# HOW CAN A KEY BE USED TO IDENTIFY ORGANISMS?

Classification is a way of separating a large group of closely related organisms into smaller subgroups.  The scientific names of organisms are based on the classification systems of living organism.  The identification of an organism is easy with a classification system.  To identify an organism, scientists often use a key.  A key is a listing of characteristics, such as structure and behavior, organized in such a way that an organism can be identified.

*Objectives:*
Use a shark key to identify fourteen shark families
Examine the method used to make a key
Construct your own key that will identify another group of organisms
Correctly write the scientific name for organisms in your key

*Procedure:*
1.  Use figure 1 as a guide to the shark parts used the key.
2.  Read statements1A and 1B of the key.  They describe a shark characteristic that can be used to separate the sharks into two major groups.  Then study Shark 1 in Figure 2 for the characteristics referred to in 1A and 1B.  Follow the directions n these statements and continue until a family name for Shark 1 is determined.
3.  Continue keying each shark (always start at number 1 on the shark key for each shark) until all have been identified.  Write the family name on the line below each shark in Figure 2.
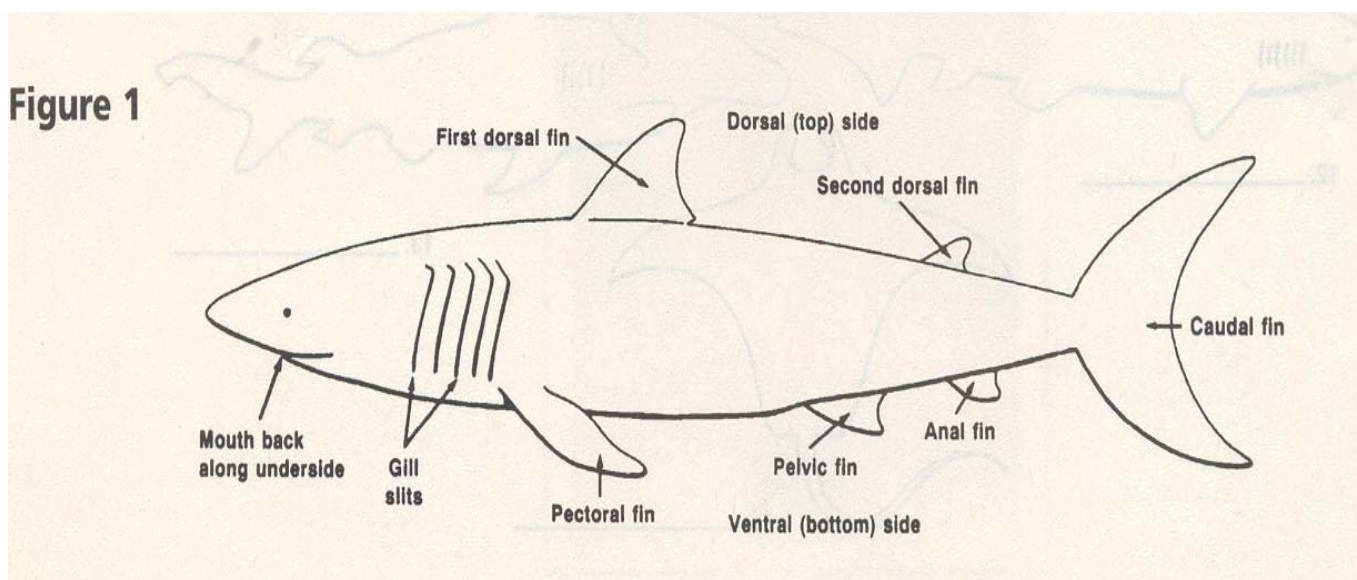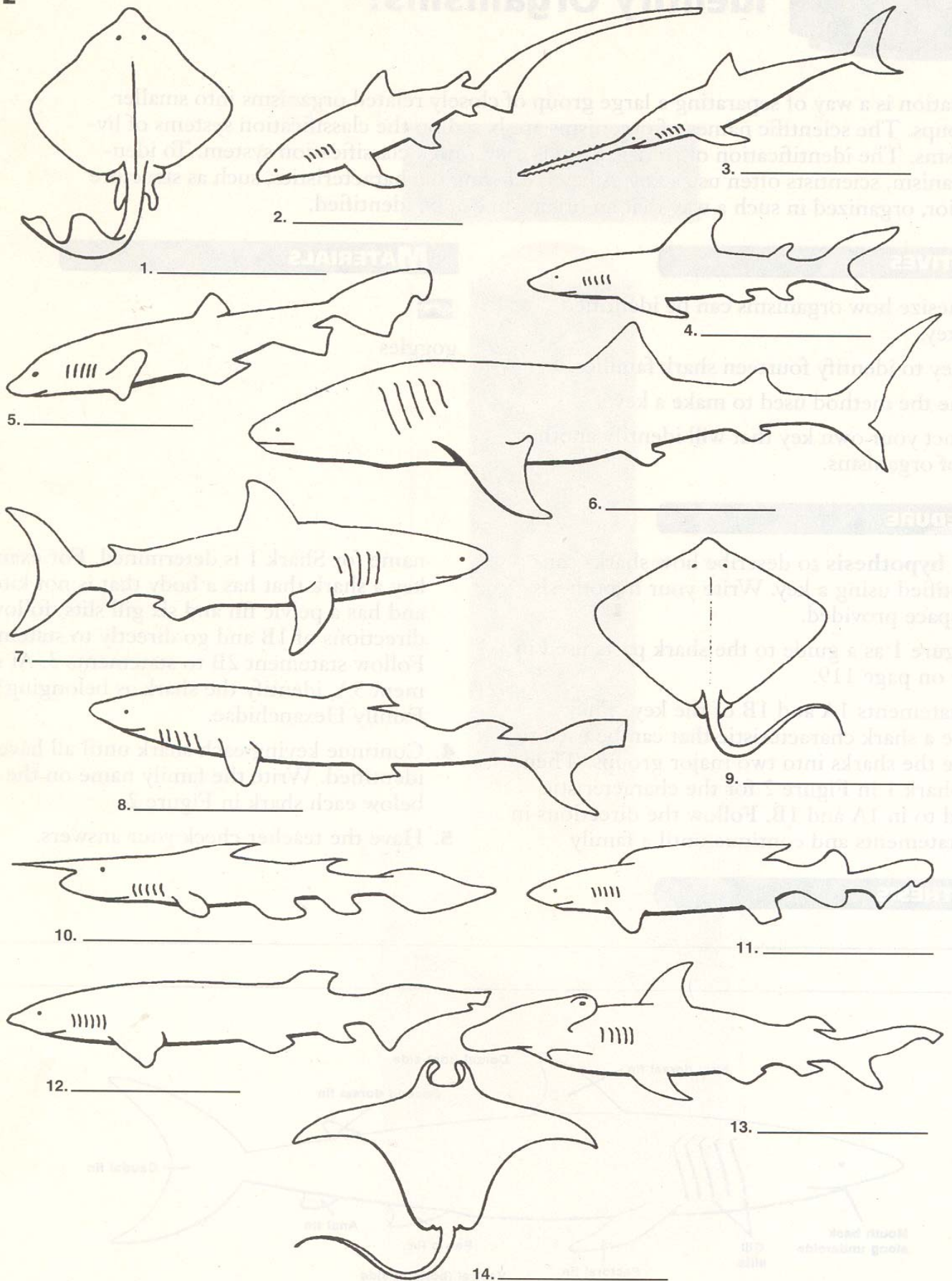


Figure 1

# How Can a Key Be Used to Identify Organisms?

**Figure 2**

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

1.  A.  Body kitelike in shape (if viewed from above) . . . . . . . . . . . . . . . . . . . . . . . . . . Go to statement 12
    B.  Body not kitelike in shape (if viewed from above) . . . . . . . . . . . . . . . . . . . . . Go to statement 2

2.  A.  Pelvic fin absent and nose sawlike . . . . . . . . . . . . . . . . . . . . . . . . . . . Family Pristophoridae
    B.  Pelvic fin present . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .  Go to statement 3

3.  A.  Six gill slits present . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .Family Hexanchidae
    B.  Five gill slits present . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Go to statement 4

4.  A.  Only one dorsal fin present . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Family Scyliorhinidae
    B.  Two dorsal fins present  . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Go to statement 5

5.  A.  Mouth at front of head rather than back along underside of head. . Family Rhinocodontidae
    B.  Mouth back along underside of head . . . . . . . . . . . . . . . . . . . . . . . . . . . Go to statement 6

6.  A.  Head expanded on side with eyes at end of expansion. . . . . . . . . . .  Family Sphyrnidae
    B.  Head not expanded . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Go to statement 7

7.  A.  Top half of caudal fin exactly same size and shape as bottom half . . . .  Family Isuridae
    B.  Top half of caudal fin different in size and shape from bottom half. . . Go to statement 8

8.  A.  First dorsal fin very long, almost half total length of body . . . . . . .Family Pseudotriakidae
    B.  First dorsal fin length much less than length of entire body . . . . . . . . .  Go to statement 9

9.  A.  Caudal fin very long, almost as long as entire body . . . . . . . . . . . . . . . .Family Alopiidae
    B.  Caudal fin length much less than length of entire body . . . . . . . . . .  Go to statement 10

10.  A.  Nose with long needlelike point on end . . . . . . . . . . . . . .  Family Scapanorhynchidae
     B.  Nose without needlelike point . . . . . . . . . . . . . . . . . . . . . . . . . . . Go to statement 11

11.  A.  Anal fin absent . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Family Squalidae
     B.  Anal fin present . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Family Carcharhinidae

12.  A.  Small dorsal fin present near tip of tail . . . . . . . . . . . . . . . . . . . . . . . . . Family Rajidae
     B.  Small dorsal fin absent near tip of tail . . . . . . . . . . . . . . . . . . . . . Got to statement 13

13.  A.  Hornlike appendages at front of shark . . . . . . . . . . . . . . . . . . . . . . . . Family Mobulidae
     B.  Hornlike appendage not present at front of shark . . . . . . . . . . . . . . Family Dasyatidae

*Analysis:*
1.  What is a dichotomous classification key? _____

_____

2.  How do you use a dichotomous classification key? _____

_____

3. List four different characteristics that were used in the shark key _____

_____

4. Which main characteristics can be used to distinguish shark 4 from shark 8?

_____

5. Which main characteristics can be used to distinguish shark 4 from shark 7?

_____

4. Give each fish a scientific name, using the rules of writing a correct scientific name.


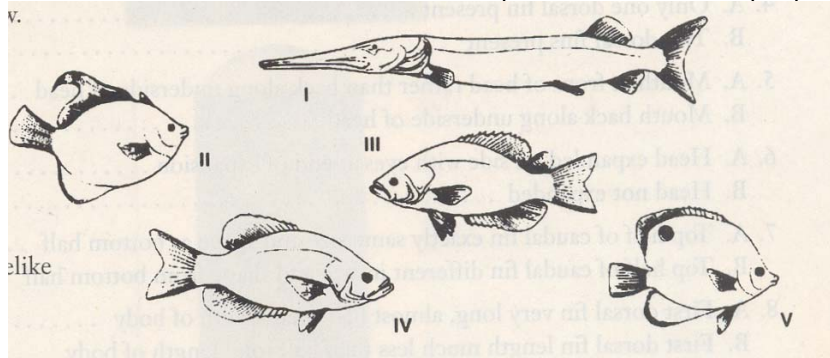    I                                   II                              III


    IV                              V

5. Prepare your own key for the five fish in Figure 3. Use the same format you just used and use their scientific name for identification. (Use a separate sheet of paper if necessary).



1. A. _____

   B. _____

2. A. _____

   B. _____

3. A. _____

   B. _____

4. A. _____

   B. _____