

Viscosity





Right Side – Teacher Input

***Remember that all notes must be on the right side and
this ENTIRE lesson must be on this page only**



I can...

- Compare fluids based on their viscosity and flow rate
- Explore how temperature can change flow rate

Viscosity

Viscosity is the property of how fast fluids flow. It is determined by a fluid's internal resistance or friction to keep it from flowing.

Fluids with a high viscosity do not flow as easily as fluids with a low viscosity

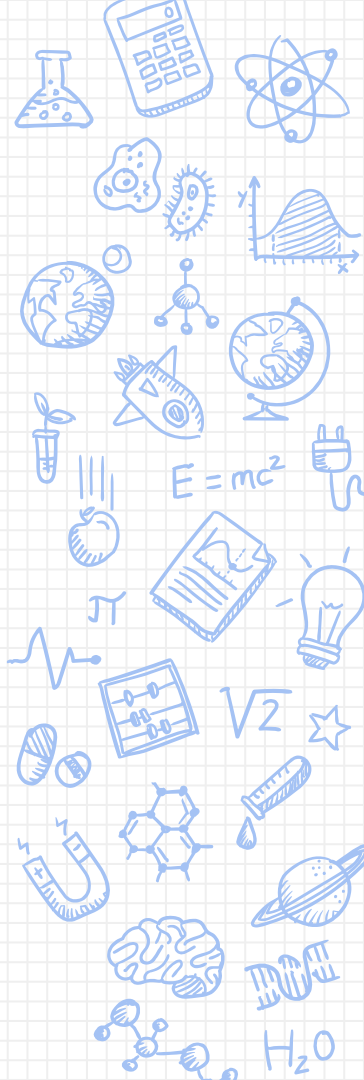
Recall from PMOM that particles in a liquid are able to pass each other and move around, the greater the friction or rubbing between particles in any fluid, the higher the viscosity.



Measuring Viscosity

Ramp Method – this method involves pouring a fluid down a ramp and timing how long it takes to get to the bottom or past a certain point. By comparing different fluids you can compare different viscosities.

Drop Method – this method involves recording how long it takes something to get from the surface of a fluid to the bottom.



Measuring Viscosity

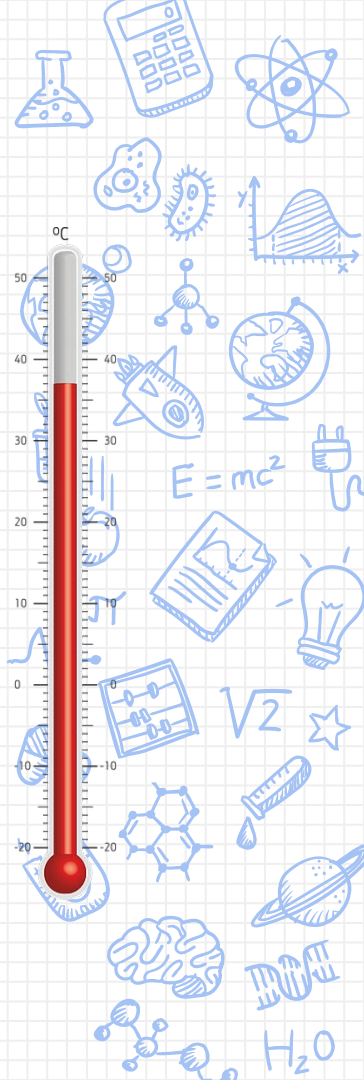
✘ We can calculate it using velocity!

$$\text{Velocity} = \frac{\text{distance}}{\text{time}}$$



Understanding Temperature

- ✘ Recall that viscosity is a fluid's internal resistance or friction that keeps it from flowing. A fluid with a high viscosity has a large amount of internal resistance or friction.
- ✘ As the temperature of a liquid increases, its viscosity decreases. The opposite is also true. As the temperature of a liquid decreases, its viscosity increases.



The background features a grid pattern with various hand-drawn icons in the corners. The top-left corner includes a Bohr model, a beaker with a chemical reaction, the formula H_2O , a globe, a lightbulb, a rocket, and a molecular structure. The top-right corner shows a calculator, a hexagonal molecule, a globe, a plug, a cell, a book, a star, and a test tube. The bottom-left corner contains a lightbulb, a brain, a molecular structure, an abacus, a graph, a rocket, and the formula $E=mc^2$. The bottom-right corner features a magnet, a hexagonal molecule, a globe, a planet, a rocket, a DNA helix, a star, a molecular structure, and the formula H_2O .

Left Side – Student Input

Marble Test

We will be testing the viscosity of different fluids using the drop method

Requirements

- ✘ Create a table (next slide) and fill it in with the information as we collect it
- ✘ Complete your lab with observations about and a concluding statement



