

Biology I
Weekly Worksheet

Name _____

Per/Sec. _____

- 1** In addition to carbon and hydrogen, a molecule of vegetable oil contains
- A) oxygen, only
 - B) nitrogen, only
 - C) oxygen and sulfur
 - D) sulfur and nitrogen

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- 2** An inorganic compound essential to the survival of animals is
- F) glucose
 - G) salt
 - H) maltase
 - J) cellulose

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- 3** A biologist would most likely study all the chemical activities of an organism to obtain information about the
- A) number of mutations in the organism
 - B) reproductive cycle of the organism
 - C) development of the organism
 - D) metabolism of the organism

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- 4** Much of the carbon dioxide produced by algae is *not* excreted as a metabolic waste because it
- F) can be used for photosynthesis
 - G) cannot pass through cell membranes
 - H) is needed for aerobic respiration
 - J) is used for the hydrolysis of proteins

- 5** What does the process of photosynthesis produce?

- A) starch, which is metabolized into less complex molecules by dehydration synthesis
 - B) protein, which is metabolized into less complex molecules by dehydration synthesis
 - C) glycerol, which is metabolized into more complex carbohydrates by dehydration synthesis
 - D) glucose, which is metabolized into more complex carbohydrates by dehydration synthesis
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Biology I Weekly Worksheet Broderon 9/27/02

Answer List

- | | | |
|------|------|------|
| 1. A | 2. G | 3. D |
| 4. F | 5. D | |

Catalog List

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|--------------|--------------|--------------|
| 1. NY5 CA 35 | 2. NY5 CA 41 | 3. NY5 CA 46 |
| 4. NY5 CB 55 | 5. NY5 CB 68 | |

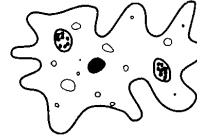
Week of October 21–26

Monday

The respiratory system of an earthworm utilizes the skin as an external gas exchange surface. What additional system is used to carry gases to moist internal body tissues?

Tuesday

The diagram represents a unicellular organism.



This organism is able to survive without a specialized respiratory system because

Wednesday

In order to function effectively in gas exchange, alveoli must be in close association with

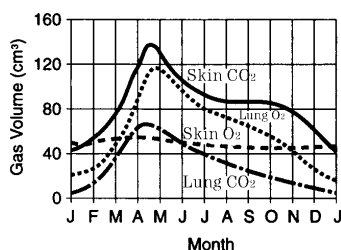
Thursday

Which title is an appropriate heading for column *X*?

<i>Organism</i>	<i>X</i>
A	Moist skin
B	Spiracles and tracheal tubes
C	Gills and capillaries

Friday

The chart shows the amount of oxygen and carbon dioxide exchanged through the skin and lungs of a frog for a period of 1 year. The lowest rate of gas exchange is most likely the result of



Saturday

Refine your notes on the answers to these discussion questions in your weekly journal.

Prepare for a quiz on Respiration next Tuesday!

Name _____

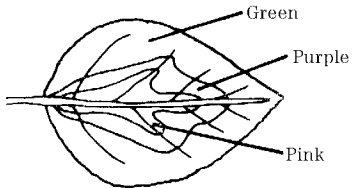
Date _____

The diagram here shows a piece of tissue stained with iodine solution, as viewed with a microscope under high power.



1. Which method would most likely be used to transfer structure A into another cell?
 - a) centrifugation
 - b) microdissection
 - c) fermentation
 - d) filtration

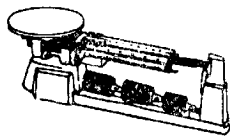
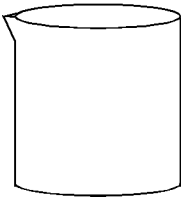
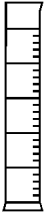

The diagram is labeled to show the normal color pattern of the coleus leaf. When the leaf is boiled in alcohol, this color pattern is removed. The leaf is then immersed in Lugol's iodine solution, and then former green and purple regions become blue-black.



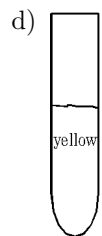
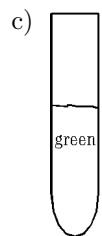
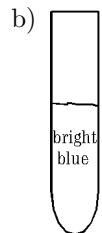
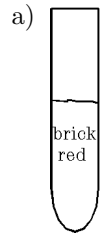
2. What substance, present in these regions causes the positive reaction with Lugol's solution?
 - a) starch
 - b) chlorophyll
 - c) sugar
 - d) carbon dioxide

3. Which technique is commonly used to separate the pigments found in this coleus leaf?
 - a) electron microscopy
 - b) ultracentrifugation
 - c) chromatography
 - d) amniocentesis

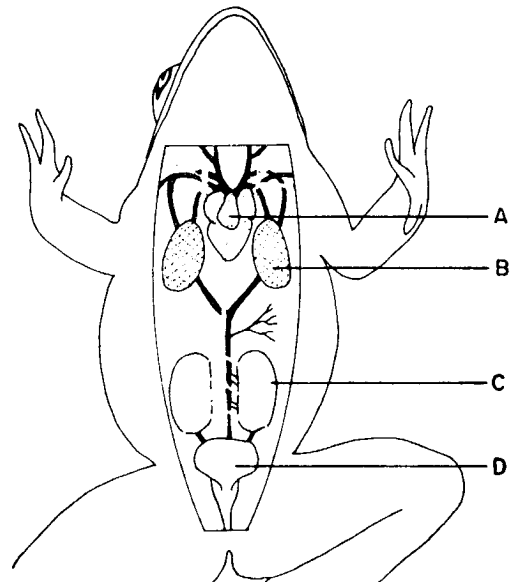
4. An instrument used to collect ribosomes for chemical analysis is
 - a) a compound microscope
 - b) an ultracentrifuge
 - c) a scalpel
 - d) an electron microscope

5. Which piece of laboratory equipment would be used to obtain the most accurate measure of the volume of a glucose solution?
 - a) 
 - b) 
 - c) 
 - d) 

6. Each test tube below contains an equal amount of a food Sample and Benedict's solution. Each test tube has been heated to the same temperature. Which test tube contains the greatest amount of simple sugar?



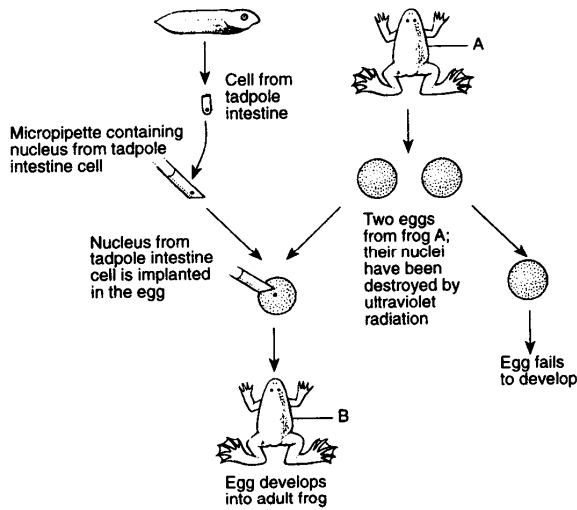
7. Through which surface was the initial incision for this dissection made?



- a) ventral
- b) dorsal
- c) lateral
- d) anterior

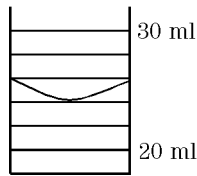
8. An experiment is represented in the diagram shown. An inference that can be made from this experiment is that

- a) adult frog B will have the same genetic traits as the tadpole
- b) adult frog A can develop only from an egg and a sperm
- c) fertilization must occur in order for frog eggs to develop into adult frogs
- d) the nucleus of a body cell fails to function when transferred to other cell types

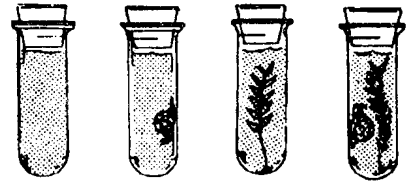


9. The diagram here shows the level of a liquid in a graduated cylinder. What is the volume of the liquid in milliliters?

- a) 22.0 mL
- b) 23.0 mL
- c) 24.0 mL
- d) 26.0 mL



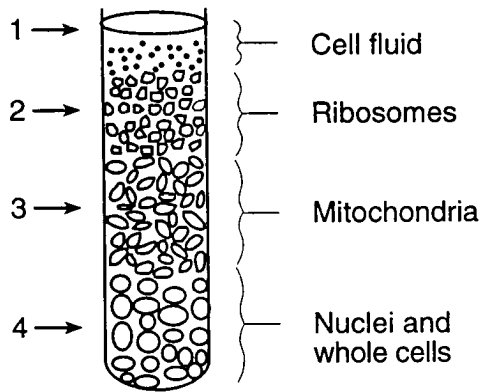
In an investigation of the cycling of environmental gases, a student placed water and bromthymol blue in each of four test tubes as shown in the diagrams shown. No additional items were placed in tube 1, a snail was placed in tube 2, and aquatic plant (elodea) was placed in tube 3, and both a snail and an elodea were placed in tube 4. The tubes were then stoppered and placed in bright light for 24 hours.



10. How would the solution in tube 3 change after 24 hours?

- a) It would contain more oxygen.
- b) It would change from yellow to blue.
- c) It would change from blue to brick red.
- d) It would contain less nitrogen.

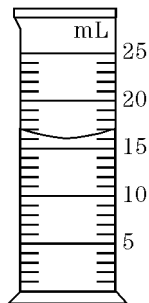
11. The diagram shown represents results obtained in a study of a suspension containing both broken and whole cells. Which statement best describes the technique used to obtain these results?



- a) A compound light microscope was used to show that the organelles in region 1 weigh less than those in region 2.
- b) An electron microscope was used to show that the organelles in region 3 are the most complex.
- c) Chromatography was used to determine that the organelles in region 1 are more soluble than those in region 2.
- d) An ultracentrifuge was used to separate the organelles with varying densities into regions 1 through 4.

12. The volume of liquid shown in the graduated cylinder is

- a) 15.0 mL
- b) 16.0 mL
- c) 16.5 mL
- d) 17.0 mL



13. After owls eat, they bring back up the indigestible remains of their meals. These regurgitated “pellets” contain the fur and skeletal parts of their prey. A student plans to examine an owl pellet to determine which small vertebrates were consumed by the owl. Which set of equipment should the student use?

- a) microscope, ultracentrifuge, and stain
- b) dissecting kit, petri dish, and gloves
- c) graduated cylinder, balance, and meterstick
- d) pH paper, liquid indicator, and beaker

14. Which indicator should be used to help identify the building blocks of maltose?

- a) Lugol's iodine
- b) pH paper
- c) Benedict's solution
- d) bromthymol blue

15. Which substance is a suitable indicator for detecting the presence of starch in a plant cell?

- a) Fehling's solution
- b) pH paper
- c) bromthymol blue
- d) iodine solution

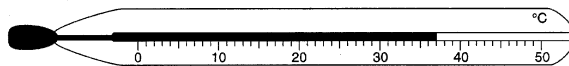
16. A study was conducted using two groups of 10 plants of the same species. During the study, the plants were placed in identical environmental conditions. The plants in one group were given a growth solution every 3 days. The heights of the plants in both groups were recorded at the beginning of the study and at the end of a 3-week period. The data showed that the plants given the growth solution grew faster than those not given the solution. When other researchers conduct this study to test accuracy of the results, they should

- a) give growth solution to both groups
- b) make sure the conditions are identical to those in the first study
- c) give an increased amount of light to both groups of plants
- d) double the amount of growth solution given to the first group

17. Which list contains the necessary equipment to test a food correctly for the presence of starch?

- a) test tube
safety goggles
Benedict's solution
hot water bath
- b) test tube
safety goggles
glucose solution
bunsen burner
- c) beaker
safety goggles
iodine solution
dropper (pipette)
- d) beaker
safety goggles
bromthymol blue solution
bunsen burner

18. The diagram shown represents a thermometer. The temperature reading on this thermometer would most likely indicate the temperature



- a) of the human body on a very hot summer day
- b) at which water freezes
- c) at which water boils
- d) of a human with a very high fever

19. Which safety precaution is recommended when a liquid is being heated in a test tube?
- a) When holding the test tube, keep fingers closest to the open end of the tube.
 - b) Direct the flame of the burner into the open end of the test tube.
 - c) Stopper the test tube with a rubber stopper.
 - d) Wear goggles and a laboratory apron.
20. On a slide preparation of a thin slice of potato, starch grains can be made more visible by adding
- a) Benedict's solution
 - b) distilled water
 - c) Lugol's iodine
 - d) salt solution