Name: _____

Date: _____ Period: _____

Lab Activity: Deposition

INTRODUCTION:

Streams that are moving more quickly can carry larger amounts of sediment and have the ability to transport larger fragments also. When a stream enters a quite body such as a lake or shelter lagoon they no longer have the ability to transport sediment. At this point particles begin to settle to the bottom of the still water at varying rates. Understanding how sediments are deposited in quite water helps you better understand how sedimentary rocks are formed.

OBJECTIVE:

You will see the different factors that contribute to the varying settling rates of particles.

VOCABULARY:

Deposition -

Sediment -

Horizontal Sorting -

Vertical Sorting -

Colloid -

EQUIPMENT SETUP:

1. Take the clear plastic tube (with two lines that are 60 cm apart) and secure the bottom with stopper. Be sure the stopper is in securely.
2. Using a ring stand and test tube clamps, secure the plastic tube with the stopper in a vertical position making sure it is completely straight up and down.
3. Fill the tube with water using a beaker to transfer the water from the sink to the clear plastic tube. Make sure that the top marking line is below the surface of the water.
4. Complete Procedure A, Procedure B, and Procedure C using the equipment you just set up.

Lab Activity: Deposition

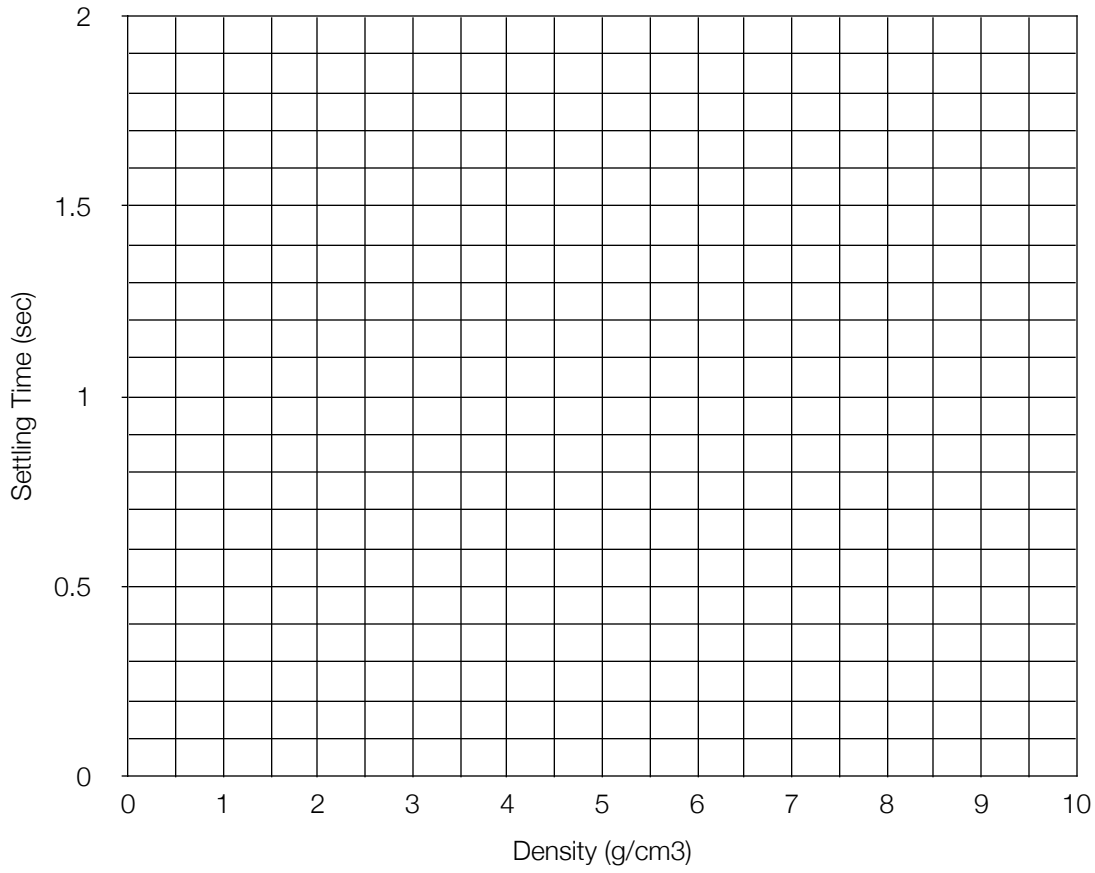
PROCEDURE A:

1. Using the different density spheres provided, drop the glass and steel spheres separately into the column of water. Start the watch when the particle passes the top line and stop the watch as it passes the bottom line. Record your time on Data Chart A.
2. After you complete the settling time, calculate the settling rate by dividing the distance between the marked lines by the settling time.
3. On Graph A, plot your results.

DATA CHART A

PARTICLE & SIZE	DENSITY	SETTLING TIME (sec)	SETTLING RATE (cm/sec)
Glass (1.0 cm)	2.5		
Steel (1.0 cm)	7.5		

GRAPH A



Lab Activity: Deposition

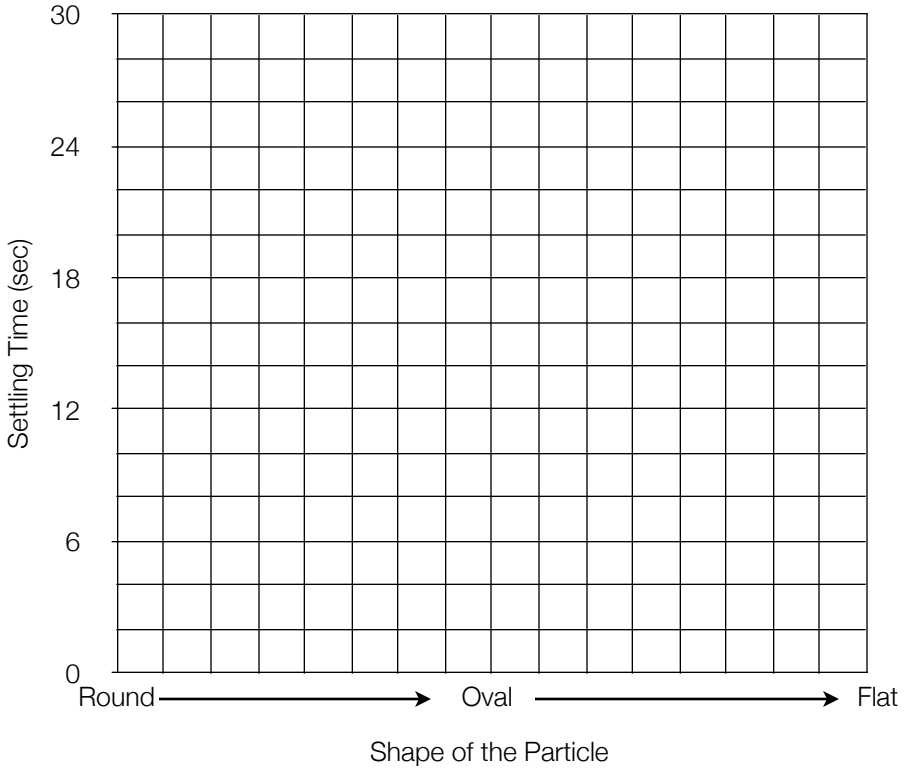
PROCEDURE B:

1. Measure three separate pieces of clay. Each individual one should have a mass of 1.0 g. Take one of the pieces and mold it into a flat disk, another into an oval, and the other into a sphere.
2. Using the different shaped particles created, drop the them separately into the column of water. Start the watch when the particle passes the top line and stop the watch as it passes the bottom line. Record your time on Data Chart B.
3. After you complete the settling time, calculate the settling rate by dividing the distance between the marked lines by the settling time.
4. On Graph B, plot your results.

DATA CHART B

PARTICLE	Mass (grams)	SETTLING TIME (sec)	SETTLING RATE (cm/sec)
Round	1.0		
Oval	1.0		
Flat	1.0		

DATA CHART B



Lab Activity: Deposition

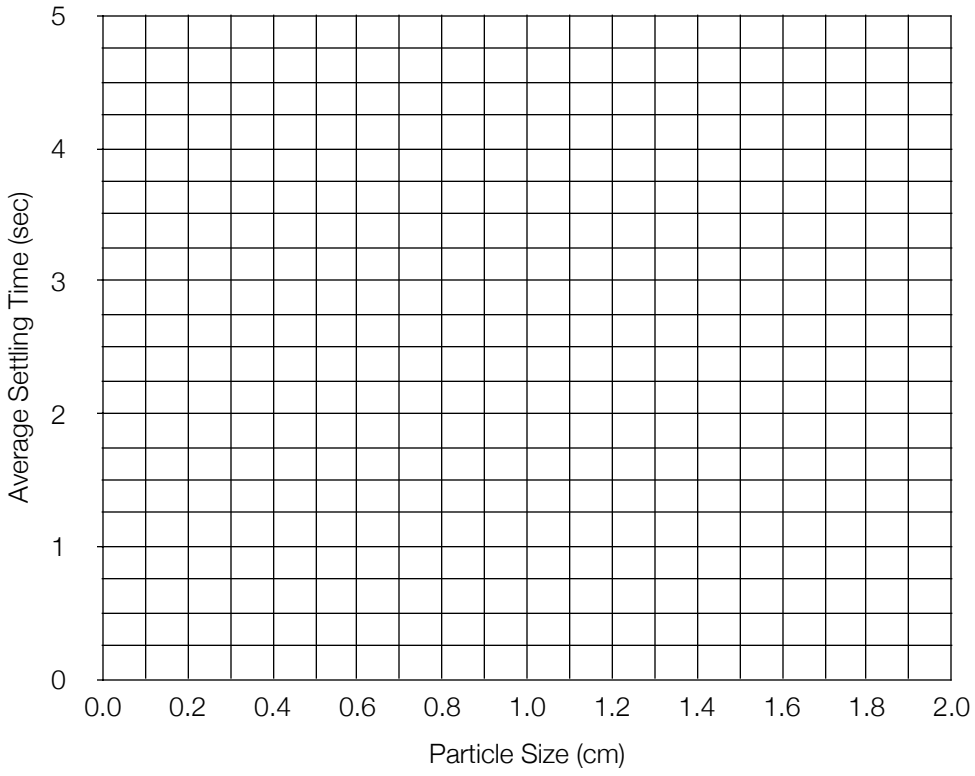
PROCEDURE C:

1. Using clay, create three particles for each trial size - three small particles (0.5 cm), three medium particles (1.0 cm), and three large particles (1.5 cm).
2. Beginning with the smallest particle, drop the three trials individually into the column of water. Start the watch when the particle passes the top line and stop the watch as it passes the bottom line. Record your times for the trials on Data Chart C. Repeat for the medium and large size particles.
3. After the trials are complete calculate the average of each sized particle and calculate the settling rate by dividing the distance between the marked lines by the average settling time.
4. On Graph C, plot your results.

DATA CHART C

PARTICLE SIZE	SETTLING TIME (sec)				SETTLING RATE (cm/sec)
	Trial 1	Trial 2	Trial 3	Average	Calculation
Small (0.5 cm)					
Medium (1.0 cm)					
Large (1.5 cm)					

GRAPH C



Lab Activity: Deposition

DISCUSSION QUESTIONS:

1. What is the relationship between the size and the settling time of a particle in quite water?

2. What is the relationship between the density and the settling time of a particle in quite water?

3. What is the relationship between the shape and the settling time of a particle in quite water?

4. What sized particles seem to stay suspended indefinitely?

5. Using the sedimentation tube, describe the appearance of the particles from bottom to top.

6. Besides the properties of the particle itself, what other factors can affect the settling rate?

CONCLUSION: List the factors which determine the rate at which sediments are deposited in quite water?