

## The Structure and Composition of Lakes

As you work on each part of this investigation, write your answers and/or draw diagrams in your notebook. Write the heading for each part as you come to it.

### **Part A – Prior Knowledge of Lakes**

Write your answer to each of the following questions in your notebook:

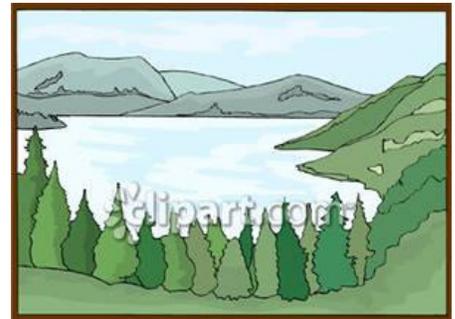


1. How would you describe a lake to someone who has never seen one?
2. Is a lake different from a river? If so, how is it different?
3. How do you think a lake dries up after a long time?

By the end of this investigation, you can revisit your answers and see if you have more information to help you answer them!

### **Part B – What is a Lake?**

4. How does a lake form?
5. What keeps a lake filled up with water?
6. Why do some lakes contain saltwater?
7. How do lakes eventually disappear?



### **Part C – Layers of Water In A Lake**

How can there be layers of water?!?? Check out the link above, then answer these questions!

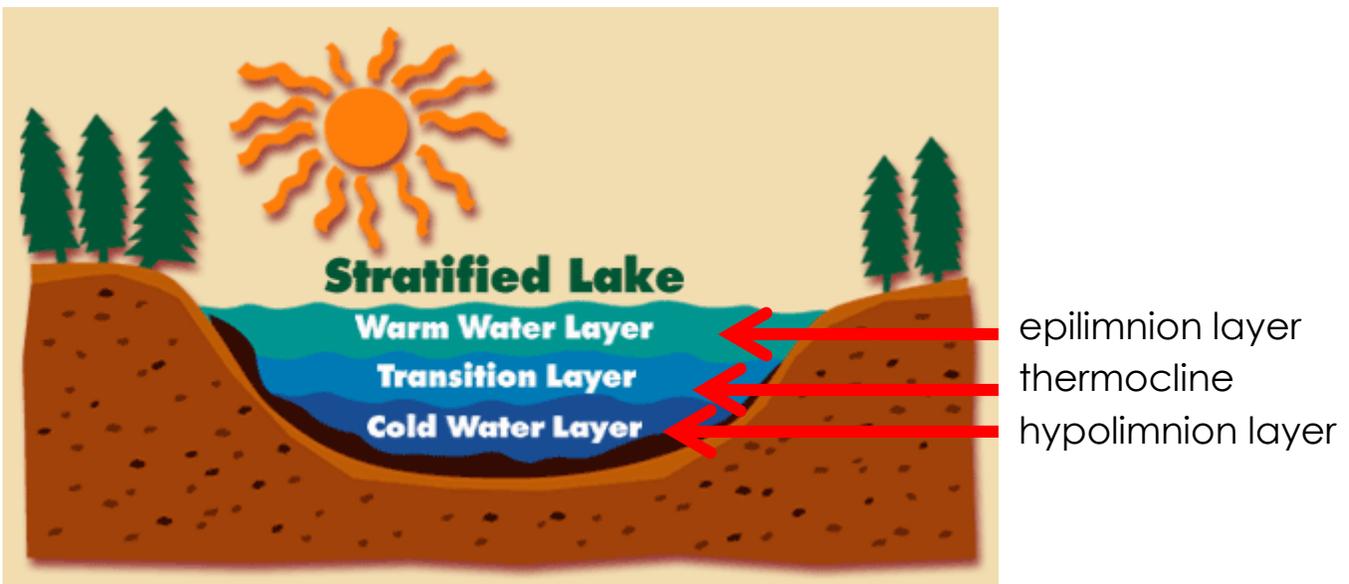
8. What is stratification in a lake?
9. What causes water to separate into layers?
10. Where is cold water located?
11. Where is warm water located?

12. If you were going fishing, what time of year would be best to go, and why?

**Show your notebook to your teacher for check-in.**

### **PART D – Diagram of a Lake**

In your notebook, draw and color the diagram below. Next to your diagram, add the labels shown below.



13. How are the epilimnion layer and hypolimnion layer the same? (Hint: Consider temperature, oxygen level, kinds of fish and aquatic life, amount of sunlight.)
14. How are the epilimnion layer and hypolimnion layer different?

### **PART E – Eutrophication of a Lake**

Look at this image...





15. What do you think created the green scum on top of this lake?
16. Read this explanation of eutrophication:

Problems can also arise when the aquatic system has an overabundance of nutrients. When this happens we get **eutrophication**. A **eutrophic** stream, river or lake occurs when too many nutrients, like nitrogen and phosphorous, are present, usually as a result of runoff from the surrounding land. Algae, plankton and other microorganisms love these types of nutrients, and when they are plentiful, these aquatic organisms can take over. When a lake, river or other aquatic system becomes eutrophic, it can have serious negative effects on other organisms like fish, birds and even people. But first, let's look at what causes eutrophication.

Now can you answer #15 better: What created the green scum on top of that lake?

17. Write a definition of eutrophication based on what you have understood from the picture above and the paragraph you read.

18. Read this [“official definition” of eutrophication](#):

Add to your definition if you need to.

**Show your notebook to your teacher for check-in.**

### **PART F – Can you answer your questions from Part A?**

Look back at the first three questions:

1. How would you describe a lake to someone who has never seen one?
2. Is a lake different from a river? If so, how is it different?
3. How do you think a lake dries up after a long time?

Can you answer these three questions more accurately now?

Add to your answers.

Show your work to your teacher for work check-in for this activity.

### **Part G – If you have finished, choose a topic to research. Take notes about it, then create a PowerPoint presentation about it!**

- a) The Great Lakes – their location, and importance
- b) Pollution in lakes – what causes it and how we can clean it up
- c) Choose a famous lake in the world, and write about how it formed, how it is used by the community that lives near it, and other interesting facts you learn about it!