Name Date

SHARK KEY

44

Students gain knowledge of how a key is constructed and used. They then apply this knowledge by constructing their own keys.

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

In this investigation, you will

(a) use a key to identify fourteen shark families.
(b) study the method used in making statements of a key.
(c) construct your own key which will identify imaginary organisms appearing on page 206.

Procedure

Students must refer to this diagram.

• Use Figure 44-1 as a guide to the shark parts used in the key on page 205.

• Read sentences 1A and 1B of the key. Then study Shark 1 in Figure 44-2 for the characteristics referred to in 1A and 1B. Follow the directions in these sentences and continue until a family name for Shark 1 is determined.

For example, to key a shark that has an anal fin and a body that is not kite shaped, follow the directions of 1A and go directly to sentence 2. To key a shark that lacks an anal fin and has a kite shaped body, follow the directions of 1B and go to sentence 10.

• Continue this process with each shark until all animals have been identified. Write the family name on the line below each animal.

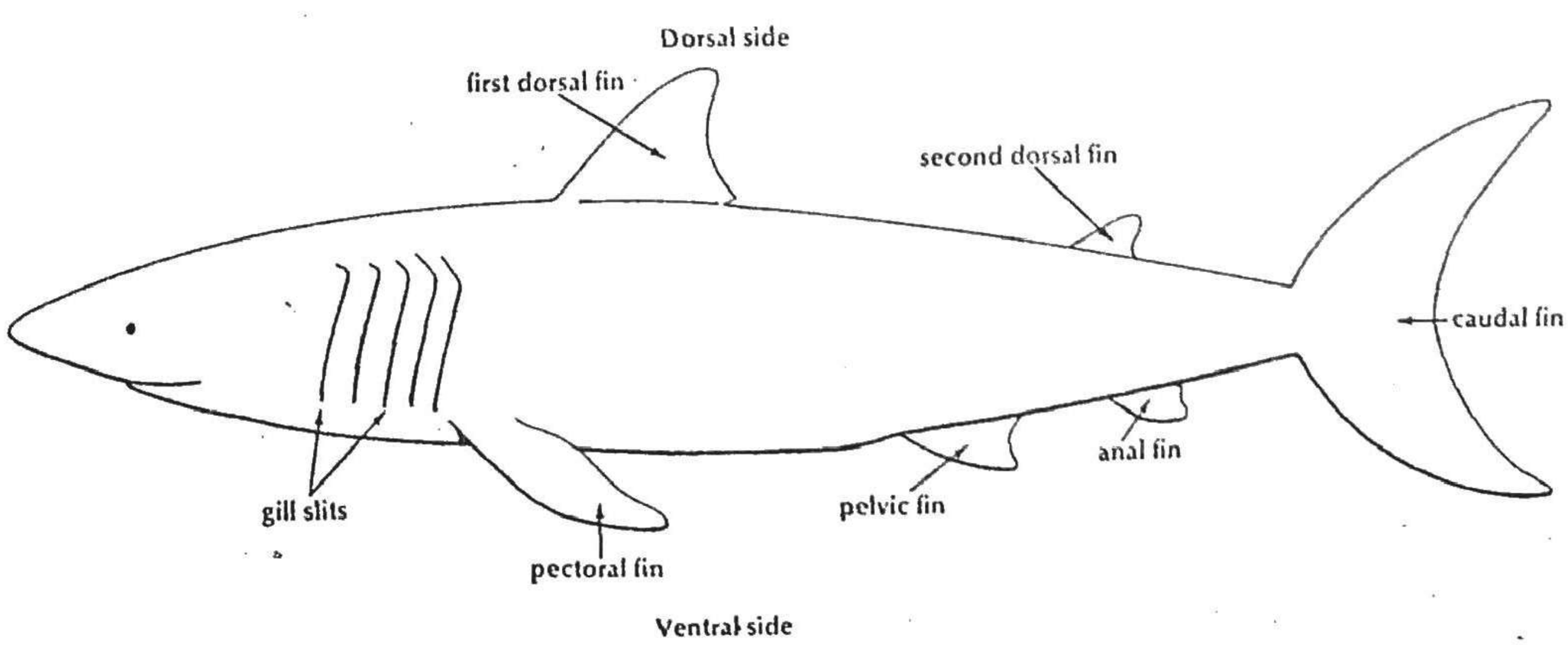

FIGURE 44-1

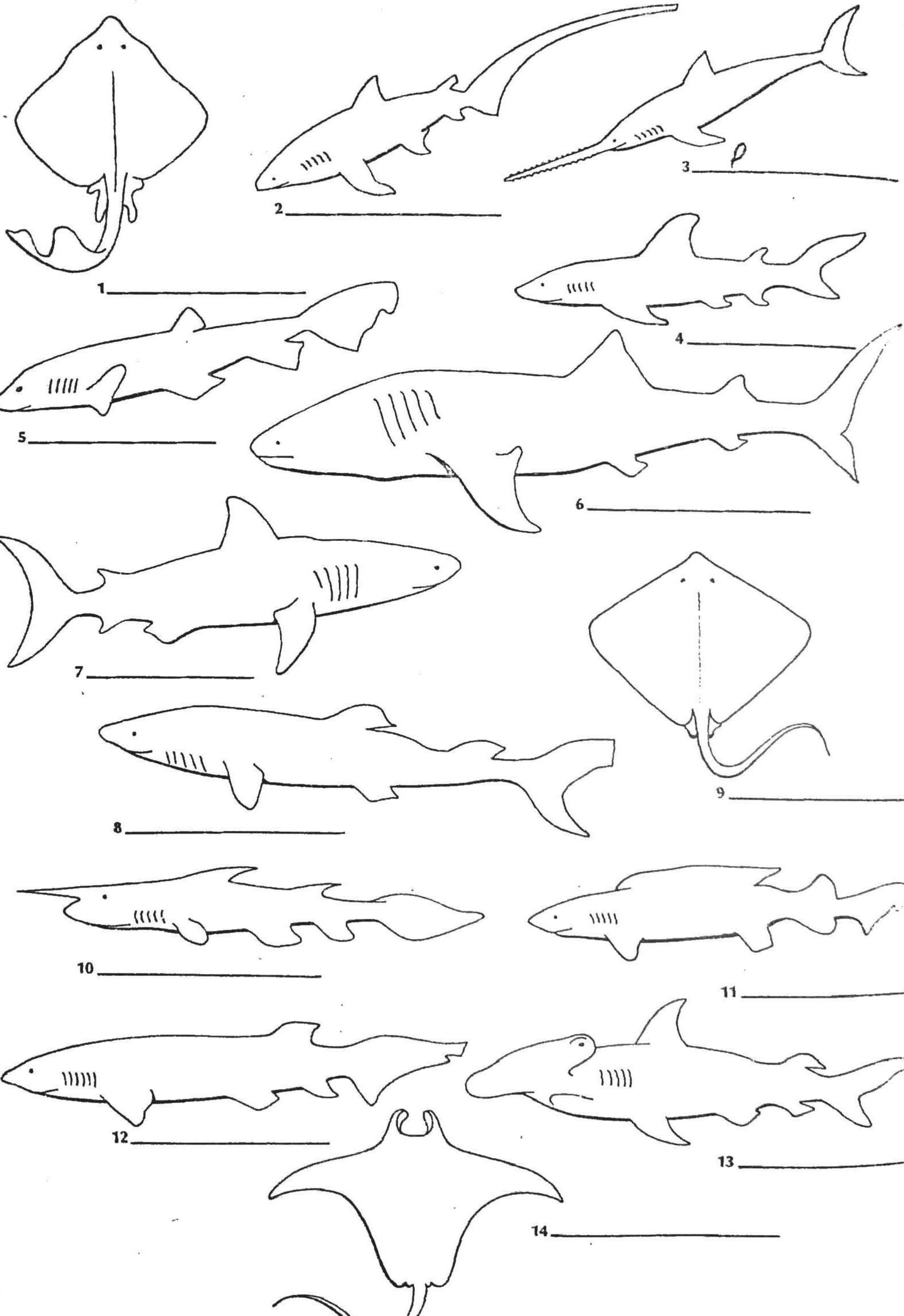

FIGURE 44-2

Name _____ Date _____

Key Arrows indicate the path students follow in keying out shark 2. You may wish to key out one shark with students first.

1. A. Body kitelike (if viewed from the top) ..... Go to 12
   B. Body not kitelike (if viewed from the top) ..... Go to 2
2. A. Pelvic fin absent and nose sawlike ..... Family Pristiophoridae
   B. Pelvic fin present ..... Go to 3
3. A. Six gill slits present ..... Family Hexanchidae
   B. Five gill slits present ..... Go to 4
4. A. Only one dorsal fin ..... Family Scyliorhinidae
   B. Two dorsal fins ..... Go to 5
5. A. Mouth at front of snout rather than on underside of head ..... Family Rhinocodontidae
   B. Mouth on underside of head ..... Go to 6
6. A. Head expanded on side with eyes at end of expansion ..... Family Sphyrnidae
   B. Head not expanded ..... Go to 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 than bottom half ..... Go to 8
8. A. First dorsal fin very long, almost half total length of body ..... Family Pseudotriakidae
   B. First dorsal fin regular length ..... Go to 9
9. A. Caudal fin very long, almost as long as entire body ..... Family Alopiidae
   B. Caudal fin regular length ..... Go to 10
10. A. A long needlelike point on end of nose ..... Family Scapanorhynchidae
    B. Nose without long point ..... Go to 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. No dorsal fin present near tip of tail ..... Go to 13
13. A. Front of animal with two hornlike appendages ..... Family Mobulidae
    B. No hornlike appendages ..... Family Dasyatidae

Analysis

Write a key that will identify the imaginary animals in Figure 44-3. Use the following guidelines and suggestions in preparing your key.

(a) Use all animals shown.

(b) Assign a name to each representative animal. This name should describe some major characteristic not found in the other animals. This characteristic should be one that could be used in placing other animals having this same trait into only this same group. (Example: Animal 8 may be called Toenailed Tentacles.)

Student keys will vary. This is only an example:

1. A. Animals with wheels for feet. Go to 2.
   B. Animals with appendages other than wheels. Go to 4.
2. A. Six legs. Six-legged Wheels
   B. Four legs. Go to 3.
3. A. Body smooth with spines on back. Smooth Wheels etc....