

Teacher Information for Practices Tasks

Task #1:

Materials: 2 plants of the same variety. One plant should be watered and placed in an area with an appropriate level of light. The other plant should be watered but placed in area that receives less light than it should.

Task #2:

Materials: Drawing paper, colored pencils.

Task #3:

Share the plant growth data sheet with the students. Explain to the students that this might be data that was obtained from growing plants similar to the ones you observed.

Task #4:

Share the Plant Growth Reasons List with the students and ask them to determine if it is a fact (something already known), reasoned judgement based on the data, or speculation or opinion and not based on facts.

Task #5:

Materials: Paper, colored pencils or online program to create infographic.

Plant Growth Data Sheet

You have been helping a greenhouse owner grow some plants for your science class. One of the plants was placed in an area that did not receive the needed amount of sunlight but was watered regularly. Another student was helping record the information needed about the plant growth on index cards, but accidentally dropped them and now they are out of order. You have been asked to not only help organize the cards (data) but also then to find a way to represent the data and explain the data.

Plant #1: Proper amount of sunlight AND water. Each square represents an index card that was dropped and has a single measurement about the plant's height on a particular day. Note: Measurements were NOT taken every day.

Day April 4 Height (cm): Not visible – 5 days after planting.	Day April 26 Height (cm): 11.5	Day April 19 Height (cm): 8	Day April 10 Height (cm): 4	Day May 5 Height (cm): 18
Day April 14 Height (cm): 6.5	Day April 21 Height (cm): 9	Day April 12 Height (cm): 5	Day May 2 Height (cm): 15	Day April 18 Height (cm): 8
Day April 23 Height (cm): 10	Day April 7 Height (cm): 1.5	Day April 30 Height (cm): 13.5	Day April 6 Height (cm): 1	Day May 7 Height (cm): 20

Plant #2: Proper amount of water was provided. However, the plant was not in a location to allow it to get the proper amount of sunlight. Each square represents an index card that was dropped and has a single measurement about the plant's height on a particular day. Note: Measurements were NOT taken every day.

Day April 4 Height (cm): Not visible – 5 days after planting.	Day April 26 Height (cm): 7.5	Day April 19 Height (cm): 4.5	Day April 10 Height (cm): 2	Day May 5 Height (cm): 10.5
Day April 14 Height (cm): 3.5	Day April 21 Height (cm): 5	Day April 12 Height (cm): 2.5	Day May 2 Height (cm): 9	Day April 18 Height (cm): 8
Day April 23 Height (cm): 6	Day April 7 Height (cm): 1	Day April 30 Height (cm): 8.5	Day April 6 Height (cm): Not visible yet	Day May 7 Height (cm): 12

Plant Growth Reasons List

Plants need an energy source (the sun) and nutrients (soil/water) to grow.

The plant that did not have as much sunlight as recommended grew at a slower rate than the plant that had the proper amount of sun.

The one plant did not grow because it was tired.

The plant that was taller at the end of the time did so because it was a magic type of seed.

A plant that does not get an appropriate amount of sun may grow slower and not be as tall.

Practicing the Practices Sheet

Task #1: Key Questions

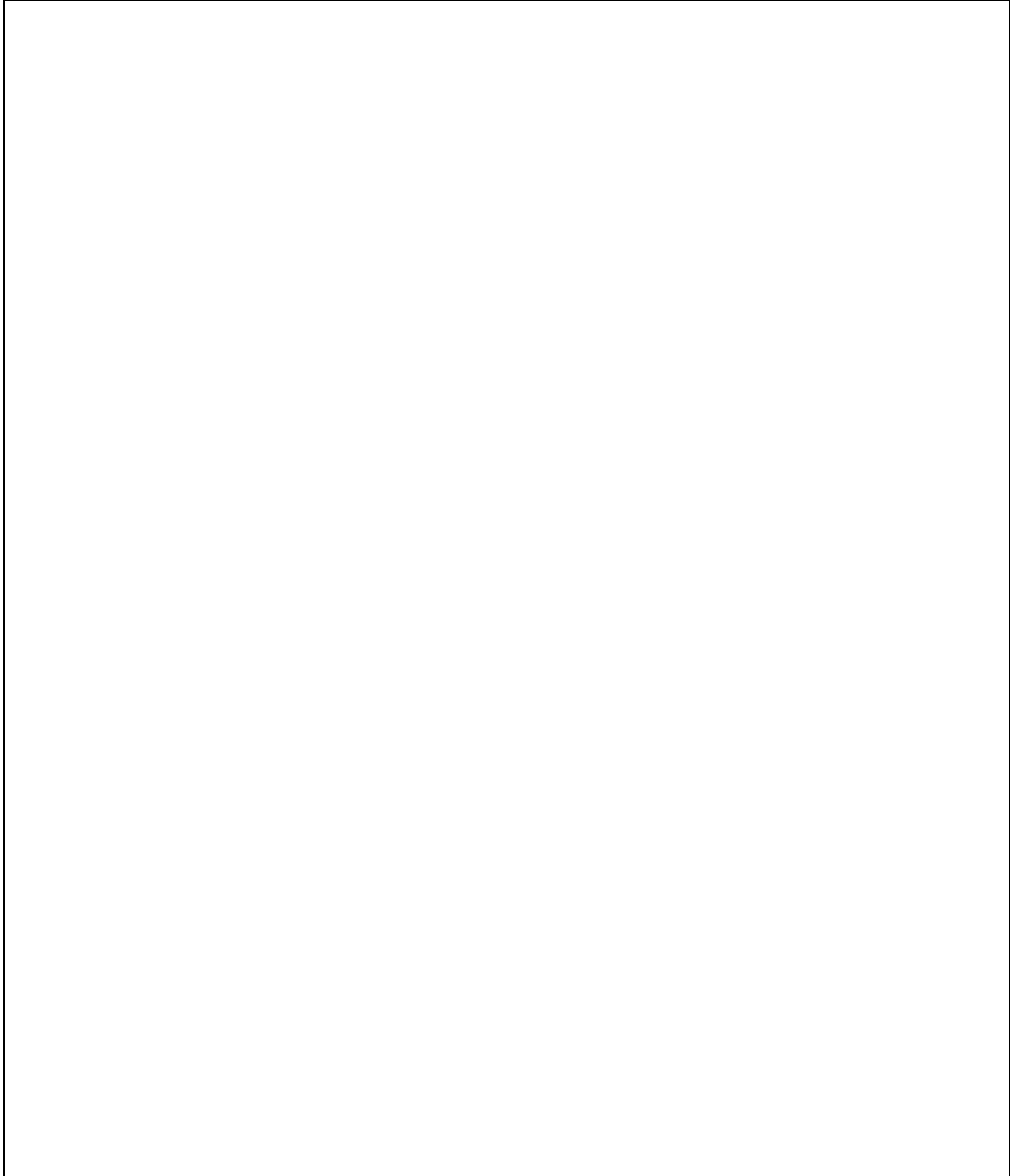
Two seeds were planted on the same day in the same type of soil and the same size container. They received the same amount of water every time they were watered. One plant did not receive the proper amount of sunlight. The other plant did receive the proper amount of sunlight recommended. Answer the following questions:

What are the variables in this investigation? What variable was different between the two plants?

While these plants have already been grown, what question could you ask if you were to repeat this investigation?

What steps might you take to test your question?

Task #2: Now that you have thought about a possible investigation you could set up about plants, create a sketch or diagram that helps to explain what you think will happen. Make sure you include your variables and what you think will happen.

A large, empty rectangular box with a thin black border, intended for a student to draw a sketch or diagram. The box occupies the majority of the page below the task instructions.

Task #3: Organize the information provided about how each plant grew. First use a table to put the information in some type of order. Then, create a chart or graph that represents the growth of each plant.

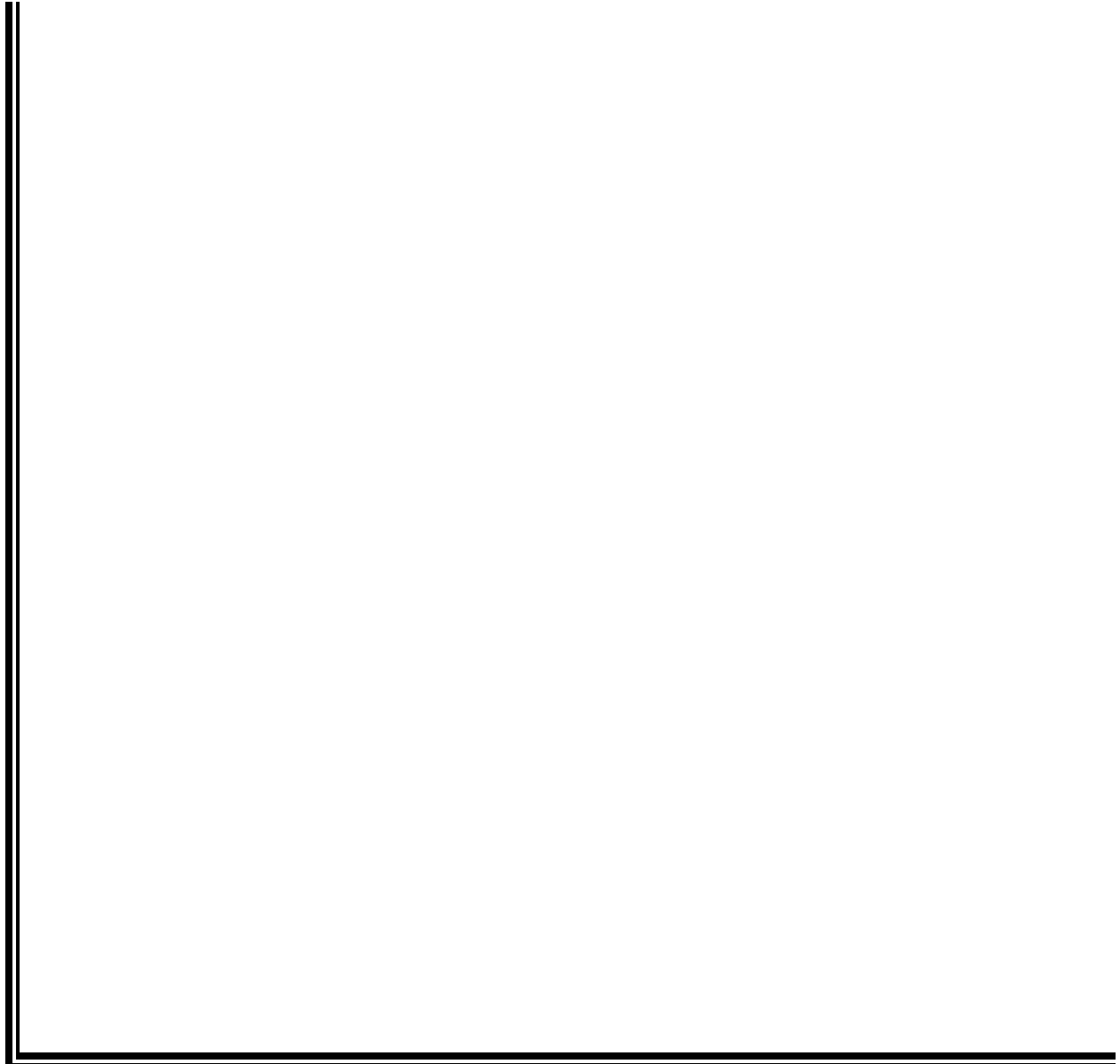
Plant #1

[illegible]

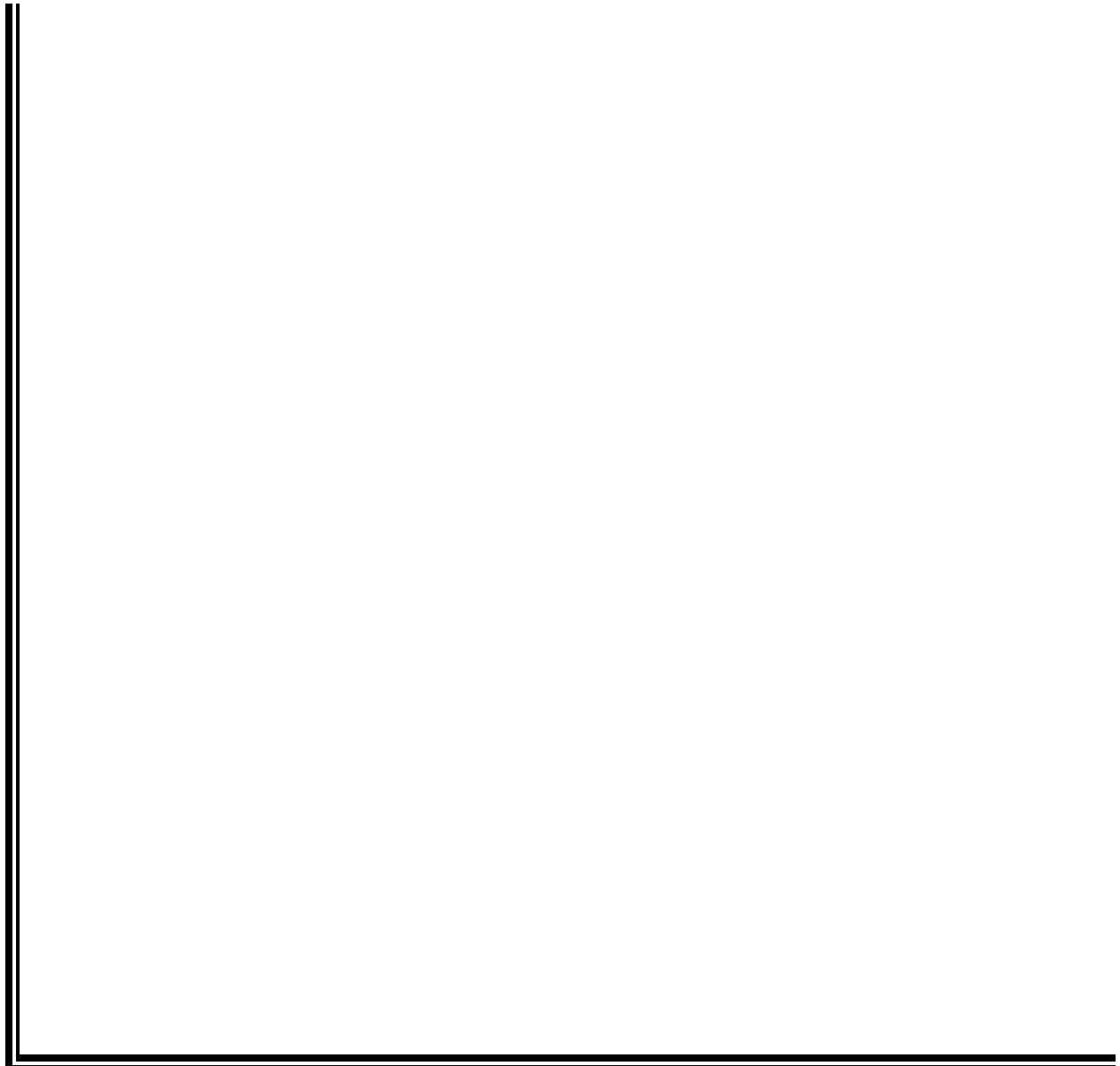
Plant #2

[illegible]

Create a graph for plant #1 to show its growth over time.



Create a graph for plant #2 to show its growth over time.



If you were asked to explain how sunlight may impact a plant's growth, what would you say? Make sure you use data to support your point.

Task #4: Think about the list of reasons that are given for plant growth. Explain which falls into each category and why.

Fact

Reasonable statement based on data

Unsupported reason or opinion

Which of the claims could be supported from the data? Which cannot? Explain your reasoning for each.

Claim #1:

We know that plants need sunlight (energy) and water (nutrients) to grow. But there is not a relationship between the amount of sunlight a plant gets and its growth.

Claim #2

We know that plants need sunlight (energy) and water (nutrients) to grow. There is a relationship between a plant's growth and it receiving the proper amount of sunlight.

Task #5: Develop an infographic in the space below that helps to communicate what you found out about plant growth.