

2018 Fall Semester **SCIENCE** 7th GRADE EXAM REVIEW



Name: _____

Teacher: _____

Date/Time for Final: _____

Room Number: _____

Proctor's Name: _____

Study Skills Help & Study Tips

Students with better study methods and strategies score higher on their exams.

- ✓ Everyone is different, different methods work for different people the following are only suggestions on improving upon your current studying techniques.
- ✓ It is best to review the material right after class when it's still fresh in your memory.
- ✓ Don't try to do all your studying the night before the exam, instead space out your studying, review class materials at least several times a week, focusing on one topic at a time.
- ✓ Have all of your study material in front of you: lecture notes, course textbooks, study guides and any other relevant material.
- ✓ Find a comfortable and quiet place to study with good lighting and little distractions (try avoiding your bed; it is very tempting to just lie down and take a nap).
- ✓ Start out by studying the most important information.
- ✓ Learn the general concepts first; don't worry about learning the details until you have learned the main ideas.
- ✓ Take notes and write down a summary of the important ideas as you read through your study material.
- ✓ Take short breaks frequently, your memory retains the information that you study at the beginning and the end better than what you study in the middle.
- ✓ Space out your studying, you'll learn more by studying a little every day instead of waiting to cram at the last minute.
- ✓ **Make sure that you understand the material well, don't just read through the material and try to memorize everything.**
- ✓ If you choose to study in a group, only study with others who are serious about the test.
- ✓ Test yourself or have someone test you on the material to find out what your weak and strong areas are. You can use the review questions at the end of each chapter, old tests, or the review packet as well as other materials.
- ✓ Listening to relaxing music such as classical or jazz on a low volume can relieve some of the boredom of studying.
- ✓ Don't study later than the time you usually go to sleep, you may fall asleep or be tempted to go to sleep, instead try studying in the afternoon or early evening. If you are a morning person try studying in the morning.

What we've covered....

Chapter 1: Introduction to Life Science

A. Lab Safety

1. List lab safety rules
2. Understand what is safe and unsafe behavior in a laboratory setting
3. Describe the rationale behind each safety rule

B. Observation and Inference

1. Define observation and inference.
2. Compare and contrast observations and inferences.
3. Demonstrate the skill of observing a given event and/or object.
4. Distinguish between a qualitative observation and a quantitative observation.
5. Make appropriate inferences based on the observation(s).
6. Communicate the extent of risk involved in making inferences.

C. Metric Measurement

- a. Justify the need for standard measurement in science.
- b. Describe the process of calibration.
- c. Explain what is being measured, the metric units used for measurement, metric abbreviations, and tools needed for measurement in terms of length, volume, mass, weight, force and temperature.
- d. Convert common forms of metric units.
- e. Read a measuring instrument accurately by estimating the last digit.
- f. Appreciate the fact that no measurement is exact.
- g. Select the appropriate tool for measuring length, volume, mass, force, weight and temperature.

D. Variables

1. Develop a list of potential variables for any given event.
2. Differentiate between the three types of variables.
3. Identify the three types of variables in an investigation.
4. Identify levels of the independent variable and how they should be measured.
5. Identify methods of measuring the dependent variable.

E. Scientific Method

1. List the steps of the scientific method
2. Give examples to illustrate how each step of the scientific method is conducted
3. Design and conduct an experiment using the scientific method

F. Prediction

1. Distinguish between observation, inference and prediction
2. Construct predictions based on observed patterns of evidence.

- G. Hypotheses
1. Define a hypothesis.
 2. Explain why variables are important in the process of hypothesizing.
 3. Write a hypothesis using two variables
- H. Operational Definitions
1. Describe an operational definition.
 2. Given an independent variable, select a suitable operational definition for it
 3. Given a description of an investigation, identify possible variables and identify how the variables are operationally defined.
- I. Data Tables and Graphs
1. Identify, name and demonstrate proper placement of the basic components of a data table and graph.
 2. Construct both simple and complex data tables.
 3. Discuss the reasons for performing repeated trials in an experiment.
 4. Compare and contrast quantitative (continuous) and qualitative (discrete) variables.
 5. Select the appropriate graph (bar vs. line) to construct based on the independent variable.
 6. Use an appropriate scale for graphical representation of data by finding the counting numbers based on data table information.
 7. Graph both descriptive and continuous data.
 8. Demonstrate ability to draw a “best-fit” line or curve.
 9. Given a graph, identify the relationship between the variables.
 10. Identify data that support or conflict with a hypothesis.
 11. Interpolate and extrapolate data presented graphically and compare their results.
- J. Conclusions
1. Formulate a conclusion based on recorded data and graph information
 2. Write conclusions using two variables.

Chapter 2: Living Things

Section 1: What is Life?

1. List the characteristics all living things share
2. Explain where all living things come from
3. Identify what all living things need to survive

Section 2: Classifying Organisms

1. Tell why biologists classify organisms
2. Relate the levels of organisms to the relationships between organisms
3. List characteristics used to classify organisms into groups, including domains and kingdoms

Section 3: Discovering Cells

1. Tell what cells are
2. Explain how the invention of the microscope contributed to scientists understanding of living things
3. State the cell theory
4. Describe how microscopes produced magnified images

Section 4: Looking Inside Cells

1. Identify the role of the cell wall and the cell membrane in the cell
2. Describe the functions of the cell organelles
3. Explain how cells are organized in many-celled organisms

Chapter 3: Cell Processes and Energy

Section 1: Chemical Compounds in Cells

1. Define elements and compounds
2. Explain how water is important to the function of cells
3. Identify the four main kinds of organic compounds in living things

Section 2: The Cell in its Environment

1. Describe how most small molecules cross the cell membrane
2. Explain why osmosis is important to cells
3. Tell the difference between passive and active transport

Section 3: Photosynthesis

1. Explain how the sun supplies living things with the energy they need
2. Describe what happens during the process of photosynthesis

Section 4: Respiration

1. Describe the events that occur during respiration
2. Define fermentation and understand its importance

Chapter 7: Protists and Fungi ONLY

Section 3: Protists

1. Describe the characteristics of animal-like protists and give examples
2. Describe the characteristics of plant-like protists and give examples
3. Describe the characteristics of fungus-like protists and give examples

Section 4: Fungi

1. Name the characteristics that all fungi share
2. Explain how fungi reproduce
3. Describe the roles fungi play in nature

ANIMAL KINGDOM: CHAPTERS 9-10

Phyla 1-5: Sponges, Cnidarians, Worms

Section 1: What is an Animal?

1. Describe the levels of organization in animal bodies
2. Identify four functions that enable animals to meet their basic needs
3. Explain how animals are classified

Section 2: Animal Symmetry

1. Define symmetry
2. Infer general characteristics of an animal based on its symmetry

Section 3: Sponges and Cnidarians

1. Identify the characteristics of sponges
2. Describe the difference of cnidarians
3. Explain the importance of coral reefs

Section 4: Worms

1. Identify the three main phyla of worms
2. Describe the characteristics of each worm phylum

Phyla 6-8: Mollusks, Arthropods, and Echinoderms

Section 1: Mollusks

1. Identify the main characteristics of mollusks
2. Describe the major groups of mollusks and tell how they differ

Section 2: Arthropods

1. Identify four major groups of arthropods and the main characteristics of arthropods
2. Describe how crustaceans, arachnids, and centipedes and millipedes differ

Section 3: Insects

1. Identify the main characteristics of insects
2. Explain how insects are adapted to obtain food
3. Name the two types of metamorphosis found in insects

Section 4: Insect Ecology

1. Explain why insects are important in food chains
2. Name two other ways insects interact with their environments
3. Describe some methods used to control pest insects

Section 5: Echinoderms

1. List the main characteristics of echinoderms
2. Name the major groups of echinoderms

Chapter 1: Introduction to Life Science

MASTER VOCABULARY

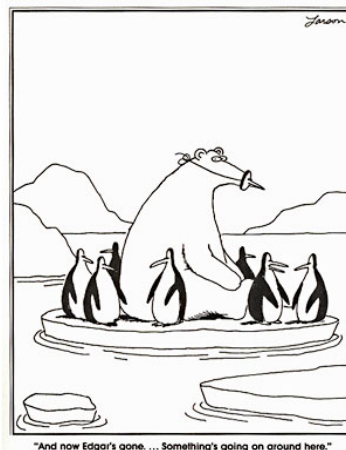
Lab Safety	Triple Beam Balance	Manipulated Variable
Observations	Graduated Cylinder	Responding Variable
Quantitative Observations	Newton	Constant
Inferences	Gram	Hypothesis
Rounding	Meter	Operational Definition
Averaging	Liter	Experiment
Measure	Degrees Celsius	Data
Standard	Kilo	Continuous Data
Calibrate	Hecto	Discrete Data
Force	Deka	Repeated Trials
Weight	Deci	Scientific Method
Mass	Centi	Simple Data Table
Length	Milli	Complex Data Table
Volume	Variable	Line Graph
Temperature	Independent Variable	Bar Graph
Spring Scale	Dependent Variable	Conclusion

REVIEW

Directions: Identify the following as qualitative observations, quantitative observations or inferences based on the picture to the right.

- Qualitative Observation
- Quantitative Observation
- Inference

- _____ 1. The animals are at the North Pole.
- _____ 2. There are seven penguins visible on the block of ice.
- _____ 3. A polar bear is sitting among the penguins.
- _____ 4. The polar bear must be eating the penguins.



Directions: Choose the **best** option for each question.

- _____ 5. The difference between an observation and an inference is
 - an observation is fact and an inference is a guess based on the observation(s).
 - an inference is fact and an observation is a guess based on the inference(s).
 - an observation can only be quantitative or qualitative.
 - an inference is always true.
- _____ 6. The standard metric unit for mass is the
 - gram.
 - Newton.
 - kilogram.
 - amount of matter.

- _____ 7. The universal measurement system for science is the _____ system.
- customary
 - metric
 - uniform
 - inches
- _____ 8. What is the difference between weight and mass?
- Weight is the amount of matter and mass is the measure of molecular motion.
 - Mass is the amount of pull from gravity and weight is the push/pull on an object.
 - Weight is the amount of pull from gravity and mass is the amount of matter.
 - Mass is the measure of molecular motion and weight is the pull from gravity.
- _____ 9. If you wanted to measure the molecular motion of a liquid, you would use a
- triple beam balance.
 - spring scale.
 - graduated cylinder.
 - thermometer.
- _____ 10. If you measured the length of your textbook, which unit would you use?
- kilometer
 - meter
 - centimeter
 - millimeter
- _____ 11. If a measurement of length was right on the line, your measurement should end in a
- zero.
 - decimal.
 - fraction.
 - percent.
- _____ 12. To find the surface area of an object, you would
- multiply length times width.
 - multiply length times width times height
 - find the area of each surface then add those areas all together.
 - end your calculation in units cubed.
- _____ 13. Which of the following describes metric conversions?
- Based on units of ten
 - Based on thousands
 - Based on exponential growth
 - Based on the honor system
- _____ 14. If you wanted to measure the weight of iPad case, you would use a
- triple beam balance.
 - spring scale.
 - pulley.
 - metric ruler.

Directions: Complete the following metric matrix in order from *greatest to least*.

Prefix	15.	16.	17.	Standard	18	19.	20.
Value	21.	22.	23.	1 (one)	24.	25.	26.

Directions: Convert the following metric measurements.

27.) 46.9 cm = _____ mm

28.) 82.482 g = _____ kg

29.) 22.22 L = _____ mL

30.) 935,831 mm = _____ km

31.) 10 kg = _____ dg

Directions: Read the following experiment and answer the questions.

You have just been given a bouquet of cut flowers. Once, you saw a gardener put some sugar into the water in a vase before putting flowers in. You wonder if the gardener did that so that the flowers would stay fresh longer. To determine if the amount of sugar keeps flowers fresh, you decided to count the number of petals each flower drops over a 5 day period.

32. What is the IV of the experiment? _____

33. What is the Operational Definition of the experiment? _____

34. What is the DV of the experiment? _____

35. Write a **properly formatted** hypothesis for the experiment.

36. List 3 constants for this experiment

The following is the data collected over the 5 day period:

AMOUNT OF SUGAR: 0, 5, 10, 15, 20 grams of sugar

TOTAL number of petals fallen off after 5 days:

0 grams..... 12 petals

5 grams..... 9 petals

10 grams..... 7 petals

15 grams..... 5 petals

20 grams..... 2 petals

37. What type of graph would you create for this experiment? _____

38. What would be the counting number for the DV and the starting number? _____

Directions: Fill in the blank cells to complete the table on types of measurement.

Type of Measurement	Amount of...	Standard Unit	Abbreviation of Unit	Measurement Tool Needed
Force	39.	40.	41.	42.
39. Weight	43.	44.	45.	46.
Volume	47.	48.	49.	50.
45. Mass	51.	52.	53.	54.
Length	55.	56.	57.	58.
51. Temperature	59.	60.	61.	62.

Directions: Use the following example of an experiment to complete the data table and graph the information.

Sally wanted to know if the amount of antifreeze added to water affected the time it took the mixture to freeze. She measured out 5 containers with one liter of water in each. To one bucket, she did not add any antifreeze. To the remaining four, she added 50 ml, 100 ml, 150 ml and 200 ml. Then she timed in minutes how long it took each bucket to freeze. She repeated these steps two more times. The bucket with no antifreeze took 60, 65, and 58 minutes. For 50 ml, Sally recorded 72, 74, and 69 minutes. The bucket with 100 ml took 85, 84, and 86 minutes to freeze. With 150 ml, it took 101, 95, and 99 minutes. For 200 ml, it took 114, 109, and 116 minutes.

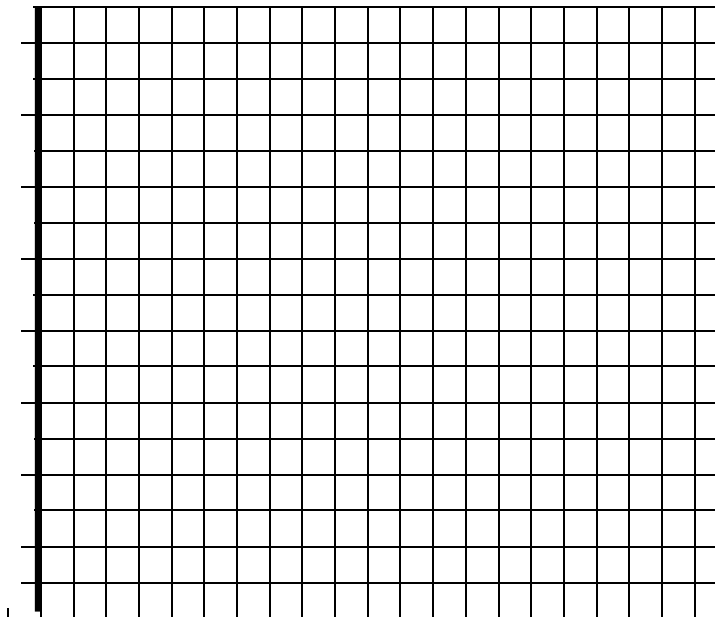
Title: _____

()	()			
	T1	T2	T3	Average

Title: _____

High Data	
Low Data	
Difference	
Difference / 5	
Counting #	
Starting At	

High Data	
Low Data	
Difference	
Difference / 5	
Counting #	
Starting At	



Conclusion: _____

Chapter 2: LIVING THINGS

MASTER VOCABULARY

Unicellular	Order	Cytoplasm
Multicellular	Family	Mitochondria
Stimulus	Genus	Endoplasmic reticulum
Response	Species	Ribosomes
Spontaneous generation	Prokaryote	Golgi Bodies
Autotroph	Eukaryote	Chloroplasts
Heterotroph	Compound light microscope	Vacuoles
Homeostasis	Electron Microscope	Lysosomes
Taxonomy	Magnification	Nucleus
Binomial nomenclature	Lenses	Nuclear envelope
Domain	Resolution	Chromatin
Kingdom	Organelles	Nucleolus
Phylum	Cell wall	
Class	Cell membrane	

REVIEW

Directions: List the 5 essential chemicals all living things need/composed of.

1. _____
2. _____
3. _____
4. _____
5. _____

Directions: Name the 8 levels of classification from most general to most specific.

6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____

Directions: All organisms are split up into 3 Domains. What are the other 2 Domain names? Which have a nucleus? Which do not?

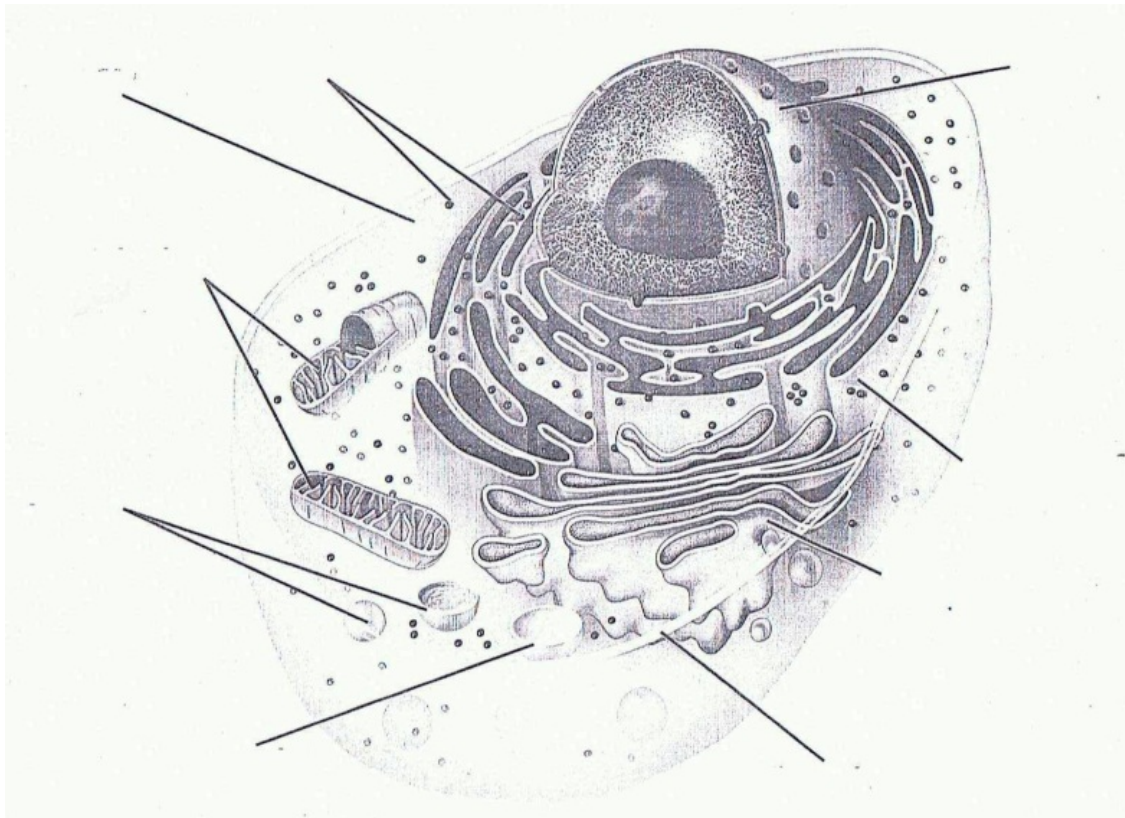
- 14. **Archaea**
- 15. _____
- 16. _____

Directions: In Domain Eukarya, there are 4 Kingdoms. What are the four Kingdom names? What do they all have in common? _____

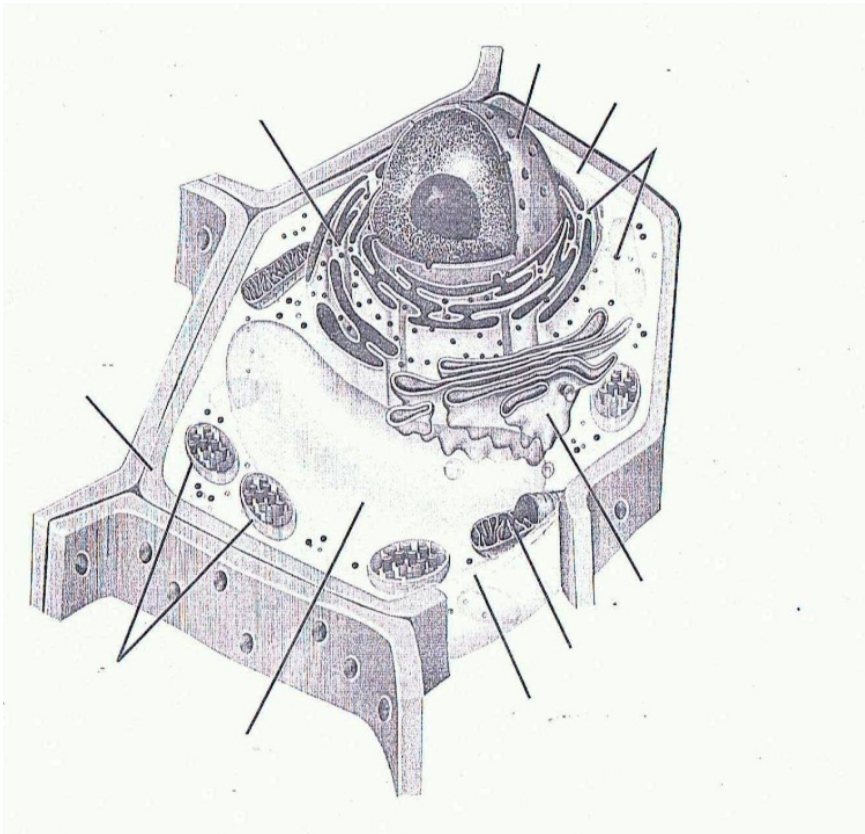
- 17. _____
- 18. _____
- 19. _____
- 20. _____

Directions: Label the following cells with their organelles. Be sure to know the function of each organelle

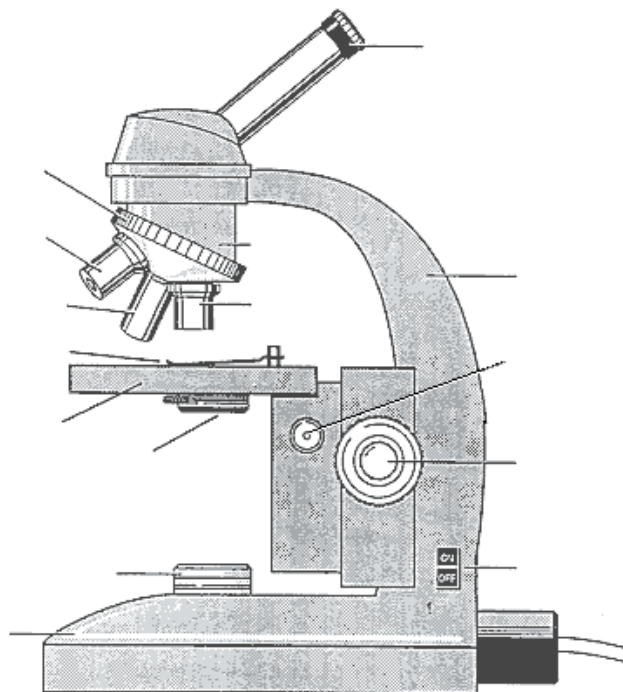
ANIMAL CELL:



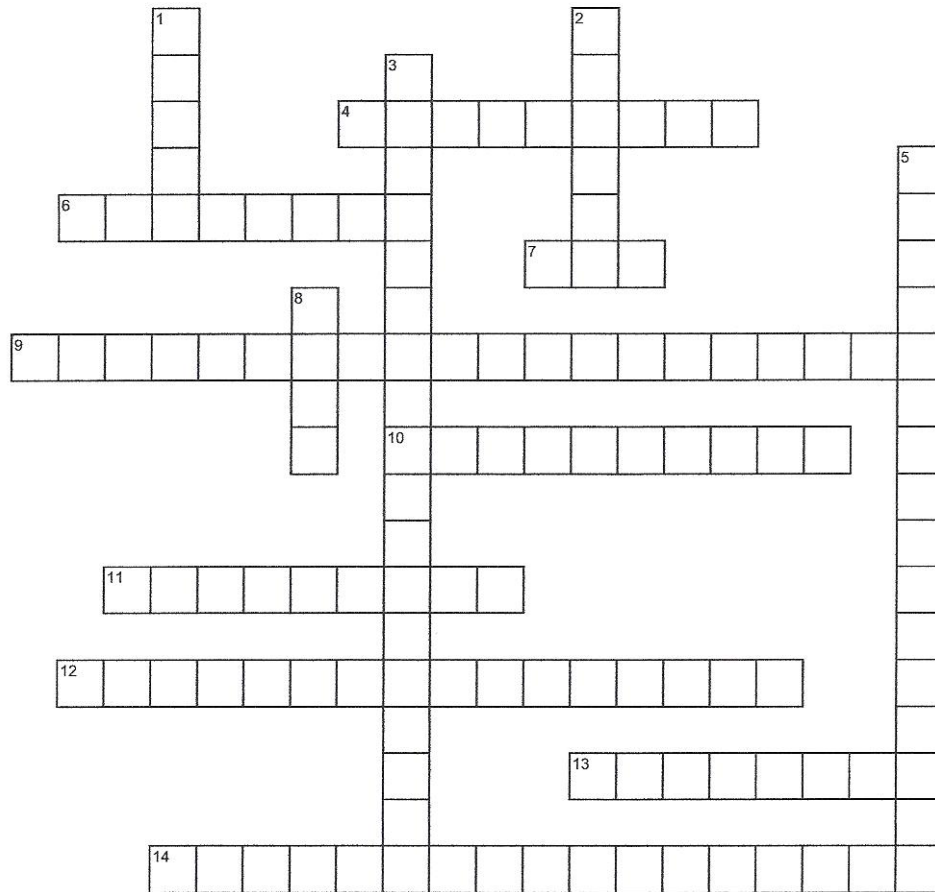
PLANT CELL:



Directions: Label the Microscope below.



PARTS OF THE MICROSCOPE



www.CrosswordWeaver.com

ACROSS

- 4 controls the amount of light passing through the opening of the stage
- 6 contains the lens at the top of the microscope
- 7 supports the body tube
- 9 moves the body tube for focusing with the low power objective
- 10 hold the slide in place
- 11 holds the objective lens and rotates to change magnification
- 12 adjusts the angle arm for easy storage
- 13 separates the eyepiece from the objective lens
- 14 magnifies about 40X

DOWN

- 1 supports the microscope slide being viewed
- 2 used to send light up through the hole in the stage
- 3 used to sharpen image after first using the coarse adjustment knob
- 5 magnifies about 10X
- 8 supports the microscope and is used for carrying

Chapter 3: Cell Processes and Energy

MASTER VOCABULARY

Element	Enzyme	Chlorophyll
Compound	Nucleic acid	Stomata
Molecule	DNA/ RNA	Respiration
Organic compound	Selectively permeable	Fermentation
Inorganic compound	Diffusion	Alcoholic fermentation
Carbohydrate	Osmosis	Lactic acid fermentation
Cellulose	Passive transport	Interphase
Lipid	Active transport	Mitosis
Protein	Photosynthesis	Cytokinesis
Amino acid	Pigment	Cell plate

1. Name the 5 compounds that are essential to living things:

- | | |
|----------|----------|
| a. _____ | d. _____ |
| b. _____ | e. _____ |
| c. _____ | |

2. What is the difference between an element and a compound?

3. What is the different between an organic and an inorganic compound?

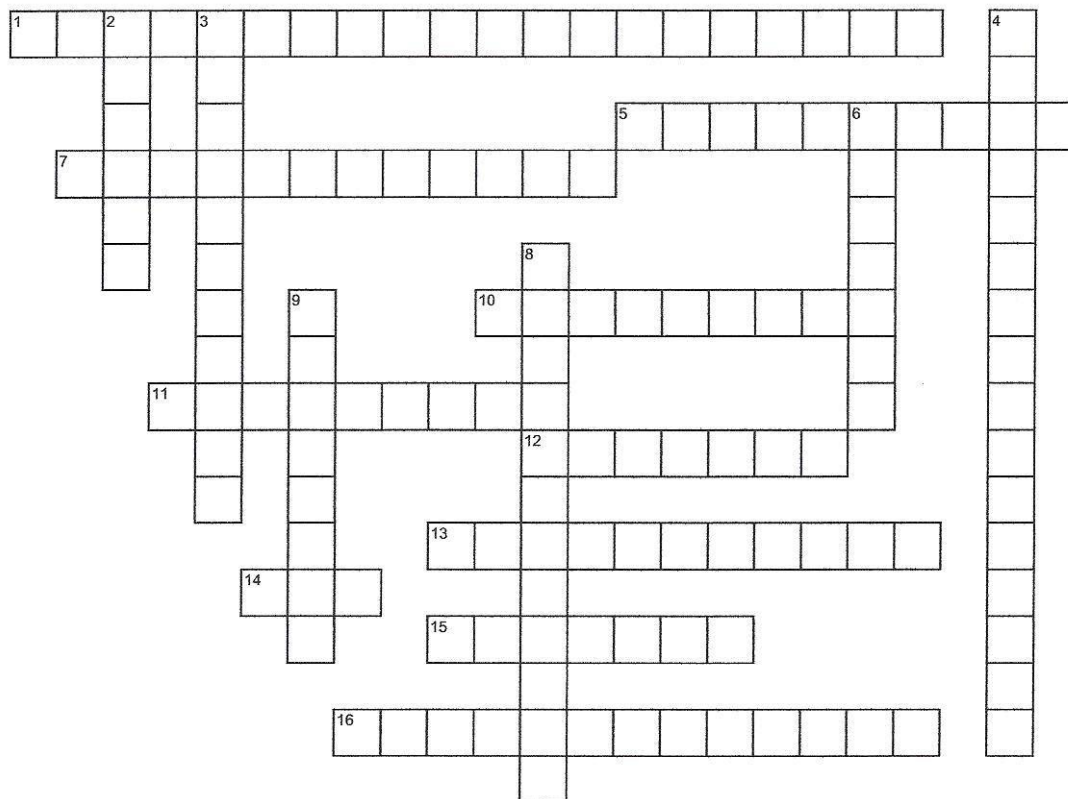
4. What are the 3 methods of material movement across a membrane? What the difference between each type?

5. Write out the **chemical reaction** for photosynthesis.

6. Write out the **chemical reaction** for cellular respiration.

CHAPTER 3

Cell Processes and Energy



ACROSS

- 1 ability of some substances to pass through the membrane while others cannot
- 5 first stage of cell division
- 7 location for 2nd stage of respiration
- 10 type of carbohydrate that is found in cell walls of plants
- 11 location for 1st stage of respiration
- 12 substances that speed up chemical reactions
- 13 cell division stage where cytoplasm divides
- 14 nucleic acids that are responsible for protein production
- 15 cell division stage where chromosomes develop
- 16 energy-rich compounds that include starches and sugars

DOWN

- 2 main ingredient of cell membranes
- 3 main ingredient in photosynthesis
- 4 examples include diffusion and osmosis
- 6 material that makes leaves green
- 8 energy-releasing process that does not require oxygen
- 9 made up of long chains of amino acids

Chapter 7: Protists & Fungi

MASTER VOCABULARY

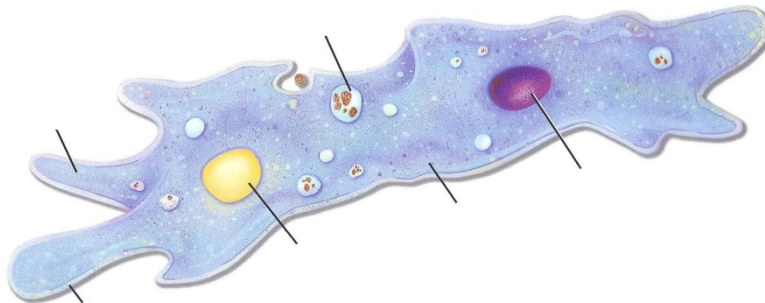
Prokaryote
 Eukaryote
 Flagellum
 Asexual reproduction
 Sexual Reproduction
 Protists
 Protozoan (animal-like)

Pseudopod
 Plant-like Protists
 Contractile vacuole
 Cilia
 Symbiosis
 Mutualism
 Algae

Euglena
 Fungi-like Protists
 Bladder
 Spores
 Hyphae
 Fruiting bodies
 Decomposers
 Lichens

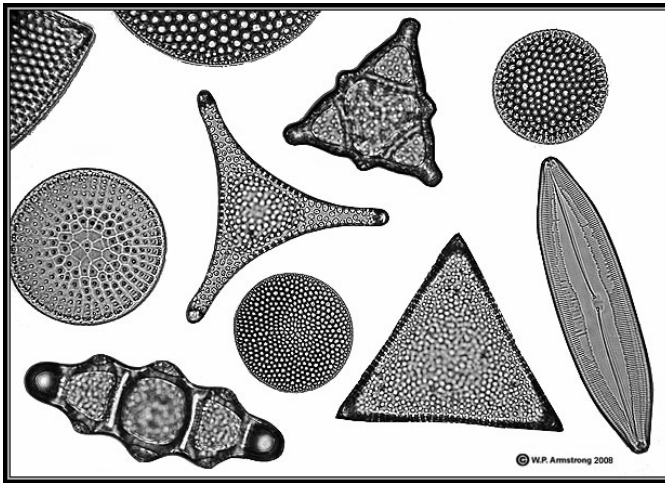
Directions: LABEL the parts of the *animal-like protist* below and answer the following questions.

1. What is the name of this organism? (**circle one**) Amoeba Diatom Dinoflagellate Euglena
2. Is it unicellular? Or multicellular? _____
3. What type of cell transport might it use to get food? _____
4. What structure enables this organism to move? _____
5. What structure is responsible for expelling excess water? _____
6. Based on current event research in class, where/ when might you be exposed to this organism?

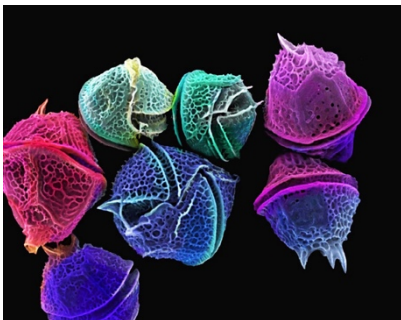


Directions: Answer the following questions.

1. What is unique about Diatoms (image below)? _____
2. Is it unicellular? Or multicellular? _____
3. What type of protist group is it classified in? _____
4. What is another name for the organisms classified in this group? _____
5. Where do you think you'd find it in your natural world? _____



6. What is unique about Dinoflagellates (image below)? _____
7. Are they unicellular? Or multicellular? _____
8. What type of protist group is it classified in? _____
9. What is another name for the organisms classified in this group? _____
10. Where do you think you'd find it in your natural world? _____



Directions: LABEL the parts of the diagram and answer the following questions.

1. What is the name of this organism?

2. What type of protist group is it classified in?

(circle one)

animal-like plant-like fungus-like

3. What is another name for the organisms classified in this group?

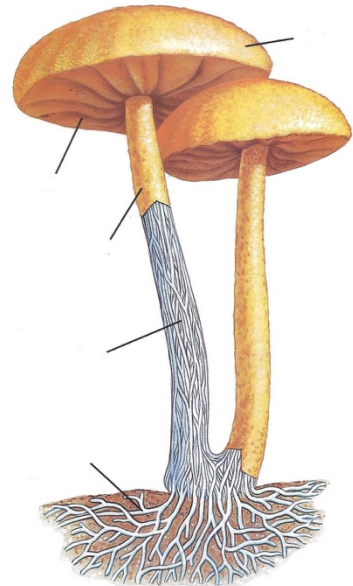


Directions: LABEL the parts of the diagram and answer the following questions.

1. What domain is this organism in?

2. What kingdom is this organism in?

3. What is the name of this organism?



Phyla 1-5: Sponges, Cnidarians, and Worms

MASTER VOCABULARY

Phylum	Asexual Fertilization	Colony
Cell	Sexual Fertilization	Sponge
Tissue	Adaptation	Filter feeders
Organs	Larva	Scavenger
Organ Systems	Cnidarians	Free-living organism
Vertebrates	Medusa	Open Circulatory System
Invertebrates	Polyp	Closed Circulatory System
Radial Symmetry	Pores	Flatworm
Bilateral Symmetry	Collar Cells	Round Worm
Fertilization		Segmented Worm

Directions: Complete the flow chart to show how cells are organized in animals

Animal **cells** are grouped together to form a(n) _____, which has a specific job in the body



Tissues combine to form a _____, which performs a more complex job than each tissue by itself.

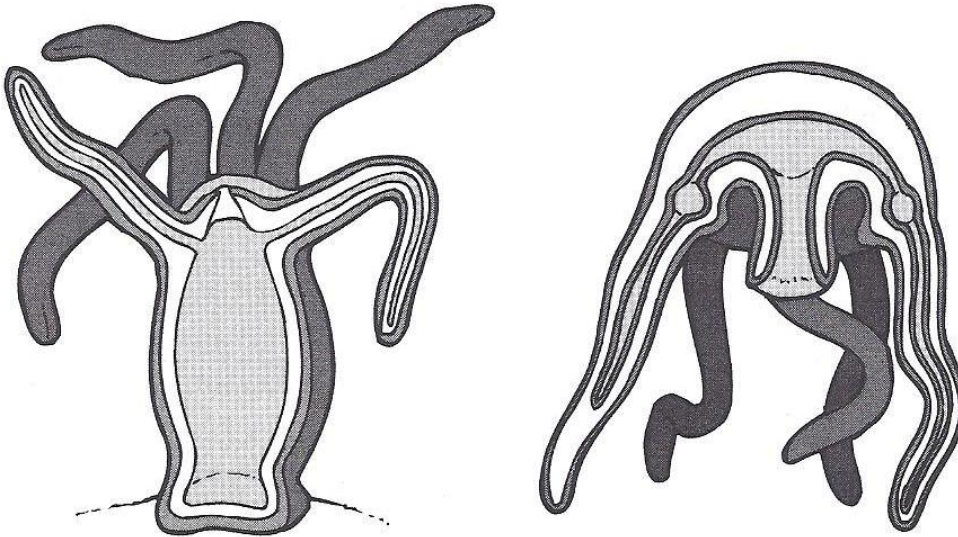


Organs combine to form a _____, which has a broad function in the body

Directions: Answer the following questions.

1. What is an adaptation? Give an example of how an animal might display this.
2. What is sexual reproduction?
3. What is asexual reproduction?
4. Describe the difference between bilateral and radial symmetry.
5. Define:
 scavenger -
 decomposer -

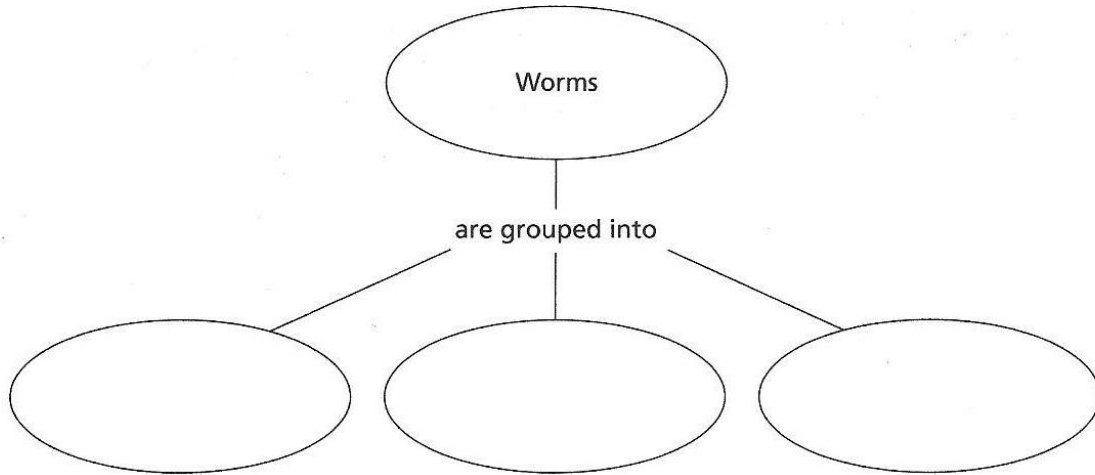
Directions: In this diagram, **identify** which body form is a **polyp** and which is a **medusa**. Then, label the **mouth** and the **central cavity** for each.



Directions: Match the appropriate term to its definition

- | | |
|---|-----------------|
| 1. ___ Behavior or characteristic that allows organism to survive | a. larva |
| 2. ___ Also known as filter feeders | b. cnidarians |
| 3. ___ Responsible for trapping food particles in sponges | c. medusa |
| 4. ___ Immature form of animal that looks very different from adult | d. sea anemone |
| 5. ___ Invertebrates with stinging cells | e. adaptation |
| 6. ___ Bowl-shaped cnidarian with a mouth opening downward | f. pores |
| 7. ___ Vase-shaped cnidarians with a mouth opening upward | g. collar cells |
| 8. ___ Group of many individual animals living together | h. organ |
| 9. ___ Thigh bone is a common example of this body structure | i. colony |
| 10. ___ Examples include muscle, nerve, and blood | j. polyp |
| 11. ___ Structure that Phylum for sponges is named after | k. sponge |
| 12. ___ Organism characterized as a polyp | l. Tissue |

Directions: Complete the following concept map about worms



Phyla 6-8: Mollusks, Arthropods, Echinoderms

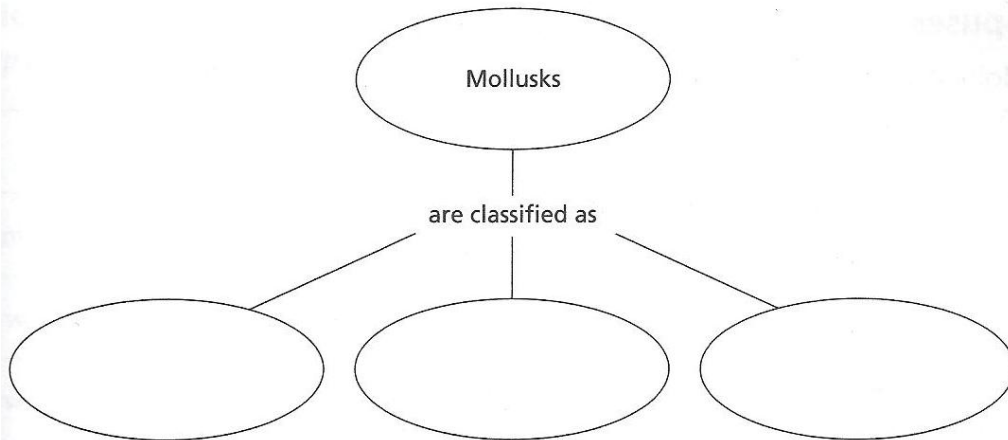
MASTER VOCABULARY

Carnivores
Scavengers
Herbivores
Omnivores
Consumers
Mollusk
Bivalves
Gastropod
Cephalopod
Mantle

Radula
Foot
Abdomen
Molting
Insect
Arthropod
Gills
Crustacean
Arachnid
Cilia

Appendage
Nymph
Tube Feet
Water Vascular system
Endoskeleton
Exoskeleton
Gradual Metamorphosis
Complete Metamorphosis

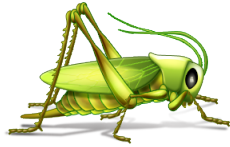
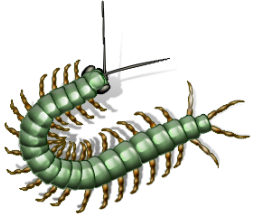
Directions: Fill in the following concept map



REVIEW: ARTHROPODS

Directions: Answer the following questions.

1. Label the four major groups of arthropods:



2. What are the characteristics of an arthropod?

3. Arachnids have _____ body sections and insects have _____ body sections.

4. List examples of crustaceans.

5. Some animals go through a process called _____ during their life cycle in which their bodies undergo dramatic changes in form as they develop.

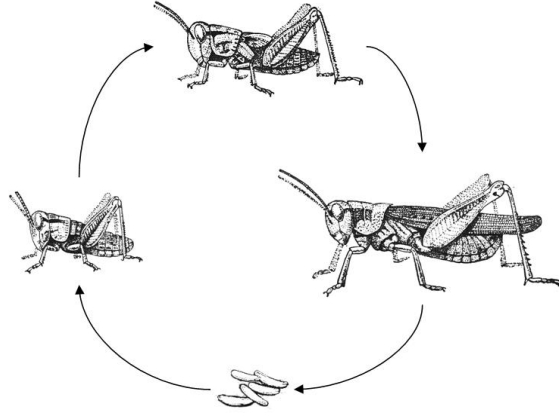
6. The process of shedding an outgrown exoskeleton is called _____.

7. The wings and legs of an insect are connected to the body section called the _____.

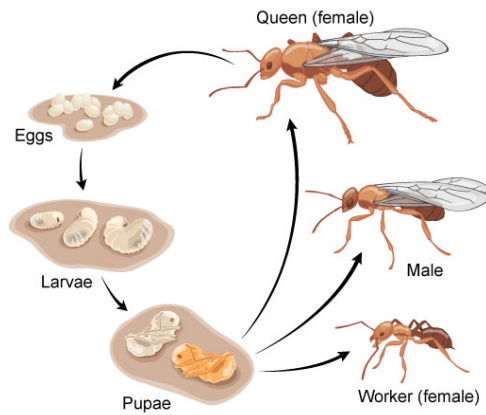
8. In gradual metamorphosis, the egg hatches into a(n) _____, which looks like a small adult

Directions:

Label each stage of the following life cycle diagram. This is an example of _____ metamorphosis.



This is an example of _____ metamorphosis.



REVIEW: ECHINODERMS

1. The name *echinoderm* means “spiny skinned”. Is this a good name for this phylum? Explain.

2. What characteristics are typical echinoderms?

3. Which of the following is not a characteristic of echinoderms?
 - a. 5-part radial symmetry
 - b. Endoskeleton
 - c. Live in freshwater
 - d. Water vascular system

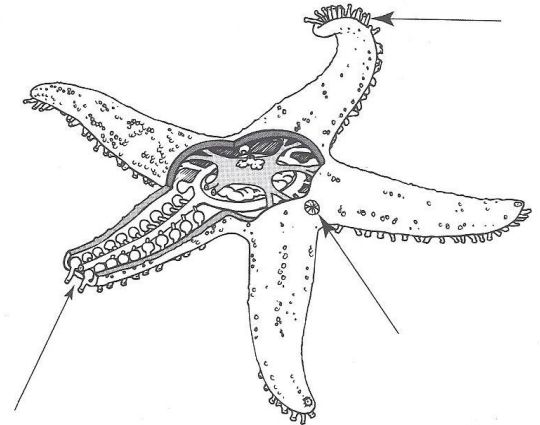
4. What do you think the function of a sea star's spines might be?

5. What kind of symmetry does a sea star have?

6. What do you think the tube feet might be used for?

Directions: Label the sea star

Directions: Mark "Y" (as in YES) if the organism has one of the following structures and mark "N" (as in NO) if the organism does not have the structure.



	MOLLUSKS	ARTHROPODS	ECHINODERMS
Exoskeleton			
Mantle			
Muscular foot			
Invertebrate			
Jointed appendages			
Water vascular system			
Segmented bodies			
Radial symmetry			
Molting			
Endoskeleton			
Examples of Each			

