

**NAME:** \_\_\_\_\_

## **CLASSIFICATION LAB: USING A DICHOTOMOUS KEY**

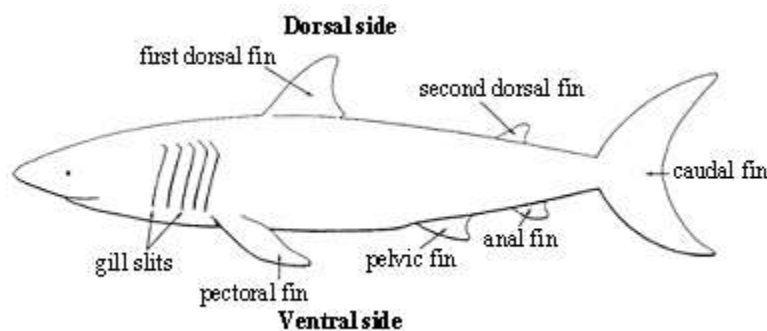
### **Background:**

Living things are organized by scientists into a classification system. Organizing these organisms makes it much easier to determine relationships between them. To classify organisms, scientists will often use a biological key or a dichotomous key. A dichotomous key is a listing of specific traits, primarily structural, that allows an organism to be sorted into one of two categories. By using a dichotomous key unknown organisms can be identified.

### **Procedure:**

#### **Part A: Using the key**

1. To use a the key ALWAYS start at statement 1 for each new shark. Read the (A) and (B) statements and follow the directions of the most correct statement.
2. If the statement instructs to go to another statement, follow directions and then choose the best of the two new statements and continue.
3. If the statement ends in a Family name, write that on the line below the shark.
4. Repeat steps for all of the sharks.

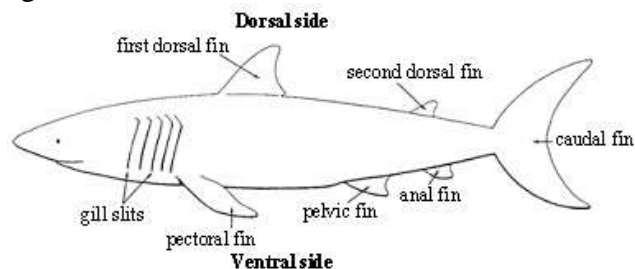


#### **Part B: Making a key**

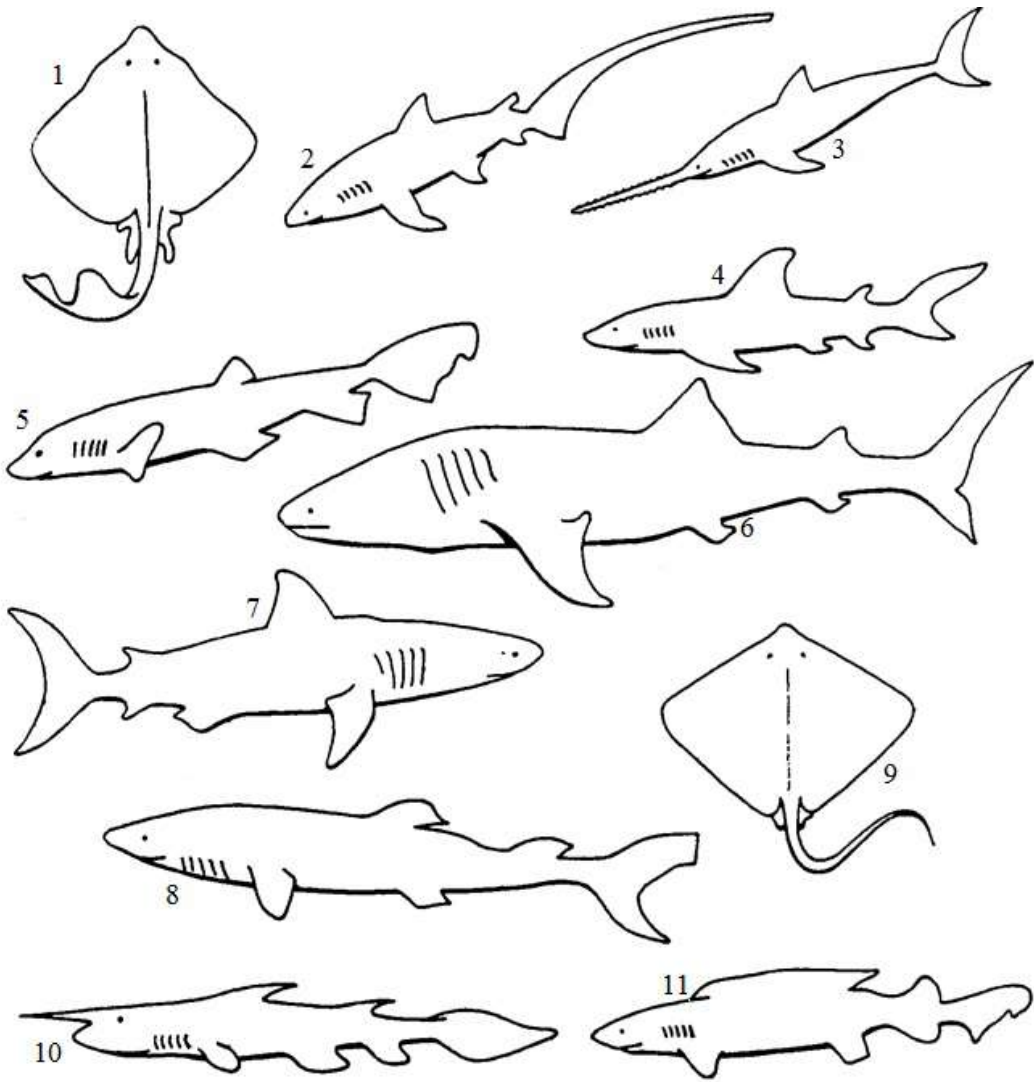
1. Using the dinosaur pictures find a trait that could separate them into two large groups.
2. Put the number of each dinosaur into group A or group B.
3. Find a trait that could be used to split group A into groups A<sub>1</sub> and A<sub>2</sub>.
4. Find a trait that could be used to split group B into groups B<sub>1</sub> and B<sub>2</sub>.
5. Put the number of each dinosaur into the appropriate group.
6. Continue this process until each group ends with only one dinosaur.
7. Record your key on the sheet attached.

## **Dichotomous Key to Shark Families**

1. A. Body kite-like in shape (if viewed from the top) .....Go to statement 12  
B. Body not kite-like in shape (if viewed from the top) .....Go to statement 2
2. A. Pelvic fin absent and nose saw-like .....Family **Pristiophoridae**  
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 .....Family **Scyliorhinidae**  
B. Two dorsal fins .....Go to statement 5
5. A. Mouth at front of snout.....Family **Rhinocodontidae**  
B. Mouth on underside of head .....Go to statement 6
6. A. Head expanded on side with eyes at end of expansion .....Family **Sphymidae**  
B. Head not expanded .....Go to statement 7
7. A. Top half of caudal fin about the same size as bottom half .....Family **Isuridae**  
B. Top half of caudal fin different in size than bottom half .....Go to statement 8
8. A. First dorsal fin very long, almost  $\frac{1}{2}$  total length of the body.....Family **Pseudotriakidae**  
B. First dorsal fin regular length .....Go to statement 9
9. A. Caudal fin very long, almost as long as entire body .....Family **Alopiidae**  
B. Caudal fin regular length .....Go to statement 10
10. A. A long needlelike point on end of nose .....Family **Scapanorhynchidae**  
B. Nose without long 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. No dorsal fin present near tip of tail .....Go to statement 13
13. A. Front of animal with two horn-like appendages .....Family **Mobulidae**  
B. No horn-like appendages.....Family **Dasyatidae**



Part A

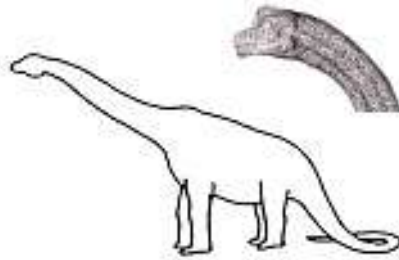


Shark Family Name
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.

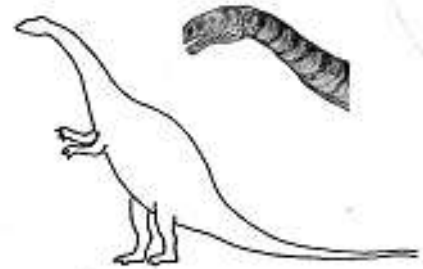
## Part B



1. *Allosaurus*



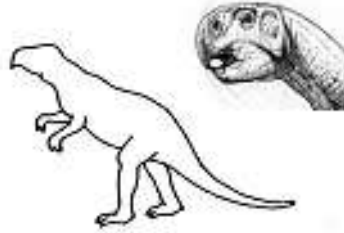
2. *Brachiosaurus*



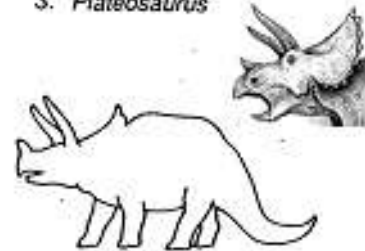
3. *Plateosaurus*



4. *Coelophysis*



5. *Psittacosaurus*



6. *Triceratops*

On the next page you will record your completed dichotomous key.

When making a key, try to:

- Start with big categories first (for example herbivores and carnivores)
- Use obvious characteristics
- Be specific! Avoid words like “big” or “small” by using measurements instead
- Make the choices positive so that something IS instead of IS NOT.

**DINOSAUR DICHOTOMOUS KEY**

1. A	.....	
B	.....	
2. A	.....	
B	.....	
3. A	.....	
B	.....	
4. A	.....	
B	.....	
5. A	.....	
B	.....	

**Analysis:**

1. Which type of evidence was used to classify organisms in this lab. Choose one and give an example.
  - a. Comparative biochemistry
  - b. Comparative anatomy
  - c. Fossil record
  
2. Two levels of classification are **Kingdom** and **Phylum**. What are the other five levels of classification?
  
3. Is the family name of the sharks the most specific name that can be given to them? Support your answer.
  
4. How do we determine the scientific name for organisms like sharks? Why is it important that this naming system is consistent?

**Conclusion:**

Explain the purpose of creating and using dichotomous keys. How does this purpose relate to evolutionary relationships and how organisms are classified?