

Post-Visit Lesson Plan - Plant Study and Projects/Presentations

<p><u>Standards</u></p>	<p>Band Theme 5-8: Science Inquiry and Application:</p> <ul style="list-style-type: none"> ● Identify questions that can be answered through scientific investigations; ● Design and conduct a scientific investigation; ● Use appropriate mathematics, tools and techniques to gather data and information; ● Analyze and interpret data; ● Develop descriptions, models, explanations and predictions; ● Think critically and logically to connect evidence and explanations; ● Recognize and analyze alternative explanations and predictions; and ● Communicate scientific procedures and explanations. <p>Content Statement 6.ESS.4</p> <ul style="list-style-type: none"> ● 6.LS.4 Living systems at all levels of organization demonstrate the complementary nature of structure and function. <p>CCSS.ELA-Literacy.RST.6-8.1</p> <ul style="list-style-type: none"> ● Cite specific textual evidence to support analysis of science and technical texts. <p>CCSS.ELA-Literacy.RST.6-8.3</p> <ul style="list-style-type: none"> ● Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. <p>CCSS.ELA-Literacy.RH.6-8.9</p> <ul style="list-style-type: none"> ● Analyze the relationship between a primary and secondary source on the same topic.
<p>Objectives</p>	<p>Students will apply the scientific method to an experiment using fertilizer as the independent variable, and health of plants during growth as the dependent variable.</p>
<p>Plant Study</p>	<p>(30min experimental set up with additional check-ins on progress for 2 weeks prior to visit. Aligns with Activity 9 Lab aids)</p>
	<p>Materials Per Group:</p> <ul style="list-style-type: none"> ● 5 containers (milk cartons or 8-16oz bottles) for preparing fertilizer solutions ● Cups to measure liquid for watering ● 5 plant pots per team, or planting trays, or plastic or styrofoam cups with small holes in the bottom ● 30 radish seeds <p>For whole class use:</p> <ul style="list-style-type: none"> ● Liquid or powdered plant food (such as Miracle Gro or Schultz). ● Inert potting substrate such as Perlite or Vermiculite (Do not use potting soil). <ul style="list-style-type: none"> ○ Pre-rinse to remove dust by putting into a dishpan and covering with several inches of water, swish around a few times and pour off the water. ● Use drain trays to place under pots (aluminum baking trays or cafeteria trays work fine). <ul style="list-style-type: none"> ○ To avoid cross contamination, put all the pots watered with the same solution on a single tray. Don't put all the pots of each group on a tray or the fertilizer will move between them ● Growth area for plants - plant grow lights or a window sill.

	<p>Teacher note: <i>This experiment can be conducted as a classroom demo, in individual groups with assigned parts, or the entire experiment can be conducted by each group.</i></p> <p>Procedure</p> <ul style="list-style-type: none"> ● Provide information about plant needs Instruct students to work through the questions independently and then with a partner (think-pair-share). ● Have the students gather their materials and assemble their plantings ● Have the solutions ready for students to apply to their plants. ● Have students make a hypothesis and predictions based on what they have learned. ● Place plants in bright sunlight by a window. ● Water each plant twice a week with their respective solutions. ● Each time the plants get watered have the students make observations on what they see. <p>Class Discussion Questions</p> <ul style="list-style-type: none"> ● After the experiment, compare the outcomes to their predictions. Were you correct? If not, work together to explain why. ● What do plants need to be healthy? ● How do plants interact with soil/their environment?
<p>Reference:</p>	<p>Post Visit Resources</p> <ul style="list-style-type: none"> ● http://www.instruction.greenriver.edu/mcvay/b100/general_format_for_writing_a_sci.htm (General Format for Writing a Scientific Paper) ● http://www.lamotte.com/images/pdf/instructions/36250.pdf (Garden Guide) ● http://www.ext.colostate.edu/pubs/garden/07235.pdf (Colorado State University Extension - Soil Basics)