

Name: Answer Key

Review Sheet First Test

*Be prepared for a graphing question and a short answer experiment question.

*Review your quiz and any practice questions from class.

Define the following terms:

Observation- Using the 5 senses to gather information.

Inference- A logical explanation based on prior knowledge.

Look around the classroom. Make one observation and one inference:

1. The classroom walls are blue.
2. The paint was purchased at home depot.

Write out and explain the steps of the scientific method:

1. State the problem (Question)
2. Hypothesis (Statement! If... then)
- prediction, always valuable
3. Experiment
- know the difference between control vs. experimental groups, independent/dependent variables
4. Organize data
- charts, tables, graphs
5. Conclusion
- was hypothesis correct?
6. Repeat

Define the following terms:

Control group- group that does NOT receive the treatment.

Experimental group- group that does receive the treatment.

Constant- things that remain the SAME in both groups.

Dependent variable- what gets measured.

Independent variable- what the scientist does to the experimental group.

Identify the dependent and independent variables in the following experiments:

1. Does light affect plant growth?

Dependent- growth Independent- light

2. Does enzyme activity affect digestion rate?

Dependent- rate of digestion Independent- enzyme activity

3. Does light affect preference of location in pill bugs?

Dependent- location of pill bugs Independent- light

What is a placebo?

Sugar pill- given to the control group

How many differences should there be between the control and experimental group? Why?

Only one so that you can know why your results turned out a certain way.

What are some ways that scientists can make an experiment more accurate?

more trials, larger sample size

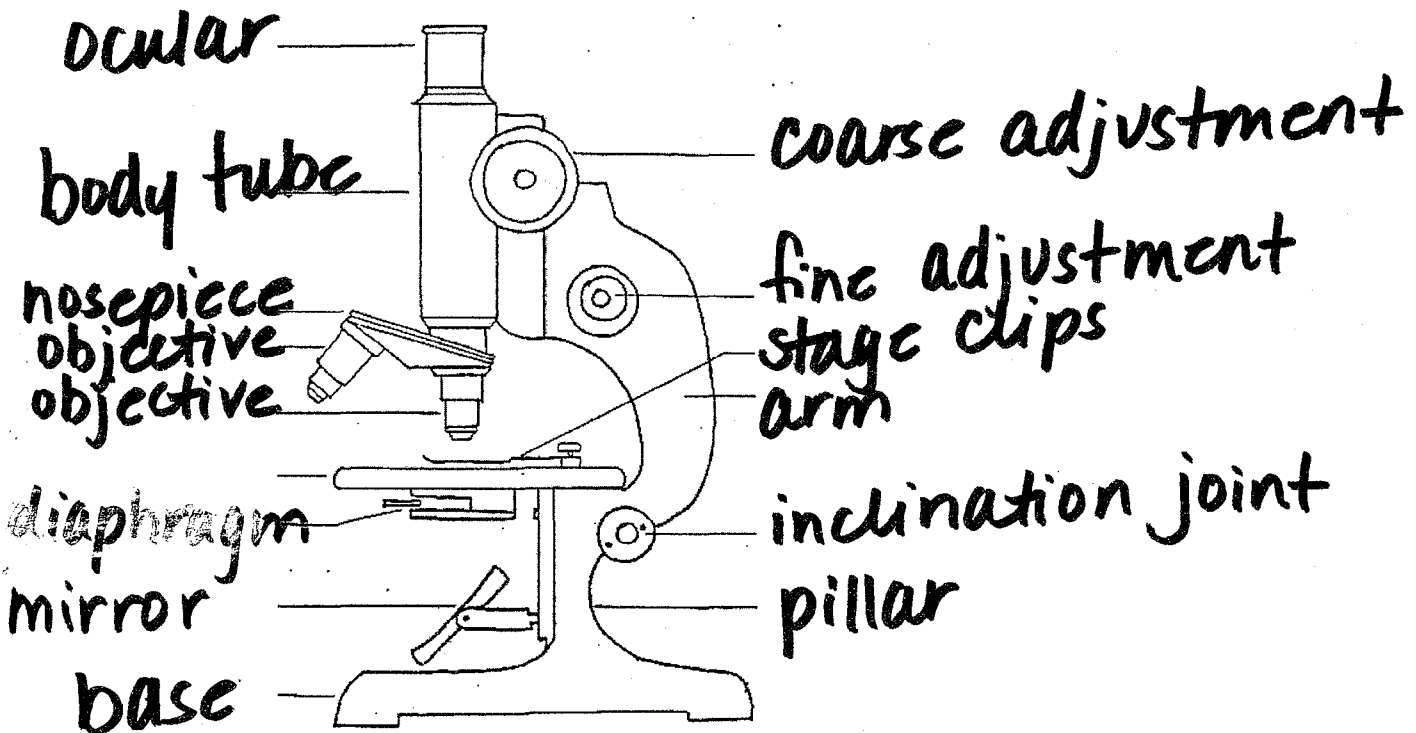
How can scientists organize their data?

Tables, graphs, charts

Name 3 tools of the biologist and explain how they are used:

1. Staining- makes cell structures more visible.
2. Compound light microscope- used to magnify cells.
3. Dissecting microscope- useful for observing small organisms and body parts.

Label the parts of the microscope and define them.



Name the 8 life functions:

1. Transport
2. Excretion
3. Nutrition
4. Growth
5. Respiration
6. Regulation
7. Reproduction
8. Synthesis

*Answer the attached practice questions to review the life functions.

Practice Questions (Written Response)

In an investigation to determine a factor that affects the growth of rats, a student exposed 100 rats of the same age and species to identical conditions, except for the amount of living space and the amount of food each rat received. Each day the student measured and recorded the weight of each rat. State *one* major error that the student made in performing this investigation.

Two variables - amount of living space and amount of food

A television advertisement claims that a certain brand of cough drop reduces coughing for 8 hours. Describe an investigation that could be used to determine if this claim is valid. In your answer, include at least a description of:

(Answer in bullet format)

• the treatment to be given to the experimental group

• the treatment to be given to the control group

• the data to be collected

• when the data should be collected

• *one* observation that would lead to the conclusion that the claim is valid

• gets cough drop

• placebo or no treatment

• amount of coughing

• over the 8 hours

• less coughing from the experimental group.

LIFE ACTIVITIES AND BODY SYSTEMS

Name _____

Match the life activity in Column I with its example in Column II.

Column I

1. nutrition
2. ~~transport/~~ circulation
3. respiration
4. excretion
5. synthesis
6. regulation
7. growth
8. reproduction
9. metabolism
10. homeostasis
11. digestion

c
e
b
f
d
h
k
a
j
g
i

Column II

- ~~a.~~ a cat has a litter of six kittens
- ~~b.~~ the cells utilize glucose to produce energy
- ~~c.~~ a plant absorbs minerals from the soil
- ~~d.~~ a plant forms large starch molecules from smaller sugar molecules
- ~~e.~~ the bloodstream brings oxygen and food to the cells
- ~~f.~~ waste products are eliminated during perspiration
- ~~g.~~ a person sweats to keep body temperature at a safe level
- ~~h.~~ the brain coordinates the various systems of the body
- ~~i.~~ process by which food is changed into a form the body can use
- ~~j.~~ the human body produces hormones, vitamins, proteins, enzymes, etc. to keep it functioning
- ~~k.~~ a 7-pound baby becomes a 180-pound man

Life Functions Practice Q's

Answer Key

1. The life function responsible for the coordination and control of all life activities in an organism is known as

- (1) excretion (3) nutrition
(2) reproduction (4) **regulation**

2. Which life function is most directly involved in the control of the muscles of an earthworm that is moving from dry to moist soil?

- (1) transport (3) excretion
(2) **regulation** (4) nutrition

3. The energy an organism requires is provided by the life process of

- (1) growth (3) **respiration**
(2) synthesis (4) excretion

4. Which statement best describes cellular respiration?

- (1) It uses carbon dioxide and produces oxygen.
(2) It occurs in animal cells but not in plant cells.
(3) **It converts energy in food into a more usable form.**
(4) It stores energy in food molecules.

5. A hydra ingests a Daphnia, digests it, and later egests some materials. All of these events are most closely associated with the life process known as

- (1) synthesis (3) growth
(2) **nutrition** (4) transport

6. As a result of their metabolic activities, many organisms produce harmful waste substances. These wastes are eliminated by the life process of

- (1) growth (3) **excretion**
(2) synthesis (4) regulation

7. The removal of carbon dioxide and cellular wastes from an organism illustrates the life function known as

- (1) respiration (3) regulation
(2) nutrition (4) **excretion**

8. By which process is the potential energy of organic molecules transferred to a form of energy that is usable by the cells?

- (1) photosynthesis (3) **respiration**
(2) digestion (4) hydrolysis

9. The life function of transport in an organism directly involves those activities used to

- (1) **absorb and distribute materials**
(2) obtain and hydrolyze materials
(3) release energy from food
(4) produce cellular waste products

10. In which process are simple materials chemically combined to form more complex materials?

- (1) excretion (3) nutrition
(2) regulation (4) **synthesis**

11. Which life activity is *not* required for the survival of an individual organism, but is required for the survival of the organism's species?

- (1) **reproduction** (3) synthesis
(2) respiration (4) nutrition

12. Nutrition involves those activities by which organisms

- (1) **obtain and process materials** needed for other activities
(2) exchange gases with their environment
(3) absorb and circulate materials
(4) remove cellular waste products

Name: _____

Date: _____

Part 1: Please list each of the 8 Life Functions/Processes.

1. Transport
2. excretion
3. Nutrition
4. Growth
5. Respiration
6. Regulation
7. Reproduction
8. _____

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Part 2: Fill in each of the blanks with the appropriate life function/process.

9. The process by which organisms convert the chemical energy stored in foods to a form that cells can use more easily (ATP) is known as respiration.

10. The life function by which organisms control and coordinate other life functions to maintain existence is called regulation.

11. The life function by which organisms build molecules rather than break them down is known as synthesis.

12. The process by which organisms circulate and absorb essential materials around their bodies is transport.

13. The process by which organisms remove metabolic wastes from their cells and release them into the environment is called excretion.

14. Growth is the life process by which the number of cells increases causing the organism to increase in size.

15. The life function by which organisms obtain and process foods needed for energy, growth, and repair is nutrition.

16. This process is necessary for the survival of the species, however, it is NOT necessary for the survival of the individual organism. This life function is reproduction.

17. Locomotion is the process by which organisms move from place to place in their environment, however, NOT ALL living things can do this.