SCIENCE NORTH SCIENCE NORD

SUDBURY, ONTARIO, CANADA

Fluid Basics – Assessment for Learning Rubric

Level	1	2	3	4
Hydrometer construction and data taking	The hydrometer was not built according to instruction and did not work to determine the densities.	The hydrometer was built according to instructions but not with enough precision to distinguish between all different densities.	The hydrometer is built accurately enough to distinguish between liquids. Students improved it through at least two trials.	The hydrometer is built accurately with clearly visible and accurate lines to measure the change in its buoyancy. Worked to improve it through several trials.
Understanding the hydrometer	Lack of understanding how the hydrometer works.	Description of how the hydrometer works is incomplete or contains some misunderstandings.	Good understanding of how the hydrometer works and a general idea of how it can be used to identify an unknown solution.	Complete understanding of how the hydrometer works and how it can be used to identify an unknown solution.
Layering fluids experiment	Incomplete list of materials. Experimental procedure is described only very briefly. Explanation of results is incorrect or not given.	List of materials may miss a couple of things and the experimental procedure is described only briefly, lacking crucial details. Brief explanation of results.	Complete list of materials, and experimental procedure is mostly described correctly. Good explanation of results.	Complete list of materials, accurate description of experimental procedure. Complete explanation of results, including reference to the particle theory of matter.
Unpowered submarine construction and testing	Incomplete list of materials. Experimental procedure is described only very briefly. Submarine did not work properly.	List of materials may miss something, basic description of experimental procedure. Submarine was built correctly in essence but did not quite work correctly.	Complete list of materials, and experimental procedure is mostly described correctly. Good explanation of results. Submarine was able to be lowered and raised with minor manual assistance.	Complete list of materials, accurate description of experimental procedure. Complete explanation of results. Submarine worked well and was lowered and raised several times.

Powered submarine construction and testing	Incomplete list of materials. Lack of detail in descriptions. Submarine was not able to move.	List of materials may miss one or two things. Incomplete description of experimental procedure. Submarine may not have moved as intended.	Complete list of materials, accurate but brief description of experimental procedure. Submarine was able to move forward and backward on the surface but maybe not below water.	Complete list of materials, accurate description of experimental procedure. Submarine worked well, being able to go up and down as well as forward and backward when powered. Worked above and below water, with good description of differences.
Archimedes Principle experiment	Only a couple of trials were performed or the trials did not yield the correct results.	One or two trials or a few calculations may be missing in the data table. No attempt to graph data.	Complete table with mostly accurate data. One guess for number of knives may be incorrect. Made graph but did not figure out weight of empty bottle or lacked accuracy to do so.	Complete table of accurate data. Correct guesses for number of knives in each sub have been made. Good attempt to figure out weight of empty bottle from graph.
Overall work ethic	Missed many opportunities to improve experiments due to giving up or being distracted.	Worked hard enough to complete experiments in a basic form. Creativity and further work could have improved results.	Mostly worked hard and helped to support the group. May have missed an opportunity to improve one or two experiments.	Worked hard throughout unit. Was creative and innovative. Asked questions when needed, and provided leadership on experiments.