Botany Basics
Chapter 1
Answers to review questions

1) What unique feature of plant cells. allows vegetative reproduction to be successful? . Why?
Totipotency. Almost all plant cells contain all of the genetic information necessary to reproduce a complete plant *(p. 5).*
2) What is the major fuuction of root hairs?
To absorb water and minerals from the soil *(p. 7)*
3) In sexual reproduction, what structure contains the genetic information and food reserve to allow for development of a new plant?
The seed *(p. 21)*
4~ You saved the seeds from an apple you liked. If you plant these seeds, will you be able to produce apples true-to-type of the original apple? Why or why not?
No. The original apple contained genetic material from only the female parent. The genetic material in the seeds you saved came from the union of the female ovule and an unknown male pollen .source *(p. 20).*
5) Which of the following does all plant and animal life depend on? (Mark the one correct answer.)
(b) Photosynthesis *(p. 22)*
6) Which of the following products do living plants produce or release? (Mark all correct answers.)
(a) Sugars and starches *(pp. 22-24)* (b) Oxygen *(pp. 22-24)*
(c) Carbon compounds *(pp. 22-24)* (d) Water *(pp. 22-24)*

7) What three things must a plant continuously balance in order to grow and develop properly?
- Photosynthesis *(pp. 22-24)*
- Respiration *(p. 24)*
- Transpiration *(pp.24-25)*

8) What primary nubient produces vegetative growth and is a component of protein?"
Nitrogen *(p. 43)*
9) The new lawn you planted was made up of equal amounts of four different cultivars. Ten years from now, will the same proportion of these cultivars exist? What process is at work? No. Plant succession will occur as the better adapted cuItivars begin to dominate. Other species, including weeds, iilso will become'est~blished *(p:* 32) ..

"You may need to use other chapters, additional reference materials, or your own experience

to answer this question fully.

Herbaceous Ornamental, Plants

Chapter 8

Answers to review questions

1) Name three plants for a sunny garden with a blue-and-white'color scheme.

See the lists on pp. 169 and 172-174 or use outside reference materials such as the *Sunset Western Garden Book.*

2) list three spring-blooming plants of different heights for a shade garden.

See the lists on pp. 169 and 172-174 or use outside reference materials such as the *Sunset Western Garden Book.*

3) Name at least three factors in your garden environment to consider when choosing plants. - Light *(pp.* 171,462-463)

- Drainage *(pp.* 171,462-463)
- Soil type *(pp.* 171, 462-463)
- Available water *(pp.* 171,462-463)
- Soil fertility *(pp.* 171, 462-463)
- Wind *(pp.* 171, 462-463) ,
- Rainfall *(pp.* 171, 462-463)

-Frost *(pp.* 171,462-463)

4) Describe briefly the ,steps needed to create a new garden space. - Control weeds *(p.* 175). '

- Evaluate ,and improve soil texture (e.g., test for soil nutrients and pH, till or turn over the soil, work in organic matter) *(p.* 175). .

- Ensure adequate drainage *(p. 175).*
- Apply fertilizer as \1eeded *(p. 175).*

5) Define and give an example of the following terms:

- *Self-sowing annual-a* plant that comes up each year from the previous year's seeds. Examples include bachelor butt0!l., California poppy, cosmos",and c1eome *(p. 168).*
- *Hardy perennial-a* plant that liyes through the winter in the ground, reviVing from its crowns in the spring. Examples include Shasta'daisy, coneflower, iris, and peony

(varies by climate zone) *(p. 168).*

- *Short-lived perennial-a* plant that lives only a few years before requiring replacement. An example is delphinium *(p. 168).*
- *Half-hardy/tender perennial-a* plant that won't survive outdoor conditions during winter.

Examples include dahlia, gladiolus, fuchsia, tuberous begonia, and geranium (varies by climate zone) *(p. 168).*

- *Biennial-a* plant that produces foliage the first year and then flowers, sets seed, and dies the second. Examples include foxglove, forget-me-ilOt, and hollyhock *(p. 168).*

6) list tiIree plants that are tender perennials in your region. •

Use prior knowledge or outside refereI'\c~materials such as the *Sunset Western Garden Book,*

7) list tiIree advantages of annuals over perennials.

- Long bloom season *(p. 168)*
- Prolific, bloo,~ *(p. 168)*
- Lower initial cost
- More suitable for containers *(p. 168)*
- Ease in'changing color schemes
- Quick growth *(p. 168)*

8) What's the difference between deadheading and disbuddlng?

- *Deadheading* is the removal of spent flowers *(p. 179).*
- *Disbudding* is the removal of multiple young buds to encourage fewer, larger blooms *(p. 179),*

9) WhicIi of the following techniques reduce disease on plants? (Mark all correct answers.)
(a) Spacing plants properly to allow good air circulation *(pp,* 179, 326)

(b) Cleaning up dead leaves and plant litter (sanitation practices) *(pp.* 179,326) , *(c)* Choosing disease-resistant cultivars *(pp.* 179,328)

10) What is the first thing to do when trying to control a pest problem? (Mark the one best answer.)

(b) Identify which pest is causing the problem *(pp. 179-180).* You could make a case for (c} as' well (properly identify the plant that is affected).

11) What temperature is best for bulb storage? (Mark the one best answer.) (b) 65°F *(p. 181)*

*You may need to use other chapters, additional reference materials, or your own experience to answer this question fully.

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12) Mark each of the following statements as True (1) or False (F):

F Drought-tolerant plants don't need any water after you plant them *(p. J 78). F* When staking plants, tie them tightly to provide good support *(p. J 78).*

T Perennials often perform better when divided every 3 to 5 years *(p.* J 76).

13) List some undesirable traits of plants that you might want to consider when planning a garden. *

Possible undesirable traits include the tendency to:

- Fall over in heavy rain
- Attract bees (if you or someone in your family is severely allergic)
- Spread invasively
- Displace natives

- Produce unpleasant odors
- Produce thorns
- Develop disease problems

14) Sketch and briefly explain the technique of double digging. Why is it used?*

Double digging mixes and aerates the soil. Remove the top 12 inches of soil. Insert a spade or spading fork into the next 10 to 12.inches of soil and wiggle the handle back and forth to break up compacted layers. Repeat every 6 to 8 inches. Mix the topsoil with compost or manure and return the mixture to the bed *(p. 146).*

15) What are microclimates? Why are they important? Think about your yard and list how many microclimates you have. What are their characteristics? *

Microclimates are areas that have a climate different from that of the surrounding area. They create growing conditions unlike those in the rest ofa yard. Examples include windy areas, low places with cold air pockets, areas with poor drainage, protected areas, and sunny, southfacing slopes *(p. 456).*

*You may need to use other chapters, additional reference materials, or your own experience to answer this question fully.

Woody landscape Plants

Chapter 9

Answers to review questions

1) When visiting a relative in southern California, you brought home some woody plants from her yard. What is one potential problem you may have when transplanting them into your yard?

The plants may not be hardy in your area. Even if they are, they may not be acclimated to cold weather and may not survive or will go through severe stress. It is important to acclimatize these plants gradually *(p. 198).*

2) How can you prevent sunscald on newly planted trees?

Use tree wrap during the winter only (usually November through April). Wrap from the bottom up to the lowest branch. Remove wrap during the growing season to prevent disease and insect damage *(p. 200).*

3) What are some cOnllnon types of tree damage caused by construction? How can this damage be avoided?

- *Changing the grade-Construct* a dry well around the plant *(p. 202).*
- *Soil compaction-Rototill* the soil after construction is complete *(p. 202).*
- *Mechanical injury* to a plant's bark or root system-Trench beneath the root system, not through it. Place a barrier around the plant to protect it during construction *(pp. 202-203).*

4) What are some of the main factors to consider when choosing a woody plant for your landscape? .

• Mature size *(p. 464)*
• . Ornamental value *(pp.* 185, *46~6S)*
- Site factors such as sun exposure, water availability, soil type, and drainage *(pp.* 185,462-463)