

BOTANY

Answer Key: Grades 7–8 Lesson Extensions

Notes:

- This answer key should be used as a guide for basic responses to the questions and instructions found in the grades 7–8 lesson extensions. The children should be encouraged to make their science journals tidy, beautiful, and exceptionally well done.
- Encourage the children to write their answers in their own words, with definitions being a possible exception.
- There are two types of answers provided in this answer key:

Sample answers: Most questions are open ended, so the children’s answers will not match the provided text exactly or include everything provided in the sample answer. However, some answers should match more closely (for example, vocabulary word definitions, copied charts, etc.).

Answers will vary: This is used when there will be great variation in the children’s answers, which may be due in part to a lesson having more information provided than another lesson. Refer to the text in the lesson to check these answers.

Lesson 1

2. *In your science journal, write 1–2 sentences about each of the following prompts:*

- a. *How did others positively influence George Washington Carver’s life?*

Answers will vary. Notes should reflect two or three pieces of information found in the lesson extension.

- b. *How did George Washington Carver affect the field of agriculture?*

Answers will vary. Notes should reflect two or three pieces of information found in the lesson extension.

- c. *What inspired you the most about George Washington Carver?*

Answers will vary as this question involves a personal opinion.

Lesson 2

2. *In your science journal, summarize the differences between annual, perennial, and biennial plants.*

Sample answers: Annuals live for one year (or one growing season), going from a seed to a mature plant, blooming,

and dispersing seeds. Perennials live for more than two years (or two growing seasons) and are dormant during months of cold weather. Biennials live for two years (or two seasons), first growing roots, stems, and leaves; then having a dormancy state; and finally forming flowers and fruit and dispersing seeds.

3. *Optional: In your science journal, sketch one of the plant illustrations on this page.*



Answers will vary as any one of the images on the lesson extension page could be sketched.

Lesson 3

2. In your science journal, answer the following question: What is the difference between tropic and nastic movements?

Answers will vary. Notes should reflect two or three pieces of information found in the lesson extension.

3. In your science journal, write a definition for each of the terms in blue.

Sample answers:

Phototropism: movement toward or away from a source of light

Thigmotropism: movement because of contact

Hydrotropism: movement in response to water, either toward or away from it

Geotropism: movement against or in the direction of gravity

Photonasty: flowers open or close when sunlight is present

Thigmonasty: a plant moves as a response to touch

Lesson 4

2. In your science journal, write descriptions for nuts, drupes, and legumes.

Answers will vary. Notes should reflect two or three pieces of information found in the lesson extension.

Lessons 5–13

In the lesson extensions for Lessons 5–13, you will design and perform an experiment. Each time you study a Botany science lesson, return to this section during the time you would spend on the lesson extension and follow this outline. You may want to bookmark this page. **It is recommended that you use a new notebook so the notes from this experiment are contained in a separate Botany Experiment Notebook.**

Lesson 6

In your new Botany Experiment Notebook, on the first blank page, write the following information:

1. “Botany Experiment — <<Give your experiment a creative name>>”

Answers will vary.

2. Record which variable you’re testing and under which conditions you’re testing the plants. (Make sure this is approved by your parent or teacher.)

Answers will vary.

3. Record which plant type you will be testing. If you will be starting from seed, it is recommended that you use a plant type that germinates quickly, such as bean, tomato, or sunflower. You may also decide to use a flowering plant such as a petunia. Be sure to choose a plant that isn’t too sensitive.

Answers will vary.

4. Record where you will be conducting your experiment. Keep in mind that all other variables must not change.

Answers will vary.

5. Write a question for your experiment since this follows the scientific method. Be sure to identify your control.

Answers will vary.

Lesson 7

In your Botany Experiment Notebook, under the question, write down your hypothesis.

Answers will vary. The children should have a hypothesis (or an educated guess as to what their results will be) written under their question in their notebooks. One example could be, “Plants with more light will grow taller than plants with less light.”

Talk to your parent or teacher about your ideas for this botany experiment. In your Botany Experiment Notebook, title the next blank page “Ideas” and write down any suggestions given that may help you plan your experiment. With permission from your parent or teacher, research answers to basic questions such as the following:

- How long does it take the plant I selected to germinate?
- How much water does the plant I selected need, and how often does it need to be watered?

Be sure not to research the answers to your hypothesis, as this will defeat the creative purpose of your experiment.

Answers will vary. The children should have talked with a parent or teacher about ideas for the experiment and then made a list of those ideas in their notebooks.

In your Botany Experiment Notebook, title a blank page “Supplies,” and with help from your parent or teacher if desired, make a list of supplies that you need for your experiment.

Answers will vary. The children should have a list of supplies needed written in their notebooks.

Lesson 8

Plan an experiment by following these steps:

1. *Go to the next blank page of your Botany Experiment Notebook and label it with the creative experiment name you chose in the Lesson 6 extension.*
2. *Write a list of steps you will follow to test your experiment.*

Answers will vary. The children should have a page labeled with their experiment name and a list of steps they plan to take to perform their experiment (which can be altered if needed after the experiment is started). See “Example: My Botany Experiment” on page 39 if needed.

In your Botany Experiment Notebook, under your experiment steps, make a list of your constants and write down your independent variable.

Answers will vary. The children should have a list of constants and the independent variable written in their notebooks.

Test the experiment by taking the first steps—labeling the four planter pots, planting the seeds, and watering the seeds. Place them under the conditions you have set. On a blank page of your Botany Experiment Notebook, write down the date and record what you did.

Answers will vary. The children should have recorded what they did in the beginning of their experiment on this day and written detailed notes in their notebooks.

Lessons 9–13

Each time you do a science lesson (or more frequently if needed) follow your experiment steps you made in the last lesson. Also, make and record observations by following these steps each time:

1. *Observe your plants. In your Botany Experiment Notebook, write the date and height of each plant, including the units (inches or centimeters), and the health of your plant.*
2. *Record the steps you took that day to tend to your plants.*

Answers will vary. An entry should be recorded in the children's notebooks for every time they checked on their experiment. They should have the following information in their notebooks:

- Date
- Observations recorded providing the height and health (such as plant color, sturdiness, etc.) of each plant
- Steps they took today to tend to their plants

An example of how observations could be recorded is provided on page 41.

Completion Day

Summarize your results and write a conclusion stating whether or not your hypothesis was correct.

Answers will vary. The children should have a summary of their results written in their notebooks. They should have a concluding statement.

Optionally, the children may also include a graph presenting their data or analyze parts of their plants under a microscope.