

ENGAGING SCIENCE • BC K–7 SCIENCE

HR MacMillan Space Centre – Surfing the Solar System

Surfing the Solar System complements the Kindergarten to Grade 7 Science curriculum in British Columbia. Prescribed learning outcomes (PLOs) from the Processes of Science (PSS), Life Science (LS), Physical Science (PS) and Earth and Space Science (ESS) curriculum organizers are matched below with the major activities presented in this Playbook and the associated Engaging Science hands-on workshop.

To support cross-curricular teaching, links to Math and Language Arts curriculum areas are also included.

PSS = Processes of Science
 PS = Physical Science
 ESS = Earth and Space Science
 LS = Life Science

SF = Make a Star Finder
 BA = Build an Astrolabe
 EM = Earth-Moon Distance
 P = Earth as a Peppercorn
 A = 100 Apple Solar System
 PT = Paper Tape Solar System
 D = Disorientation Maze
 AR = Antacid Rocket

LEARNING OUTCOMES		SF	BA	EM	P	A	PT	D	AR
Kindergarten									
PSS	Use the five senses to make observation	•						•	•
PSS	Share with others information obtained by observing	•			•			•	
ESS	Demonstrate the ability to observe their surroundings	•							
ESS	Describe features of their immediate environment	•							
Grade 1									
PSS	Communicate their observations, experiences, and thinking in a variety of ways		•	•	•	•	•	•	•
PSS	Classify objects, events, and organisms				•	•	•		
PS	Demonstrate how force can be applied to move an object								•
Grade 2									
PSS	Use their senses to interpret observations	•						•	•
PSS	Infer the probable outcome of an event or behaviour based on observations			•			•	•	•
Grade 3									
PSS	Ask questions that foster investigations and explorations relevant to the content	•		•			•		•
PSS	Measure objects and events	•	•	•	•	•	•	•	•
ESS	Describe characteristics and movements of objects in our solar system	•	•	•	•	•	•	•	
ESS	Compare familiar constellations in seasonal skies	•	•						

ENGAGING SCIENCE • BC K–7 MATH

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NC = Number Concepts
 SP = Statistics and Probability (Data Analysis)
 SPc = Statistics and Probability (Chance and Uncertainty)
 SS = Shape and Space (3D Objects and 2D Shapes)
 SSm = Shape and Space (Measurement)
 SSt = Shape and Space (Transformations)

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LEARNING OUTCOMES		SF	BA	EM	P	A	PT	D	AR
Grade 4									
SSm	Construct specific lengths						•		
SSm	Read and write time using a.m. and p.m.	•							
SSt	Communicate and apply terms of directions to maps (north, south, east and west)	•	•						
SSt	Trace a path on a grid or map, using oral or written instructions (and vice versa)							•	
Grade 5									
SSm	Recognize and explain the meaning of length, width, height, depth, thickness, perimeter and circumference		•	•	•		•		•
SP	Identify a question to generate appropriate data and predict results								•
SP	Make inferences from the data to generate a conclusion								•
Grade 6									
SSm	Estimate and measure angles using a circular protractor		•						
SSm	Identify and compare examples of angles in the environment		•						
SP	Formulate a key question from a problem-solving context								•
SSc	Compare experimental results with theoretical results								•
Grade 7									
SSm	Measure the diameter, radius and circumference of circles and generalize the relationships			•					
SSm	Research and report how measurement instruments are used in the community		•						

ENGAGING SCIENCE • BC K–7 LANGUAGE ARTS

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CR = Comprehend and Respond (Comprehension)
 CIIc = Communicate Ideas and Information
 (Composing and Creating)
 CIIp = Communicate Ideas and Information
 (Presenting and Valuing)
 SSw = Self and Society (Working Together)

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LEARNING OUTCOMES		SF	BA	EM	P	A	PT	D	AR
Grades K–1									
CR	Demonstrate abilities to follow simple oral instructions			•	•		•	•	•
CIIc	Demonstrate a willingness to present relevant ideas in discussions			•	•	•	•	•	•
CIIc	Identify connections between ideas and information and their own experiences								•
SSw	Interact with others			•	•		•	•	
Grade 2–3									
CIIc	Sort, organize, and represent specific information				•		•		
CIIc	Contribute relevant ideas to discussions	•	•	•	•	•	•	•	•
CIIp	Demonstrate a willingness to participate in a variety of shared activities that include reading and listening to stories and poems, dramatic play, and presenting their own work				•				
SSw	Seek opinions and consider the responses of others			•	•			•	•
Grade 4									
CR	Organize information or ideas they have read, heard, or viewed in the form of simple charts, webs, or illustrations				•		•		
CIIc	Share what they know about chosen topics	•	•	•	•	•	•	•	•
SSw	Assume a variety of assigned roles when communicating in groups				•		•	•	
SSw	Demonstrate a willingness to improve their understanding by seeking clarification from others			•	•			•	•
Grade 5									
CR	Use a variety of written and graphic forms, including charts, webs, and maps, to organize details and information				•		•		
SSw	Assume a variety of roles when interacting in groups				•		•	•	
Grade 6									
CR	Organize details and information they have read, heard, or viewed using a variety of written and graphic forms, including charts, webs, and maps				•		•		
SSw	Demonstrate a willingness to assume a variety of roles in group interactions				•		•	•	
Grade 7									
CIIc	Summarize what they know about specific topics or issues and identify and address gaps in the information available				•				•
SSw	Elaborate on others' ideas			•	•			•	•