

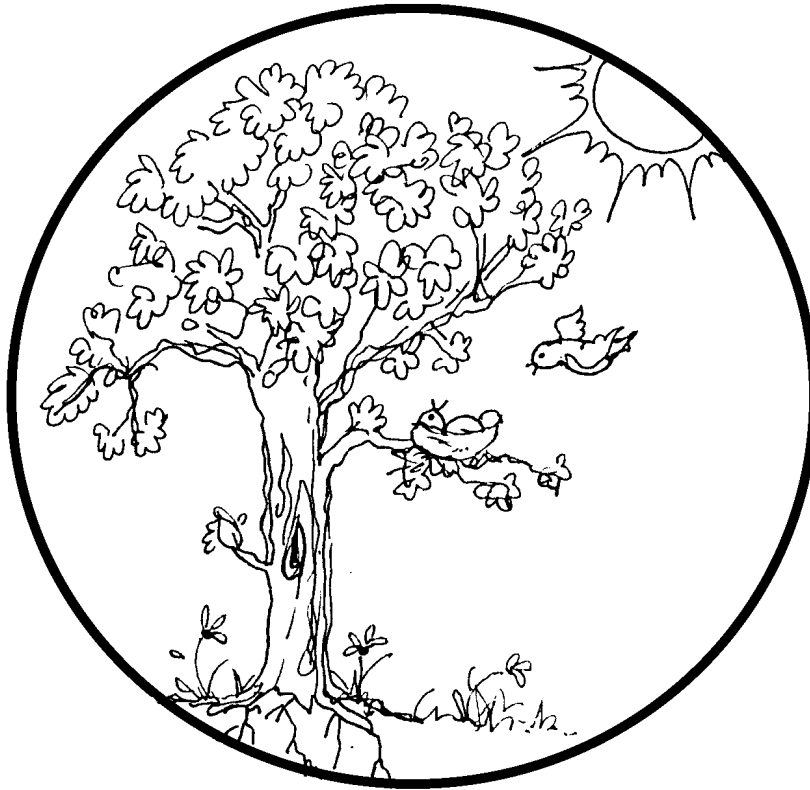


Life Cycle

Diversity in a Balance



FIFTH GRADE WORKBOOK

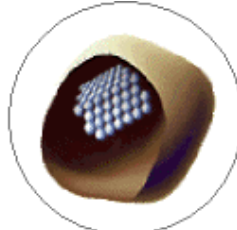


student _____

LIFE CYCLE - ORGANISMS (5A)
PRE



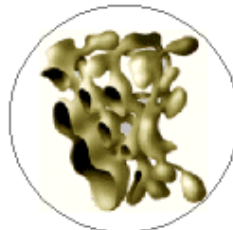
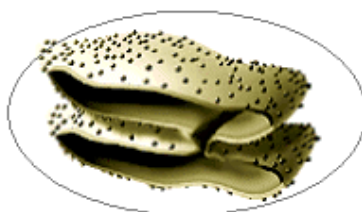
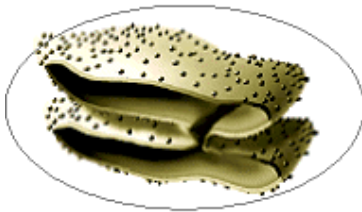
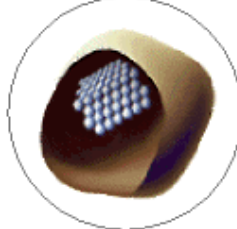
mitochondrion



peroxisome

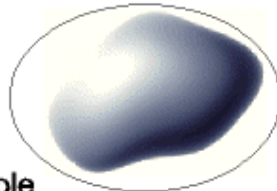
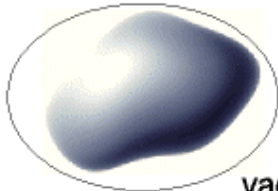


golgi

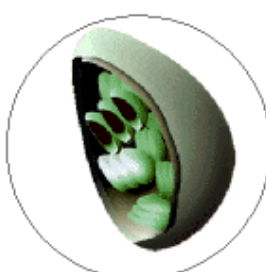
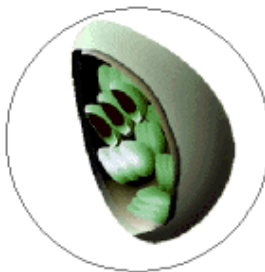
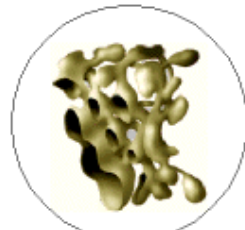


endoplasmic reticulum - rough

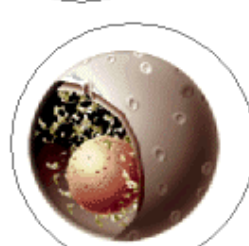
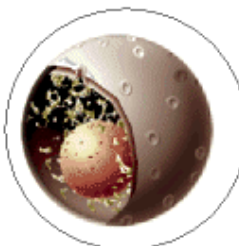
endoplasmic reticulum
smooth



vacuole



chloroplast



nucleus

LIFE CYCLE - ORGANISMS (5A)

PROBLEM: What are the differences between animal and plant cells?

PREDICTION: _____

MATERIALS: MICROSCOPES, food coloring, 3 unknown samples

PROCEDURE: First examine a plant cell (onion) and an animal cell. Your instructor will give you a small piece of onion skin. Put a drop of food coloring on the onion, and observe. Draw both the animal and plant cell.

PLANT CELL	ANIMAL CELL

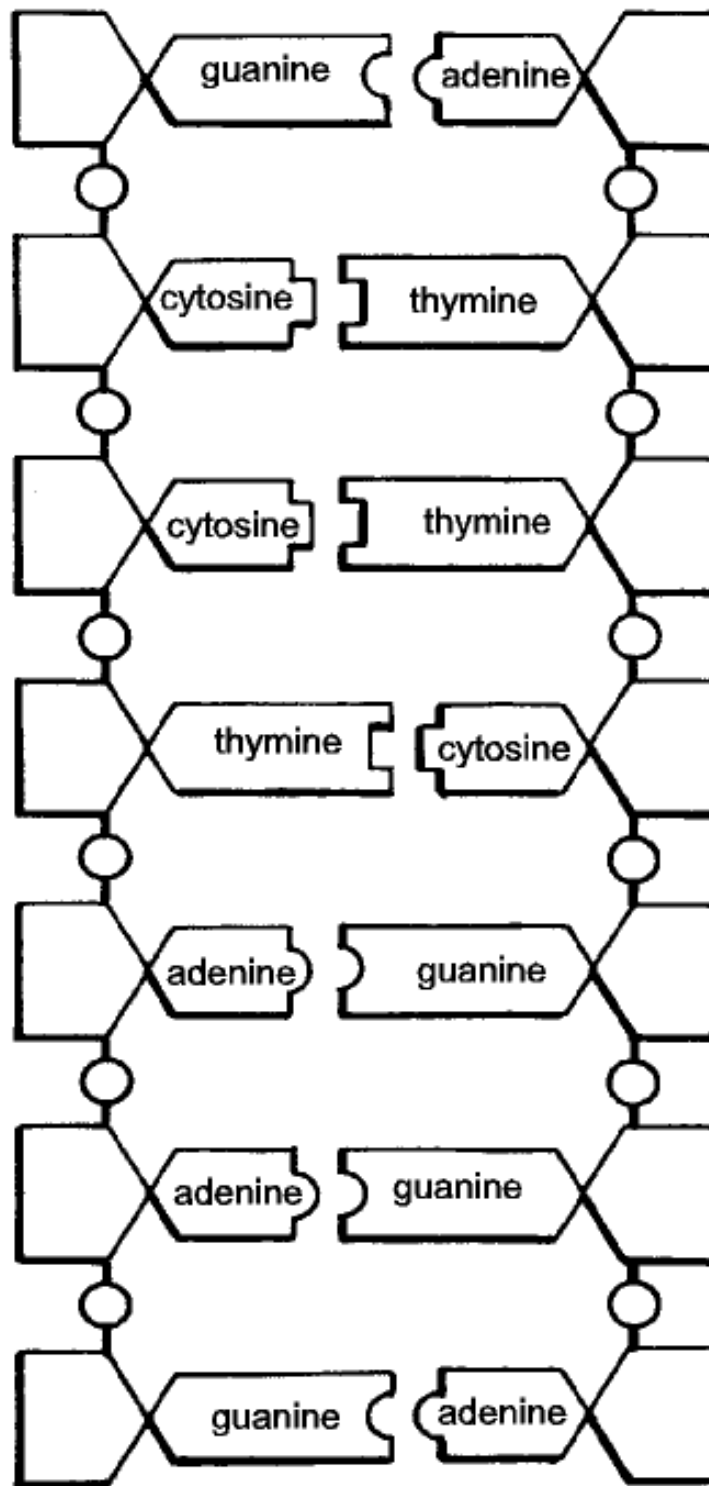
Describe the major difference between plant and animal cells.

Now look at the 3 unknown samples. Draw what you see. Determine whether they come from an animal or a plant.

UNKNOWN 1	UNKNOWN 2	UNKNOWN 3
TYPE _____	TYPE _____	TYPE _____

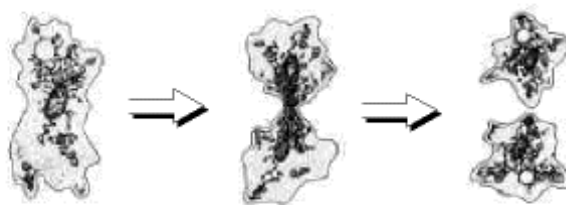
CONCLUSION: How can you distinguish a plant cell from an animal cell?

LIFE CYCLE - ORGANISMS (5A)



REPRODUCTION

ASEXUAL

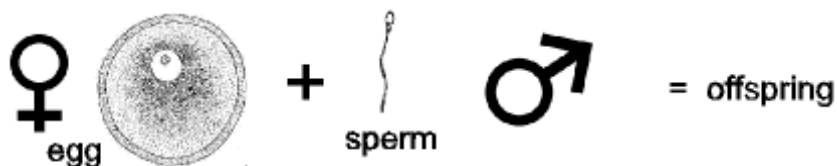


1. Can a daughter become as big as the mother?

2. How does the mother divide?

3. What organisms have asexual reproduction?

SEXUAL



4. What does ♀ mean? ♂ ?

What is produced?

5. What organisms have sexual reproduction?

6. Why do organisms have 2 different methods of reproduction?

LIFE CYCLE - ORGANISMS (5B)

PROBLEM: How can you determine which organism reproduces sexually or asexually?

PREDICTION: _____

MATERIALS: Asexual/Sexual Reproduction Chart, paper, glue

PROCEDURE:

1. After reviewing why some organisms will reproduce sexually versus asexually, cut out the organisms.
2. Group the organisms into two categories, those that reproduce sexually and those that reproduce asexually. Glue the two groups on two separate sheets.
3. Determine from your categories what could be characteristic of the different reproductive strategies.

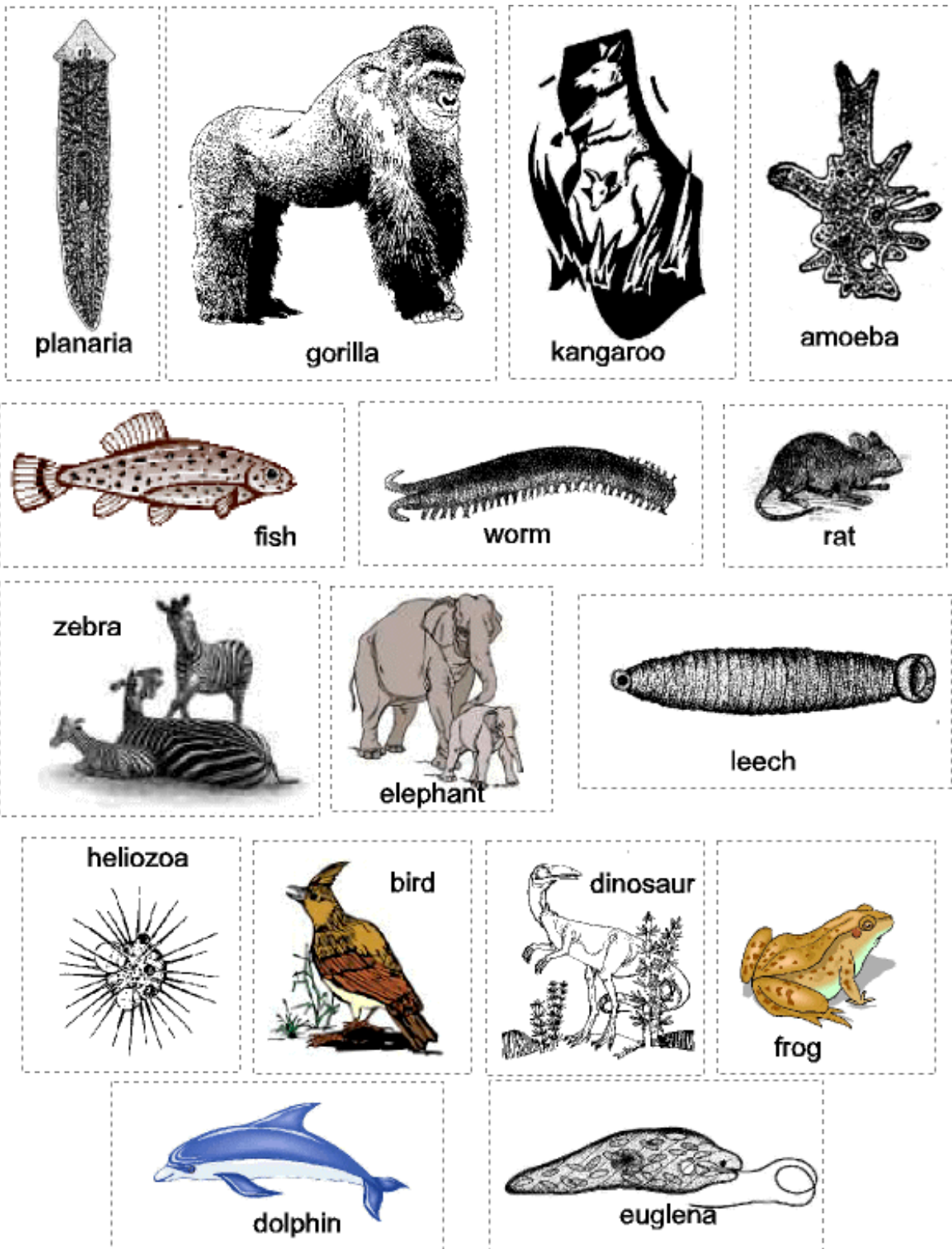
CHARACTERISTICS OF SEXUAL REPRODUCTION

CHARACTERISTICS OF ASEXUAL REPRODUCTION

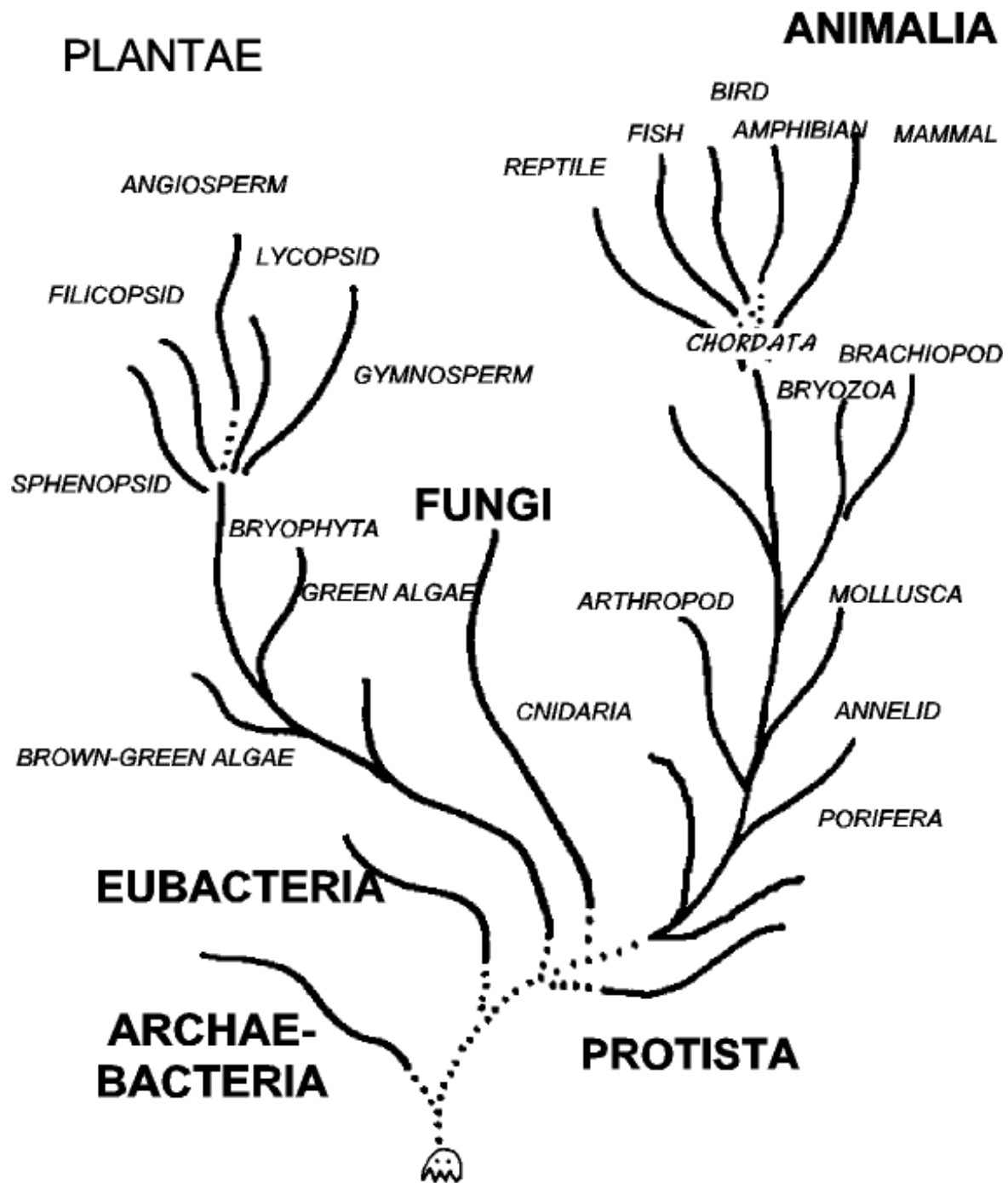
CONCLUSION: Can large animals reproduce asexually? Why?

Why don't little organisms reproduce sexually?

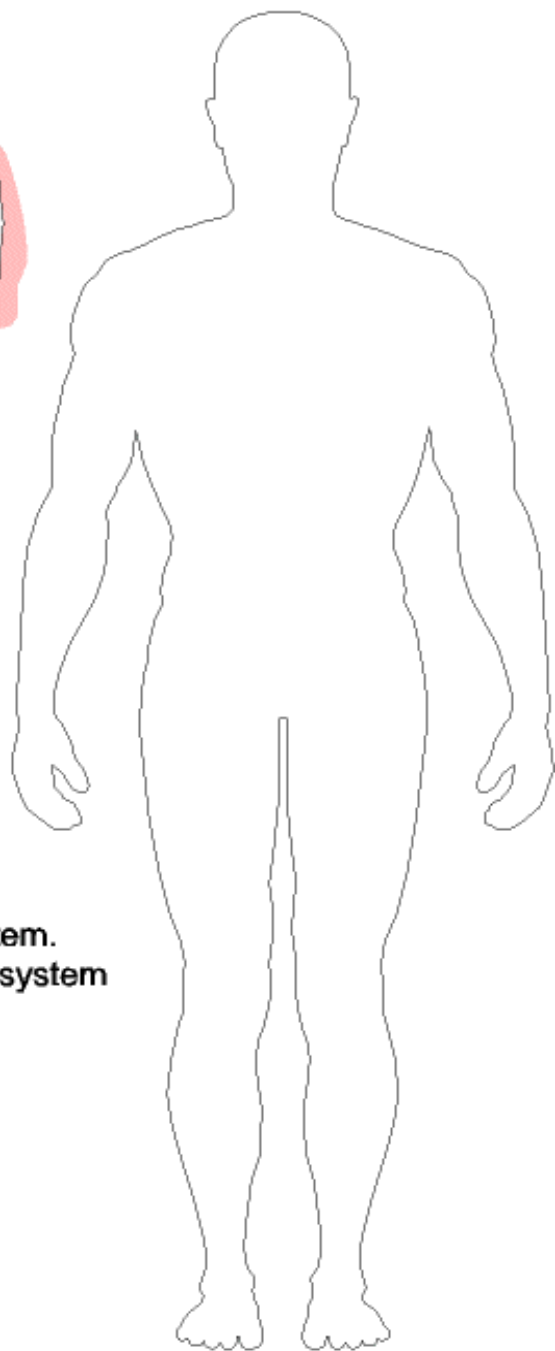
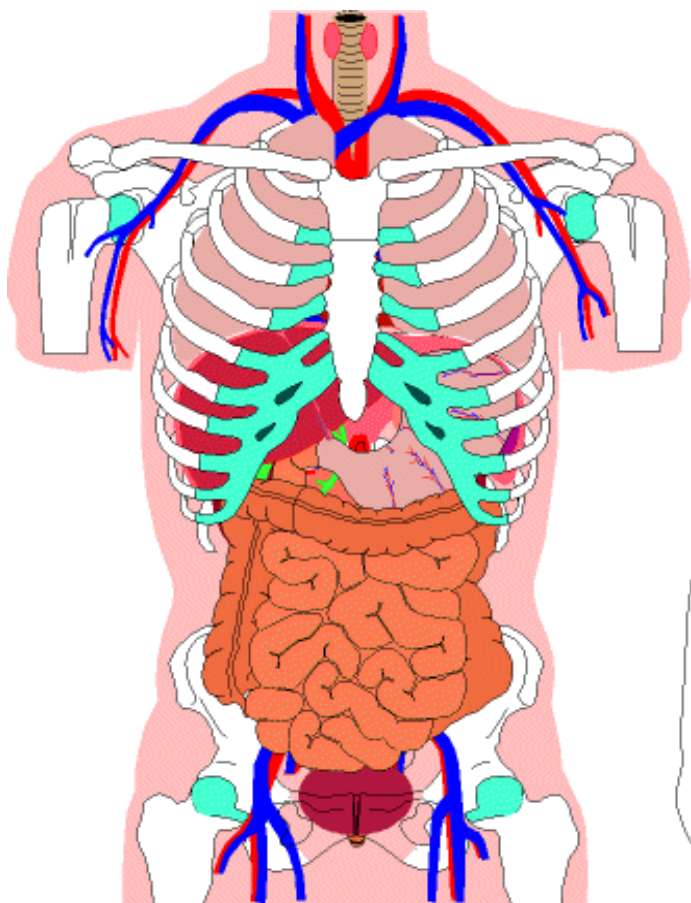
LIFE CYCLE - ORGANISMS (5B)
LAB



LIFE CYCLE - ORGANISMS (5B)
POST



LIFE CYCLE - HUMAN BIOLOGY (5A)



Identify on these figures the following system.
You may draw in appropriately where the system
is located if not represented above.

RESPIRATORY
DIGESTIVE
NERVOUS
CIRCULATORY
SKELETAL
MUSCULAR
INTEGUMENTARY
ENDOCRINE

LIFE CYCLE - HUMAN BIOLOGY (5A)

PROBLEM: Does my calorie intake reflect my weight?

PREDICTION: _____

PROCEDURE: Use the calorie sheets that are at your table and figure how many calories you ate for breakfast, lunch, dinner, and any snacks you might have had in the last 24 hours.

ITEM	CALORIES	ITEM	CALORIES
BREAKFAST		DINNER	
LUNCH		SNACK	
TOTAL: _____		TOTAL: _____	
GRAND TOTAL: _____			

CONCLUSION: How much do you weigh? _____ To keep that body weight you need to consume approximately 20 calories per pound.

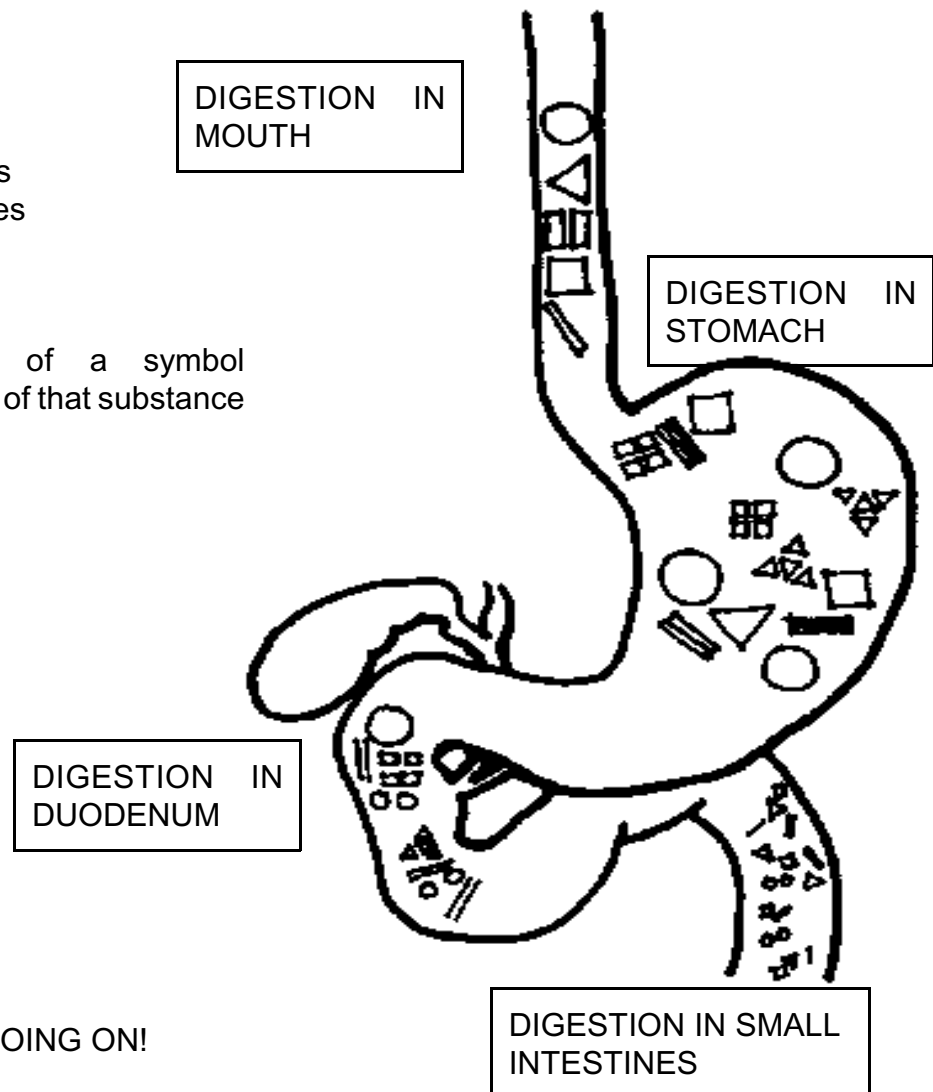
Will you gain weight or lose weight if you continue eating like you did in the last 24 hours? Why? _____

Look at the chart of activities. What activity could you do to maintain your weight at about 2300 calories per day? How would you determine this? _____

LIFE CYCLE - HUMAN BIOLOGY (5A)
POST

Triangles = sugars
squares = starches
bars = proteins
circles = fats

NOTE: smaller size of a symbol
represents a breakdown of that substance



DESCRIBE WHAT IS GOING ON!

LIFE CYCLE - HUMAN BIOLOGY (5B) PRE

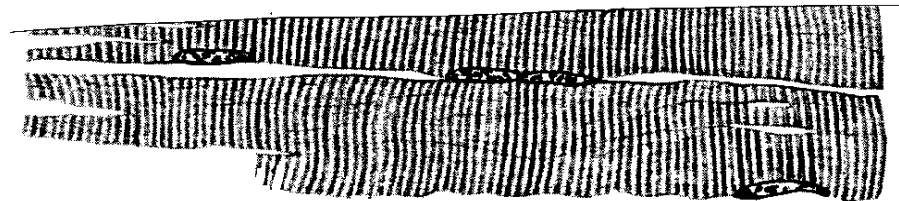
THREE TYPES OF MUSCLE TISSUES

Directions: Look at the following pictures of the 3 types of muscle tissues. Color in the different types and observe the characteristics of each tissue. Fill in the chart below.

	skeletal	smooth	cardiac
shape of cell			
location of nucleus			
presence of striations			
location in the body			
voluntary/involuntary			



SMOOTH



CARDIAC



SKELETAL

LIFE CYCLE - HUMAN BIOLOGY (5B)

PROBLEM: Can voluntary muscles "learn" to react faster?

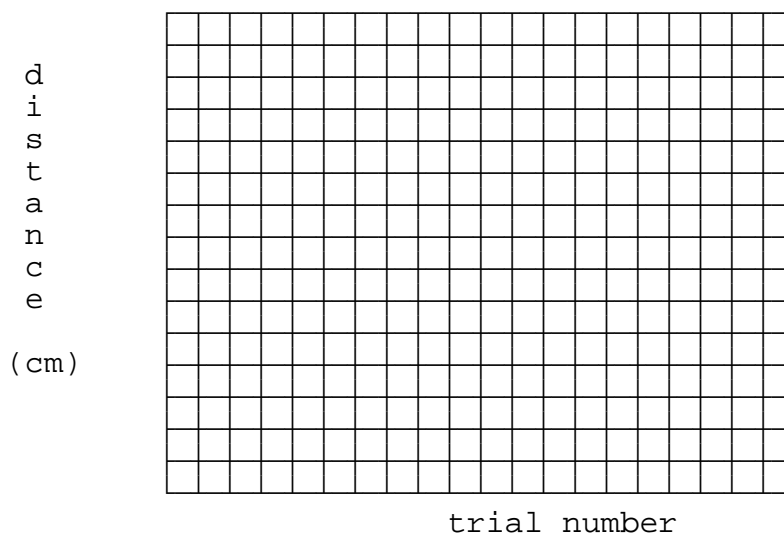
PREDICTION: _____

MATERIALS: metersticks

PROCEDURE: One student will hold a meterstick vertically at shoulder height while another student attempts to catch it when it is released. Measure the distance that the meterstick dropped. (This is the distance between the holding and the catching hand). Do this 10 times, recording your reflex distance. Then, reverse the position with your partner.

trial number	1	2	3	4	5	6	7	8	9	10
your reflex distance										
partner's reflex distance										

Graph your reflex distance compared to your partner's

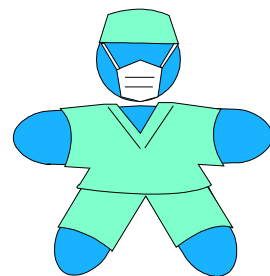
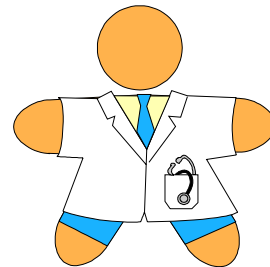
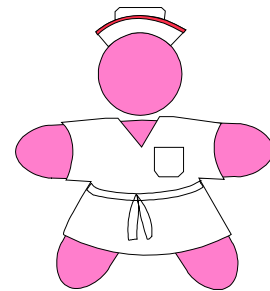
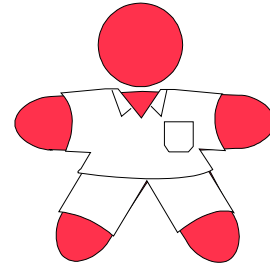


CONCLUSION: What happened with each successive trial?

LIFE CYCLE - HUMAN BIOLOGY (5B)

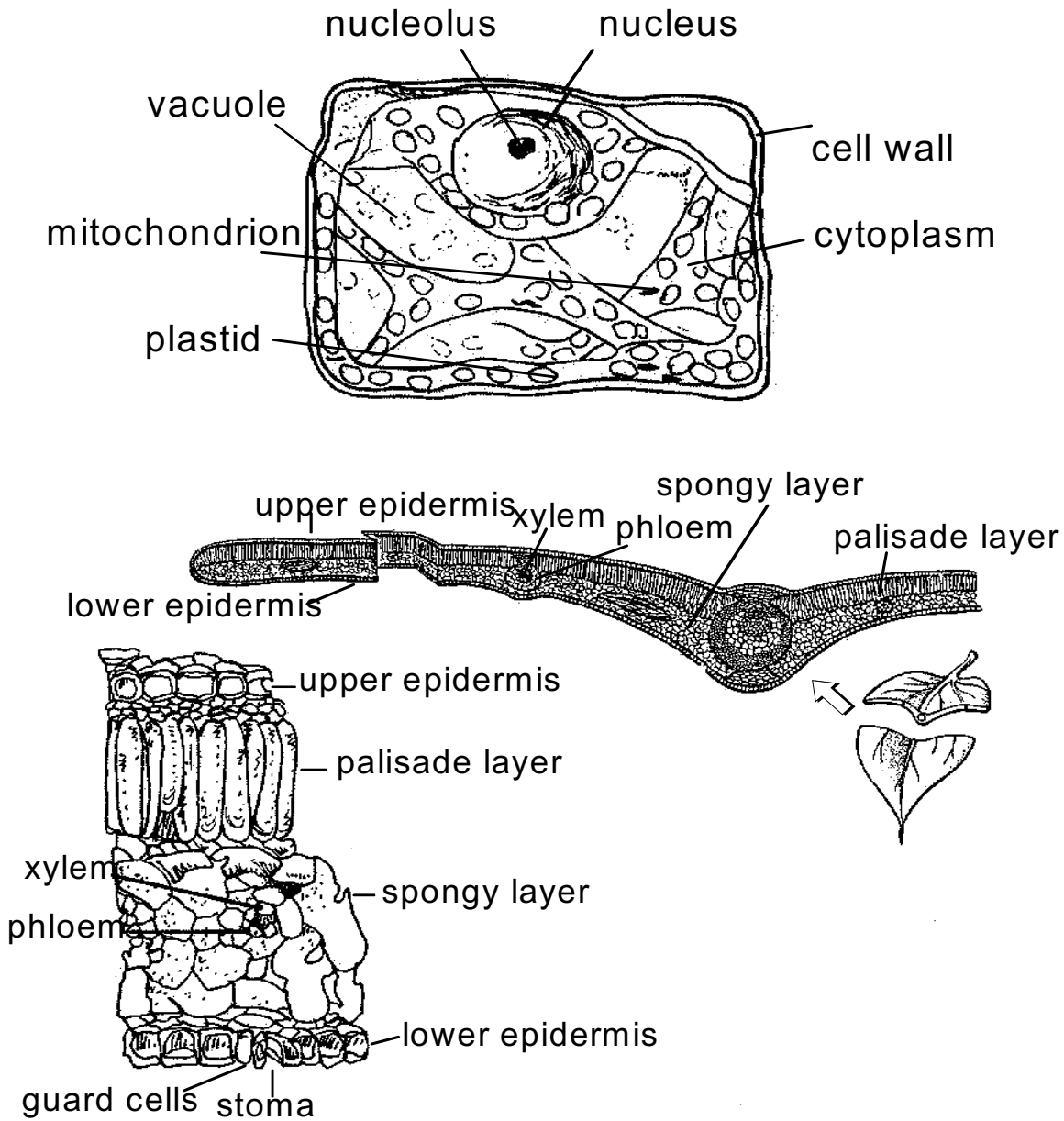
WHAT KIND OF CAREERS ARE AVAILABLE IN MEDICINE

A large rectangular box containing 20 horizontal dashed lines for writing.

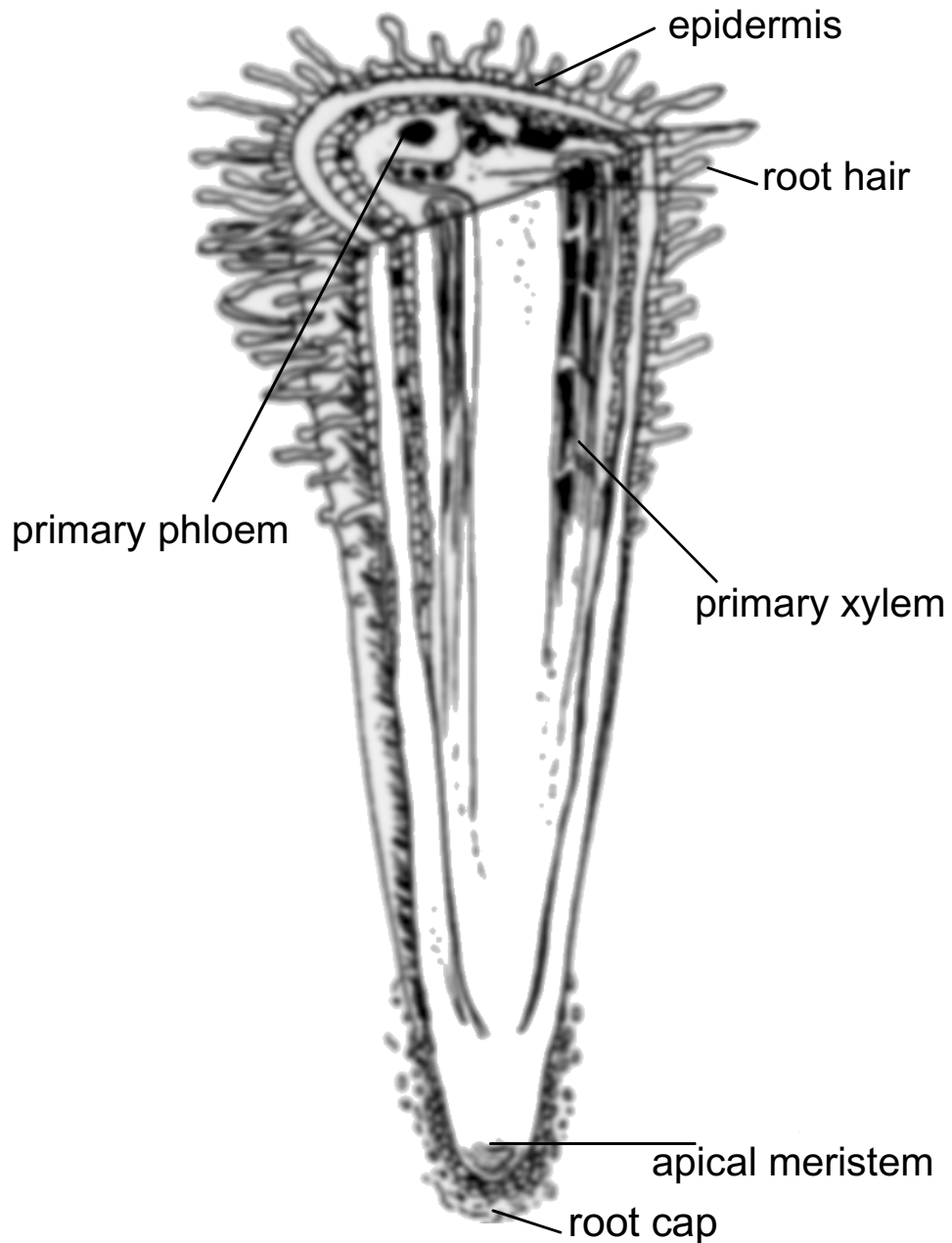


LIFE CYCLE - PLANTS (5A) **PRE**

color the xylem and phloem tissue (blue), spongy layer (green), palisade layer (yellow), upper epidermis (red), and the lower epidermis (pink).



LIFE CYCLE - PLANTS (5A)
PRE



Color the apical meristem, orange; the phloem, green; the xylem, blue; and the epidermis, red.

LIFE CYCLE - PLANTS (5A)

PROBLEM: What are the characteristics of a plant cell?

PREDICTION: _____

MATERIALS: Microscopes, Elodea Plant, Onion, Cork, Medicine Droppers, Stain, Prepared and Clean Microscope Slides

PROCEDURE: Observe and listen carefully to your lab instructor as you look at the microscope slides of elodea, onion, and cork cells. Illustrate what you see and label all parts of the cells (cell wall, chloroplasts, vacuole, nucleus, and starch grains).

elodea	onion
cork	

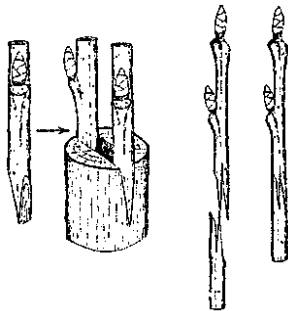
CONCLUSIONS:

Are all plant cells the same?

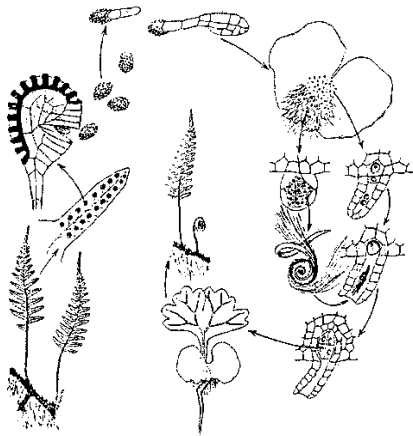
What are the major differences between the Elodea, Onion, and Cork cells?

LIFE CYCLE - PLANTS (5B) PRE

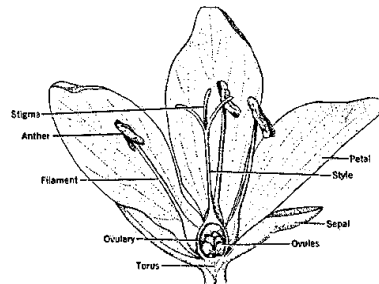
DIRECTIONS: DETERMINE WHICH PLANTS REPRODUCE ASEXUALLY AND WHICH REPRODUCE SEXUALLY.



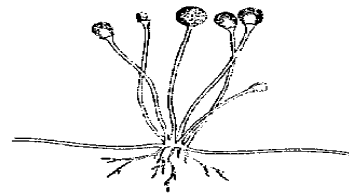
1. Grafting



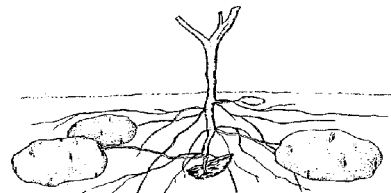
4. Life of Ferns



2. Flower



3. Underground rooting



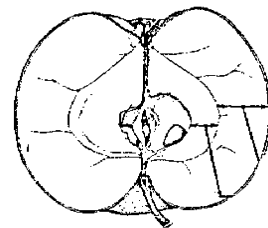
6. Potato



5. Rooting



7. Tomato



8. Apple

LIFE CYCLE - PLANTS (5B)

PROBLEM: How do angiosperms and gymnosperms reproduce?

PREDICTION: _____

MATERIALS: different flowers, fruits, seeds, cones

PROCEDURE:

1. You have several flowers, fruit, seeds, and cones at your table. Identify which ones you have and describe them.
2. Draw and label the parts of the plant (be sure to label the parts that are male and female)

SAMPLE	DRAW PARTS OF PLANT THAT ARE USED IN REPRODUCTION

CONCLUSIONS:

1. How do angiosperm plants reproduce? _____
2. How do gymnosperm plants reproduce? _____

LIFE CYCLE - NATURAL ENVIRONMENT (5A)

PROBLEM: Can you study the environment of an organism without knowing the physical characteristics of that organism?

PREDICTION: _____

MATERIALS: bag of assorted corals, hand lens, MICROSCOPE

PROCEDURE: Group similar looking corals. Examine with a magnifying glass or microscope and draw a picture of each different type.

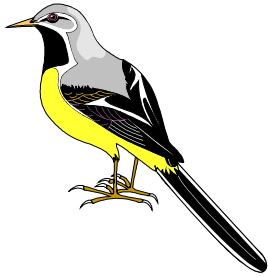
Compare with instructor's specimens and determine which specimens you have.

CONCLUSIONS: What characteristics can be used to group corals together?

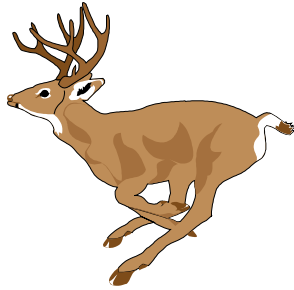
LIFE CYCLE - NATURAL ENVIRONMENT (5B)

PRE

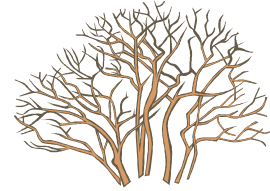
DIRECTIONS: Cut out the pictures below and glue them onto the blank land-food pyramid in the correct sequence (energy loss becoming greater as you go up the pyramid and the number of organisms becoming less in number as you go up.)



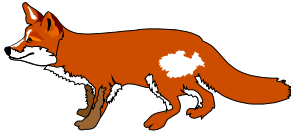
1



2



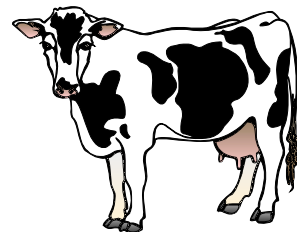
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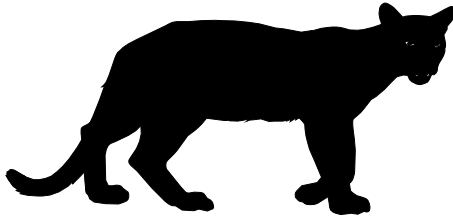
4



5



6



7



8



9



10



11



12

LIFE CYCLE - NATURAL ENVIRONMENT (5B)

PROBLEM: How can you determine the food habit of a Great Horned owl?

PREDICTION:

MATERIALS: reference material, tweezers, tray, owl pellet

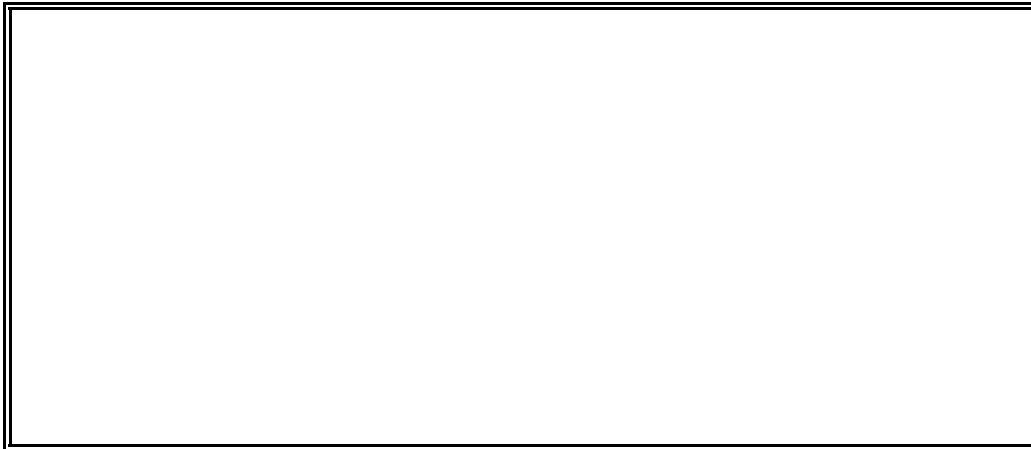
PROCEDURE: Record the day that your owl pellet was collected (out of 15 possible days). Record this number on the data sheet below. First separate the bones from the other fur material. Measure the volume of fun in a graduated cylinder and record your results.

volume of fur -----

Look at the materials other than the bones under the microscope. Describe the contents.

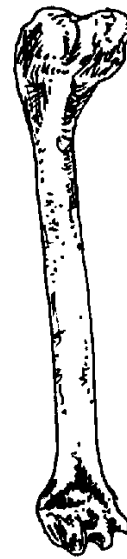
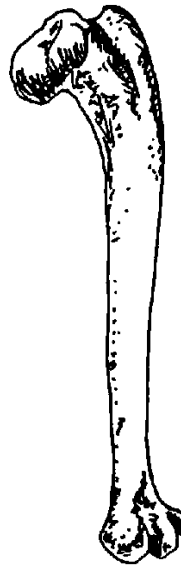
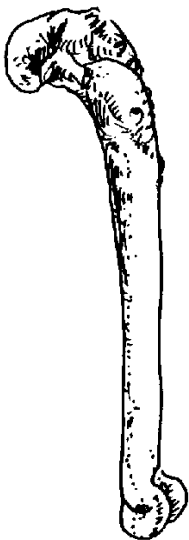
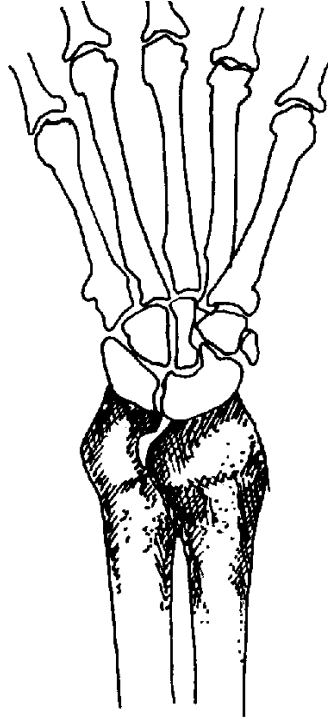
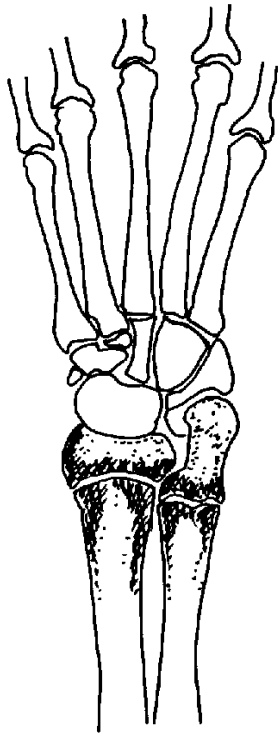
Where do you think it came from?

Look at the bones and record what you see. Use the Eyewitness Books on *Skeletons* to help you identify what parts of the body they came from. Draw what you have trouble describing. Use the back of this sheet if necessary.



CONCLUSIONS: What did your owl eat on the day assigned to your group?

MATURITY OF ANIMAL BONES

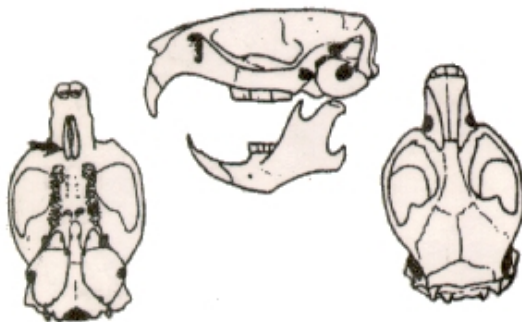




gopher



mouse



vole



mole

LIFE CYCLE - NATURAL ENVIRONMENT (5B)
POST

CLASS DATA SHEET FOR LIFE CYCLE- NATURAL ENVIRONMENT (5B)

DAY	VOLUME OF FUR	HOW MANY ANIMALS	CONTENTS/COMMENTS