ENGAGING SCIENCE • BC K–7 SCIENCE

Science World – Cookin' with Chemistry

Cookin' With Chemistry 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

SA = **Super Absorbers**
GG = **Guar Goop**
SP = **Silly Putty**
LA = **Liquids Alike**
SM = **Swirling Milk**
MF = **Mentos Fountain**

	LEARNING OUTCOMES	SA	GG	SP	LA	SM	MF
	Kindergarten						
PSS	Use the five senses to make observation	●	●	●	●	●	●
PSS	Share with others information obtained by observing	●	●	●	●	●	●
PS	Describe properties of materials, including color, shape, texture, size, and weight	●	●	●	●	●	●
PS	Identify materials that make up familiar objects	●	●	●	●	●	●
	Grade 1						
PSS	Communicate their observations, experiences, and thinking in a variety of ways	●	●	●	●	●	●
PSS	Classify objects, events, and organisms	●	●	●	●	●	●
	Grade 2						
PSS	Use their senses to interpret observations	●	●	●	●	●	●
PSS	Infer the probable outcome of an event or behaviour based on observations	●		●	●	●	●
PS	Identify the properties of solids, liquids, and gases	●	●	●	●	●	●
PS	Investigate the interactions of liquids and solids	●	●	●	●	●	●
	Grade 3						
PSS	Ask questions that foster investigations and explorations relevant to the content	●	●	●	●	●	●
PSS	Measure objects and events		●		●	●	
PS	Compare the effects of different materials, shapes, and forces on the strength and stability of different structures			●			
	Grade 4						
PSS	Make predictions, supported by reasons and relevant to the content	●		●	●	●	●
PSS	Use data from investigations to recognize patterns and relationships and reach conclusions				●		●

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	Grade 5						
PSS	Identify variables that can be changed in an experiment		●		●	●	●
PSS	Evaluate the fairness of a given experiment		●		●	●	●
PSS	Describe the steps in designing an experiment				●	●	●
PS	Demonstrate how various forces can affect the movement of objects	●		●			
	Grade 6						
PSS	Manipulate and control a number of variables in an experiment		●		●	●	●
	Grade 7						
PSS	Test a hypothesis by planning and conducting an experiment that controls for two or more variables				●		
PSS	Create models that help to explain scientific concepts and hypotheses				●		
PS	Classify substances as elements, compounds, and mixtures	●	●	●	●	●	●
PS	Investigate properties of matter	●	●	●	●	●	●

ENGAGING SCIENCE • BC K–7 MATH

Science World – Cookin' with Chemistry

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

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	LEARNING OUTCOMES	SA	GG	SM	LA	DS	MF
	Grades K–1						
NC	Count orally by 1s, 2s, 5s, and 10s to 100	●	●	●			●
NC	Demonstrate and explain orally an understanding of "half" as part of a whole		●				
PR	Identify, reproduce, extend, create, and compare patterns using actions, manipulatives, diagrams, and spoken terms			●			
PR	Recognize patterns in the environment			●			
SS	Explore and describe real-world and three-dimensional objects using descriptive attributes such as big, little, like a box, and like a can		●		●	●	
SS	Explore, identify, and classify three-dimensional objects in the environment according to their properties				●		
SS	Construct three-dimensional objects using materials such as plasticine, blocks, and boxes		●				
SSt	Use directional terms such as *over, under, beside, near, far, left* and *right* to describe the relative position of objects and shapes	●	●	●		●	
SP	Collect first-hand information by counting objects, conducting surveys, measuring, and performing simple experiments	●	●	●	●	●	●
SP	Pose oral questions in relation to the data gathered	●	●	●	●	●	●
SPc	Predict the chance of an event happening using the terms *never, sometimes,* and *always*			●	●	●	●
	Grades 2–3						
PR	Explain the rule for a pattern and make predictions based on patterns using models and objects	●		●	●		
SSm	Recognize that the size and shape of an object does not necessarily determine its mass				●		
SS	Compare, contrast, sort, and classify two-dimensional shapes and three-dimensional objects using two or more attributes	●	●			●	●
SPc	Describe the likeliness of an outcome using terms such as likely, unlikely, fair chance, probable, and expected	●	●	●	●	●	
SPc	Conduct a probability experiment, choose an appropriate recording method, and draw conclusions and make predictions from the results	●			●		

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	LEARNING OUTCOMES	SA	GG	SM	LA	DS	MF
	Grades 4						
SS	Relate the number of units needed to the size of the units to measure the mass of an object				●		
SPc	Identify an outcome using the terms possible, impossible, certain, or uncertain	●			●		
SPc	Compare outcomes using the terms equally, likely, more likely or less likely	●		●	●		
SPc	Design and conduct experiments to answer their own questions	●	●	●	●	●	●
	Grades 5						
PR	Describe how a pattern grows using everyday language orally and in writing			●		●	
SS	Relate the units cm^3 and mL		●				
SPc	List all possible outcomes of an event	●	●	●	●	●	●
SPc	Explain events using the vocabulary of probability	●	●	●	●	●	●
	Grades 6						
SPc	Demonstrate that different outcomes may occur when the same experiment is repeated	●	●	●	●	●	●
	Grades 7						
SPc	Use simulation or experimentation to solve probability problems	●		●	●	●	●
SPc	Outcomes over total outcomes			●	●	●	

ENGAGING SCIENCE • BC K–7 LANGUAGE ARTS

Science World – Cookin' with Chemistry

CR = Comprehend and Respond (Comprehension)
CRc = Comprehend and Respond (Critical Analysis)
CRs = Comprehend and Respond (Strategies and Skills)
CRcc = Comprehend and Respond (Composing and Creating)
CRe = Comprehend and Respond (Engagement and Personal Response)
CIIc = Communicate Ideas and Information (Composing and Creating)
CIIi = Communicate Ideas and Information (Improving Communications)
CIIp = Communicate Ideas and Information (Presenting and Valuing)
SSb = Self and Society (Building Community)
SSp = Self and Society (Personal Awareness)
SSw = Self and Society (Working Together)

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	Grades K–1						
CR	Identify the main information provided in illustrations	●	●	●	●	●	●
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	●	●	●	●	●	●
CIIc	Apply various strategies to generate ideas	●	●	●	●	●	●
CIIi	Sort information, including ideas, details, and events obtained from a variety of sources	●	●	●	●	●	●
CIIp	Demonstrate pride and satisfaction in using language to express their thoughts, ideas, and feelings	●	●	●	●	●	●
CIIp	Demonstrate a willingness to experiment with written, visual, kinaesthetic, dramatic, oral, and electronic forms of communication	●	●	●	●	●	●
CIIp	Demonstrate a willingness to participate in a variety of sharing activities that include the use of pictures, charts, storytelling, songs, lists, menus, and storybooks	●	●	●	●	●	●
SSp	Demonstrate a willingness to respond to questions about their own communications	●	●	●	●	●	●
SSw	Interact with others	●	●	●	●	●	●
SSb	Demonstrate a willingness to participate actively in oral activities	●	●	●	●	●	●
	Grades 2–3						
CR	Identify specific details in communications in response to tasks or questions	●	●	●	●	●	●
CRc	Offer direct responses to their reading, listening, or viewing experiences supported by reasons, examples, and details	●	●	●	●	●	●
CIIc	Use various strategies for generating questions	●	●	●	●	●	●
CIIc	Sort, organize, and represent specific information	●	●	●	●	●	●
CIIc	Contribute relevant ideas to discussions	●	●	●	●	●	●

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	Grades 2–3 cont						
CIIp	Demonstrate pride and satisfaction in using language to express thoughts, ideas, and feelings using familiar forms	●	●	●	●	●	●
CIIp	Demonstrate a willingness to experiment with communication forms to respond to, inform, and entertain others	●	●	●	●	●	●
CRc	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	●	●	●	●	●	●
SSp	Demonstrate a willingness to communicate a range of feelings and ideas	●	●	●	●	●	●
SSp	Seek opinions and consider the responses of others	●	●	●	●	●	●
	Grade 4						
CRs	Read, listen, and view for specific purposes	●	●	●	●	●	●
CRs	Use strategies, including asking and developing questions, rereading and reading further to develop understanding	●	●	●	●	●	●
CIIc	Share what they know about chosen topics	●	●	●	●	●	●
CIIp	Create and express thoughts, ideas, and feelings in a variety of oral, written, and electronic forms	●	●	●	●	●	●
CIIp	Create and present a variety of personal communications, including written and oral poems, stories, explanations, informal oral reports and dramas, personal letters, and illustrated charts or posters	●	●	●	●	●	●
SSw	Assume a variety of assigned roles when communicating in groups	●	●	●	●	●	●
SSw	Demonstrate a willingness to improve their understanding by seeking clarification from others	●	●	●	●	●	●
SSw	Review their contributions and communications within the group	●	●	●	●	●	●
SSb	Demonstrate a willingness to work with others toward a common goals		●	●	●	●	

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	Grade 5						
CRs	Read, listen, and view for specific purposes	●	●	●	●	●	●
CRs	Use strategies, including developing questions, rereading, reading further, and reviewing, to clarify meaning and build understanding	●	●	●	●	●	●
CR	Extend their understanding of a given selection by developing related questions and activities	●	●	●	●	●	●
CR	Locate and interpret details to answer specific questions or to complete tasks	●	●	●	●	●	●
CIIp	Create a variety of personal and informational communications, including written and oral stories, poems, or lyrics; explanations and descriptions; informal oral reports and dramatics; and brief factual reports	●	●	●	●	●	●
SSw	Assume a variety of roles when interacting in groups	●	●	●	●	●	
SSw	Assess their own communications and their contributions to the group	●	●	●	●	●	●
SSb	Demonstrate a willingness to communicate with others to reach common goals within the classroom	●	●	●	●	●	●
	Grade 6						
CRs	Use information they have read, heard, or viewed to develop questions and activities that will extend their understanding	●	●	●	●	●	●
CRs	Organize details and information they have read, heard, or viewed using a variety of written and graphic forms, including charts, webs, and maps	●	●	●	●	●	●
CRe	Develop personal responses to materials and support their responses with reasons, examples, and details	●	●	●	●	●	●
CRc	Describe the purposes and key features of what they read, hear, and view	●	●	●	●	●	●
CIIc	Describe what is known about topics or issues and check for gaps in the information available	●	●	●	●	●	●

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	LEARNING OUTCOMES	SA	GG	SM	LA	DS	MF
	Grade 6 cont						
CIIp	Create various personal and transactional communications, including real and invented narratives, poems or lyrics, summaries or retellings, descriptions, letters, informal oral presentations, charts, and posters	●	●	●	●	●	●
SSw	Demonstrate a willingness to assume a variety of roles in group interactions	●	●	●	●	●	
SSb	Demonstrate a willingness to interact with others in a variety of classroom and school activities involving communication	●	●	●	●	●	●
	Grade 7						
CRs	Use information they have read, heard, or viewed in a variety of written or graphic forms, including written notes and charts	●	●	●	●	●	●
CRcc	Summarize what they know about specific topics or issues and identify and address gaps in the information available	●	●	●	●	●	●
CRcc	Formulate relevant questions on communication topics for familiar audiences and purposes	●	●	●	●	●	●
CIIp	Create a variety of personal and informational communications, including fiction and non-fiction; written summaries, instructions and reports; oral and visual presentations; oral and written opinions; poems; or lyrics	●	●	●	●	●	●
SSp	Create a variety of written and oral communications to record their views, opinions, values, and beliefs	●	●	●	●	●	●
SSw	Share responsibility for the effective functioning of groups	●	●	●	●	●	
SSw	Elaborate on others' ideas	●	●	●	●	●	●
SSb	Use language to demonstrate consideration of others' perspectives and to invite participation	●	●	●	●	●	●
SSb	Use language to display empathy, acknowledge others' viewpoints, express the value of others' ideas, and invite participation	●	●	●	●	●	●