 **LESSON PLAN**

**Candidate’s name:**

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| Grade/Class/Subject: | Grade 6/7 Math/Science | School: | Anyschool |
| Date: | July 6, 2022 | Allotted Time: | 7 x 75 min |
| Topic/Title: | Math and Science of Canoes |

1. **LESSON ORIENTATION**

**Key resources:** [Instructional Design Map](https://www.dropbox.com/s/g7l0nd7jah1o927/InstructionalDesignMap.pdf?dl=0)

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| *Briefly, describe purpose of lesson, and anything else to note about the context of lesson, students, or class, e.g. emergent learning needs being met at this time, elements of focus or emphasis, special occasions or school events.* |
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1. **CORE COMPETENCIES**

**Key resources:** <https://curriculum.gov.bc.ca/competencies>

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| **Core /Sub-Core Competencies** *(check all that apply):* | *Describe briefly how you intend to embed Core Competencies in your lesson, or the role that they have in your lesson.* |
| [ ]  COMMUNICATION – Communicating[ ]  COMMUNICATION – Collaborating [ ]  THINKING – Creative Thinking[ ]  THINKING – Critical Thinking[ ]  THINKING – Reflective Thinking[ ]  PERSONAL AND SOCIAL – Personal Awareness and Responsibility[ ]  PERSONAL AND SOCIAL – Positive Personal and Cultural Identity [ ]  PERSONAL AND SOCIAL – Social Awareness and Responsibility |  |

1. **INDIGENOUS WORLDVIEWS AND PERSPECTIVES**

**Key resources:** First Peoples Principles of Learning (FPPL); [Aboriginal Worldviews and Perspectives in the Classroom](https://www2.gov.bc.ca/assets/gov/education/administration/kindergarten-to-grade-12/indigenous-education/awp_moving_forward.pdf)

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| **FPPL to be included in this lesson** *(check all that apply):* | *How will you embed Indigenous worldviews, perspectives, or FPPL in the lesson?* |
| [ ] Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors. [ ]  Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place). [ ]  Learning involves recognizing the consequences of one's actions.[ ]  Learning involves generational roles and responsibilities.[ ]  Learning recognizes the role of Indigenous knowledge.[ ]  Learning is embedded in memory, history, and story.[ ]  Learning involves patience and time. [ ]  Learning requires exploration of one's identity.[ ]  Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations. |  |

1. **BIG IDEAS**

**Key resources:** <https://curriculum.gov.bc.ca/> (choose course under Curriculum, match lesson to one or more Big Ideas)

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| *What are students expected to understand? How is this lesson connected to Big Idea/s or an essential question?* |
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1. **LEARNING STANDARDS/INTENTIONS**

**Key resources:** <https://curriculum.gov.bc.ca/> (choose course under Curriculum)

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| **Curricular Competencies:***What are students expected to do?*  | **Content:***What are students expected to learn?* |
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1. **ASSESSMENT PLAN**

**Key resources:** [Instructional Design Map](https://www.dropbox.com/s/g7l0nd7jah1o927/InstructionalDesignMap.pdf?dl=0) and<https://curriculum.gov.bc.ca/classroom-assessment>

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| *How will students demonstrate their learning or achieve the learning intentions? How will the evidence be documented and shared? Mention any opportunities for feedback, self-assessment, peer assessment and teacher assessment. What tools, structures, or rubrics will you use to assess student learning (e.g. Performance Standard Quick Scale)? Will the assessments be formative, summative, or both?* |
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1. **DESIGN CONSIDERATIONS**

**Key resources:** [Instructional Design Map](https://www.dropbox.com/s/g7l0nd7jah1o927/InstructionalDesignMap.pdf?dl=0)

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| *Make brief notes to indicate how the lesson will meet needs of your students for: differentiation, especially for known exceptionalities, learning differences or barriers, and language abilities; inclusion of diverse needs, interests, cultural safety and relevance; higher order thinking; motivations and specific adaptations or modifications for identified students or behavioural challenges. Mention any other design notes of importance, e.g. cross-curricular connections, organization or management strategies you plan to use, extensions for students that need or want a challenge.* |
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| **Required preparation:** *Mention briefly the resources, material, or technology you need to have ready, or special tasks to do before the lesson starts, e.g. rearrange desks, book a room or equipment.* |
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1. **LESSON OUTLINE**

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| **Instructional Steps** | **Student Does/Teacher Does** *(learning activities to target learning intentions)* | **Pacing** |
| **OPENING:***e.g. greeting students, sharing intentions, look back at what was learned, look ahead to what will be learning, use of a hook, motivator, or other introduction to engage students and activate thinking and prior knowledge* | Day 1Students will be given 5 minutes to settle back in after recessTeacher will integrate and make connections with previously introduced concepts. Teacher will share a personal story and connection with canoeing and canoe building.We will discuss what students have learned so far about canoes and canoeing that they have found interesting, familiar, surprising or inspiring.We will then watch this video together and listen to the story. Students will be asked to make connections with personal story and try and pick out the mathematical ideas in the story.SMALL NUMBER AND THE OLD CANOEWritten by Veselin Jungic & Mark MacLean Illustrated by Simon Royhttp://www.sfu.ca/mathcatcher/StoriesMovies/TheOldCanoe.htmlhttp://After the story, teacher will ask the students if they noticed any math concepts throughout. Teacher will then share some reflections that were noticed in the story.1) connecting the number of totem poles with the number of people in the family2) connecting the length of the canoe with how many people could fit in the canoe.3) ideas about what might limit the number of people that could fit in the canoe besides the size of the canoe. | 5 min15 min |
| **BODY:*** *Best order of activities to maximize learning -- each task moves students towards learning intentions*
* *Students are interacting with new ideas, actively constructing knowledge and understanding, and given opportunities to practice, apply, or share learning, ask questions and get feedback*
* *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling*
* *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations*
 | Teacher will ask students if they have ever built a canoe before and open up a discussion about what might help to determine the size, shape and material of a canoe. We will come up with a brainstorm about these ideas.Students will then put into groups of 5 and be given the opportunity to research some different materials that would make a good canoe in “real life” as well as material for a miniature canoe. We will discuss some of the factors that make certain material better than others.1) density of the material (will it be too heavy and sink)2) what can help increase its ability to float (increased surface area, ie bigger canoe base).3) water resistant4) strength of materialsThen, we will discuss different shapes of canoes and what helps us determine the best shape.1) how does shape affect how many people can ride **Teacher will show this example**: assuming that one person can fit per 1m x 1m and the perimeter is 14 m, how many different ways can we change the length and width of the canoe and how does this affect how many people can fit.Teacher will draw the a first variation of this on the smart board including a diagram of each canoe shape.Example 1) width of 2 m and length of 5 m = 2 + 2 + 5 + 5 = 14 mif 1 person uses 1m x 1m then 5 pairs (2 people standing side by side) can fit in the canoe. This would mean that 5 groups of 2 = 10 people can fit.Then Teacher will ask students to work through the next example together as a class.Example 2) width of 3 m and length of 4 m = 3 + 3 + 4 + 4 = 14 mif one person uses 1m x 1m then 4 triplets (groups of 3 standing beside each other) can fit. This would mean that 3 groups of 4 = 12 people can fit.Finally, Teacher will ask students in their groups of 5 to make up their own example where the perimeter is 14 (previous analysis of what perimeter is and how it is determined will be done). Teacher will remind students to determine how many people can fit in their hypothetical canoe and make sure that they show their work on paper.As a class we will look at the examples from each group. Students will be given the opportunity to come and draw up their example, verbally explain from their seats, or bring it to the teacher to share with the class.Next, teacher will ask if the shape of the canoe should only be determined by how many people can fit and ask them to think about this for next class? Teacher will ask students to bring some materials from home for mini canoe building next class Suggestions:StyrofoamCardboardPopsicle sticksPlastic containerany other ideas students have.Teacher will also bring supplies for those who do not have any.Day 2Examine how shapes of canoes affect its movementhttps://www.youtube.com/watch?v=PbBOp8PZiCgExamine the physics.https://www.youtube.com/watch?v=06TFRgPlmxU | 10 min20min20 min5 min |
| **CLOSING:*** *Closure tasks or plans to gather, solidify, deepen or reflect on the learning*
* *review or summary if applicable*
* *anticipate what’s next in learning*
* *“housekeeping” items (e.g. due dates, next day requirements*
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1. **REFLECTION** *(anticipate if possible)*

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| * *Did any reflection in learning occur, e.g. that shifted the lesson in progress?*
* *What went well in the lesson (reflection on learning)?*
* *What would you revise if you taught the lesson again?*
* *How do the lesson and learners inform you about necessary next steps?*
* *Comment on any ways you modelled and acted within the Professional Standards of BC Educators and BCTF Code of Ethics?*
* *If this lesson is being observed, do you have a specific observation focus in mind?*
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