Name _____ Period _____

Due date _____

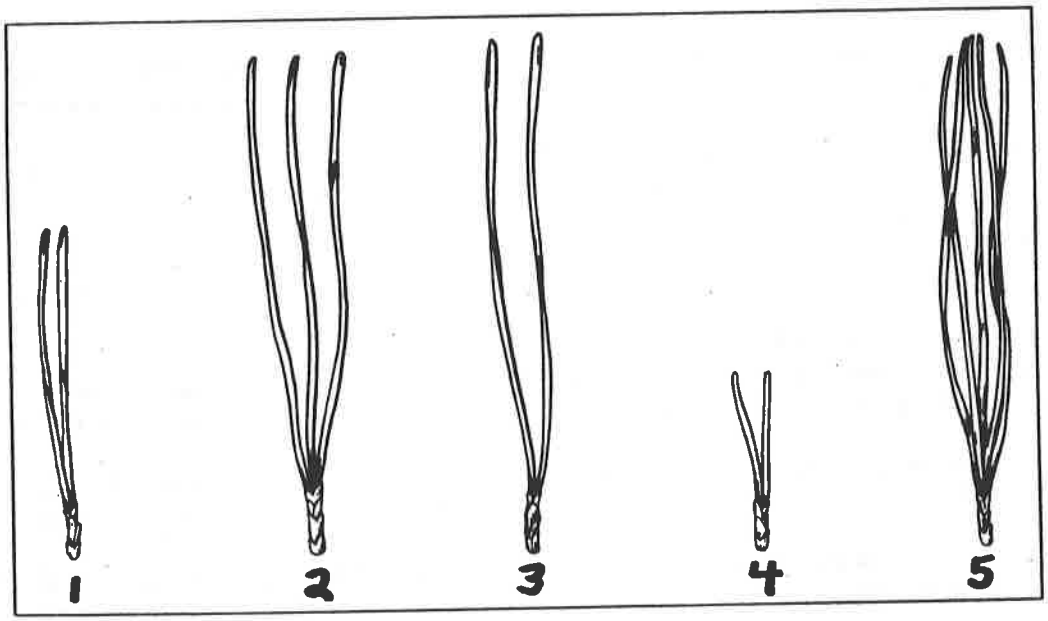
Dichotomous Keys

Classification is the science of dividing organisms into groups and sub-groups based on how they are related. A tool called a dichotomous key is an organized list of characteristics that can be used to identify organisms. The identified organisms can then be placed into their correct classifications. In this lab activity, you will use dichotomous keys to identify various plants and animals

MATERIALS: Metric ruler

PART I: PINE TREES

Use a metric ruler and the following dichotomous key to correctly identify 5 species of pine trees based on their needles. (Note: Measure from the base to the tip of each bundle.)



1. A. Needles come in groups of two ..... Go to step 2
   B. Needles come in groups larger than two ..... Go to step 3

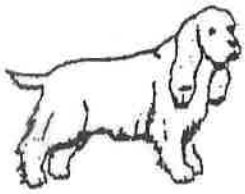
2. A. Needles are less than 3 cm. long ..... Jack pine
   B. Needles are longer than 3 cm. ..... Go to step 4

3. A. Needles come in groups of three ..... Pitch pine
   B. Needles come in groups of five ..... White pine

4. A. Needles are less than 5 cm. long ..... Scotch pine
   B. Needles are more than 5 cm. long ..... Austrian pine

TREE IDENTIFICATION: (1) _____ (4) _____
(2) _____ (5) _____
(3) _____

PART 2: VARIOUS ORGANISMS

1 

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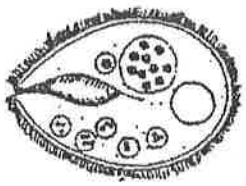
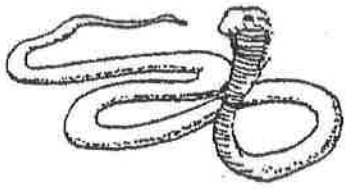
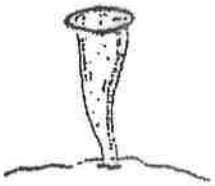
4 

5 

6 

7 

8 

Dichotomous Key

1. a. Has 2 or 4 legs ..... go to 2
   b. Does not have 2 or 4 legs ..... go to 3

2. a. Organism has wings ..... House sparrow
   b. Organism has no wings ..... Dog

3. a. Organism is unicellular (one cell) ..... go to 4
   b. Organism is multicellular (more than one cell) ..... go to 5

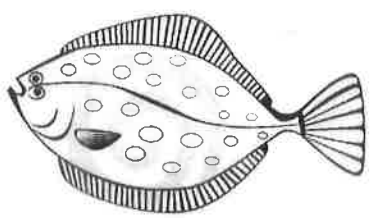
4. a. Freely swims in water ..... Balantidium
   b. Is anchored to substrate ..... Stentor

5. a. Heterotrophic (eats other organisms) ..... go to 6
   b. Autotrophic (photosynthetic) ..... go to 7

6. a. Lives in the ocean ..... Narwal
   b. Lives on land ..... King cobra

7. a. Tall and woody ..... Ponderosa pine
   b. Short and non-woody ..... Dandelion

PART 3: FISH



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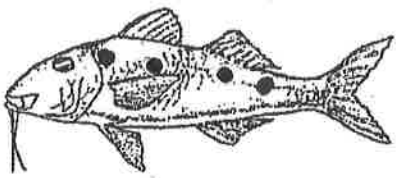

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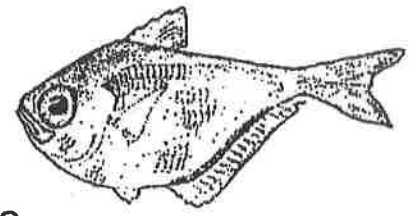

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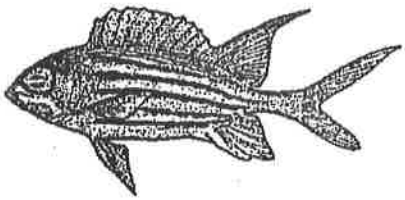

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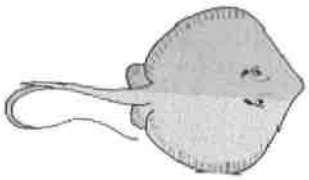

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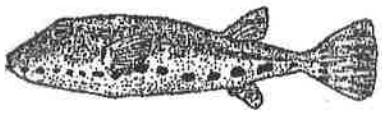

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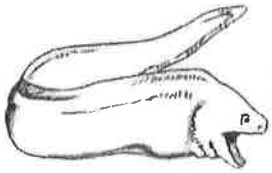

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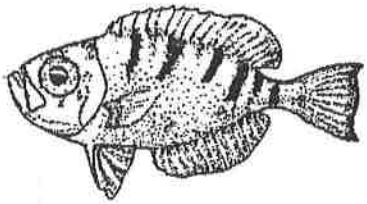

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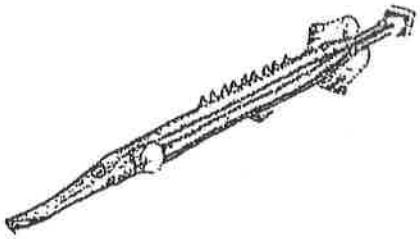


9 _____

DICHOTOMOUS KEY

1. a. Fish is long and skinny ..... go to 2
   b. Fish is not long and skinny ..... go to 3

2. a. Has pointed fins ..... Trumpet fish
   b. Smooth fins ..... Moray eel

3. a. Both eyes on top of head ..... go to 4
   b. One eye on each side of head ... go to 5

4. a. Long whip-like tail ..... Stingray
   b. Short stubby tail ..... Peacock flounder

5. a. Fish has spots ..... go to 6
   b. Fish has no spots ..... go to 7

6. a. Has chin whiskers ..... Spotted goat gish
   b. No chin whiskers ..... Band-tail puffer

7. a. Has stripes ..... Go to 8
   b. No stripes ..... Glassy sweeper

8. a. V-shaped tail ..... Squirrel fish
9. b. No V-shaped tail ..... Glass-eye snapper

PART 4: EXTINCT ANIMALS

Fishes, amphibians, and reptiles are ectothermic because their body temperatures change with their environment. (*Ecto-* means outside; *-therm* means heat.) Birds and mammals are endothermic because their body temperatures remain fairly constant. (*Endo-* means inside.) Some animals in each of these vertebrate groups have become extinct, or completely died out.

CHARACTERISTICS

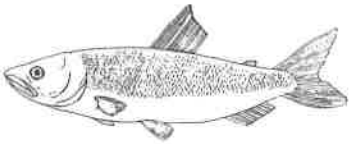
Name of Animal	Appendages					Body Covering				Temperature Regulation		Breathing Mechanism	
	Fins	Wings	Forelegs	Hindlegs	Horns	Smooth skin	Scales	Feathers	Hair	Ectothermic	Endothermic	Gills	Lungs
Domed tortoise			X	X			X			X			X
Dodo		X						X			X		X
Utah Lake sculpin	X						X			X		X	
Texas red wolf			X	X					X		X		X
Passenger pigeon		X						X			X		X
Eastern elk			X	X					X		X		X
Round Island boa							X			X			X
Palestinian painted frog			X	X		X				X			X
Oregon bison			X	X	X				X		X		X
New Zealand grayling	X						X			X		X	

DICHOTOMOUS KEY

1	**a** Is endothermic	Go to 2
	b Is ectothermic	Go to 6
2	**a** Has feathers	Go to 3
	b Has hair or fur	Go to 4
3	**a** Has narrow, straight beak	Passenger pigeon
	b Has wide, crooked beak	Dodo
4	**a** Has horns	Go to 5
	b Has no horns	Texas red wolf
5	**a** Horns may have many branches	Eastern elk
	b Horns have no branches	Oregon bison
6	**a** Breathes with gills	Go to 7
	b Breathes with lungs	Go to 8
7	**a** Has large, fan-shaped fins just behind the head	Utah Lake sculpin
	b Has small pectoral fins	New Zealand grayling
8	**a** Has scaly skin	Go to 9
	b Has smooth skin	Palestinian painted frog
9	**a** Has front and hind legs	Domed tortoise
	b Has no legs	Round Island boa

1. _____

2. _____



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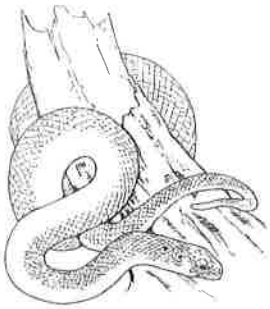

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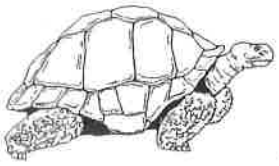

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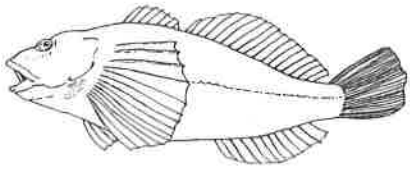

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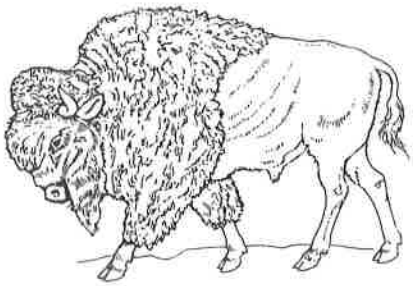

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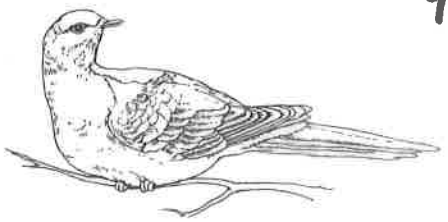

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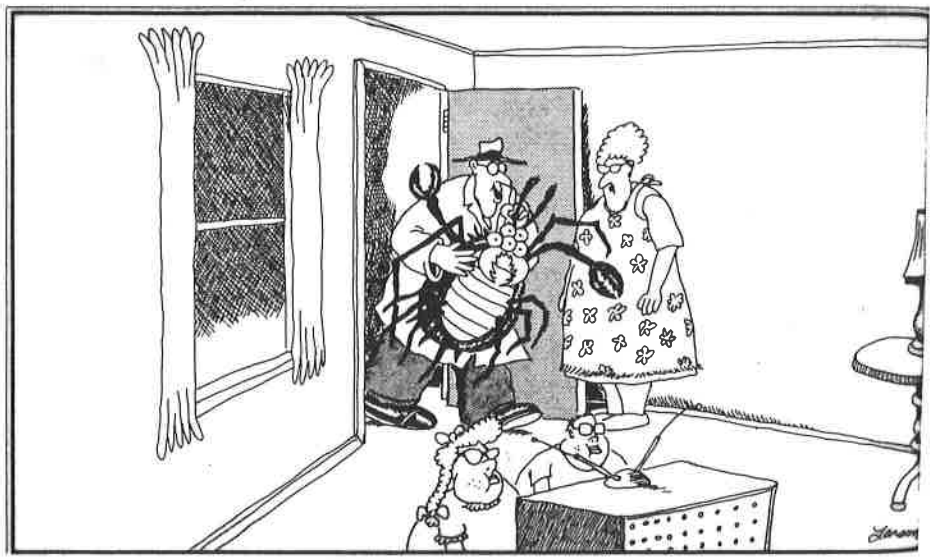

"Shhhhhhh . . . I wanna surprise the kids."