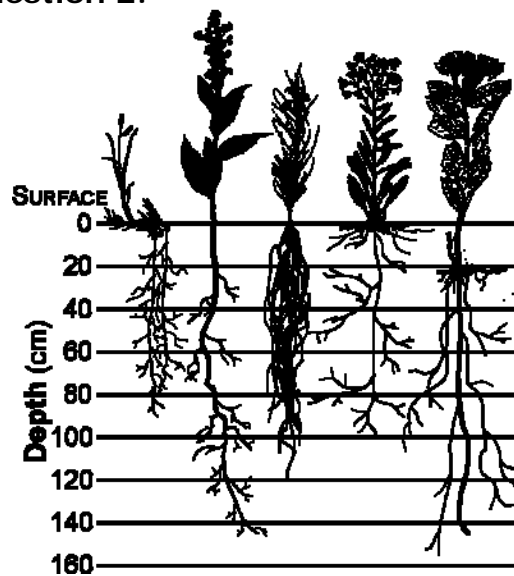


**TEKS 10B** describe the interactions that occur among systems that perform the functions of transport, reproduction, and response in plants 10C analyze the levels of organization in biological systems and relate the levels to each other and to the whole system

1. The function of a plant root is to:

- A Make food for the plant
- B Get rid of waste products
- C Absorb water and minerals
- D Digest plant and animal matter

The diagram below represents the root growth of various plants. Use the diagram to answer question 2.

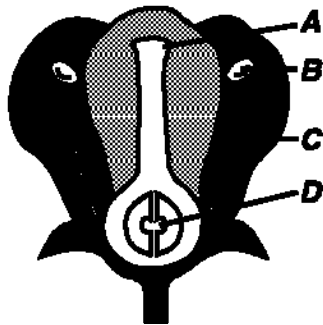


2. Prairie plants that live in dry climates and have large, underground root systems. How does this help them?

- A The roots cool the plants off when they overheat.
- B The roots manufacture water in times of drought.
- C The roots help take in carbon dioxide for photosynthesis.
- D The roots provide more surface area for the water absorption.

3. The main job of plant leaves is to:
- A** make food for the plant through photosynthesis
  - B** keep the plant cool by making shade
  - C** collect water for the plant when it rains
  - D** help in the process of reproduction

4. What is a function of stems and trunks?
- A** To anchor the plant in its environment
  - B** To produce new offspring
  - C** To support the leaves and reproductive parts
  - D** To collect water and minerals



5. Which reproductive strategy is represented by the flower in the picture above?
- A** budding
  - B** pollination
  - C** conjugation
  - D** fragmentation
6. What is the correct term that describes the tendency of a plant to grow towards light?
- A** thigmotropism
  - B** gravitropism
  - C** hydrotropism
  - D** phototropism



7. When a fly lands on a leaf of a Venus Fly Trap (*Dionaea muscipula*), the leaf closes. This is an example of -

- A** thigmotropism
- B** gravitropism
- C** hydrotropism
- D** phototropism

8. When a plant is left in a closed clear container, moisture can be observed inside the container. The water comes from –

- A** photosynthesis
- B** cellular respiration
- C** a decrease in phloem function
- D** a decrease in xylem function

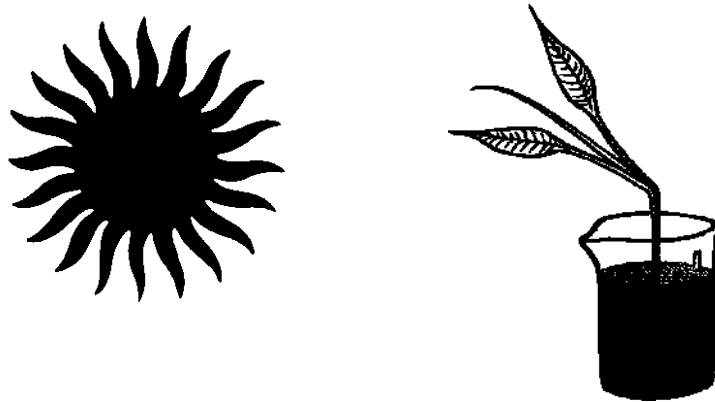
9. In order for a plant to survive, why must its different systems interact?

- A** Because each individual system is specialized and cannot function on its own
- B** Because all of the different systems need to function independently
- C** Plants do not have separate systems therefore they cannot interact
- D** None of the above

10. Phloem delivers the sugar made during photosynthesis to various parts of a plant. Some food energy is converted into ATP for uses during plant activities such as phototropism. Which two plant systems are interacting in this scenario?

- A** Reproductive and response
- B** Transport and response
- C** Reproductive and transport
- D** No plant systems are interacting.

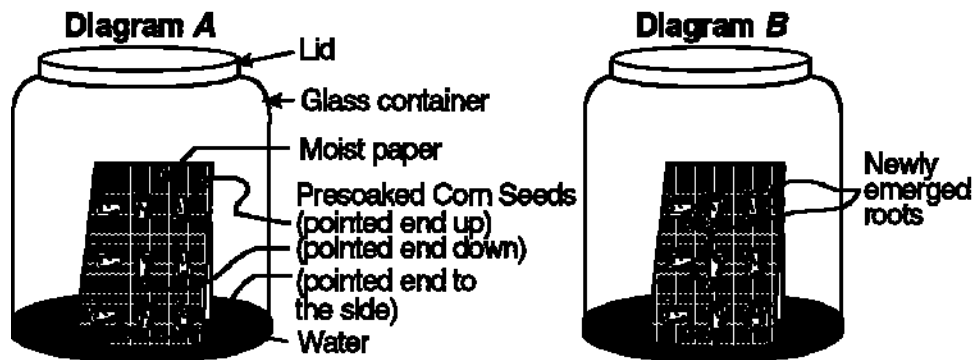
11. The plant shown below is growing in a glass beaker with access to water, nutrients, and light.



What explanation best accounts for the directional change in growth observed in the plant shown?

- A The plant was only watered on the left side of the beaker.
- B The plant was initially grown in the dark, then was placed in the sunlight.
- C The plant was initially grown on its side in a tray of water, then moved upright into a beaker.
- D Sunlight is only accessible from the left side of the beaker.

12. To determine if the direction of root growth is influenced by the orientation of seeds when they are planted, an investigation was set up as shown in diagram A below. The container was placed in the dark for one week. The results are shown in diagram B.



Which factor caused the emerging roots to grow downward?

- A Lack of light, which prevented photosynthesis
- B Loss of water from the seeds during the week
- C The influence of temperature on root growth
- D The influence of gravity on hormone distribution in each root

Use the following information to answer questions 13 & 14.

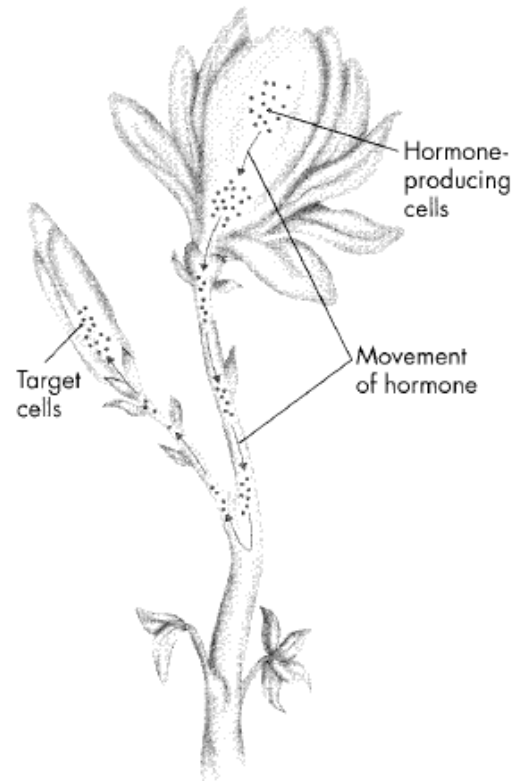
A student designs an experiment to demonstrate the presence of openings in the walls of xylem cells in plants. He takes a long-stemmed, white chrysanthemum (flowering plant) and carefully cuts the stalk halfway up. He places each half of the stalk in a glass cylinder filled with water. Red dye is added to one cylinder; blue dye is added to the other.

13. What observations would you expect to make over the next few days?
- A The flower remains white.
  - B The flower turns blue, then changes to red.
  - C The flower turns red, then changes to blue.
  - D Initially part of the flower will be blue and part will be red, but eventually both colors will appear in all parts of the flower.

14. Which two plant systems are interacting in the experiment above?
- A Reproductive and response
  - B Transport and response
  - C Reproductive and transport
  - D No plant systems are interacting.

15. The diagram at right shows how hormones produced by a fully developed flower inhibit the development of a bud, temporarily preventing the bud from maturing. Which two systems are interacting in the diagram?

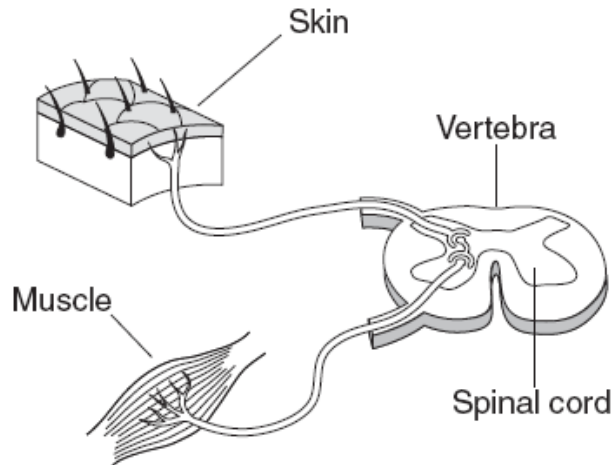
- A Reproductive and support
- B Reproductive and response
- C Support and transport
- D No plant systems are interacting.



**TEKS 10A** describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals

Food is digested in the gastrointestinal tract to provide nutrients to the body. In addition, various hormones secreted from the lining of a few digestive organs allow other organs to function properly.

16. According to this information, some organs of the gastrointestinal tract —
- A** fit in more than one organ system
  - B** perform only one function at a time
  - C** supply the body with platelets
  - D** produce soluble vitamins
17. How is the circulatory system related to the digestive system?
- A** The brain stem controls the heart rate.
  - B** Blood carries nutrients to body cells.
  - C** Stomach muscles contract and expand.
  - D** The pharynx is a passageway for air and food.



**Reflex arc:** the neural pathway from a point of stimulation to the responding organ

18. The diagram above represents a reflex arc in a human. This pathway responds when someone touches something that causes pain, such as a hot stove. Which of the following shows the correct order of the body systems involved in this response?

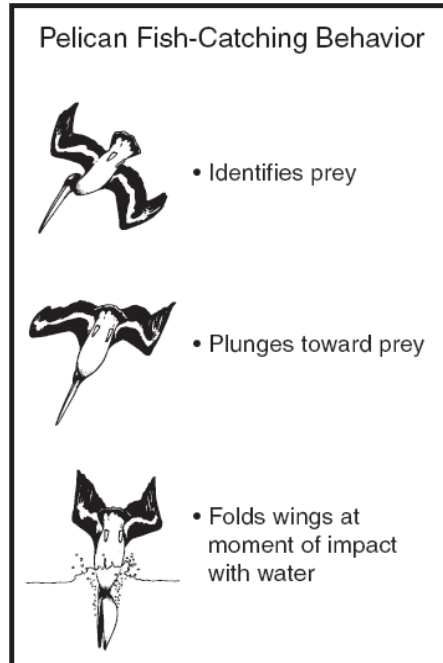
- A** Integumentary, respiratory, digestive
- B** Circulatory, respiratory, nervous
- C** Integumentary, nervous, muscular
- D** Circulatory, digestive, nervous

19. Homeostatic regulation of the body is made possible through coordination of all body systems. This coordination is achieved mainly by

- A** nervous and endocrine systems
- B** respiratory and reproductive systems
- C** skeletal and excretory systems
- D** circulatory and digestive systems

20. Which systems in the human male share anatomical features that are related?

- A** Endocrine and excretory
- B** Reproductive and excretory
- C** Excretory and digestive
- D** Endocrine and nervous



21. Pelicans prevent serious wing damage by entering the water in the manner shown above. Which two organ systems in the pelican work together the most to accomplish this maneuver?

- A** Circulatory and nervous systems
- B** Nervous and muscular systems
- C** Muscular and digestive systems
- D** Digestive and circulatory systems

22. Which two systems work together to remove excess water from the body?

- A** endocrine and nervous
- B** excretory and circulatory
- C** integumentary and immune
- D** muscular and digestive

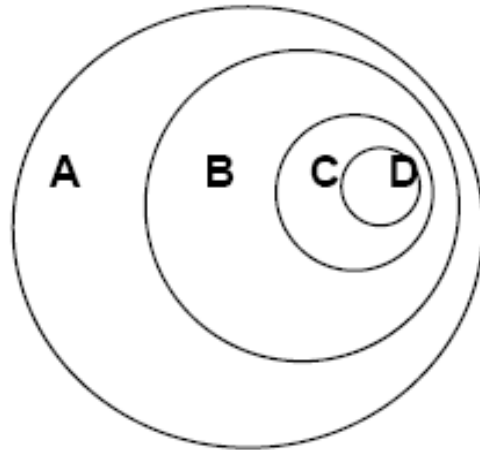
23. Blood sugar levels are controlled in the body through the feedback mechanisms of which two body systems?

- A** Respiratory and digestive
- B** Immune and nervous
- C** Endocrine and nervous
- D** Muscular and skeletal



**TEKS 10C** analyze the levels of organization in biological systems and relate the levels to each other and to the whole system

Use this diagram to answer questions 24 & 25.



24. Overlapping circles can be used to show relationships. In this diagram, levels of organization within living things can be shown. If each circle is made from the smaller circles inside it, what does circle "D" stand for?

- A** organs
- B** cell
- C** tissues
- D** organ system

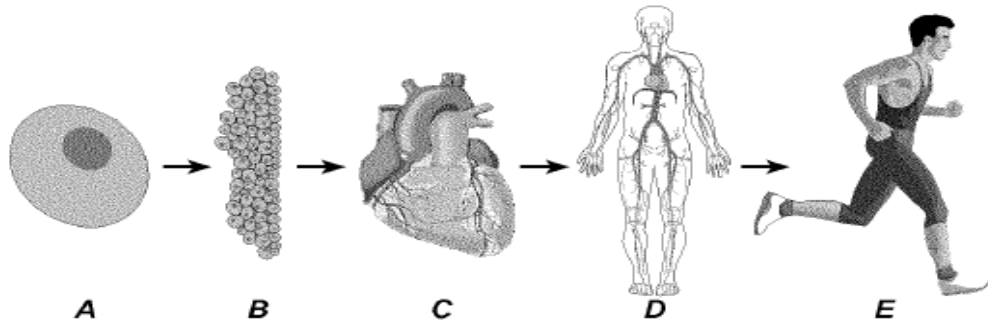
25. What would circle "C" be?

- A** organs
- B** cell
- C** tissues
- D** organ system

26. Which of the following structures are listed in order from the least complex to the most complex?

- A** chloroplast, plant cell, leaf, rose bush
- B** plant cell, leaf, chloroplast, rose bush
- C** chloroplast, leaf, plant cell, rose bush
- D** rose bush, leaf, plant cell, chloroplast

27. Which of the following correctly lists the biological levels of organization from A to E?



- A** tissue, cell, organ, organism, organ system
- B** organism, organ system, organ, tissue, cell
- C** cell, tissue, organ, organ system, organism
- D** cell, organ, tissue, organ system, organism

**TEKS 11A** describe the role of internal feedback mechanisms in the maintenance of homeostasis

28. The body regulates blood pressure in a process in which nerves sense the blood flow resistance associated with higher blood pressure; the nerves relay this message to the brain; the brain then slows down the heart rate and dilates the blood vessels, lowering the blood pressure. This process is an example of –

- A** negative feedback
- B** positive feedback
- C** action potential
- D** atherosclerosis

29. Which of the following phrases *best* defines homeostasis in a multicellular animal?

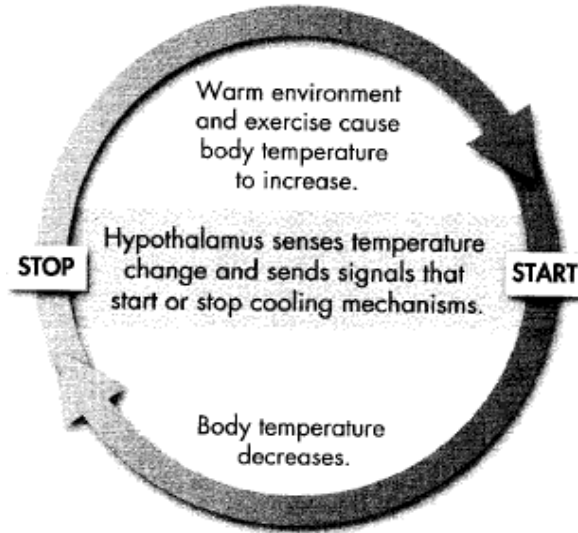
- A** Keeping a constant external environment to ensure survival
- B** Each cell acting independently without communication to create homeostasis
- C** Period of no change in evolutionary history due to geological processes
- D** Keeping a stable internal environment to sustain life processes

30. When an individual goes without eating for a day, his or her blood sugar level remains about the same throughout the day. This relatively constant condition is maintained by -

- A** Reproduction
- B** Homeostatic control
- C** Growth of cells
- D** Sweating

31. A negative feedback loop is essential in maintaining homeostasis. In negative feedback, any deviation from normal levels is resisted. Which of the following is not an example of negative feedback?

- A** Saliva production is increased when a person is hungry.
- B** Increased blood pressure causes blood vessels to dilate.
- C** Increased insulin is produced when blood sugar levels increase.
- D** Metabolic rate lowers when the body is deprived of food over a period of time.



32. A scientist is writing a report and wants to include the following diagram. Which is the best title for this diagram?

- A** Body Temperature Control Through Negative Feedback
- B** Body Temperature Control Through Positive Feedback
- C** Body Temperature on a Hot Summer Day
- D** The Function of the Hypothalamus