Lesson Title	An Adventure in the Field: A Classroom Scenario
Length of Lesson	One (50 minute) class period
Created By	Charlotte Buehler
Subject	General Science
Grade Level	7th grade
State Standards	7th: A (Inquiry)
DOK Level	DOK 2
DOK Application	Make observations, Organize, Interpret
National Standards	5-8 A (Inquiry) and C (Life Science)
Graduate Research Element	Making observations and collecting data in the field are important requirements for sucessful research.

Student Learning Goal:
MS 7th Grade:
(Inquiry)1a: Collect and display data using simple tools and resources to compare information (using standard, metric, and non-standard measurement). Types of data (e.g., area,perimeter).

National Science Education Standards of Content 5-8:
(Inquiry - A) Use mathematics in all aspects of scientific inquiry, and (Life Science- C) Populations and Ecosystems.

Materials Needed (supplies, hand-outs, resources):
Paper, pencil, calculator, INSPIRE_LP_Buehler_Fieldbook_8_11_11, INSPIRE_LP_Buehler_Fieldbookppt_8_11_11

Lesson Performance Task/Assessment:
The lesson will begin with a short lecture on field data collection including types of data that can be collected, the processes involved in data collection, and what the data mean once they have been collected. The lesson will then continue with the instructor presenting a scenario (see INSPIRE_LP_Buehler_Fieldbookppt_8_11_11) of a field data collection experience and ask the students to observe their field surroundings. The instructor will then ask the students to think about what they might see, hear, smell, and touch in their hypothetical field scenario. Next the instructor will revisit the mathematical concepts of area and perimeter. The students will be asked to calculate the area and perimeter of their field plot. The students will also practice converting their area and perimeter calculations from one unit to another. All observations and measurement

will be recorded in their "field book" (see INSPIRE_LP_Buehler_Fieldbook_8_11_11). At the end of the field scenario, the class will be asked to report their field experience and design a new field scenario which they might use their new observation and data collecting skills

Lesson Relevance to Performance Task and Students:
Understanding the importance of using mathematics in data collection is an essential foundation in science research. Most field scientists use calculations including perimeter and area when determining field plot dimensions for a research experiment. Being able to convert metric units to standard units is also necessary, particularly when sharing data and information with scientists from other areas around the world. This particular lesson, while pertaining to ecosystem/ecology, encourages practice in data collection and observation which can be applied to various other science fields and disciplines.

Anticipatory Set/Capture Interest:
The class will be presented with a set of photos from the instructor's field research. The instructor will ask the students to start employing their observation skills and describe what they might hear, smell, and touch if they were present in the photo.

Guided Practice:
This lesson will begin with an introduction to data collection and observation, and then an example will be shown illustrating the calculation of area and perimeter. The instructor will also provide an example converting the measurements from one unit to another. After the instructor feels the students are competent to attempt these calculations on their own, the students will be equipped for independent practice.

Independent Practice:
After the students work through the guided practice, they will use their observation skills to describe and record what they might observe in the field scenario. The class will be given time to work on observation, recording and calculating area and perimeter, along with converting from one unit to another.

Remediation and/or Enrichment:
Remediation- Individual IEP;
Enrichment - Research different ecosystems and compare and contrast the observations they might encounter.

Check(s) for Understanding:
Can the students explain why observation and data collection are important in science? Can the students relate the scenario they have just completed in class the other facets in

science, i.e. observation of chemicals or calculations in physics? The student's field book will also be collected for a grade to further assess understanding.

Closure:
Question 1: Do the students understand the *reason* for making accurate observations and calculations in the field?

Questions 2: What aspect of this scenario most interested the students—observing, calculations, both?

Possible Alternate Subject Integrations:
Mathematics, Biology

Teacher Notes:
Make sure documents (INSPIRE_LP_Buehler_Fieldbook_8_11_11 and INSPIRE_LP_Buehler_Fieldbookppt_8_11_11) are available for the "interest catcher" and the scenario.