

ESCI 206 – Lab Exploration – Sedimentary Rocks – Setting of Sediments

In this lab, we will investigate how sedimentary particles settle out through a fluid. Please work in your groups for this lab.

Form a Hypothesis:

What factors will affect how fast a sedimentary particle will settle out of a fluid? Think about this question and brainstorm with your group members to come up with a hypothesis about what the most important factors will be. State your hypothesis (using complete sentences) here:

Set up the Experiment:

You will need the following materials:

Tall graduate cylinders

Liquids (water, cooking oil, corn syrup, honey)

Glass marbles (two sizes)

Quartz sand (various sizes)

Galena sand

Ruler

Stopwatch or watch with a second hand

Calculator

Paper to record and graph your data

Conduct the Experiment:

Steps to obtain time of settling for different particle sizes:

*****Before you begin**, read the following steps carefully!! Use the information below to create a data sheet to record your data.

1. Mark a line near the top of the graduated cylinder and another near the bottom. Measure the distance between these lines and record this number.
2. Fill the cylinder with a fluid (and record the composition of the fluid).
3. Obtain various particles from the instructor.
4. Record the diameter (and composition) of each particle you are given.

IMPORTANT NOTE: When making your data sheet, be sure to include a place to record the density of each particle.

5. Drop one particle into the cylinder of fluid and time how long it takes to travel between the top mark and the bottom mark. Record this time.

IMPORTANT NOTE: When making your data sheet, be sure to include a place to record the velocity of settling for each particle.

6. Repeat step 5 for the other particles.

Calculations:

1. **Look up** the density of quartz and galena in your textbook. Then **calculate** the density of the glass marbles. See if you can figure out a way to do this based on what you already know about density. Ask the instructor for feedback when your group has come up with some ideas. Then describe what you did and show your calculations here:
2. Calculate the settling velocity for each particle. Remember, velocity is distance traveled per unit time (actually, velocity is distance traveled *along a given direction* per unit time). Describe how you did these calculations and give one example from your data in the space below.
3. Make graphs of your data. You should decide what data you wish to use for your graph(s). You may make more than one. The purpose of graphing the data is to help you see if the data supports or disproves your hypothesis.
4. Write a lab report for this activity. **Please do this part individually.**