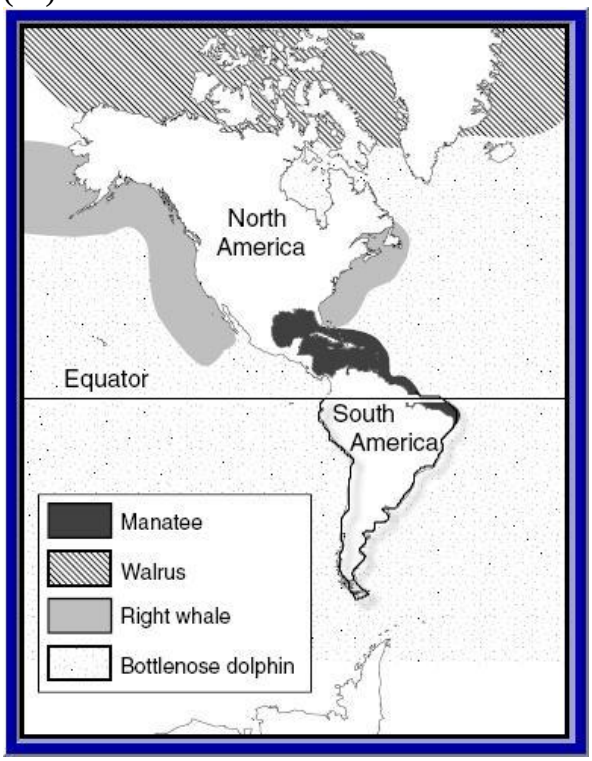
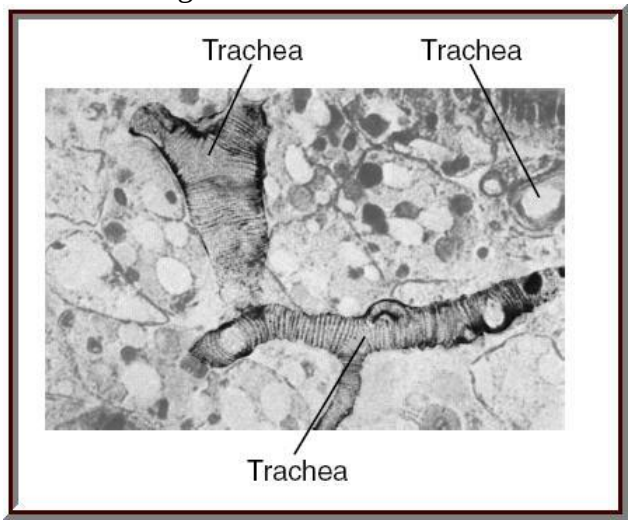
Name _____Date _____

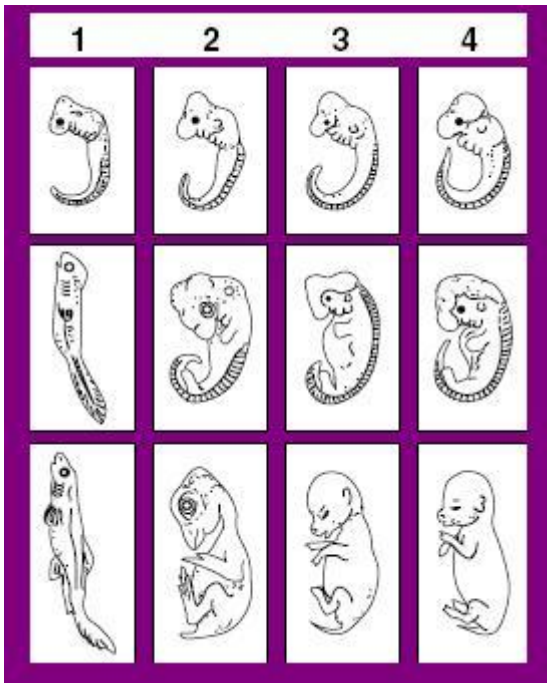
BIO SOL Review 4 - Data - Tables & Diagrams (21)



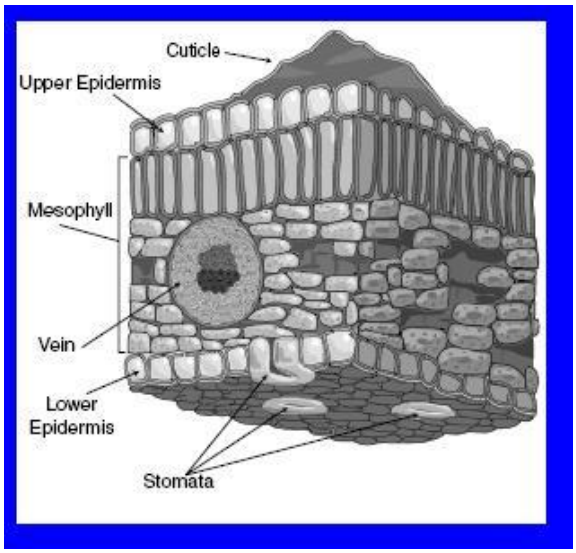
1. (2006-9) According to this map, which animal would most likely avoid cold waters?
    a. Manatee
    b. Bottlenose dolphin
    c. Walrus
    d. Right whale



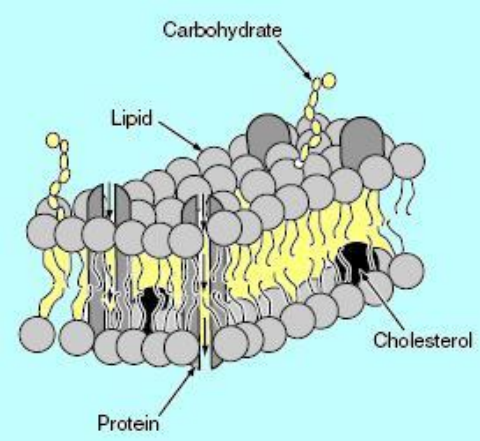
2. (2002-31) The picture shows the trachea and surrounding tissue of a flea. Which of these best describes the shape of the flea trachea?
    a. A long, branched tube
    b. A six-sided cylinder
    c. A double-helix shape
    d. A single, coiled tube



3. (2003-48) The above chart shows vertebrate embryo development. Which of these would be least related to the others?
    a. 1
    b. 2
    c. 3
    d. 4



4. (2003-17) Which area of the leaf is most responsible for protecting the leaf from the drying effects of the air?
    a. The mesophyll
    b. The vein
    c. The epidermis
    d. The cuticle



5. (2003-35 In the cell membrane model shown above, the molecules which move large molecules into and out of the cell are known as — (1 point)
    a. cholesterol
    b. proteins
    c. lipids
    d. carbohydrates

Bird Sightings at Willow Point

Date	# Sparrows	# Wrens	# Jays
May 12	43	12	10
May 13	54	13	8
May 14	44	11	13
May 15	52	14	9
May 16	47	10	10

6. (2006-32) Based on the data in the table, what is the difference between the mean number of sparrows and the mean number of jays observed at Willow Point between May 12 and May 16?
    a. 36
    b. 190
    c. 48
    d. 38

Representative Animals from a Local Ecosystem

Type of Organism	Number of Individual Species Collected
Grasses	11
Trees	1
Fish	16
Amphibians	12
Reptiles	8
Mammals	3

7. (2006-39) The chart shows the types of organisms and the numbers of species collected from a local ecosystem. According to these data, this ecosystem was most likely a —
    a. tundra
    b. marsh
    c. desert
    d. savanna

Heart Chambers in Different Animals

	Fish	Bird	Turtle	Frog	Dog
Number of atria	1	2	2	2	2
Number of ventricles	1	2	2	1	2
Separation of ventricles	—	Total	Partial	—	Total

8. (2006-14) Which type of animal is most closely related to a mammal, based on heart structure?
    a. Bird
    b. Turtle
    c. Fish
    d. Frog

Effects of Ultraviolet Light on Wheat Crop Production

Experimental Plot (4m X 15m)	Wavelength (nm)	Wave Intensity (Joules/m^2)	Crop Yield (g/m^2)
A	357.6	0	110
B	357.6	8	110
C	357.6	20	30
D	357.6	25	20

9. (2002-16) Which of these statements is best supported by these data?
    a. Chloroplasts of wheat are able to filter out low-intensity ultraviolet light.
    b. Wheat plants exposed to high-intensity ultraviolet light produce fewer seeds.
    c. No exposure to ultraviolet light increases pollination in wheat plants.
    d. High-intensity ultraviolet light may be used to control weed growth.

Plant Characteristics

Plant	Type of Growth	Leaves	Flowers	Fruit
Cucumber	sprawling vines	fuzzy, dark green, 3-5 lobes	yellow	long and spiny
Eggplant	erect, bushy stems	fuzzy, large ovate	violet	large, egg-shaped berry, varying in color
Pumpkin	sprawling vines	large, fuzzy, triangular, lobed	yellow	large (2-20 lb), oblate to oblong, smooth rind
Pepper	straight and woody	slick, medium green	white	juiceless berries or pods, varying shape, size, and color
Okra	erect, shrub-like	heart-shaped and 3-5 lobes	yellow, crimson center	hairy, tapering capsule, 4-10 inches long

10. (2002-8) The cucumber belongs to the Cucurbitacae family and is recognized by its long, trailing vines with fuzzy, three- to five-pointed leaves and long, spiny fruit. Using the characteristics in the chart above, which plant is most closely related to the cucumber?
    a. Pumpkin
    b. Pepper
    c. Eggplant
    d. Okra

Stimuli	Number of Movements Toward	Number of Movements Away From	No Response
light	0	10	0
sound	5	4	1
magnetism	4	4	2
gravity	7	2	1

11. (2003-23) As a result of the above experiment, responses of a planarian to different environmental stimuli were recorded. Planaria seem to have the strongest response to —
    a. gravity
    b. light
    c. magnetism
    d. sound

Test Paper Results

Chart A

pH	Red Litmus	Blue Litmus	pH Paper
Acid - pH2	red	red	red
Acid - pH4	red	red	orange
Acid - pH6	red	red	yellow
Base - pH8	blue	blue	green
Base - pH10	blue	blue	blue

Chart B

Substance	Red Litmus	Blue Litmus	pH Paper
Water	red	blue	yellow-green
Apples	red	red	red-orange
Beans	red	red	yellow
Milk	red	blue	yellow
Shrimp	red	blue	yellow-green

12. (2003-15) Chart A shows how changes in pH cause testing paper to change color. Chart B shows how testing papers reacted with several experimental substances. Which of these has a pH of about 3?
    a. Apples
    b. Milk
    c. Shrimp
    d. Beans

Organism	Direction of Movement		
	Toward Light	Away from Light	Neither
Euglena	X		
Paramecium			X
Fungus			X
Coleus plant	X		
Earthworm		X	

13. (2005-41) These data were collected by observing responses of different organisms to light. Which conclusion is supported by these data?
    a. Animals are attracted to light.
    b. Decomposers are attracted to light.
    c. Protists are not attracted to light.
    d. Organisms that use photosynthesis are attracted to light.

Sandy Beach and Dune Wildlife Locator Chart

	Feeds in Dunes	Feeds on Wet Sand or Beach	Feeds at High-tide mark
Nests in Tree Canopy or Shrubs	Yellow-billed Cuckoo American Robin Cedar Waxwing		Fish Crow Boat-tailed Grackle
Nests in Tree Trunks	Downy Woodpecker Northern Flicker		Raccoon
Nests on Ground	Eastern Cottontail	Black-bellied Plover Wilson's Plover Semipalmated Plover Piping Plover American Oystercatcher Willet Sanderling Semipalmated Sandpiper Dunlin Laughing Gull Ring-billed Gull Great Black-backed Gull	Ruddy Turnstone
Nests in Fresh Water	Fowler's Toad		

14. (2004-26) A student studying wildlife nesting patterns in the sandy beach and dune ecosystem of the Chincoteague National Wildlife Refuge would find nests of the most species in which of the following locations? (1 point)
    a. Tree trunks
    b. Fresh water
    c. Shrubs
    d. Ground

Average Water Loss (Transpiration) in Corn Plants (mL/hr)

Plot	May 15	May 30	June 15	July 1	July 15
1	1.2	3.4	6.4	10.7	8.5
2	1.1	3.1	11.9	9.8	8.8
3	1.2	3.5	5.5	10.1	9.2
4	1.1	3.8	6.2	9.5	8.4

15. (2004-19) In the above table, which item of data is most likely to be invalid? (1 point)
    a. Plot 1 on July 1
    b. Plot 2 on June 15
    c. Plot 4 on May 30
    d. Plot 3 on May 15

Comparison of Disinfectants

Disinfectant	Bacterial Colony Size (mm)	
	Trial 1	Trial 2
None	6.0	5.5
1	3.0	2.0
2	2.5	1.5
3	4.0	4.0
4	1.5	1.5

16. (2005-50) Four disinfectants were tested in two trials, each for their effectiveness in controlling bacterial growth. The table shows the bacterial growth in each trial after four days. Which of the following conclusions is best supported by the results of this study?
    a. Some disinfectants are more effective than others.
    b. Disinfectants cannot be used to control bacterial infections.
    c. Strong concentrations of disinfectants can be harmful.
    d. Disinfectants kill most bacteria on contact.

Field Data

Pond	pH of Pond Water	Number of Duckweed Plants
A	6	150
B	12	300
C	8	500
D	4	80

17. (2005-44) The above information was collected in the field while studying the effect of pH on the growth of the duckweed plant. The data shows that duckweed has optimum growth at a pH of —
    a. 4
    b. 6
    c. 8
    d. 12

Structures Present in Vertebrate Embryos							
Stage of Development	Structure	Frog	Fish	Pig	Bird	Turtle	Human
early	tail	✔	✔	✔	✔	✔	✔
early	gill slits	✔	✔	✔	✔	✔	✔
early	notochord	✔	✔	✔	✔	✔	✔
late	external ears			✔			✔
late	limbs	✔		✔	✔	✔	✔

18. (2005-24) According to the table, as vertebrate embryos develop —
    a. reptiles and amphibians grow external ears
    b. only mammals develop both limbs and external ears
    c. limbs and external ears grow on mammals and birds
    d. amphibians and humans develop the same structures

A

Number of Dogs With Fleas

Brand X		Brand Y		Brand Z	
Before	After	Before	After	Before	After
25	4	25	1	25	10

B

Number of Dogs With Fleas

Brand X		Brand Y		Brand Z	
Before	After	Before	After	Before	After
25	2	25	12	25	5

C

Number of Dogs With Fleas

Brand X		Brand Y		Brand Z	
Before	After	Before	After	Before	After
25	10	25	4	25	12

D

Number of Dogs With Fleas

Brand X		Brand Y		Brand Z	
Before	After	Before	After	Before	After
25	5	25	1	25	4

19. (2005-15) A company that produces Brand X flea shampoo claims to have the most effective shampoo for killing fleas. Which of these sets of data supports the Brand X claim?
    a. A
    b. B
    c. C
    d. D

Cell Organelles and Functions

Kingdom	Metabolism	Control	Covering	Food Production
Fungi	mitochondria	nucleus	cell wall	none
Animalia	mitochondria	nucleus	cell membrane	none
Plantae	mitochondria	nucleus	cell wall	chloroplasts
Protista	mitochondria	nucleus	cell membrane	some with chloroplasts
Monera	ribosomes	DNA strand	cell wall	none

20. (2001-17) Which of these statements is supported by the data shown in the table?
    a. Eukaryotic cells vary in covering and in food production.
    b. Most kingdoms are made up of prokaryotic cells.
    c. Each of the kingdoms has different organelles for metabolism.
    d. All cells have nuclei for control of cell functions.

Effects of Phosphates on the Growth of Grama Grass

Group (25 Individuals)	Incubation Temperature (°C)	Phosphate Solution (ppm)	Volume of Daily Irrigation (mL)	Average Height of Grass After 30 Days (cm)
A	20	0	200	10
B	20	15	200	10
C	20	30	200	12
D	20	60	200	18

21. (2003-28) Which factor would need to be known before a valid conclusion could be based upon these data?
    a. The length of the study period
    b. The original average height of grass
    c. The density of the phosphate solutions
    d. The mineral content of the potting soil