

a WOW Lab

BLUEPRINT

The Siphontific Method

Achievements and Competencies

Learning Outcomes

Grades 7-9
Mixtures and Solutions
Fluids
Water Systems on Earth

Achievements and Competencies are based on the Common Framework of Science Learning Outcomes (K-12) set by the Canadian Council of Ministers of Education (1997).

Specific Expectations

Grade 7

PHYSICAL SCIENCE

Mixtures and Solutions

209-1 Carry out procedures controlling the major variables (e.g., maintain a uniform volume of solvent when measuring the saturation point of a solute at various solvent temperatures).

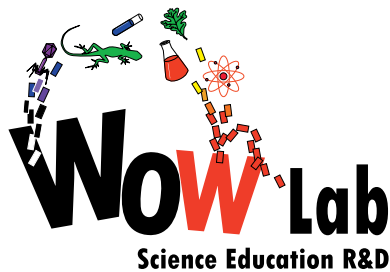
Students must ensure that they are always measuring the volume of water in the pop bottle between the same points.

210-7 Identify and suggest explanations for discrepancies in data (e.g., suggest explanations such as water loss through evaporation, or partial dissolution of substances, for discrepancies in data that occur during filtration).

This activity allows students the opportunity to discuss why they took the average results of three separate trials. Students can determine why discrepancies in data exist and how taking an average result can help to diminish these discrepancies.

210-2 Compile and display data, by hand or computer, in a variety of formats, including diagrams, flow charts, tables, bar graphs, line graphs, and scatter plots (e.g., prepare a chart showing the flow of energy in a food web that exists in the school yard).

Students are asked to plot graphs depicting the pipe length, pipe width and height difference relative to the time.



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The Siphontific Method - Achievements and Competencies

Grade 8

PHYSICAL SCIENCE

Fluids

209-3 Use instruments effectively and accurately for collecting data (e.g., calibrate a dynamometer; carefully lower a hydrometer into a container so as not to break it).

Students must have accurately measured the place to put the tape on the pop bottles and all pop bottles must be the same. Students must also ensure they are using the timers in the same way each time to ensure accurate collection of data.

EARTH AND SPACE SCIENCE

Water Systems on Earth

208-6 Design an experiment and identify major variables (e.g., compare the density and buoyancy of fresh water and sea water).

Students must determine that there are many variables that affect the speed of a siphon; these variables include: size of tube, length of tubing, height difference, temperature of liquid and type of liquid.

210-3 Identify strengths and weaknesses of different methods of collecting and displaying data (e.g., identify strengths and weaknesses of technologies used to map the sea floor).

Students determine that graphs enable you to identify trends more easily than a table and help the student gain a visual understanding of the data they have collected.