Name _____ Date _____ Class _____

HOW SCIENTISTS CLASSIFY

In your textbook, read about how scientists classify today in Section 3:3. Then, examine the classification of the three animals in the chart below.

	Animal A	Animal B	Animal C
Kingdom	Animal	Animal	Animal
Phylum	Chordate	Chordate	Chordate
Class	Mammal	Aves	Aves
Order	Primates	Passeriformes	Passeriformes
Family	Pongidae	Fringillidae	Fringillidae
Genus	*Pan*	*Spizella*	*Serinus*
Species	*troglodytes*	*passerina*	*canarius*

1. Comparing Animals A and B, how many ~~groups~~ taxa are the same? _____

2. Comparing Animals A and C, how many ~~groups~~ taxa are the same? _____

3. Comparing Animals B and C, how many ~~groups~~ taxa are the same? _____

4. Which two animals (A and B, A and C, or B and C) are most alike in classification?

   _____

5. Which two animals have more of the same traits? _____

6. Which two animals have more of the same body parts? _____

7. Which two animals are most closely related? _____

8. What is the scientific name of Animal A? _____

9. What does the first word of the scientific name represent? _____

10. What does the second word of the scientific name represent? _____

11. What are three reasons for using scientific names? _____

   _____

   _____

   _____

Analyzing Relationships Within a Classification System

The living world shows great diversity. There are a large number of different organisms, and each species has characteristics that are different from the others. In this activity you will identify and analyze the structure of a commonly used classification system.

The figure below shows a scheme used to classify animals.

Figure 1

Kingdom Animalia

Phylum Chordata

Class Mammalia

Order Carnivora

Family Canidae

Genus *Vulpes*

Species *fulva*

Analyzing Relationships Within a Classification System

The basis of a classification system is that all organisms within each species has characteristics that are different from the others. In this activity you will identify and analyze the structure of a commonly used classification system.

The figure below shows a system used to classify animals.

Figure 1

Kingdom Animals

Phylum Chordata

Family Canidae

1. List the common features of the animals in each group. _____

_____

_____

_____

2. Describe the major differences between each group. For example, the decision to classify an organism in either kingdom or phylum is that some animals have a spinal cord and others do not.

   Phylum–Class _____

   _____

   Class–Order _____

   Order–Family _____

   Family–Genus _____

   Genus–Species _____

3. Describe what happens to the degree of diversity at both ends of the scheme, from the

   higher taxonomic levels to the lower taxonomic levels. _____

   _____

   _____

   Classification systems have been represented by various models. The pyramid in Figure 2 is an example. It can be used to illustrate various aspects of the structure of a system, such as the number of organisms per level. Use this as a guide to draw a pyramid that includes the organisms shown in Figure 1.

Figure 2

SPECIES
GENUS
FAMILY
ORDER
CLASS
PHYLUM
KINGDOM
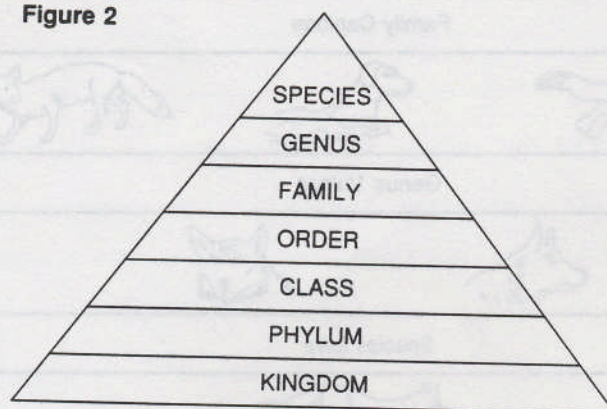
4. Venn diagrams can also be used to make models of classification schemes. A Venn diagram is shown in Figure 3. Four groups are represented by circular regions—A, B, C, and D. Each region represents a collection of things or members of a taxonomic level. Regions that overlap, or intersect, share common members. Regions that do not overlap do not have members in common. Use the following terms to label the regions shown in Figure 3: *All Animals; Animals That Have Backbones; Insects; Mammals.*

Figure 3
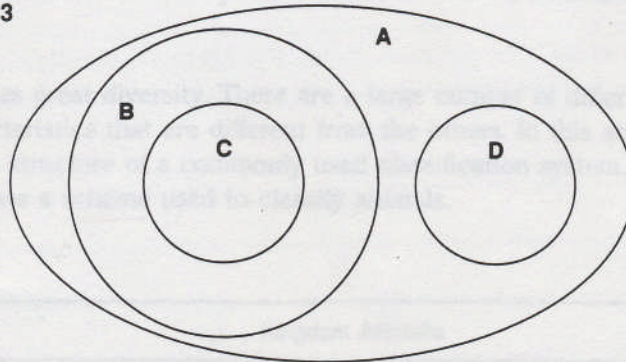
Figure 4 shows a classification scheme for butterflies (family, genus, and species have been omitted).

```
Kingdom . . . . . . . . . Animalia
Phylum . . . . . . . . . Arthropoda
Class . . . . . . . . . . . . Insecta
Order . . . . . . . . . . . Lepidoptera
```

5. On a separate sheet of paper, construct a Venn diagram that models the information contained in Figure 4.

6. Do any of the regions intersect or overlap? If so, describe the pattern.

_____

_____

_____

_____

_____

Name _____ Date _____ Class _____

THE CLASSIFICATION OF ANIMALS

Use this information and information from your textbook to complete the scientific names of the animals below and to fill in the chart.

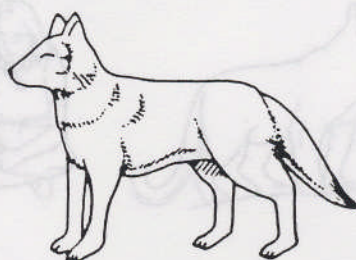Shown below are pictures of animals with their common names and scientific names. Why do the scientific names of all the animals shown begin with the same word? _____

_____

The genus for dogs and doglike animals is *Canis*. Dogs belong to the family Canidae and to the same order as cats.

Common name:	coyote	wolf	dog
Scientific name:	*Canis latrans*	*Canis lupus*	*Canis familiaris*

Kingdom			
Phylum			
Class			
Order			
Family			
Genus			
Species			

Name _____ Date _____ Class _____

## CLASSIFICATION OF LIVING THINGS

Scientists use classification to arrange living things into groups. There are thousands of different kinds of living things. Classifying allows the scientist to see the "big picture". Grouping helps to identify living things and to compare them to each other. In the modern classification system, there are seven groups. The pictures below show eight living things. Some of them are very similar. Some are very different from each other. How can you classify them? Study the table below. To what kingdom do most of the living things shown belong? Read the names and descriptions on the table. Decide which living thing best fits each description. Now letter the living things A, B, C, D, E, F, or G to show which description best fits.
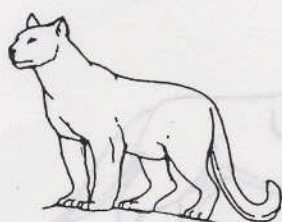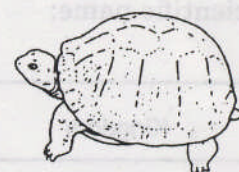
	A	B	C	D	E	F	G	H
Kingdom	Animal	Animal	Animal	Plant	Animal	Animal	Animal	Animal
Phylum	Chordata	Chordata	Arthropoda	Anthophyta	Chordata	Chordata	Chordata	Chordata
Class	Mammalia	Reptilia	Insecta	Dicotyledones	Mammalia	Mammalia	Mammalia	Mammalia
Order	Primates	Chelonia	Diptera	Fagales	Carnivora	Carnivora	Carnivora	Carnivora
Family	Hominidae	Emydidae	Culicidae	Fagaceae	Felidae	Felidae	Felidae	Canidae
Genus	Homo	Terrapene	Theobaldia	Quercus	Felis	Felis	Panthera	Canis
Species	sapiens	carolina	anulata	alba	domesticus	leo	pardus	lupus