DATA AND OBSERVATIONS

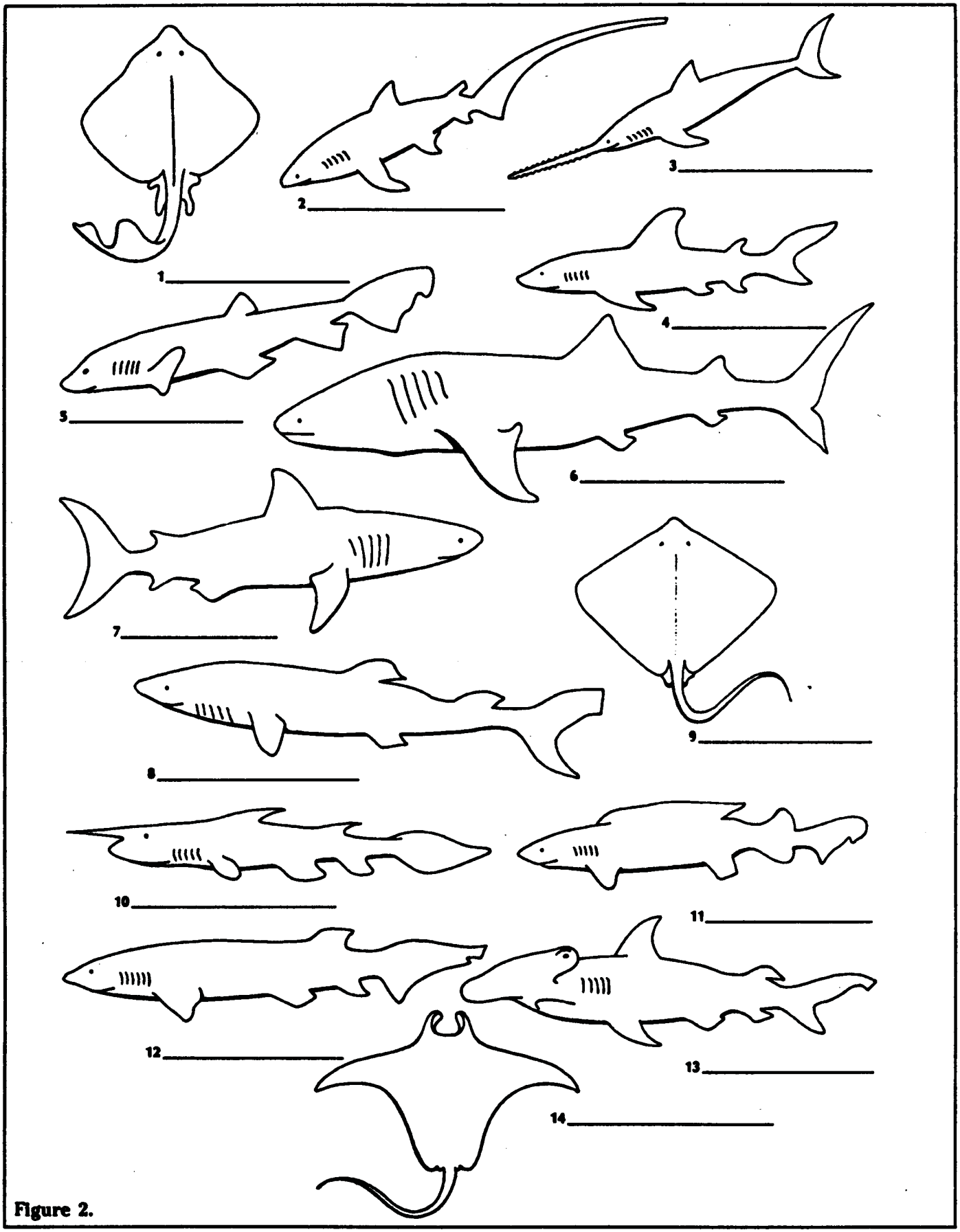


Figure 2.

NAME: DATE: PERIOD:

USING AND MAKING A DICHOTOMOUS KEY

(Adapted from Using and Making a Biological Key)

Classifying is a way of putting things into groups by looking at similarities. When classifying, there is usually a large group to start out with and then it gets broken down into smaller groups. The members of the small groups have many things in common. Classification makes it easy to identify things in biology and all sciences. In fact, the scientific names of organisms come from the classification system. When scientists are trying to classify an unknown organism, they will use something called a dichotomous key. This tool helps them find the name of the organism. This key has a list of specific characteristics or traits that the scientists can use to compare to the unknown organism. It is called a dichotomous key because each step along the way gives the scientists two choices and then directions of what to do next.

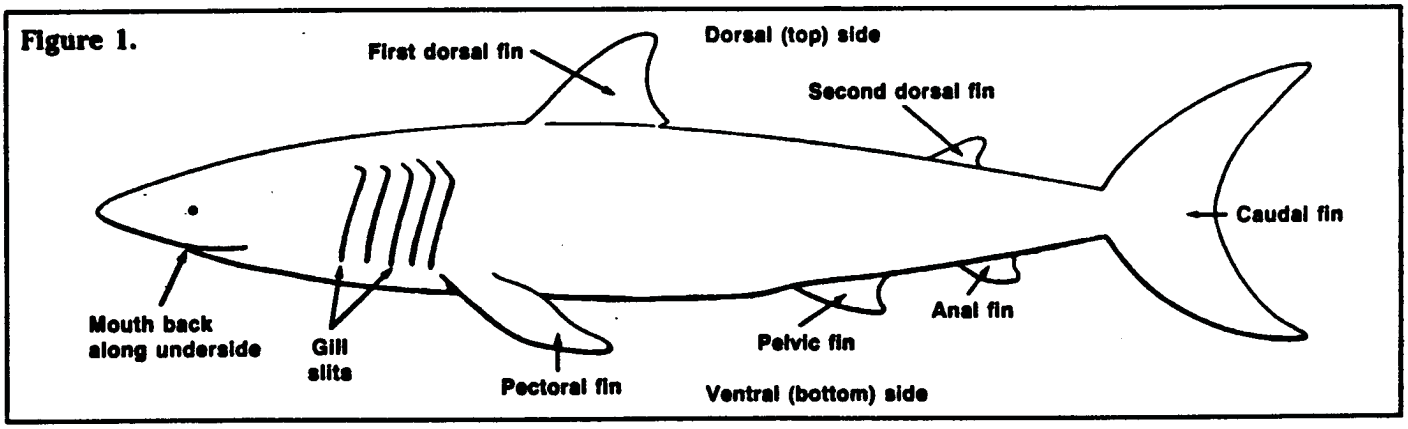
In this activity you will:

1. use a dichotomous key to identify fourteen different sharks.
2. look at how to make a dichotomous key.
3. actually make your own dichotomous key.

PROCEDURE:

1. Use the picture of the shark below to help you identify the different parts.
2. Choose one of the fourteen sharks in Figure 2 and try to identify it using the dichotomous key.
3. Start at statement 1A of the key and read the statement. If the statement is true, follow the instructions at the end. If the statement is false, go on to statement 1B. If the instructions tell you to go to another statement, then read that statement and follow the directions at the end.
4. Continue to follow the statements according the directions written in the key until you find the name of the Family the shark belongs to.
5. Write the Family name on the line provided under the picture of the shark.
6. Do this for each of the fourteen sharks but remember to ALWAYS START AT THE FIRST STATEMENT! If you start in the middle of the key or try to work backwards, you could get a wrong answer.

Figure 1.



The Dichotomous Key

1A. The body is the shape of a kite……. Go to statement 12
B. The body is not the shape of a kite……... Go to statement 2

2A. There is no pelvic fin and the nose looks like a saw……... Family Pristiophoridae
B. There is a pelvic fin……..…….. Go to statement 3

3A. There are six gills…….…….. Family Hexanchidae
B. There are five gills……..…….…… Go to statement 4

4A. There is only one dorsal fin…….. Family Scyliorhinidae
B. There are two dorsal fins……..... Go to statement 5

5A. The mouth is at the front of the face like a human giving it a small nose…….Family Rhinocodontidae
B. The mouth is on the underside of the head…….…. Go to statement 6

6A. The head goes out on the sides and the eyes are on the extensions…….…….. Family Sphyrnidae
B. The head does not go out on the sides…….……..... Go to statement 7

7A. The top half of the caudal fin is the same size and shape as the bottom half……...……...Family Isuridae
B. The top half of the caudal is different in shape and size from the bottom half…….…… Go to statement 8

8A. The first dorsal fin is very long, almost half as long as the body……..……..... Family Psuedotriakidae
B. The first dorsal fin is regular length…….……... Go to statement 9

9A. The caudal fin is very long, almost as long as the body……...…….....……. Family Alopiidae
B. The caudal fin is regular length……...……...……... Go to statement 10

10A. There is a long point (like a needle) on the end of the nose……. Family Scapanorhynchidae
B. The nose does not have a point……...……Go to statement 11

11A. There is no anal fin……...…...… Family Squalidae
B. There is an anal fin……..…… Family Carcharhinidae

12A. There is a small dorsal fin near the end of the tail……...…… Family Rajidae
B. There is not a small dorsal fin near the end of the tail……..……..Go to statement 13

13A. The front of the animal has two points that look like horns……...…...……. Family Mobulidae
B. The are no points that look like horns…… Family Dasyatidae

ANALYSIS:

1. Name 5 of the characteristics that you looked at in order to find the names of the sharks.

2. How is a dichotomous key useful to scientists?

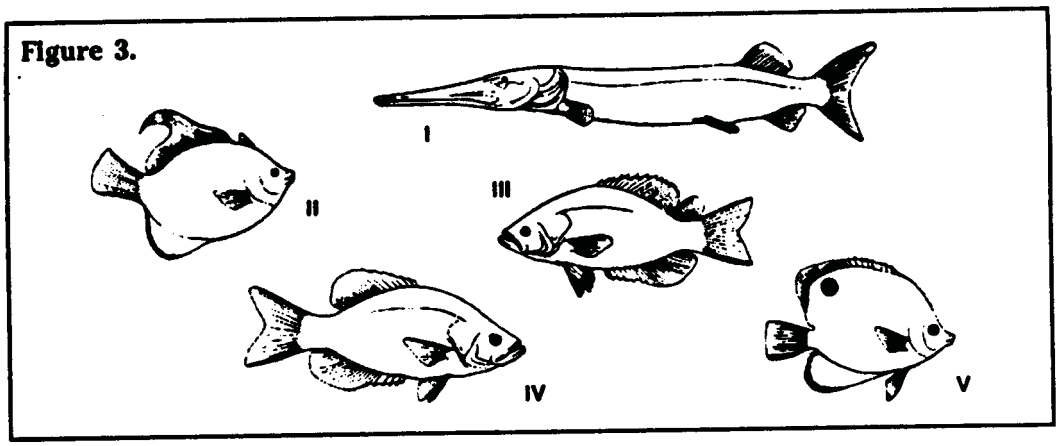
3. What was the main trait that was the difference between sharks 4 and 8? _____

4. What was the main trait that was the difference between sharks 14 and 9? _____

5. What was the main trait that was the difference between sharks 4 and 7? _____

6. Prepare a dichotomous key for the five fish in Figure 3.

REMEMBER: 1.) Each step has only two options. 2.) The options should be about the same characteristic. Instead of ending with the family name for these fish, you should end with the numbers I, II, III, IV, and V. To help you get started, I have given you the first pair of statements.



1.A. If the fish has a long, tube like body ……..……. _____

B. If the fish does not have a tube like body …… _____

2.A. _____

B. _____

3.A. _____

B. _____

4.A. _____

B. _____