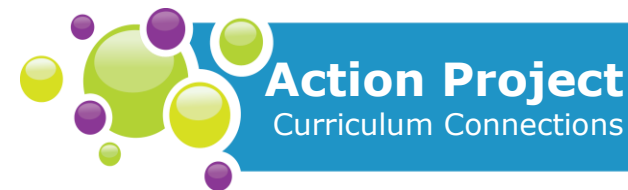


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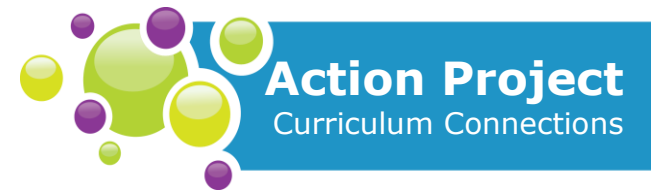
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Gr.	Course	Topic	Lesson	Outcome/Expectation
6	Science and Technology (NT, 2004)	Space	MINDS-ON 1	Identify Canadians who have contributed to space science and technology
			MINDS-ON 1, 2	Explain how astronauts meet their basic needs in space
			MINDS-ON 2	Describe how humans have improved the tools and techniques used in space exploration
			MINDS-ON 2	Identify the technological tools and devices needed for space exploration
			MINDS-ON 2	Recognize problems arising from space exploration
			ACTION 1	Formulate questions about and identify needs and problems related to objects and events in the environment, and explore possible answers and solutions
			ACTION 1, 2	Use appropriate vocabulary, including correct science and technology terminology, in describing their investigations and observations
			ACTION 1, 2	Compile data gathered through investigation in order to record and present results, using tally charts, tables, labeled graphs, and scatter plots produced by hand or with a computer
			CONSOLIDATION	Communicate the procedures and results of investigations for specific purposes and to specific audiences, using electronic media, written notes and descriptions, charts, graphs, drawings, and oral presentations
7	Mathematics Grade 7 (updated 2016) (Alberta)	Statistics and Probability (Data Analysis)	ACTION 1, 2	1. Demonstrate an understanding of central tendency and range by: <ul style="list-style-type: none"> determining the measures of central tendency (mean, median, mode) and range determining the most appropriate measures of central tendency to report findings
			ACTION 1, 2	2. Determine the effect on the mean, median and mode when an outlier is included in a data set.
8	Mathematics Grade 8 (updated 2016) (Alberta)	Statistics and Probability (Data Analysis)	ACTION 1, 2	Collect, display and analyze data to solve problems 1. Critique ways in which data is presented.
9	Mathematics Grade 9 (updated 2016) (Alberta)	Statistics and Probability (Data Analysis)	ACTION 1, 2	3 Develop and implement a project plan for the collection, display and analysis of data by: <ul style="list-style-type: none"> formulating a question for investigation choosing a data collection method that includes social considerations selecting a population or a sample

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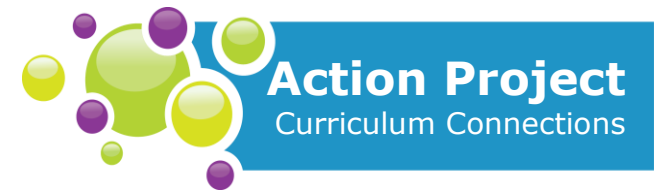


				<ul style="list-style-type: none"> collecting the data displaying the collected data in an appropriate manner
			CONSOLIDATION	<ul style="list-style-type: none"> drawing conclusions to answer the question.
9	Science 9 (updated 2014) (Alberta)	Unit C: Environmental Chemistry	MINDS-ON 1	identify science-related issues
			MINDS-ON 2	1. Investigate and describe, in general terms, the role of different substances in the environment in supporting or harming humans and other living things <ul style="list-style-type: none"> describe and illustrate processes by which chemicals are introduced to the environment or their concentrations are changed
			MINDS-ON 2	2. Identify processes for measuring the quantity of different substances in the environment and for monitoring air and water quality <ul style="list-style-type: none"> apply and interpret measures of chemical concentration in parts per million, billion or trillion
			MINDS-ON 3	select appropriate methods and tools for collecting data and information and for solving problems
			ACTION 1	identify questions arising from practical problems and issues
			ACTION 1	Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data <ul style="list-style-type: none"> identify data and information that are relevant to the issue select and integrate information that is relevant to the issue (e.g., demonstrate proficiency in uploading and downloading text, image, audio and video files) use instruments and materials effectively and accurately for collecting data organize data, using a format that is appropriate to the task or experiment use tools and apparatus safely
			ACTION 1, 2	Analyze qualitative and quantitative data, and develop and assess possible explanations <ul style="list-style-type: none"> identify strengths and weaknesses of different ways of displaying data identify and suggest explanations for discrepancies in data identify the line of best fit on a scatterplot, and interpolate or extrapolate based on the line of best fit
			ALL	Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures and results



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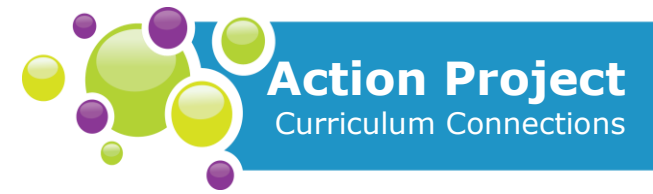


				<p>troubleshoot problems as they arise</p> <ul style="list-style-type: none"> • receive, understand and act on the ideas of others (e.g., seek and achieve group consensus on procedures to be used in an investigative activity, and act on that consensus)
9	Science 9 (updated 2014) (Alberta)	Unit E: Space Exploration	MINDS-ON 1, 2	<p>2. Identify problems in developing technologies for space exploration, describe technologies developed for life in space, and explain the scientific principles involved</p> <ul style="list-style-type: none"> - analyze space environments, and identify challenges that must be met in developing life-supporting systems (e.g., analyze implications of variations in gravity, temperature, availability of water, atmospheric pressure and atmospheric composition)
			MINDS-ON 1	<p>4. Identify issues and opportunities arising from the application of space technology, identify alternatives involved, and analyze implications</p> <ul style="list-style-type: none"> - describe Canadian contributions to space research and development and to the astronaut program
			MINDS-ON 2	<p>2. Identify problems in developing technologies for space exploration, describe technologies developed for life in space, and explain the scientific principles involved</p> <ul style="list-style-type: none"> - describe technologies for life-support systems, and interpret the scientific principles on which they are based (e.g., <i>investigate systems that involve the recycling of water and air</i>)
			MINDS-ON 2	<p>Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data</p> <ul style="list-style-type: none"> - research information relevant to a given problem - select and integrate information from various print and electronic sources or from several parts of the same source (e.g., compile and compare information about two exploratory missions)
			MINDS-ON 3	<p>Analyze qualitative and quantitative data, and develop and assess possible explanations</p> <ul style="list-style-type: none"> - test the design of a constructed device or system (e.g., create and test a model device for remote manipulation of materials) - identify and correct practical problems in the way a prototype or constructed device functions (e.g., identify and correct problems in the functioning of a model "remote transportation device" that they have designed and built)
			ACTION 1	<p>Analyze qualitative and quantitative data, and develop and assess possible explanations</p> <ul style="list-style-type: none"> - identify the strengths and weaknesses of different methods of collecting and displaying data (e.g., compare Earth-based observations with those made from spacecraft)



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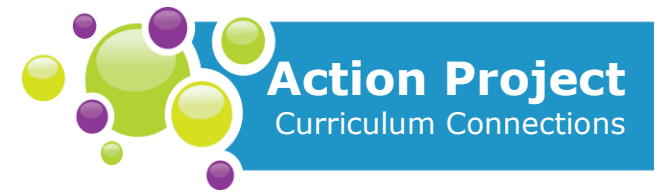
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			ACTION 1, 2	<p>Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data</p> <ul style="list-style-type: none"> - organize data, using a format that is appropriate to the task or experiment (e.g., maintain a log of observed changes in the night sky; prepare a data table to compare various planets)
			ACTION 2 CONSOLIDATION	<p>Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures and results</p> <ul style="list-style-type: none"> - receive, understand and act on the ideas of others - work cooperatively with team members to develop and carry out a plan, and troubleshoot problems as they arise - defend a given position on an issue or problem, based on their findings
10	BIT: COURSE CSE1010 2009 (Alberta)	Computer Science 1	MINDS-0N 1, 2, 3	<p>2. demonstrate an understanding of the nature, design and use of basic algorithms associated with problems involving the sequential inputting, processing and outputting of data</p> <p>2.1 define algorithms and explain how they are used</p>
10	BIT: COURSE CSE1110 (2009) (Alberta)	Structured Programming 1	MINDS-0N 1, 2, 3	1.2 analyze a variety of simple algorithms and describe the task or tasks the algorithms are attempting to carry out
			MINDS-0N 1, 2, 3	1.3 analyze problems and determine if they can be solved using algorithms that employ an input/processing/output (IPO) approach
			MINDS-0N 1, 2, 3	1.6 write the algorithm in an acceptable format; e.g., pseudocode, structured chart
			MINDS-0N 1, 2, 3	1.7 test the algorithm for failure as well as success with appropriate data 1.8 revise the algorithm, as required

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10	BIT: COURSE CSE1120 (2009)	Structured Programming 2	CONSOLIDATION	<ol style="list-style-type: none"> 1. demonstrate basic structured programming skills by writing algorithms to solve problems involving selection (decision making) and iteration (repetition) <ol style="list-style-type: none"> 1.1 analyze a problem and determine if it can be solved using an algorithm that employs an input/processing/output (IPO) approach 1.2 determine if there is more than one IPO module present 1.3 decompose the problem into its respective modules and identify the IPO components of each module 1.4 identify what data is already available to the programmer and what must be inputted by the end user and organize into appropriate block or blocks using the appropriate program control structures 1.5 identify the processing requirements and organize into appropriate blocks using the appropriate program control structures 1.6 incorporate basic algorithmic idioms as required; e.g., accumulation, determining maximum or minimum values 1.7 identify the output requirements and organize into appropriate blocks using the appropriate program control structures 1.8 order components into an appropriate sequence where processing occurs only when all required data for a module is available and output occurs only after appropriate processing has occurred 1.9 write the algorithm in an acceptable format; e.g., pseudocode, a structured chart
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