

INSTRUCTIONS FOR USING REMOTE LEARNING PROJECTS

These materials were developed with the intention of easing the transition between in-class and temporary remote learning. Learning experiences are aligned with curricular outcomes and assessment tools have been included with each project.

Note:

1. The teacher either sends a link to the appropriate project or sends the document itself.
2. The teacher ensures that parents/caregivers receive any required school supplies (bin with pencils, markers, paper, etc.).
3. The teacher reassures parents/caregivers that communication will be maintained between home and school.
4. The parents/caregivers may access additional resources at:
 - My Learning at Home (www.edu.gov.mb.ca/k12/mylearning)
 - My Child in School (www.edu.gov.mb.ca/k12/mychild/index.html)

PROJECT OVERVIEW

Grade :	8
Main Subject :	Science
Big Idea :	Properties of Water
Title :	DENSITY AND BUOYANCY
Cluster :	Water Systems
Duration :	5–8 hours
Materials :	Glasses, water, salt, 1 egg, teaspoon, various liquids
Short description :	Students will demonstrate through experimentation and interpretation how water density impacts buoyancy, how dissolved materials change the density of water, how buoyancy and density are interconnected, and how freshwater and saltwater have different density and buoyancy properties.

LEARNING OUTCOMES

Science: www.edu.gov.mb.ca/k12/cur/science/scicurr.html

8-0-3a, 8-0-3b, 8-4-01, 8-4-02, 8-4-03, 8-0-4a, 8-0-7a, 8-0-7b, 8-0-7g

ASSESSMENT

LANGUAGE ARTS					MATHEMATICS			SCIENCE			SOCIAL STUDIES		
COMP. Listening & Viewing	COMP. Reading	COMM. Speaking & Represent.	COMM. Writing	Critical Thinking	Knowledge and Understanding	Mental Math & Estimation	Problem Solving	Knowledge and Understanding	Scientific Inquiry Process	Design Process & Problem Solving	Knowledge and Understanding	Research and Communication	Critical Thinking and Citizenship
								X	X	X			

Original concept created by: David Gamble

LEARNING EXPERIENCES AND ASSESSMENT

Question: How does water density impact the buoyancy of objects?

Teacher's instructions:

Have students read and complete the attached PowerPoint. Edit and augment where needed to fit unique teaching and learning context.

Step-by-step instructions for students:

See instructions in project, multiple assignment found within.

APPENDIX (PRINTABLE SUPPORT MATERIALS INCLUDING ASSESSMENT)

Grade 8: Density and Buoyancy.pptx

Grade 8: Density and Buoyancy Rubric.docx

Outcomes Addressed	Achievement Grade Profiles https://www.edu.gov.mb.ca/k12/assess/report_cards/grading/profiles.html			
	Limited	Basic	Good	Very Good to Excellent:
Science—Design Process and Problem Solving	Requires considerable, ongoing teacher support to ▪ apply strategies to solve practical problems and to explain reasoning ▪ use scientific vocabulary ▪ use criteria or constraints to define a problem and evaluate the chosen solution ▪ recognize when changes need to be made to a plan ▪ work collaboratively with peers	Requires occasional teacher or peer support to ▪ apply strategies to solve practical problems and to explain reasoning ▪ use scientific vocabulary ▪ use criteria or constraints to define a problem and evaluate the chosen solution ▪ recognize when changes need to be made to a plan ▪ work collaboratively with peers	Applies appropriate strategies to solve practical problems; requires occasional prompting to recognize when changes need to be made to a plan. Explains and justifies reasoning using appropriate science vocabulary, and generalizes to similar contexts; requires occasional prompting for clarification. Collaborates effectively with peers.	Demonstrates flexibility, resilience, and creativity when solving practical problems; critically analyzes results and makes any necessary changes to a plan. Explains and justifies reasoning clearly using appropriate science vocabulary and generalizes to other contexts. Collaborates effectively with peers, often taking a key role in group work.
8-0-3a Formulate a prediction/hypothesis that identifies a cause and effect relationship between the dependent and independent variables. GLO: A2, C2				
8-0-3b Identify the independent and dependent variables in an experiment. GLO: A2, C2				
8-4-01 Use appropriate vocabulary related to their investigations of water systems.				

8-4-02 Demonstrate that water, as compared to other substances, has a high heat capacity and is able to dissolve a wide variety of solutes.				
8-4-03 Compare and contrast characteristics and properties of fresh water and salt water				
8-0-4a Carry out procedures that comprise a fair test. Include: controlling variables, repeating experiments to increase accuracy and reliability. GLO: C2				
8-0-7a Draw a conclusion that explains investigation results. Include: explaining the cause and effect relationship between the dependent and independent variables; identifying alternative explanations for observations; supporting or rejecting a prediction/hypothesis. GLO: A1, A2, C2				
8-0-7b Critically evaluate conclusions, basing arguments on fact rather than opinion. GLO: C2, C4				
8-0-7g Communicate methods, results, conclusions, and new knowledge in a variety of ways. <i>Examples: oral, written, multimedia presentations...</i> GLO: C6				