Lesson Title	Weather Instrument Use and Application
Length of Lesson	One (50 minute) class period
Created By	Will McBryde, Rob Thornton
Subject	Earth Science
Grade Level	8th grade
State Standards	8th: 1b, 1c, (Inquiry); 4c, (Earth Science)
DOK Level	DOK 3
DOK Application	Investigate, Identify, Distinguish, Hypothesize, Explain Phenomena in Terms of Concepts
National Standards	5-8: A (Inquiry); D (Earth/Space)
Graduate Research Element	The use of a basic weather instrument (skymaster SM-28) in the field to infer differences like one would do in the field of meteorology.

Student Learning Goal:

MS 8th Grade:

1(b) Make inferences based on observations 1(c) Make quantitative and qualitative observations based off of meteorology equipment 4(c) Describe how meteorologists use atmospheric features and technology to predict the weather. The students will use the SM-28 to measure (temperature, dewpoint temperature, barometric pressure, wind speed, relative humidity, heat index)

National Science Education Standards of Content 5-8:

A: Inquiry: Understandings about scientific inquiry; Students will use a weather instrument to measure weather parameters

D: Earth and Space Science: Structure of the Earth's System; Students will learn about weather elements (temperature, humidity, dewpoint, wind, pressure, etc.) through a hands-on outdoor lab activity using a technology tool.

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

Weather Lab Sheet (INSPIRE_McBryde_10.15.10_Handout); Skymaster SM-28 by Speedtech Instruments OR other instruments that could be used to measure temperature, dewpoint temperature, barometric pressure, wind speed, relative humidity, heat index.

Lesson Performance Task/Assessment:

The instructor will verbally give directions to the students about the lab. Students will observe, ask, and answer questions regarding the lesson. Upon completion of instructions students will proceed outside to perform the lab. During the lab, students will be expected to record results and complete the weather lab sheet (INSPIRE_McBryde_10.15.10_Handout) to be turned in at the end of class.

Lesson Relevance to Performance Task and Students:
The capture activity with this lesson is the use of a technology to perform an entire lab outside. The lesson and technology to be used will be explained inside the classroom and then the students will proceed outside to perform the lab. The technology to be used is the Skymaster SM-28. The lesson is relevant because the use of the SM-28 technology will help the students understand how weather observations are made by personally making their own observations and recording them. Students will also observe how weather elements vary at different locations within a small area (i.e. parking lot temperature versus a shaded area).

Anticipatory Set/Capture Interest:
The capture activity is the reward of being able to perform an entire lab outside and the use of a technology. The instructor will give instructions in the classroom to the students about how to use the Skymaster SM-28 while the students can be hands on with the instrument.

Guided Practice:
The students will listen to the instructor explain the tasks they are expected to perform outside. The instructor will then handout the technology instrument (SM-28) and the weather handout (INSPIRE_McBryde_10.15.10_Handout) both tools will be explained in detail (i.e. the students use the technology instrument and follow along on the weather lab sheet to fill in the blanks). After this, the students will be put into groups of three students and each student will have a different job (i.e. recorder, collector, observer). The instructor will expect the students to rotate jobs throughout the lab so that one student is not stuck with a job they do not prefer.

Independent Practice:
The instructor will expect the students to follow instructions outside that were administered inside the classroom. Students are expected to independently use their technology instrument (one per group), and record their weather observations in order to fill in their data table (one per group).

Recorder- record data (INSPIRE_McBryde_10.15.10_Handout)
Collector- use technology (SM-28)
Observer- assists where needed

Remediation and/or Enrichment:
Remediation – Individual IEP

Enrichment- Students could graph data and make inferences in regards to why various locations around the school had different numerical records.

Check(s) for Understanding:
Observe students during outdoor lab and ask questions. Instructor can review hand-out sheets for completion and correct application.

Closure:
Ask students questions.
Question 1: Is there a difference between the temperature in the parking lot Vs. the shady area? Why?

Question 2: Where was the fastest wind speed? Where was the slowest wind speed?

Possible Alternate Subject Integrations:
Math, Physics

Teacher Notes

A website for weather basics…
http://www.eo.ucar.edu/basics/index.html