



Plant Science Merit Badge Workbook - Horticulture

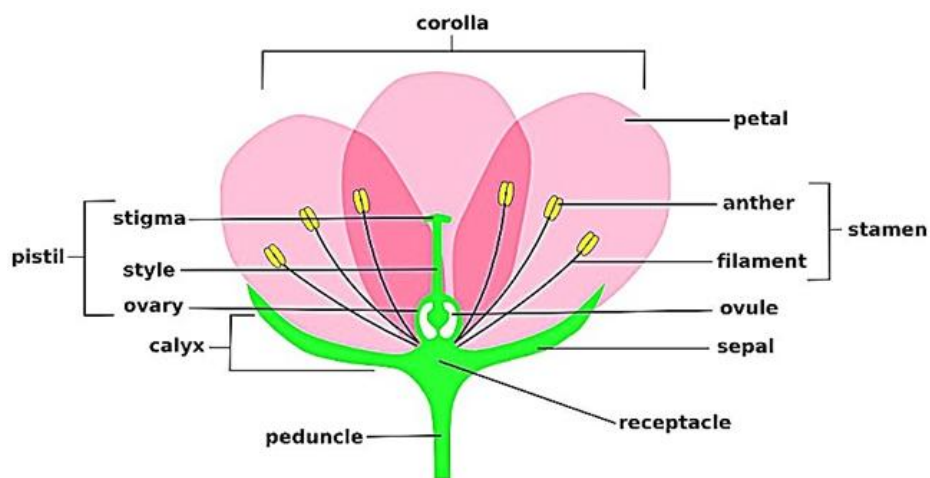
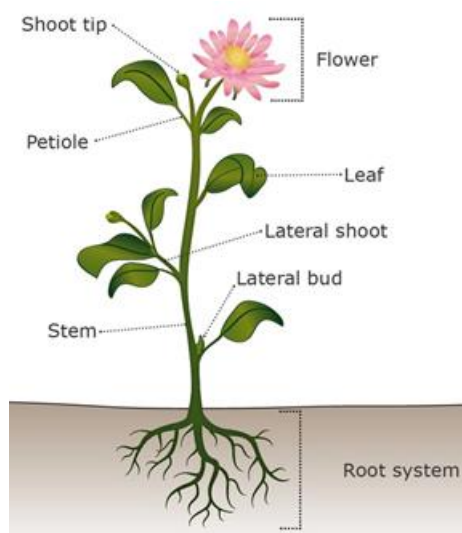
SCOUTMASTER BUCKY

Scouts participating in a Scoutmaster Bucky merit badge opportunity, whether online or in person, should consider using the Plant Science merit badge pamphlet for discovery and knowledge, along with the class preparation pages for clarifications, insights, and expectations.

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

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

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



Notes:



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REQUIREMENT 2: Explain photosynthesis.

Notes:

REQUIREMENT 2: Tell why photosynthesis is important.

Notes:



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REQUIREMENT 2: Tell at least five ways that humans depend on plants.

Way #1:

Way #2:

Way #3:

Way #4:

Way #5:



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

Notes:

REQUIREMENT 4: Explain how water affects plants.

Notes:



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REQUIREMENT 4: Explain how light affects plants.

Notes:

REQUIREMENT 4: Explain how air affects plants.

Notes:



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REQUIREMENT 4: Explain how temperature affects plants.

Notes:

REQUIREMENT 4: Explain how pests affect plants.

Notes:



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REQUIREMENT 4: Describe the nature and function of soil.

Notes:

REQUIREMENT 4: Explain the importance of soil.

Notes:



REQUIREMENT 4: Tell about the texture of fertile soil.

Notes:

REQUIREMENT 4: Tell about the structure of fertile soil.

Notes:



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REQUIREMENT 4: Tell about the composition of fertile soil.

Notes:

REQUIREMENT 4: Tell how soil may be improved.

Notes:



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REQUIREMENT 5: Tell how to propagate plants by seeds.

Notes:

REQUIREMENT 5: Tell how to propagate plants by roots.

Notes:



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REQUIREMENT 5: Tell how to propagate plants by cuttings.

Notes:

REQUIREMENT 5: Tell how to propagate plants by tubers.

Notes:



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REQUIREMENT 5: Tell how to propagate plants by grafting.

Notes:

REQUIREMENT 5: Grow a plant by ONE of these methods (seeds, roots, cuttings, tubers, or grafting).

Be sure to bring proof of your plant project to share your work with your counselor

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

Notes:



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REQUIREMENT 6: List by common name at least 10 native plants that grow near your home.	
NATIVE PLANT #1:	
Common Name:	
NATIVE PLANT #2:	
Common Name:	
NATIVE PLANT #3:	
Common Name:	
NATIVE PLANT #4:	
Common Name:	
NATIVE PLANT #5:	
Common Name:	
NATIVE PLANT #6:	
Common Name:	
NATIVE PLANT #7:	
Common Name:	
NATIVE PLANT #8:	
Common Name:	
NATIVE PLANT #9:	
Common Name:	
NATIVE PLANT #10:	
Common Name:	



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REQUIREMENT 6:	List by common name at least 10 cultivated plants that grow near your home.
CULTIVATED PLANT #1:	
Common Name:	
CULTIVATED PLANT #2:	
Common Name:	
CULTIVATED PLANT #3:	
Common Name:	
CULTIVATED PLANT #4:	
Common Name:	
CULTIVATED PLANT #5:	
Common Name:	
CULTIVATED PLANT #6:	
Common Name:	
CULTIVATED PLANT #7:	
Common Name:	
CULTIVATED PLANT #8:	
Common Name:	
CULTIVATED PLANT #9:	
Common Name:	
CULTIVATED PLANT #10:	
Common Name:	



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REQUIREMENT 6:	List five invasive non-native plants in your area and tell how they may be harmful.
INVASIVE NON-NATIVE PLANT #1:	
Name:	
How they may be harmful:	
INVASIVE NON-NATIVE PLANT #2:	
Name:	
How they may be harmful:	
INVASIVE NON-NATIVE PLANT #3:	
Name:	
How they may be harmful:	



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INVASIVE NON-NATIVE PLANT #4:

Name:

How they may be harmful:

INVASIVE NON-NATIVE PLANT #5:

Name:

How they may be harmful:

REQUIREMENT 6: Tell how the spread of invasive plants may be avoided.

Notes:



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REQUIREMENT 6:

Tell how the spread of invasive plants may be controlled in ways that are not damaging to humans.

Notes:

REQUIREMENT 6:

Tell how the spread of invasive plants may be controlled in ways that are not damaging to wildlife.

Notes:

REQUIREMENT 6:

Tell how the spread of invasive plants may be controlled in ways that are not damaging to the environment.

Notes:



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REQUIREMENT 7: Name and tell about careers in agronomy.

Notes:

REQUIREMENT 7: Name and tell about careers in horticulture.

Notes:

REQUIREMENT 7: Name and tell about careers in botany.

Notes:



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REQUIREMENT 7: Write a paragraph about a career in one of these fields that interests you.

Selected Field:

Notes:



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COMPLETE ONE OF THE FOLLOWING OPTIONS FOR REQUIREMENT 8

Requirement 8 - Horticulture Option

**HORTICULTURE OPTION
REQUIREMENT 8a:**

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.

Place and Location Visited:

Person's Name and Position that you spoke with:

Notes:



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HORTICULTURE OPTION REQUIREMENT 8b:

Explain the following terms: hardiness zone, shade tolerance, pH, moisture requirement, native habitat, texture, cultivar, ultimate size, disease resistance, habit, evergreen, deciduous, annual, and perennial.

Hardiness Zone:

Shade Tolerance:

pH:

Moisture Requirement:



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Native Habitat:

Texture:

Cultivar:

Ultimate Size:

Disease Resistance:



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Habit:

Evergreen:

Deciduous:

Annual:

Perennial:

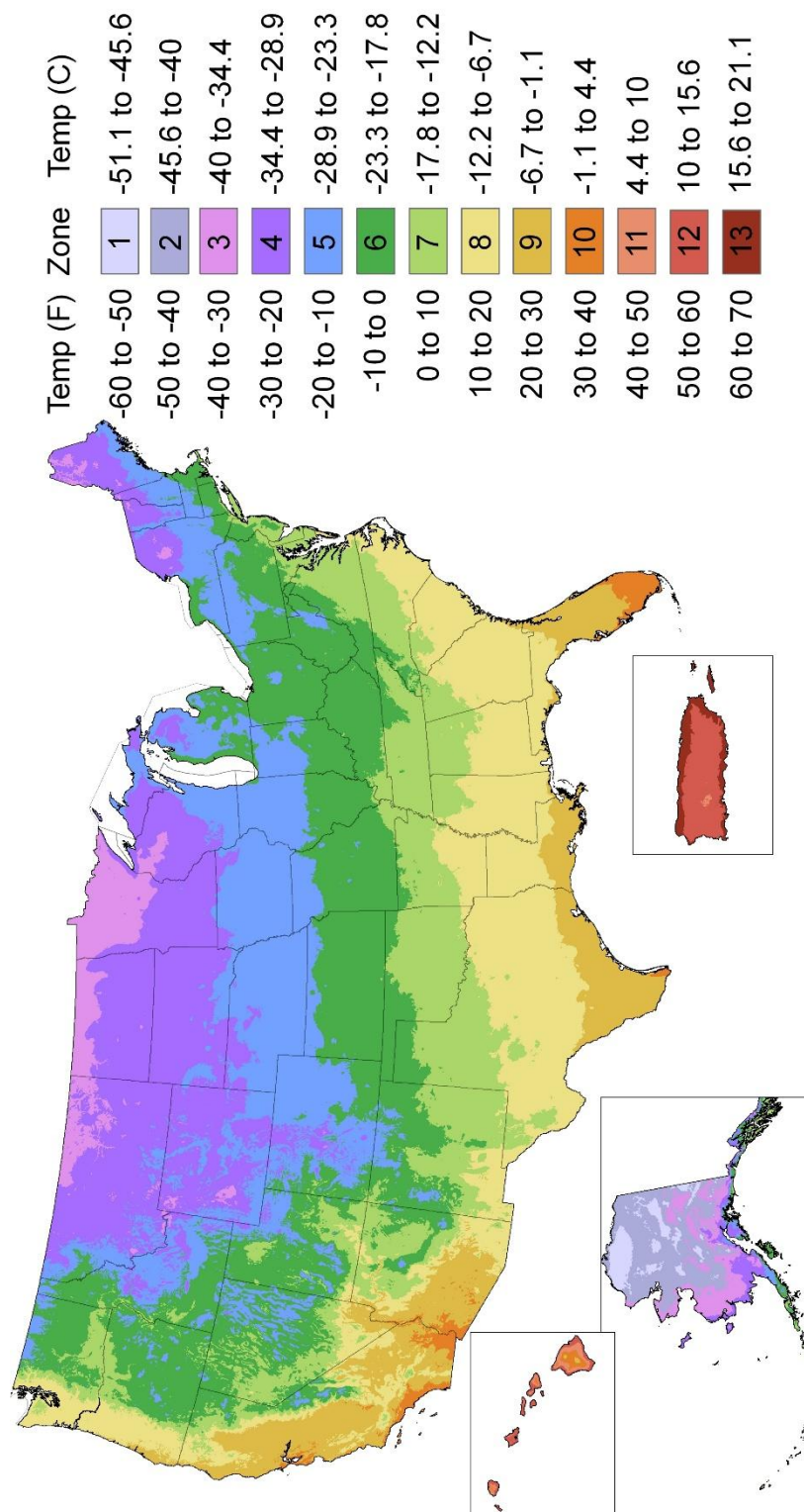


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HORTICULTURE OPTION REQUIREMENT 8b:

Find out what hardiness zone you live in.





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HORTICULTURE OPTION REQUIREMENT 8b:	List 10 landscape plants you like that are suitable for your climate, giving the common name and scientific name for each.
LANDSCAPE PLANT #1:	
Common Name:	
Scientific Name:	
Why you selected this plant:	
LANDSCAPE PLANT #2:	
Common Name:	
Scientific Name:	
Why you selected this plant:	
LANDSCAPE PLANT #3:	
Common Name:	
Scientific Name:	
Why you selected this plant:	



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LANDSCAPE PLANT #4:
Common Name:
Scientific Name:
Why you selected this plant:
LANDSCAPE PLANT #5:
Common Name:
Scientific Name:
Why you selected this plant:
LANDSCAPE PLANT #6:
Common Name:
Scientific Name:
Why you selected this plant:



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LANDSCAPE PLANT #7:

Common Name:

Scientific Name:

Why you selected this plant:

LANDSCAPE PLANT #8:

Common Name:

Scientific Name:

Why you selected this plant:

LANDSCAPE PLANT #9:

Common Name:

Scientific Name:

Why you selected this plant:



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LANDSCAPE PLANT #10:

Common Name:

Scientific Name:

Why you selected this plant:

DO ONE OF THE FOLLOWING (8C1, 8C2, 8C3, OR 8C4) FOR REQUIREMENT 8C IN THE HORTICULTURE OPTION

**HORTICULTURE OPTION
REQUIREMENT 8c1:**

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.

Vegetative Propagation Method:

Vegetative Propagation Horticultural Advantages:

Sexual Propagation Method:



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Sexual Propagation Horticultural Advantages:

HORTICULTURE OPTION REQUIREMENT 8c2: Transplant 12 seedlings or rooted cuttings to larger containers and grow them for at least one month.

**This requirement must be reviewed with your merit badge counselor.
BE PREPARED!**

HORTICULTURE OPTION REQUIREMENT 8c3: Demonstrate good pruning techniques.

**This requirement must be reviewed with your merit badge counselor.
BE PREPARED!**

HORTICULTURE OPTION REQUIREMENT 8c3: Tell why pruning is important.

Notes:

HORTICULTURE OPTION REQUIREMENT 8c4: After obtaining permission, plant a tree or shrub properly in an appropriate site.

**This requirement must be reviewed with your merit badge counselor.
BE PREPARED!**

HORTICULTURE OPTION REQUIREMENT 8d1: Explain the importance of good landscape design and selection of plants that are suitable for particular sites and conditions.

Notes:



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HORTICULTURE OPTION REQUIREMENT 8d2:

Tell why it is important to know how big a plant will grow.

Notes:

HORTICULTURE OPTION REQUIREMENT 8d3:

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

Notes:

DO ONE OF THE FOLLOWING (8E1, 8E2, 8E3, OR 8E4) FOR REQUIREMENT 8E IN THE HORTICULTURE OPTION

HORTICULTURE OPTION REQUIREMENT 8e1a:

BEDDING PLANTS - Grow bedding plants appropriate for your area in pots or flats from seed or cuttings in a manufactured soil mix.

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

HORTICULTURE OPTION REQUIREMENT 8e1a:

BEDDING PLANTS - Explain why you chose the mix and tell what is in it.

Notes:



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HORTICULTURE OPTION REQUIREMENT 8e1c:	BEDDING PLANTS - Demonstrate mulching, fertilizing, watering, weeding, and deadheading, and tell how each practice helps your plants.
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**This requirement must be reviewed with your merit badge counselor.
BE PREPARED!**

How mulching helps plants:

How fertilizing helps plants:

How watering helps plants:



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How weeding helps plants:

How deadheading helps plants:

HORTICULTURE OPTION REQUIREMENT 8e1d:	BEDDING PLANTS - Tell some differences between gardening with annuals and perennials.
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Gardening with Annuals:

Gardening with Perennials:



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**HORTICULTURE OPTION
REQUIREMENT 8e2a:**

FRUIT, BERRY, and NUT CROPS - 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.

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

**HORTICULTURE OPTION
REQUIREMENT 8e2b:**

FRUIT, BERRY, and NUT CROPS - Prune a tree, vine, or shrub properly.

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

**HORTICULTURE OPTION
REQUIREMENT 8e2b:**

FRUIT, BERRY, and NUT CROPS - Explain why pruning is necessary.

Notes:

**HORTICULTURE OPTION
REQUIREMENT 8e2c:**

FRUIT, BERRY, and NUT CROPS - Demonstrate one type of graft.

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

**HORTICULTURE OPTION
REQUIREMENT 8e2c:**

FRUIT, BERRY, and NUT CROPS - Tell why the graft method is useful.

Notes:



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HORTICULTURE OPTION REQUIREMENT 8e2d:	FRUIT, BERRY, and NUT CROPS - Describe how one fruit, nut, or berry crop is processed for use.
Selected Crop:	
Notes:	
HORTICULTURE OPTION REQUIREMENT 8e3a:	WOODY ORNAMENTALS - 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.
This requirement must be reviewed with your merit badge counselor. BE PREPARED!	
HORTICULTURE OPTION REQUIREMENT 8e3b:	WOODY ORNAMENTALS - Prune a tree or shrub properly.
This requirement must be reviewed with your merit badge counselor. BE PREPARED!	
HORTICULTURE OPTION REQUIREMENT 8e3b:	WOODY ORNAMENTALS - Explain why pruning is necessary.
Notes:	



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HORTICULTURE OPTION REQUIREMENT 8e3c:	WOODY ORNAMENTALS - List 10 trees (in addition to those listed in general requirement 6 above) and tell your counselor how each is used in the landscape. Give the common and scientific names.
REQUIREMENT 8e3d:	Describe the size, texture, color, flowers, leaves, fruit, hardiness, cultural requirements, and any special characteristics that make each type of tree or shrub attractive or interesting
TREE #1:	
Common Name:	
Scientific Name:	
How it is used in landscaping:	
What makes this tree interesting:	



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TREE #2:

Common Name:

Scientific Name:

How it is used in landscaping:

What makes this tree interesting:



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TREE #3:
Common Name:
Scientific Name:
How it is used in landscaping:
What makes this tree interesting:



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TREE #4:
Common Name:
Scientific Name:
How it is used in landscaping:
What makes this tree interesting:



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TREE #5:

Common Name:

Scientific Name:

How it is used in landscaping:

What makes this tree interesting:



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TREE #6:
Common Name:
Scientific Name:
How it is used in landscaping:
What makes this tree interesting:



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TREE #7:

Common Name:

Scientific Name:

How it is used in landscaping:

What makes this tree interesting:



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TREE #8:
Common Name:
Scientific Name:
How it is used in landscaping:
What makes this tree interesting:



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TREE #9:
Common Name:
Scientific Name:
How it is used in landscaping:
What makes this tree interesting:



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TREE #10:
Common Name:
Scientific Name:
How it is used in landscaping:
What makes this tree interesting:



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HORTICULTURE OPTION REQUIREMENT 8e3e:

WOODY ORNAMENTALS - Tell five ways trees help improve the quality of our environment.

Way #1:

Way #2:

Way #3:

Way #4:

Way #5:



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HORTICULTURE OPTION REQUIREMENT 8e4a:	HOME GARDENING - Design and plant a garden or landscape that is at least 10 by 10 feet.
This requirement must be reviewed with your merit badge counselor. BE PREPARED!	
HORTICULTURE OPTION REQUIREMENT 8e4b:	HOME GARDENING - 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.
This requirement must be reviewed with your merit badge counselor. BE PREPARED!	
PLANT #1:	
Name:	
Plant Type or Category:	
Why you selected this particular plant type or variety:	
PLANT #2:	
Name:	
Plant Type or Category:	
Why you selected this particular plant type or variety:	



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PLANT #3:
Name:
Plant Type or Category:
Why you selected this particular plant type or variety:
PLANT #4:
Name:
Plant Type or Category:
Why you selected this particular plant type or variety:
PLANT #5:
Name:
Plant Type or Category:
Why you selected this particular plant type or variety:



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PLANT #6:
Name:
Plant Type or Category:
Why you selected this particular plant type or variety:
PLANT #7:
Name:
Plant Type or Category:
Why you selected this particular plant type or variety:
PLANT #8:
Name:
Plant Type or Category:
Why you selected this particular plant type or variety:



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PLANT #9:
Name:
Plant Type or Category:
Why you selected this particular plant type or variety:
PLANT #10:
Name:
Plant Type or Category:
Why you selected this particular plant type or variety:
BONUS PLANT:
Name:
Plant Type or Category:
Why you selected this particular plant type or variety:



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HORTICULTURE OPTION REQUIREMENT 8e4c:

HOME GARDENING - Demonstrate soil preparation, staking, watering, weeding, mulching, composting, fertilizing, pest management, and pruning. Tell why each technique is used.

**This requirement must be reviewed with your merit badge counselor.
BE PREPARED!**

Soil Preparation:

Staking:

Watering:

Weeding:



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Mulching:

Composting:

Fertilizing:

Pest Management:

Pruning:



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HORTICULTURE OPTION REQUIREMENT 8e4d:	HOME GARDENING - Tell four types of things you could provide to make your home landscape or park a better place for birds and wildlife.
Provision #1:	
Provision #2:	
Provision #3:	
Provision #4:	
HORTICULTURE OPTION REQUIREMENT 8e4d:	HOME GARDENING - List the common and scientific names of 10 kinds of native plants that are beneficial to birds and wildlife in your area.
BIRD AND WILDLIFE FRIENDLY PLANT #1:	
Common Name:	
Scientific Name:	
Notes:	



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BIRD AND WILDLIFE FRIENDLY PLANT #2:

Common Name:

Scientific Name:

Notes:

BIRD AND WILDLIFE FRIENDLY PLANT #3:

Common Name:

Scientific Name:

Notes:

BIRD AND WILDLIFE FRIENDLY PLANT #4:

Common Name:

Scientific Name:

Notes:



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BIRD AND WILDLIFE FRIENDLY PLANT #5:

Common Name:

Scientific Name:

Notes:

BIRD AND WILDLIFE FRIENDLY PLANT #6:

Common Name:

Scientific Name:

Notes:

BIRD AND WILDLIFE FRIENDLY PLANT #7:

Common Name:

Scientific Name:

Notes:



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BIRD AND WILDLIFE FRIENDLY PLANT #8:

Common Name:

Scientific Name:

Notes:

BIRD AND WILDLIFE FRIENDLY PLANT #9:

Common Name:

Scientific Name:

Notes:

BIRD AND WILDLIFE FRIENDLY PLANT #10:

Common Name:

Scientific Name:

Notes: