



St. Kateri Outdoor Learning Centre
Lesson Plan
Estimating and Measuring Distance



Target Station(s):	Entire Trail
Target Grade(s):	Grades 3, 4, and 5
Target Subject(s):	Mathematics
Overall Curriculum Expectation(s):	<ul style="list-style-type: none"> • Grade 3 Mathematics – B1 – estimate, measure and record length, area, mass, capacity, time and temperature, using standard units • Grade 4 Mathematics – B1 – estimate, measure and record length, area, mass, capacity, volume and elapsed time, using a variety of strategies • Grade 4 Mathematics – B2 – determine the relationships among units and measurable attributes, including the areas and perimeter of rectangles • Grade 5 Mathematics – B2 – determine the relationships among units and measurable attributes, including the area of a rectangle and the volume of a rectangular prism
Specific Curriculum Expectation(s):	<ul style="list-style-type: none"> • Grade 3 Mathematics – B1.1 – estimate, measure and record length, height, and distance, using standard units (i.e., centimetre, metre, kilometre) • Grade 4 Mathematics - B1.1 – estimate, measure and record length, height, and distance, using standard units (i.e., centimetre, metre, kilometre) • Grade 4 Mathematics – B2.1 – describe, through investigation, the relationship between various units of length (i.e., millimetre, centimetre, decimetre, metre, kilometre) • Grade 5 Mathematics – B2.1 – select and justify the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure length, height, width, and distance
Catholic Graduate Expectation(s):	<ul style="list-style-type: none"> • CGE3c -thinks reflectively and creatively to evaluate situations and solve problems • CGE4f -applies effective communication, decision-making, problem-solving, time and resource management skills • CGE5a -works effectively as an interdependent team member • CGE5f -exercises Christian leadership in the achievement of individual and group goals • CGE7i - respects the environment and uses resources wisely
Connection to FNMI Perspectives and/or Teachings:	
Learning Goals:	We are learning to accurately estimate, measure, and record the length of the St. Kateri Self-Guided Hiking Trail using a trundle wheel.
Prerequisite Knowledge and/or Skills:	Teachers should have a master map of the St. Kateri Hiking Trail with the distance between stations already recorded in metres.
Required Materials:	The tote will include:

	<ul style="list-style-type: none"> • One clipboard and pencil per student • One blank map of the trail for each student • Several orange trundle wheels • A master map with the distances recorded in metres for the teacher’s reference
Activity and Approximate Times:	<ol style="list-style-type: none"> 1. Upon arriving at the trailhead, break students into small groups. Provide clipboards with information recorded above to each student. 2. Review the learning goal of the activity (i.e., estimate and measure in metres, using a trundle wheel). Review also the map with the students, so that they know how to read it, where the distance information is to be recorded, and how to use the trundle wheel. 3. Invite each student group to walk to the first station, measure the distance with their trundle wheels, and record the distance in metres. 4. Before proceeding to the second station, instruct the student groups to record an estimate of the distance they think will be between Stations 1 and 2 and then proceed onward, actually measuring the distance using the trundle wheel. 5. Instruct students to continue this procedure from station to station, initially estimating the distance in metres and then recording the actual distance using their trundle wheel. 6. Upon return to the trailhead, tell the students to transfer their recorded measurement information to a chart for reference. 7. Review the actual measurements with the students so that they can determine how accurate their measurements using a trundle wheel were.
Suggested Modifications or Extensions:	<p>Dependent upon the grade, you may wish to have the students complete various conversions pertinent to their grade (e.g., metres to kilometres).</p> <p>Student groups could also develop their own trail maps, with the stations listed.</p>
Assessment:	Group measurements will be compared to actual measurements.
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