Lesson Title	Who wants to be a T.V. meteorologist?
Length of Lesson	One (50 minute) class period
Created By	Charlotte Buehler
Subject	General Science
Grade Level	7th grade
State Standards	7th: Inquiry (1d,c), Earth and Space Science (4h)
DOK Level	DOK 4
DOK Application	Connect, Synthesize, Apply Concepts
National Standards	5-8: Inquiry (A), Earth and Space Science (D)
Graduate Research Element	Predicting the weather is an art as well as a science. Understanding how weather is predicted is essential for researchers who rely on forecasts to decide whether or not to go collect data in the field.

Student Learning Goal:
MS 7th Grade:
Inquiry- (1b) Discriminate among observations, inferences, and predictions, (1c) Collect and display data using simple tools and resources to compare information.
Earth and Space Science- (4h) Predict weather events by analyzing clouds, weather maps, and satellites, and various data.

National Science Education Standards of Content 5-8:
Inquiry (A)-- Use appropriate tools and techniques to gather, analyze, and interpret data
Earth and Space Science (D)—Structure of the Earth System

Materials Needed (supplies, hand-outs, resources):
Computer, projector, internet, PowerPoint (INSPIRE_Buehler_forecasting_2_7_12), handout (INSPIRE_Buehler_HO_Forecasting_2_15_12)

Lesson Performance Task/Assessment:
In this lesson students will learn how to read and interpret various weather maps including satellite and radar maps. Students will have had previous instruction on weather fronts, pressure, and temperature, so this lesson is a blend of previous lessons with the intent of demonstrating that weather is a *combination* of events acting together. Student will have to utilize higher order thinking skills to determine what the maps are depicting, as the composite maps illustrated in the powerpoint (INSPIRE_Buehler_forecasting_2_7_12) only show areas of high and low pressure but

do not say *what* high and low pressure mean. Students will have to synthesize what they already know about weather elements to interpret the maps. The goal is to have each student be able to give a short weather show at the end of class to demonstrate their knowledge about predicting weather.

Lesson Relevance to Performance Task and Students:
Understanding *how* weather is forecasted is something the general public does not know much about. Most people obtain weather information from T.V. or a newspaper, but inquiry into how forecasts are obtained is often misunderstood or not understood at all. Having the knowledge to use technology and skills to predict weather is important not only for scientists who rely on weather for their research (e.g. rain events for studying flooding) but also for laypersons, for example, like a school superintendent who would need to be familiar with forecasts if inclement weather is predicated in order to cancel or delay school.

Anticipatory Set/Capture Interest:
The lesson will begin with a video clip from Mississippi State University Department of Geoscience's website (http://campusconnectforecast.blogspot.com/). This clip shows actual college and graduate student meteorology majors at work forecasting the weather for the southeast region and Mississippi.

Guided Practice:
The instructor will give a fifteen minute presentation on weather, first describing how scientists forecast the weather using technology like satellites and radar. The presentation will then show various weather images produced from satellite and radar and finally, show the composite maps depicting areas of high and low pressure, cold and warm fronts, and temperature and precipitation. The instructor will walk the students though the first map (located in a hyperlink on the powerpoint), highlighting areas they should look at containing low/high pressures, cold/warm fronts etc. and what those areas would tell about the weather.

Independent Practice:
The students will be given a chance to use another map showing forecasted weather (also in the hyperlink on the powerpoint) and with a worksheet to guide them, will observe the map and locate high/low pressure areas and interpret what weather will result, the same steps will be done for cold/warm fronts, and precipitation movement. Although not actually "predicting" weather as they have no knowledge of the mathematical models used, students are using inquiry skills and interpreting maps and data to predict what weather might result from these phenomenon. As the week progresses, have students predict the weather for the coming days. See which student can predict the best!

Remediation and/or Enrichment:
Remediation- Individual IEP; work in groups on the worksheet.
Enrichment – Have students give a real weather skit demonstrating their knowledge about weather forecasting BUT make the skit a competition (incorporating T.V. personality and weather knowledge)!

Check(s) for Understanding:
Do the students know what a cold front is and how it is delineated on the map? Do students know how pressure is demarcated (H and L) on the map? Can the students explain what weather typically results from various phenomenon (pressure, temperature, fronts).

Closure:
Question 1: What elements do we interpret on a weather map to get an idea of the weather?

Question 2: How do we get weather forecasts? Are these forecasts accurate?

Possible Alternate Subject Integrations:
Earth Science, Geography

Teacher Notes:
NOAA website (http://www.noaa.gov)
NWS website (http://www.weather.gov)