Name_____ **Hour**_____ **Date**_____

Plant Growth and Light Sources Lab

Experimental Question: Which colors of the light spectrum are most important for plant growth?

Experiment website:
https://nt7-mhe-complex-assets.mheducation.com/nt7-mhe-complex-assets/Upload-20190715/InspireScience6-8CA/LS12/index.html

Background Information:

Photosynthesis is the process in which plants use light energy, water, and carbon dioxide to produce food. Plants use the food they make for growth and for carrying out other life processes.

Sunlight is the natural energy source for photosynthesis. White light from the Sun is a mixture of all colors of the light spectrum: red, orange, yellow, green, blue, and violet. Light can be either absorbed or reflected by substances called pigments. Most plants are green because the pigment chlorophyll reflects green and yellow light and absorbs the other colors of the spectrum.

In this Virtual Lab you will perform an experiment to investigate what colors of the light spectrum cause the most plant growth. You will calculate the plant growth by measuring the height of each plant under different colors of light. You will compare these measurements and interpret a graph to determine which colors of the spectrum cause the most plant growth.

Objectives:

- Carry out an experiment to determine which colors of the light spectrum are used in photosynthesis as evidenced by plant growth.
- Measure plant growth under lights of different colors of the spectrum.

Predict:

Explain how photosynthesis and plant growth are connected.

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Make a prediction about how different light colors will affect plant growth.

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Procedure:

1.Click the Video button. Watch the animation to learn how light is made up of many wavelengths.

2. Several experimental conditions are listed in the table below. **Circle** any experimental conditions that should be kept **constant** throughout the experiment.

Light color	Soil conditions	Plant growth	Growth time
Water	Seed quality	Light intensity	Air quality

3. Create a procedure below by writing steps for using each part of the lab setup.

The seeds:

_____
_____
_____
_____
_____

The light colors:

_____
_____
_____
_____
_____

The ruler:

_____
_____
_____
_____
_____

Results:

Fill in the columns and rows with the results of your experiment.

height - cm

	Lettuce	Radish	Spinach
Red	14cm		
Orange	9cm		
Green	4cm		
Blue	15cm		
Violet	12cm		

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Write a conclusion that addresses each of the points below.
Claim: Which light source is best for optimizing plant growth? Was your prediction correct?
Evidence: Give specific examples from your data to support your claim.
Reasoning: Explain how the evidence you gave supports your claim. Describe, in detail, the connections between the evidence you cited and the argument you are making. (*Hint: Go back and look at your explanation for how plant growth and photosynthesis are connected in the "Predict" section)*

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