Name: _____ Class: _____ Date: _____

Growing Conditions for Healthy Plants

Learner Outcomes:

- Investigate and interpret variations in needs of different plants and their tolerance for different growing conditions.

Key Terms:

Background Information: plants growing in natural conditions are well suited to their environment and the amount of light, heat and water they naturally receive. Plants grown by people, however, are often helped a bit so that the health and yield of the plants is maximized.

Investigation Question: What impact does varying light, temperature and water have on the health of a growing plant?

Hypothesis: Form a hypothesis about what conditions will yield the best growth of a plant.

Materials:

Thumbtack	Thermometer	Potting soil
50 mL grad cylinder	Sprouted seeds	Water
Grow lights	Paper / Styrofoam	
Ruler	cups	

Procedure:

1. You will be given nine sprouted seeds from one type of plant. Divide your seeds into three groups and plant them at the same depth in the same type of soil and in the same type of container. (Poke small holes in the bottom of your container for drainage)
2. Design an experiment that shows how the amount of light, temperature and /or water affects plant growth. You may change only one variable for each group of plants.

This investigation / activity has been adapted from:
Bullard J, Krupa G, Krupa M, et al. *Science Focus 7*. Toronto, ON: McGraw-Hill Ryerson.

3. Describe your design and procedure, then conduct your experiment and record your observations.

Experimental Design:

Manipulated Variable:

Responding Variable:

Controlled Variables:

Describe your Procedure:

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Observations:

Analysis:

1. Why was it important that all of your seeds were planted at the same depth, in the same soil and in the same type of container?

2. Why was it important to begin your experiment with sprouted seeds?

3. Why did you plant three of each seed in each container?

4. How did you determine which plant was the healthiest?

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5. What other factors might have affected the growth of your plant other than those that were tested?

Conclusion: Which combination of light, temperature and water resulted in the healthiest plant

Extension:

Investigate how different species of plants are adapted to different growing conditions. Select 2 different species of plants that survive in very different environments and describe how they are adapted to grow in their respective environments.

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