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**Lesson Plan Template (Revised 2020)**

**Elementary Years**

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| **Name:** | **Vicki Chen** |

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| **Grade** | K/1 | **Topic** | STEM (Mathematic/ADST/Physical Science) |  |
| **Date** | March 9th/2021  | **Allotted Time** | 45 mins |  |
| **STAGE 1: Desired Results****Cite sources used to develop this plan:**  |
| <https://teachingideas.ca/2018/11/06/stem-challenge><https://thestemlaboratory.com/category/building-projects/>https://www.invent.org/blog/trends-stem/value-stem-education |

**Rationale**: *How is this lesson relevant at this time with these students? Why is it important?*

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| STEM-based education teaches children more than science and mathematics concepts. The focus on hands-on learning with real-world applications helps develop a variety of skill sets, including creativity and 21st-century skills.STEM education include problem solving, critical thinking, creativity, curiosity, decision making, leadership, entrepreneurship, acceptance of failure and more. Regardless of the future career path considered by these children, these skill sets go a long way to preparing them to be innovative. |

**Core Competencies:** <https://curriculum.gov.bc.ca/competencies> (refer to “profiles” for some ideas)

*Which sub-core competencies will be the focus of this lesson? Briefly describe how and why:*

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| **Communication*** Communicating
* Collaborating
 | **Thinking*** Creative Thinking
* Critical & Reflective Thinking
 | **Personal and Social*** Personal Awareness & Responsibility
* Positive Personal & Cultural Identity
* Social Awareness & Responsibility
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| **Communication****Collaboration** | **Reflective Thinking****Creative Thinking** | **Personal Responsibility****Positive Personal Identity** |

**First Peoples Principles of Learning (FPPL):**

*How will Indigenous perspectives, knowledge & ways of knowing be acknowledged, honoured or integrated into this learning experience?* (Jo Chrona’s Blog: <https://firstpeoplesprinciplesoflearning.wordpress.com/>)

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| **FPPL to be included in this lesson:** | **How will the FPPL be embedded in lesson:** |
| * 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
 | * Acceptance of failure and learn from mistake
* Experiential with new ideas
* Collaboration with teammate to creative successful strategies
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**Curriculum Connections:** <https://curriculum.gov.bc.ca/> (Curriculum)

*What Big Ideas (Understand), Curricular Competencies (Do), Content (Know) does this lesson develop?*

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| ***Understand***Big Idea(s): Designs grow out of natural curiosity. (ADST)Skills can be developed through play. (ADST)*Essential or Guiding Question(s): why proper technique for fundamental movement skills in daily life.*  |
| ***Do***Curricular Competencies (Learning Standards):* Use trial and error to make changes, solve problems, or incorporate new ideas from self or others (ADST)
* Use materials, tools, and technologies in a safe manner in physical environments (ADST)
* Develop their skills and add new ones through play and collaborative work (ADST)
* Use reasoning to explore and make connections (MATH)
* Estimate reasonably (MATH)
* Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving (Math)
* Share observations and ideas orally (Science)
 |
| ***Know***Content (Learning Standards):* Know how to make decisions based on reflexive thinking
* Know how to make connections through reasoning with numbers
* Know how to demonstrate mathematical understanding through hands-on play, inquiry, and problem solving
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**STAGE 2: Assessment Plan**

FORMATIVE ASSESSMENT: (Assessment as Learning; Assessment for Learning)

The creation and completion of the bridge and house will show evidence of cooperation, collaboration, and problem-solving as well as creative thinking.

SUMMATIVE ASSESSMENT: (Assessment of Learning)

There is no summative assessment as this exercise is about hands-on, experiential learning.

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| **The Learning Intention:** *What will students learn in this lesson? (i.e. Learning Standards)* | Students will learn how to problem solve using teamwork and creative thinking |
| **Evidence of Learning:** *How will students demonstrate their learning? What does it look like?* | Students will build structures and test them for strength and height |
| Criteria:*What do students need to do to meet or achieve the learning intention?* | Use most of the materials at the workstation Build a structure that meets all the requirements of strength and/ or height |

**Planning for Diversity:**

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| **Learning Target:** *In what ways does the lesson meet the needs of diverse learners?* *How will you plan for students who have learning/behaviour difficulties or require enrichment?* |
| Students need to/must doUse most of the materials to build the bridge or building Access/All | Students can doWork together to make the strongest bridge or the tallest building Most | Students could do/try toBuild a building that is both strong and tallBuild a bridge that is both wide and strongName their bridge and building Take on leadership Few/Challenge |

**STAGE 3: Learning Plan**

**Resources, Material and Preparation:** *What resources, materials and preparation are required?*

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| * 10 cups ( work station x 2 )
* 40 Popsicle Sticks ( work station x 4)
* 20 Toilet Paper Roll (work station x2)
* Wooden block (work station x 4)
* Pencil (per student)
* Paper if they want to draw down their plan
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**Organizational/Management Strategies:** *(anything special to consider?)*

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| Organize students into groups for each stationRotate students in a planned manner |

**Lesson Development:**

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| **Connect:** *How will you introduce this lesson in a manner that engages students and activates their thinking? Activate or build background knowledge, capture interest, share learning intention.* | Pacing |
| **Teacher will** * Get students attention
* Ask “What it is STEM?”
* Explain what STEM means
* Set up workstations (4)
 | **Students will** * Sit down by their desk
* Raise hand and answer question
 | 5 mins |

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| **Process:** *What steps and activities are you going to use to help students interact with new ideas, build understanding, acquire and practice knowledge, skills* *and/or attitudes? In what ways have you built in guided practice?*  | Pacing |
| **Teacher will** * Explain the STEM Challenge
1. Strongest Building (Cups and Popsicle Sticks)
2. Tallest Building (Cups and Popsicle Sticks)
3. Longest Bridge (Toilet Paper Rolls and Popsicle Sticks)
4. Strong Bridge (Toilet Paper Rolls and Popsicle Sticks)
* Key points of the challenge
1. Commutation with your teammates
2. Failure is OKAY
3. Try to come up something outside the box
 | **Students will** * Raise hand and ask questions about the STEM Challenge
 | 5 mins |

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| **Transform:** *How will students apply or practice their learning? Can they show or represent their learning in personalized ways? What are the choices for student task?* | Pacing |
| **Teacher will** * Observe students with their ideas
* Encourage students to build the bridges strong and the buildings tall
* At the 10 mins mark ask students to stop, and ask the students to showcase their building
* Ask students to change to the next station
 | **Students will** * Come up a strategy as a group
* Commutation with teammates
* Problem solving and mathematical skill to improve the bridge and building they build
* Come up with a creative idea
* Decision making
* At the 10 mins mark, showcase their building
 | 40 mins(10 mins in each station)  |

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| **Closure:** *How will you solidify the learning that has taken place and deepen the learning process?* *Refer back to the learning intention, connect to next learning.* | Pacing |
| **Teacher will** * Give 5 mins warning
* Ask them to clean up
 | **Students will** * Hear the 5 minute warning and finish up their projects
* Clean up the work station
 | 5 mins |

**Reflection** *What was successful in this lesson? If taught again, what would you change to make this lesson even more successful and inclusive for diverse and exceptional students?*

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| By writing down clear instructions at each work station, I think the students felt more confident in beginning their projects. There were some redirections that had to be made and some students felt that they were not being heard by their group members. I needed to reaffirm that this is a group project, and everyone’s voices needed to be considered. I circulated from station to station, which helped keep the students on track. At the end, everyone learned something about STEM and problem solving. I think it was nice to see everyone working together.  |

Lesson Planning Guide (adapted from Thompson Rivers University)

*The lesson plan template is designed as a guide for students to use when planning lessons. The plan may be adapted to specific subject areas and modified as students gain experience or to suit their presentation style. The template is a basic outline that can be used directly as printed or expanded from the electronic version. It is important that the lesson plan be sufficiently clear and detailed so that another teacher could use the plan to teach the lesson.*

***Rationale****: Why are you teaching this particular lesson at this time? One consideration is the context for the lesson (e.g. this introductory lesson determines what students know and want to know about the topic, this lesson relates to previous and future learning by . . .) Another consideration is student motivation (e.g. what are some reasons the learner might care about the content/concepts/ skills for future learning, careers, or interests?).*

***Curricular Connections:***

The curriculum asks you to plan what the students will DO, what they will KNOW, and then what they will UNDERSTAND. ***Big ideas*** *capture the “big picture” or general area of learning (e.g. interdependence of living things with the environment, stories are a source of creativity and joy) and will be what students come to UNDERSTAND.* ***Curricular competencies*** *are what students will DO in their learning activities (e.g. using comprehension strategies, sorting and classifying data, making ethical judgments) that are related to each discipline. The* ***learning standards for content or concepts*** *are a more specific consideration of what students will come to KNOW. Many of the standards are written in broad, general terms to allow flexibility. You can, using the intention of the standard, make it clearer and more specific (e.g. learners will be able to describe the main idea in a paragraph or story, learners will be able to classify leaves based on properties they identify). The lesson should make a connection to both types of learning standards – curricular competencies as well as content. A reminder that the direction of new curriculum has identified core competencies of thinking, communication, and personal / social development as a foundation for all curricula.*

***Learning Intentions:*** *How can you make clear and share with your learners what they are going to learn or have learned or accomplished? Statements like: “I can add two fractions” help frame their learning in positive student language.*

***Prerequisite Concepts and Skills:***  *What concepts and skills are needed for students to be successful? This communication helps connect lessons together in a logical sequence by building/scaffolding new knowledge onto previous learning. For example, if students are going to be engaged in debate did you build or scaffold group work strategies, communication skills, expected etiquette, criteria beforehand?*

***Materials and Resources /References*** *List all materials and resources that you and the students will need. What things do you need to do before the lesson begins? (e.g. prepare a word chart.) What things do the students need to do? (e.g.read a chapter in the novel.) Have you honoured the sources of ideas or resources? Disorganized materials can ruin a great lesson.*

***Differentiated Instruction (DI): (accommodations):*** *How will you accommodate for diverse learners in your class? How will you allow for some variety in expression of learning? How can you modify the learning activities for success? How can you provide engaging extra challenges for those that are ready? How might you alter the learning environment if needed? Have you considered Aboriginal and cultural influences? IEP’s?*

***Assessment and Evaluation:*** *Did the students learn what you taught them? What tools might you use for assessment (e.g. check list, rubric, anecdotal record). How will you provide formative feedback to students about their learning? The results of the assessment should be directly connected to what your students were able to write say or do related to the learning intentions and or curriculum. Strive for accuracy and build assessment into teaching and learning and not as an “add on” at the end.*

***Organizational/Management Strategies:*** *Have you thought-out organizational management strategies to facilitate a proactive positive classroom environment? Some examples are: organizing for movement, distributing and collecting materials, grouping strategies, blended grade classroom logistics.*

***Aboriginal Connections / First Peoples Principles of Learning:***  *Are there any connections to Aboriginal or other cultural knowledge, worldviews, or principles of learning?*

###### Lesson Activities/Structure:

***Connect****: How will you get students interested/motivated/ hooked into learning? How will you connect this lesson to past and future lessons? How can you share the learning intentions in student friendly language? How will you provide a lesson overview?*

***Process****: What sequence of activities will the student’s experience? What will you do? What will they do? Estimate how much time will each activity take (pacing)? What are grouping/materials strategies? There are many ways to describe the body (step by step, two columns dividing student and teacher activities, visual flow chart of activities and connections, others?)*

***Transform****: How will students apply and personalize the learning? What will they do or create to show you that they have learned?*

***Closure:*** *How will the lesson end? (e.g. connecting back to learning intentions, summarizing learning, sharing of accomplishments, connecting to next lessons). Google “40 ways to close a lesson.”*

***Reflections****: Complete the reflections section as soon as possible after teaching the lesson. What went well? What revisions would you make to the lesson? Anything else***?**