

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 student 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. 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. Summarize the differences between annual, perennial, and biennial plants.

Sample answer: 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: Sketch one of the plant illustrations on this page.*

Sample answer:



Lesson 3

2. In 1–2 sentences, answer the following question: *What is the difference between tropic and nastic movements?*

Sample answer: Tropic movement leads to plant growth and is when a plant moves toward a stimulus, such as sunlight.



Nastic movement, on the other hand, is reversible movement that does not involve growth or movement specifically in the direction of a stimulus.

3. Write a definition for one tropic movement and one nastic movement.

Sample answers:

Phototropism: movement toward or away from a source of light (tropic)

Thigmotropism: movement because of contact (tropic)

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

Geotropism: movement against or in the direction of gravity (tropic)

Photonasty: flowers open or close when sunlight is present (nastic)

Thigmonasty: a plant moves as a response to touch (nastic)

Lesson 4

2. Write descriptions for nuts, drupes, and legumes.

Answers will vary. Notes should reflect the information found in the lesson extension.

Lesson 5

Read the following information. The content in this lesson extension will be referred to in Lessons 6–13.

No written answers required.

Lesson 6

Read the information below and complete the assignment.

No written answers required.

Assignment: Complete the instructions on the following pages to outline what you will be testing and identify the question you are trying to answer.

(The following questions come from the pages of the assignment.)

Write the name of your botany experiment below.

Answers will vary.

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.

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.

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

Answers will vary.

Following the scientific method, next write a question for your experiment. Be sure to identify your control.

Answers will vary.

Lesson 7

Read the information below and complete the assignment.

No written answers required.

Assignment: Complete the instructions on the following page to identify your hypothesis, record your ideas, and compile a list of needed supplies.

(The following questions come from the assignment page.)

Write your experiment name.

Answers will vary.

Write your hypothesis below.

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

Write down any ideas or research that may help you plan your experiment.

Answers will vary.

Botany



With help from your parent or teacher, if desired, make a list of supplies that you need for your experiment. Obtain your supplies before the next lesson.

Answers will vary.

Lesson 8

Read the information below and complete the assignment. You will need the supplies you previously gathered.

No written answers required.

Assignment:

Follow the prompts on pages 42 and 43 of this journal to plan out the steps of your experiment and identify your constants and independent variable.

Begin testing your 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. For example, if you’re testing light, place each of the three plants in the same area under their designated boxes, leaving the other plant uncovered. Begin following the steps you outlined and recording data.

(The following questions come from the pages of the assignment.)

Write your experiment name.

Answers will vary.

Plan an experiment by making a list of steps you will follow to test your experiment.

Answers will vary. Note: The steps can be altered if needed after the experiment is started. See “Example: My Botany Experiment Steps” on page 44 of the student journal if needed.

Make a list of your constants and write down your independent variable.

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

Test the experiment by following the steps you listed on page 46. Record what you did on the lines below. Be detailed; don’t rely on your memory to recall the steps you’ve taken. You will continue to record your experimentation progress on the

designated pages of the following lesson extensions.

Answers will vary. The children should have recorded what they did at the beginning of their experiment and written detailed notes in their student journals.

Lessons 9–11

For lesson extensions 9–11, continue to tend to your plants and make and record observations.

Answers will vary. An entry should be recorded in the children’s student journals for each time they checked on their experiment. They should have recorded the following information in their student journals and may have drawn pictures or included photos:

- Date
- Plant height
- Plant health (color, sturdiness, etc.)
- The steps taken to care for the plants that day

Lesson 12

Follow the instructions below and complete the assignment to conclude your experiment.

No written answers required.

Assignment: Use the following page to record your final observations. Then summarize the results of your experiment and write a concluding statement.

(The following questions come from the assignment page.)

Record observations in the spaces provided. You may use the blank tables to record your data. You may also take pictures or draw your plants.

Answers will vary.

Summarize your results and write a conclusion statement below.

Answers will vary. Note: The children have the options to present their data using a graph or analyze their plant results under a microscope.