UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

LESSON PLAN (Individualized Learning: Dyscalculia)
Secondary Years

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EDUC 336: Inclusive Education
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Grade/Subject:	Mathematics 8	School:	UNBC
Date:	July 21, 2021	Allotted Time:	1 hr 19 mins (79 min)
Topic: Surface Area			
Cross-Curricular Connections: Science – observing, representing, and measuring matter geometrically. Engineering. Physics. ADST – carpentry, drafting, metalwork, etc.			

PART 1: PLANNING

Rationale/Pre-Assessment:
Why these students at this time in this way? What is the background knowledge of students to support this learning?

In this part of the geometry unit of Gr. 8 Math, students are working on surface area and the representations of 3D objects. They will have covered Pythagoras prior to this section, a section that includes developing a knowledge base in using and understanding squares and square roots. They would have been working through the concept of how to convert between 2-dimenions (surface area when squared) and 1-dimension (triangle side-length when square-rooted). Furthermore, in this surface area unit, students will be required to calculate the surface area of shapes like equilateral triangles which are part of 3D rectangular prisms, given only side lengths. This is where Pythagoras really comes in handy, as it can be used to determine the height of an equilateral triangle by halving the base as a leg of a right triangle and the side length as the hypotenuse.

There are several ways to approach surface area with students. Although students may not have difficulty finding the surface area of a regular 2D shape (i.e., a circle, square, rectangle, triangle), making sense of the complexity of 3D shapes such that 2D surfaces may be identified can be more challenging. It is therefore important that students develop both a systematic approach to identifying the component surfaces of a 3D shape in addition to developing competence in how 3D objects may be projected (or viewed) in order to obtain sufficient information that is representative of the object as a whole. Other lessons, that may come prior to today's lesson, would build towards understanding the component requirements of regular 3D objects for calculating surface area, include drawing projected views (top, side, front), drawing 3D sketches of the objects using isometric paper, drawing, and constructing nets, and using manipulatives such as linking cubes to model the object.

During today's lesson, students will be shown particular projected views of objects which are made from regular 3D objects (wooden sticks which are rectangular prisms) and then asked to construct them physically using the wooden building sticks (*KEVA Brain Builders*, 2021) from the displayed projected views. They would have already worked through representing 3D objects using projected views in addition to using isometric paper to create 3D drawings, and thus, this modification has them physically apply their understanding.

In this class, there is a student who has dyscalculia and often has difficulty with his number sense (the ability to make mental comparisons about numerical quantities). Difficulties in learning for this student also arises when representing word problems with symbolic calculations; furthermore, symbols—like variables—used in algebra often get conflated with numbers in terms of representation. To address these obstacles, concrete representations (such as the use of manipulatives or practical application of mathematical concepts) are often used instead of or in addition to symbolic and pictorial mathematical representations. During today's lesson, all students will participate; however, this lesson is perfectly tailored to satisfy the learning needs of students who have dyscalculia. Linked cubes will be used to aid the review section which asks students to represent the projected views (side, top, front) on an object. Use of the wooden building sticks also is a tool in which students represent mathematics in concrete forms (*KEVA Brain Builders*, 2021); because we will move through "view cards" (cards which contain the projected view stem puzzles) as a class, it is often found that a reasonable endpoint for time is multimodal. To address this, photocopies of the view cards have been created to provide to students who need to work at their own pace (*Dyscalculia*, 2017).

It has been shown that developing mnemonics to help students with dyscalculia by improving memory recall, and thus, the student in the class with dyscalculia uses mnemonics as of method for remembering the proper mathematical terminology associated with the surface area unit (Wolgemuth et al., 2008). He has been asked to create these himself and then is allowed to seek outside resources only after a personal formulation first (if desired). One of the characteristics of dyscalculia, which has been demonstrated with this student, is low functioning associated with working memory tasks. As such, mnemonics as a learning tool is employed to address this in all math units and I, as the educator, make a concerted effort to be consistent with my use of the terminology.

Other factors and methods that have been used and employed to create an inclusive classroom—which satisfies the learning conditions for the student with dyscalculia—include providing an agenda of the day's tasks in a flow chart form, using multiple representations of mathematical concepts in instruction and in student activity, providing written and oral opportunities for student response, using different manipulatives to construct concrete mathematical representations, providing opportunity for peer work (see using wooden building sticks to construct objects from projected views below), providing enough time to work through problems at personal paces (see photocopied view cards below), and the option to use the learning commons room to write tests or quizzes where there are less distractions, aids which can provide assistance with generalizing word problems are available, and time may be taken. Breaks are also used for everyone in this class as a means of addressing emotional and physical health. Finally, there is one class iPad that is often used by our student who has dyscalculia. There are many apps that provide him with virtual manipulatives that are used both as a learning tool in class and for certain summative tests (Puchner et al., 2008). The iPad is also used to submit self-reflections and exit slips for this student, as is described in the "Exit Slip" section in "*Part 2: Teaching.*"

Big Ideas: https://curriculum.gov.bc.ca/ (Curriculum)
What are students expected to understand? How is this lesson connected to the Big Ideas?

The relationship between surface area and volume of 3D objects can be used to describe, measure, and compare spatial relationships. Students are expected to understand how surface area of 3D objects can be represented, measured, and described symbolically, concretely, and pictorially. They will understand how the 2D surface areas of 3D objects are spatially related to each other and how Surface Area can be used to measure and construct physical 3D objects (like nets and structures).

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:

C **Communication** • Communicating • Collaborating	T **Thinking** • Creative Thinking • Critical & Reflective Thinking	PS **Personal and Social** • Personal Awareness & Responsibility • Positive Personal & Cultural Identity • Social Awareness & Responsibility
	I can gather and combine new evidence with what I already know to develop reasoned conclusions, judgments, or plans. – students will work on reflecting on their learning	

	throughout the Pythagoras unit and apply it to the concepts today. They will work towards making the connection between units and understand prior learning as tools for future learning rather than discrete learning objectives. They will also reflect on the different representations of geometric objects that we have been concentrating on thus far and connect today's learning with previous learning.	

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/)

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). *AND* *Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.*	This lesson is part of a chain of lessons which aim to lead students towards a more comprehensive understanding and application of geometric concepts related to surface area and volume of 3D objects. As the holistic component, students will be given the time and learning environment required to become comfortable with describing what we see around them in 3D space. They will not be presented with new material and asked to summatively demonstrate their competence until they are ready. Although students will perform calculations on paper, construct objects with manipulatives, and represent 3D objects by drawing on 2D paper/whiteboards, they will also apply their understanding to real objects in the classroom and in community. This lesson will be confined to the classroom; however, it will lead into exploring and applying these geometric concepts to physical surroundings, both inside and outside of the school, which is intended to be used to develop a sense of place. We will describe and measure these relationships and connect them to place through community. The embedded classroom community is nested within the school community, which continues to expand to the local/city, provincial, national, international, and universal communities. Students will reflect on why learned skills—like operations, expressions, equations, and Pythagoras—are so valuable to have in their mathematical tool kits moving forward in their lives. The true benefit of gaining competence in the mathematics and vocabulary in geometry is that it provides more precise language to describe and compare the world around us. We could describe the difference between structures built by the first peoples in the local area and

	structures built today. We can describe differences in cultural building and reflect on the fact that not all cultures use square corners and triangles in their building designs. Through exploring and comparing architectural differences within and among communities, we develop recognition of and a connection to self, community, history, and overall wellbeing.

Learning Standards: https://curriculum.gov.bc.ca/ (Curriculum) – *What will be assessed and evaluated?*

Curricular Competencies: *What are students expected to do?*	**Content:** *What are students expected to learn?*
Communicating and representing: Represent mathematical ideas in concrete, pictorial, and symbolic forms AND use mathematical vocabulary and language to contribute to mathematical discussions – students have been working at representing 3D objects in different concrete, pictorial, and symbolic ways. They have been given or shown 3D objects and asked to represent the projected views of the object (side, top, front) by drawing them or taking views and constructing/drawing them in 3D (linking cubes and isometric paper). Today's focus is on representing objects concretely using wooden building sticks. They will develop their spatial reasoning and spatial manipulation in their heads. They will determine the minimal amount of information required to construct an object by building from projected views when some are restricted from view. Students should contribute to discussion and identify components and views of shapes using the proper mathematical vocabulary and language (i.e., vertex, edges, side views, etc.). They should also be able to describe which type of view (front/side/top) they are representing when drawing these.	**Surface area and construction, views, ~~and nets~~ of 3D objects:** - The proper terminology to describe the shapes we are working with (rectangular prism, triangular prism, cube, vertex, edges, faces, etc.). - How to describe and determine the areas and dimensions of regular solids and identify projected views. - Representing 3D objects concretely using wooden building sticks when provided with projected views.

Assessment Plan:

Opportunities for feedback, self-assessment, peer assessment and teacher assessment. What structures or rubrics will you use to evaluate student learning? Include the assessment tool used (e.g., Performance Standard Quick Scale).

FORMATIVE ASSESSMENT:

Formative assessment will look to see if students are meeting the following expectations:

Working on it	Citeria	Got it
	Students can correctly identify and describe parts of regular solids with proper mathematical vocabulary.	

	Students can describe and draw different projected views of regular solids.	
	Students can use projected views (top, side, and front) to construct and represent the 3D representation of the object using wooden building sticks/blocks.	
	Students can determine which projected views provide the highest level of detail in order to construct a 3D object using wooden building sticks. This will be object specific, not general/universal.	
	Differentiated Criteria:	
	Students can correctly identify and describe parts of regular solids provided with physical objects or simulative representations using proper mathematical vocabulary.	
	Students can describe, draw, or construct representations (labeling if constructing) of different projected views of regular solids. Student is provided with linking cubes to construct objects of which projected views are drawn from (Puchner et al., 2008).	
	Student can use provided projected views (top, side, and/or front) to construct and represent 3D objects using wooden sticks/blocks. Student is provided with an individual copy of the projected views, builds during teacher instruction, and is provided as much time as needed to complete building the object using materials. Student can identify the faces of blocks in relation to projected views.	
	Student is not required to differentiate which determine optimization.	

SUMMATIVE ASSESSMENT:

There will be no summative assessment in this lesson.
Upon approaching the end of this unit, students will receive a summative unit test on Surface Area. The test is written and will focus on representing 3D objects with projected views, 3D drawings using isometric paper, and carrying out calculations using formulas and symbols to find SA. Students will also be required to identify geometric characteristics using proper mathematical vocabulary.

Differentiated Summative Assessment: As there is a student with dyscalculia in the class, different resources and adapted assessments will be put in place to accommodate this exceptionality. The student struggles with abstractions, word problems, and symbolic representations of mathematical concepts. Although we are working on improving these skills, the assessment will be based on the conceptual understanding and representation of concepts. This means that this student will demonstrate their understanding and abilities when provided with manipulatives, including building sticks and linking cubes, to construct objects from projected views rather than draw them on isometric paper. Furthermore, visual, and manipulative aids will be provided such that the student can physically identify the components of a regular solid and determine the surfaces that will be calculated for area. Rather than being required to represent objects pictorially, symbolically, and concretely, (drawings, equations, nets, manipulatives), assessment will be focused on the student's choice of representation. As is often observed across students with dyscalculia, this student regularly uses self-verbalization, in the form of whispering or talking quietly to himself, as a cognitive mode of fostering integral self-regulation and defining/clarifying the undertaken task to himself (Desoete, 2007). As such, he has asked and been approved to write all tests in the learning commons room where he can focus, talk out loud without disrupting others, and obtain aid for understanding word problems.

The Learning Intention: *What will students learn in this lesson? (i.e. Learning Standards)*	Students will learn to visualize and describe the views of 3D objects using mathematical vocabulary. Students will learn to draw 2D projected views (top/side/front) of 3D objects. Students will learn how to construct/build/represent 3D objects from given projected views (side/top/front) and/or from physical objects.
Evidence of Learning: *How will students demonstrate their learning? What does it look like?*	When describing or labeling views, dimensions, and measurements of 3D objects, students use proper vocabulary. Students can look at an image or physical 3D object and represent it 2-dimentioally with multiple projected views (side/top/front). When students are provided with projected views of a 3D object, they can construct/build these objects to be represented 3-dimentially
Criteria: *What do students need to do to meet or achieve the learning intention?*	Students will use their personal whiteboards (or answer orally) to answer review questions related to the features and characteristics regular solids (i.e., rectangular prisms, triangular prisms, edges, vertices, edges, faces, etc.) Students will observe a 3D object presented by the teacher (a box or a construction of linking cubes projected over the document cam. Students have the option of using a handful of linking cubes to create the structures such that they can be rotated and observed at the student(s) desk(s). Students will use provided wooden building sticks/blocks to construct 3D objects from images of projected views. Students will do this task individually, but the different objects will be paced as a class. The objects have a scaled range of difficulty which will be presented in an increasing direction. Copies of each card (that show projected views) are made ahead of time to provide to students who would like more time to work on a certain object they are trying to build. Students may work in pairs with peers of their choosing after an indicated number (by teacher) of objects have been built individually. Students will demonstrate their opinion of which projected view contains the highest level of information needed to accurately construct the object by physically moving to a projected-view-designated third of the classroom (sectioned and categorized as front, side, or top by the teacher). Students will discuss and share their logical process. After gaining practice with constructing the objects from the projected views, views-cards will be given with 2/3 views covered; students will then attempt to construct the object from 1/3 views, then 2/3 views, then a reveal of the full object and all views will be shown lastly).

Planning for Diversity:

What is the Learning Target? *In what ways does the lesson meet the needs of diverse learners? How will you plan for students who have learning/behavior difficulties or require enrichment?*		
Students need to/must do	**Students can do**	**Students could do/try to**
All students need to participate in review of the mathematical terminology describing regular solids. Those who prefer it may answer orally; I consistently move through the classroom and will be available to listen in relative privacy when preferred. All students must identify the three projected views of a simple 3D object. Drawn and labeled or constructed using linking cubes and pointed with orated description. All students can use their manipulatives to follow along with physically demonstrated and orated instruction from the teacher after attempting it on their (Asghar et al., 2017; *Dyscalculia*, 2017). All students will be able use displayed projected views of some objects to construct the 3D concrete representation using wooden building sticks. All students must make a choice in their favoured projected view for a given object by moving physically to one segmented third of the classroom with a corresponding designation to a view. Access/All	Most students will be able to draw and label objects using proper mathematical terminology. Most students will be able to demonstrate the three projected views of complex 3D objects. Most students will construct most to all of the objects from provided projected views. Most students will be able to construct the 3D objects given 2/3 projected views for some objects. Most	Students can try creating their own personal mnemonics to remember the appropriate terminology. Students may share these out or keep them private (*Math Mnemonics*, 2021). Students can try representing complex object from memory as projected views (i.e., the high school or a hallway with classrooms). Students can try constructing all (including the difficult level) projected views displayed from the set. Students can try constructing the 3D objects given 1/3 projected views or providing a clear and logical conjectures as to why it would be impossible. Few/Challenge

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

- Projector and document camera
- computer
- internet access
- chalk/dry erase markers
- chalkboard/whiteboard
- personal student whiteboards and dry erase markers

- Attendance list
- Hand-in bin
- Calculators
- Personal day plan notes
- Graph/grid paper
- Linking cubes
- Box of 3D shapes (boxes, cylinders, etc.)
- Tape measures
- Rulers (class set)
- Scissors (class set)
- Wooden building sticks and projected view cards (*KEVA Brain Builders*, 2021).
- Photocopies of projected view cards (x5 of each in first scale zone)

PART 2: TEACHING

Teacher Activities:	**Student Activities:**	**Pacing**
Before Lesson: *Post and/or explain agenda of class; post the Core Competencies or FPPL; post the learning intentions; etc.* - Write the agenda on the side whiteboard so it is visible throughout the class. - Write the date on the board using math notation related to the unit. - Mark curricular competencies being focused on today on the laminated poster. - Have personal lesson plan notes/guide ready to go. - Have linking cubes clean and ready for distribution. - Have materials ready (graph and isometric paper, blank paper). - Go through agenda for the day and describe the learning intentions. - Go over the curricular competency and talk about the work related to core competency for the day.	- Students listen and respond appropriately if required.	**4 min.**
Motivator/Start of Lesson: *How will you introduce this lesson in a manner that engages students and activates their thinking/connections to prior knowledge?* Starter Activity: Fill the Stairs (Finkel, 2020) - Get 2 10-sided dice. - Have students draw a staircase with 11 levels (0 at the bottom and 100 at the top) - Role the dice and read out the number (the first dice will represent that 10s place and the second the ones).	- Students participate in starter activity. - Students draw the 11-stairs with 0 at the bottom and 100 at the top. - When hearing the number read out, they place their number in what they think is the most logical position. First one to fill their stairs wins. All numbers that cannot be placed go below.	**10 min.**

- Have students fill up their stairs so that numbers are always in ascending order—they will have to decide where to leave space. **During Lesson:** • *Brief points about the content* • *Sample questions*		
<u>Review of Mathematical Vocabulary:</u> - Provide students with a drawing of 3D object on the chalk board, have them copy it out and label the components with proper vocabulary (vertex, face, edge, view, etc.). - Walk around the room as this process goes on checking whiteboards and accepting orally communicated responses in proximities such that there is a degree of privacy from the rest of the class.	- Students will use their personal whiteboards to draw the object and label the components using proper vocabulary. - Students will identify characteristics and components of physical objects orally.	**5 min.**
<u>Projected Views of Block Structures: Review</u> - Provide students with grid paper in the sleeves. - Provide students with 9 linking cubes each (monitor this). - Construct some shapes using the linking cubes and display them with the document camera. - Ask students to draw the side, top, and front views of the shapes on their grid paper. - After ample time, demonstrate a clear approach to viewing and representing the projected views of the constructed object.	- Students will take their grid paper in sleeve and collect 9 linking cubes. - students will construct the shapes that I make (projected over the overhead doc cam) and draw them on their sleeves. - Students receive feedback as the room is monitored or follow along with the teacher's process after given time to try.	**10 min.**
Break	- Students take a break, may use their phones, and leave the classroom.	**10 min.**
<u>Building 3D structure from projected views with blocks:</u> - Place 3 boxes of blocks in the classroom. - Ask students to clear their desks. - Ask students to grab exactly 20 blocks each from the boxes and return to their desks. - Give them 5 min. to play and build something. o Ask them to take a picture using their phone cameras. This can be used later to represent projected views once they are more comfortable with them (don't tell them this).	- Students clear their desks. - Students go to the boxes of wooden block sticks and collect 20 per person. - Students build whatever they want to with their blocks in their desks. - Take picture of their structure with their phone, deconstruct it, and then listen without touching the blocks. - Students view the projected views card for the block set	**37 min.**

- Once all structures are deconstructed on student's desks, have them look at the projected view card that comes with the set on the document camera.
- Provide students with building challenges—start easy and get harder.
- Provide photocopied cards to students who require more time to construct their object puzzle from views. They may take as long as they need and continue at any point with the rest of the class.
- After a few challenges, inquire as to what students start (which view) when building. Is it always that view or just the one we are building at this time?
- Take a view away and have them build with only 2. Reveal the 3rd view after everyone has a structure.
    o Discuss what they had to guess and what they knew…drive home the point that the 3 views are OFTEN needed to really get the whole structure. Why 3?
- Go to 1 view, then reveal another view (students can choose), then the final reveal.
    o Be sure to allow them to complete a structure each time a view is revealed.
	- They then are provided with three views and need to construct the 3D object using them.
	- Students continue to follow the building challenges and construct 3D objects with their materials.
	- Some may choose to accept a photocopied card if they need more time to work through the spatial reasoning for this task.
	- Students participate in describing why they have chosen to start with one sideview over the other two and if that is always the case or if it changes.	

- *Challenge (time dependent)*: build the tallest tower. Students can get more blocks. - Clean up	- Students build the tallest tower they can using the blocks, either alone or in groups of their choosing. Then clean up.	**10 min.** *(if time)*
Activities to apply learning: - *see "Building 3D structure from projected views with blocks" section above.* **Review/Summary:** - *see terminology/vocabulary and projected view review sections.* **Closure:** - Talk about what was accomplished today and how today's learning leads into putting all the pieces, required to calculate surface area, together for the upcoming lessons.	 - Students listen	
<u>Exit Slip: What is working for me.</u> - Provide students with the exit slip that has the prompt: *When you are representing 3D objects and determining the faces which must be added to calculate total surface area, what type of representation do you find works best for you?*	- Students fill in their exit slips and put them in the hand in bin. - If applicable, student can submit their response via Teams on their iPad.	**3 min.**

(Projected views, nets, building them with manipulatives, making equations symbolically, drawing in 3D). - Direct students towards the hand-in bin on their way out.		

PART 3: REFLECTION

How did the learning go? How do you know what to teach next? In what ways are the learners informing you about the next steps?

References:

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Wolgemuth, J. R., Cobb, R. B., & Alwell, M. (2008). The Effects of Mnemonic Interventions on Academic Outcomes for Youth with Disabilities: A Systematic Review. *Learning Disabilities Research & Practice*, *23*(1), 1–10.

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. inter-dependence 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?**