

## PLANT SCIENCE MERIT BADGE WORKBOOK

This Scoutmaster Bucky Merit Badge Workbook is based off the current *Scouts BSA Requirements*.

Consider also using the Plant Science merit badge class preparation page for clarification and expectations when participating in a Scoutmaster Bucky merit badge opportunity ([online](#) or [in-person](#)).

<https://scoutmasterbucky.com/merit-badges/plant-science/>

Scout's  
Name:

### Option 2: Horticulture

This workbook covers only one of the options for this merit badge. Check the Scoutmaster Bucky website for the other possibilities.

**REQUIREMENT 1:** Make a drawing and identify five or more parts of a flowering plant. Tell what each part does.

**REQUIREMENT 2:** Explain photosynthesis and tell why this process is important. Tell at least five ways that humans depend on plants.

**REQUIREMENT 3:** Explain how honeybees and other pollinating insects are important to plant life.

**REQUIREMENT 4:** Explain how water, light, air, temperature, and pests affect plants. Describe the nature and function of soil and explain its importance. Tell about the texture, structure, and composition of fertile soil. Tell how soil may be improved.

**REQUIREMENT 5:** Tell how to propagate plants by seeds, roots, cuttings, tubers, and grafting. Grow a plant by ONE of these methods.

**REQUIREMENT 6:** List by common name at least 10 native plants and 10 cultivated plants that grow near your home. List five invasive nonnative plants in your area and tell how they may be harmful. Tell how the spread of invasive plants may be avoided or controlled in ways that are not damaging to humans, wildlife, and the environment.

10 native plants

10 cultivated plants

Five invasive nonnative plants

How the spread of invasive plants may be avoided or controlled

**REQUIREMENT 7:** Name and tell about careers in agronomy, horticulture, and botany. Write a paragraph about a career in one of these fields that interests you.

**REQUIREMENT 8:** Choose ONE of the following options and complete each requirement:

**Option 2: Horticulture**

**REQUIREMENT A:** Visit one of the following places and tell what you learned about horticulture there: public garden, arboretum, retail nursery, wholesale nursery, production greenhouse, or conservatory greenhouse.

**REQUIREMENT B:** Explain the following terms: hardiness zone, shade tolerance, pH, moisture requirement, native habitat, texture, cultivar, ultimate size, disease resistance, habit, evergreen, deciduous, annual, perennial. Find out what hardiness zone you live in and list 10 landscape plants you like that are suitable for your climate, giving the common name and scientific name for each.

Hardiness zone

Shade tolerance

pH

Moisture requirement

Native habitat

Texture

Cultivar

Ultimate size

Disease resistance

Habit

Evergreen

Deciduous

Annual

Perennial

Hardiness zone you live in

10 landscape plants suitable for your climate

**REQUIREMENT C:** Do ONE of the following:

**REQUIREMENT 1:** Explain the difference between vegetative and sexual propagation methods, and tell some horticultural advantages of each. Grow a plant from a stem or root cutting or graft.

**REQUIREMENT 2:** Transplant 12 seedlings or rooted cuttings to larger containers and grow them for at least one month.

Completed

**REQUIREMENT 3:** Demonstrate good pruning techniques and tell why pruning is important.

Demonstrated

**REQUIREMENT 4:** After obtaining permission, plant a tree or shrub properly in an appropriate site.

Completed

**REQUIREMENT D:** Do EACH of the following:

**REQUIREMENT 1:** Explain the importance of good landscape design and selection of plants that are suitable for particular sites and conditions.

**REQUIREMENT 2:** Tell why it is important to know how big a plant will grow.

**REQUIREMENT 3:** Tell why slower-growing landscape plants are sometimes a better choice than faster-growing varieties.

**REQUIREMENT E:** Choose ONE of the following alternatives and complete EACH of the requirements:

**REQUIREMENT 1:** Bedding Plants

**REQUIREMENT A:** Grow bedding plants appropriate for your area in pots or flats from seed or cuttings in a manufactured soil mix. Explain why you chose the mix and tell what is in it.

Completed

**REQUIREMENT B:** Transplant plants to a bed in the landscape and maintain the bed until the end of the growing season. Record your activities, observations, materials used, and costs.

Completed

**REQUIREMENT C:** Demonstrate mulching, fertilizing, watering, weeding, and deadheading, and tell how each practice helps your plants.

Demonstrated



**REQUIREMENT D:** Tell some differences between gardening with annuals and perennials.

**REQUIREMENT 2:** Fruit, Berry, and Nut Crops

**REQUIREMENT A:** Plant five fruit or nut trees, grapevines, or berry plants that are suited to your area. Take full care of fruit or nut trees, grapevines, or berry plants through one season.

Planted five plants

Cared for plants for one season

**REQUIREMENT B:** Prune a tree, vine, or shrub properly. Explain why pruning is necessary.

Completed

**REQUIREMENT C:** Demonstrate one type of graft and tell why this method is useful.

Completed

**REQUIREMENT D:** Describe how one fruit, nut, or berry crop is processed for use.

**REQUIREMENT 3:** Woody Ornamentals

**REQUIREMENT A:** Plant five or more trees or shrubs in a landscape setting. Take full care of the trees or shrubs you have planted for one growing season.

Planted five trees or shrubs

Cared for trees or shrubs for one season

**REQUIREMENT B:** Prune a tree or shrub properly. Explain why pruning is necessary.

Completed





**REQUIREMENT E:** Tell five ways trees help improve the quality of our environment.

**REQUIREMENT 4:** Home Gardening

**REQUIREMENT A:** Design and plant a garden or landscape that is at least 10 by 10 feet.

Completed

**REQUIREMENT B:** Plant 10 or more different types of plants in your garden. Tell why you selected particular varieties of vegetables and flowers. Take care of the plants in your garden for one season.

Completed

**REQUIREMENT C:** Demonstrate soil preparation, staking, watering, weeding, mulching, composting, fertilizing, pest management, and pruning. Tell why each technique is used.

Completed

**REQUIREMENT D:** Tell four types of things you could provide to make your home landscape or park a better place for birds and wildlife. List the common and scientific names of 10 kinds of native plants that are beneficial to birds and wildlife in your area.