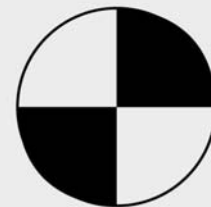




Directions:

1. Look closely at the four liquids presented to you by your leader. How are they different from each other? What do you think causes the differences? Record your observations below.

2. Gather the materials you will need to make your own Secchi disk (sounds like sea-key).
3. Use a ruler and pencil to draw a line along the diameter of the circular, plastic lid. This line should divide the lid into two equal halves. Draw a second line to intersect with the first line, so that it forms a plus sign (+). This second line should divide the lid into 4 equal pieces. Both lines should extend to the edge of the lid. Using your black marker, color two alternating "pie pieces" on your circle. In other words, color one piece, skip the next and repeat, like the diagram on the right.
4. Using the end of your compass, poke a small hole at the intersection of the two lines you drew. You may need to ask an adult to help you. The hole should be right at the point in the center where the two lines meet. Unfold the paperclip so that it makes two hooks. Put the paper clip through the hole in your circle so that the circle is in the middle of the clip.
5. Attach a string to the top end of the paperclip and some washers or other weights to the bottom end. Your Secchi disk is now ready to test the waters.

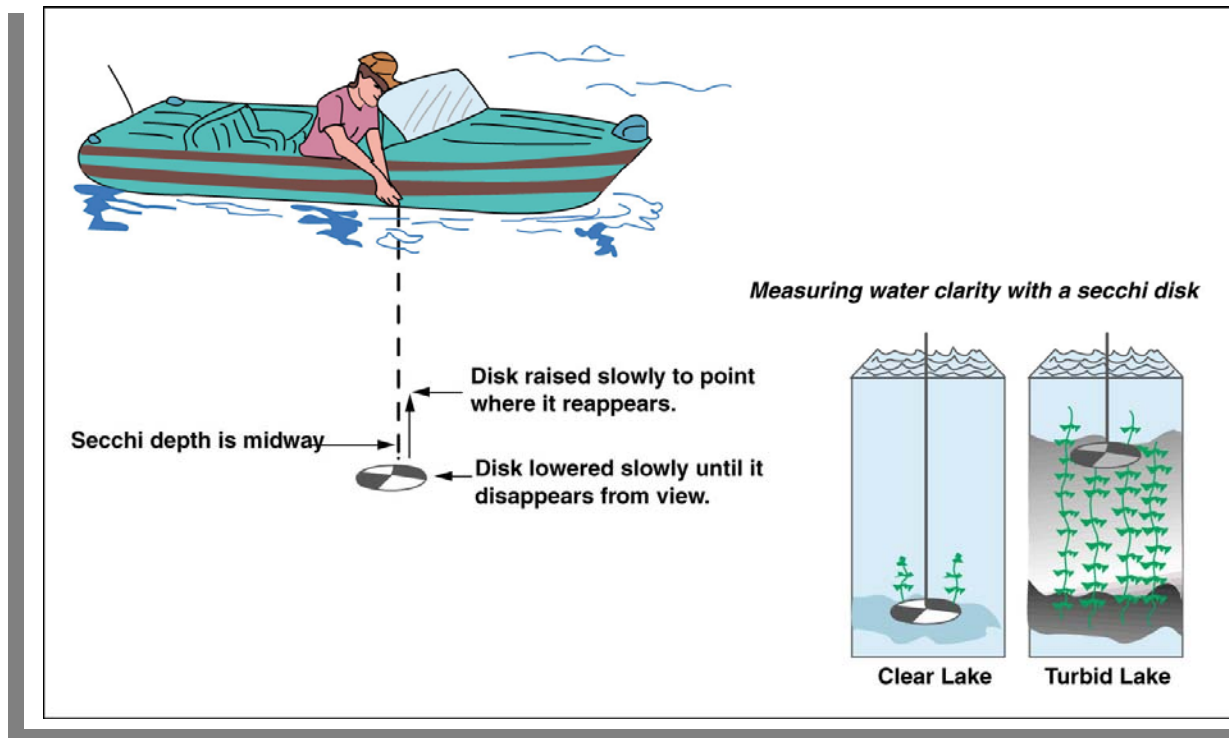


Unfolded paperclip



Unfolded paperclip with Secchi disk

- Go to one of the water sample stations. Hold onto the string and lower your Secchi disk into the container of liquid. Make a mark on the string at the surface of the liquid when the disk disappears. Sink the disk a little lower, and then raise it until it reappears. Mark the string again at the surface when it reappears. The diagram below shows how the Secchi disk is used on a lake. The procedure is very similar to your activity.



- Bring the Secchi disk out of the container of liquid. Use your ruler to measure the distance from the marks on the string to the Secchi disk. Average the two readings by adding the two measurements together and dividing by two. This distance, known as the Secchi number, can be used to compare the clarity of this sample with the other liquids. Record your results in the chart below.
- Visit each of the stations, and repeat this process with the other three liquids using a different color to mark the string each time (or attach a new string to the disk).



To find the Secchi number, first measure carefully, then find the average of your measurements. Be sure to record your results.

9. Complete one trial with liquid "A," which is called the "control" liquid since it contains water and coloring only. Compare the results with the other three liquids.

Liquid	Column 2 Distance when the Secchi disk disappeared (longer distance)	Column 3 Distance when the Secchi disk reappeared (shorter distance)	Find the average. Add the readings from columns two and column three together. Then divide by 2. (This is the Secchi measurement for this liquid.)
A			
B			
C			
D			

Questions:

1. How does using the Secchi disk numbers help you compare the clarity of the liquids?
2. How might this procedure be useful for investigating bodies of water?
3. Describe how water could become clouded in a lake or pond.