson</b>	One (50 minute) class period
<b>Created By</b>	Rob Thornton, Will McBryde
<b>Subject</b>	Earth Science
<b>Grade Level</b>	8 <sup>th</sup> grade
<b>State Standards</b>	8 <sup>th</sup> : 1b,d (Inquiry); 4c, (Earth Science)
<b>DOK Level</b>	DOK 3
<b>DOK Application</b>	Investigate, Identify, Make Observations, Distinguish, Hypothesize
<b>National Standards</b>	5-8: A (Inquiry); D (Earth/Space)
<b>Graduate Research Element</b>	Having a knowledge of how forecasting developed is essential to a better understanding of how it is currently done.

### **Student Learning Goal:**

#### MS 8th Grade:

1(b) Make inferences based on observations (d) analyze evidence that is used to form explanations and draw conclusions 4(c) Examine weather forecasting and describe how meteorologists use atmospheric features and technology to predict the weather. The students will learn about the history of weather forecasting and the technology used to help forecast the weather.

#### National Science Education Standards of Content 5-8:

A: Inquiry: Understandings about scientific inquiry; Students will learn about technology used to forecast weather in a PowerPoint lecture. They will also see how forecasting has developed through history. In addition, students will view a capture activity where a “weather show” is demonstrated. This will show students some of the various weather maps used in weather forecasting.

D: Earth and Space Science: Structure of the Earth’s System; Students will learn about tools used in weather forecasting and forecasting’s history through a PowerPoint lecture. In addition, a capture activity will show different weather maps.

### **Materials Needed (supplies, hand-outs, resources):**

PowerPoint file (INSPIRE\_Thornton\_11.01.10\_PP); laptop; projector; internet access; file for an activity at end of lecture (INSPIRE\_Thornton\_11.01.10\_Sheet).

### **Lesson Performance Task/Assessment:**

The instructor will lecture, observe, ask, and answer questions regarding the capture activity and lecture. At the end of the lecture, students will be given an activity sheet. This sheet has questions regarding a weather map provided on the sheet. It should be emphasized that this lesson could be a given after a “basics of weather forecasting”



lesson, since this lesson reviews the history of weather forecasting and tools used to make forecasts. In addition, the end-of-lecture activity may be a little more difficult if previous material has not covered the basics of weather maps, etc. This activity could be optional.

**Lesson Relevance to Performance Task and Students:**

The capture activity will show students the kinds of maps used to show current and future weather. The PowerPoint lecture will give students details on the various tools used to forecast the weather and weather forecasting history. This will show the students the progress that has been made in weather forecasting through history. The end-of-lecture activity (see [INSPIRE\\_Thornton\\_11.01.10\\_Sheet](#)) will ask students questions about a weather map of the U.S. If time permits, the instructor can go over answers. This activity could also be used for a grade.

**Anticipatory Set/Capture Interest:**

At the beginning of the lesson, the instructor will deliver a “weather show.” This is a set of images from the internet or pre-saved images of basic weather maps (see <http://intellicast.com>). The show can include, but is not limited to a current surface map, U.S. jet stream, U.S. satellite, U.S. radar map and surface forecast maps of 24 and 48 hours. An optional part of this capture set is to show current conditions (temperature, humidity, winds, etc.) for the local area of interest. These can be found at <http://weather.gov/> or <http://weather.com/>

**Guided Practice:**

The class will observe the instructor perform the capture activity using weather maps. After this, the students will observe a PowerPoint lecture on weather forecasting history and tools used in forecasting. Students will be asked questions regarding the capture activity and lecture. Students will also be instructed to work on the end-of-lecture activity.

**Independent Practice:**

Students will observe a PowerPoint lecture on weather forecasting history and tools used in forecasting. The students will work individually on the end-of-lecture activity.

**Remediation and/or Enrichment:**

Remediation – Individual IEP; Make PowerPoint presentation available to resource teacher.

Enrichment- Students could be directed make their own weather forecast. This could be done for a specifically defined period, i.e. for the next two days, etc. The forecast could include high/low temperatures, cloud cover, precipitation and windspeed/direction.

**Check(s) for Understanding:**

## INSPIRE GK12 Lesson Plan



Observe students during lecture and ask them questions. Reviewing student answers regarding the end-of-lecture activity.

### **Closure:**

Ask students questions.

Question 1: Why are computers important to weather forecasting?

Question 2: Who relies on weather forecasts?

### **Possible Alternate Subject Integrations:**

Math, Physics, Computer Science

### **Teacher Notes:**

The lesson can incorporate more internet resources if so desired. For example, during the PowerPoint lecture, the instructor could look at current weather forecasting models (see <http://www.rap.ucar.edu/weather/>, <http://www.weather.gov/mdl/synop/products.php>) and relate these back to the powerful computers now used to create them. During the “long range forecasting” portion of the PowerPoint lecture, the instructor could also go to the Climate Prediction Center’s website (<http://www.cpc.ncep.noaa.gov/>) to show examples of long range forecasts. If internet access is not available in the class, the instructor could pre-save some images of weather models before class using another internet source.

Websites on weather forecasting history...

<http://earthobservatory.nasa.gov/Features/WxForecasting/wx2.php>

[http://celebrating200years.noaa.gov/foundations/numerical\\_wx\\_pred/welcome.html](http://celebrating200years.noaa.gov/foundations/numerical_wx_pred/welcome.html)