

Bachelor of Education (Elementary) & Bachelor of Education (Secondary) STEM Unit Plan Template

Unit Title: <u>Winter: Changes</u>	Number of Lessons: <u>10</u>	Time (in weeks): <u>TBD</u>
Name: <u>Melissa Green</u>	Subject(s): <u>Science, Arts Education</u>	Grade(s): <u>Kindergarten</u>

Rationale

This unit is important because it helps students learn, wonder, and explore the changes that took place in the seasons and go deep into different aspects and observations about the season of winter.

Overview:

Students will start the unit off with brainstorming and wondering connecting the knowledge that they know with the wonders that they have. Ongoing reflection and sharing will be present through the unit as students in engage in exploration, art, drawing, sharing and observation. Students will look at the four seasons through the changes trees go through connecting what they know with what they learn and then expressing that through a collaborative project. Students will engage in winter art using natural materials and also making designs in snow. We will seek out animal tracks at McArthur Island and make observation notes about what they see. Students will take a close look at snowflakes in nature, engage in snowflake art, and participate in centres with different materials to create snowflake designs. At the end of the unit we will celebrate winter through winter play and creating a collaborative book!

CORE COMPETENCIES

Communication	Thinking	Personal & Social
<ul style="list-style-type: none"> • <i>Communicating</i> Students will have many opportunities to engage in communication throughout this unit. Students will work with others, share ideas and experiences with others, and have opportunities to share with a peer partner as well as with a teacher. During one group exploration students will, as a group, share their completed project with the class. Students will have opportunities to enhance their skills in sharing with intent and purpose – make sure what they are sharing with the group is connected to the question/wondering/learning at the time. As students learn about winter, the season change, and engage in the natural environment around them they will be acquiring information and sharing that through writing, drawing, and speaking. • <i>Collaboration</i> Students will have opportunities to 	<ul style="list-style-type: none"> • <i>Creative Thinking</i> Wondering, imagining and being creative in the exploration of winter will be encouraged and modeled through this unit. Students will be encouraged to use the knowledge they know to enter into the areas they would like to learn more about – it is from this place that new ideas and wonders develop. Through free play, creative art exploration, and creating as a group, students will be invited to be creative in their thinking and contributions. • <i>Critical Thinking & Reflective Thinking</i> Students will frequently be invited into times of reflecting both individually and as a group. Through the “see, think, wonder” and the Venn diagram students will be guided in being critical and reflective in their contributions. Outdoor exploration, snowflake examination, and animal print 	<ul style="list-style-type: none"> • <i>Personal awareness and responsibility</i> Students will be expected to be aware of their behaviour and demonstrate responsibility and respect through each of the lessons. Ongoing teaching and reminders will be offered to further deepen this learning. At times students may experience that there are consequences for the decisions that they make. Students will have to engage in self-regulation (with support and modeling) in their behaviour and in being aware of their actions. There may be times when for a students well-being an adaptation or a time of quiet/pause will be needed – as much as possible this will be honoured and supported. • <i>Positive personal and cultural identity</i> Not significantly present in this unit.

<p>engage in brainstorming, reflecting, and wondering as a whole class: taking turns speaking and listening as they collaborate on a piece of work together. Students will be encouraged in their supporting of one another in group work through fair contribution and respecting what others have to share and contribute to projects. Students will also collaborate together on a classroom “book” – the success of this book will require everyone to participate: together we can create beautiful and great things!</p>	<p>tracking are some of the formal and informal task as well as ongoing activities (outside exploration) that students will be invited to analyze. From these pieces students will engage in questioning during their inquiry and investigate to further their learning. Reflecting on what they know, what they’ve experienced, and what they have learned and how they feel will take place throughout the unit.</p>	<p>• <i>Social awareness and responsibility</i> This unit involves a lot of connecting with peers and connecting with the natural environment around us. Care of the environment that we are learning in and at times with the natural materials we are engaging with will be talked about, modeled, and explored.</p>
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BIG IDEAS

(multiple subject areas for integrated unit)

Subject: Science	Subject: Arts Education
Daily and seasonal changes affect all living things.	Engagement in the arts creates opportunities for inquiry through purposeful play.

LEARNING STANDARDS

Curricular Competencies	Content
<p>Science CC1: Demonstrate curiosity and a sense of wonder about the world CC2: Observe objects and events in familiar contexts CC3: Ask simple questions about familiar objects and events CC4: Make exploratory observations using their senses CC7: Experience and interpret the local environment CC9: Discuss observations CC14: Share observations and ideas orally</p>	<p>Science C8: Seasonal changes</p>
<p>Arts Education CC1: Explore elements, processes, materials, movements, technologies, tools, and techniques of the arts CC2: Create artistic works collaboratively and as an individual, using ideas inspired by imagination, inquiry, experimentation, and purposeful play CC8: Express feelings, ideas, stories, observations, and experiences through the arts</p>	<p>Arts Education C1: Elements in the arts: visual arts: elements of design: line, shape, texture, colour; principles of design: pattern, repetition C2: Processes, materials, movements, technologies, tools and techniques to support arts activities</p>

Prerequisite Concepts and Skills:

- Students are familiar with outdoor learning and the expectations
- Students are familiar with group sharing/reflecting/wondering and the expectations of listeners (this will continue to be modeled and taught!)
- Students have engaged in observation outside using difference senses
- Students are familiar with the expectations of working together at centers/rotation stations

Teacher Preparation Required:

Lesson #	Teacher Preparation Required (See Unit Plan Sample)
Lesson 1	<ul style="list-style-type: none">• “See, think, wonder” chart
Lesson 2	<ul style="list-style-type: none">• Book: Goodbye Autumn, Hello Winter by Kenard Pak• Venn Diagram on whiteboard or large paper
Lesson 3	<ul style="list-style-type: none">• Book: Tap the Magic Tree by Christie Matheson
Lesson 4	<ul style="list-style-type: none">• Black construction paper• White card stock• Q-tips• White acrylic paint• Water colour paper• Water colour paint• Salt• Paintbrushes• Scissors• Glue
Lesson 5	<ul style="list-style-type: none">• Let’s Go! Animal Tracks in the Snow! By Diane Polley• Plastic animals for making tracks• Animal track booklets
Lesson 6	<ul style="list-style-type: none">• Observation sheets
Lesson 7	<ul style="list-style-type: none">• Book: No Two Alike by Keith Baker
Lesson 8	<ul style="list-style-type: none">• Paper pattern block cut-outs (white)• Black circle cutouts• Variety of loose parts• White clay
Lesson 9	<ul style="list-style-type: none">• Book: Snow by Cynthia Ryland• Snow paint• Paintbrushes, eye droppers
Lesson 10	<ul style="list-style-type: none">• Picture slideshow• Blank prepared book pages (hole punched)• Folder/duo tang for book pages• Hot chocolate

Cross-Curricular Connections:

This science unit includes a few lessons that incorporate visual art. Stories are read throughout the unit providing an English Language Arts connection.

Aboriginal Connections/ First Peoples Principles of Learning:

“Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.” – through this unit student learning is supporting the well-being of the land, especially as a great amount of learning takes places in nature.

“Learning involves patience and time.” – Aspects of exploration, learning, and engaging in projects will involved patience and time. This will be honoured, encouraged, and acknowledged – our learning and exploration has no time limit and some days the expectation of what we will accomplish or how learning will unfold will be different from what we have expected.

Universal Design for Learning (UDL)

- Engagement of auditory learners through verbal instructions
- Engagement of visual learners through visual examples by the teacher
- Engagement of kinesthetic learners by different movement activities and the walking and exploration of being outside
- Different forms of sharing: writing, partner sharing, group sharing, drawing
- Outdoor learning

Differentiated Instruction (DI):

None at this time - may be expanded upon based on children's needs in the classroom. This will connect directly to students' individual needs and/or IEP's.

Overview of Lessons:

Lesson 1

Name & Time (Minutes Allotted):	Winter: See, Think, Wonder (20 minutes plus nature walk/exploration)
Learning Standards: Curricular Competencies	Science: CC1, CC2, CC3
Learning Standards: Content	Science: C8
Instructional Objectives	TSWBAT contribute to the "See, think, wonder" chart about winter, demonstrating a sense of wonder. TSWBAT share one question they have about winter with the class.
Assessment:	Formative <i>as</i> learning What: See, think, wonder chart How: Students will share and also have their knowledge and wondering expanded as classmates share. Formative <i>for</i> learning What: See, think, wonder chart and question sharing How: Teacher will listen and take note of the different things students are interested in, have questions about, and wonder about. The unit and lessons will be adapted and expanded upon based on areas students are interested in engaging in further inquiry about.
Teaching Strategies:	Poll, outdoor walk/exploration, "See, think, wonder" chart
Materials:	"See, think, wonder" chart – one for the class
Lesson Activities:	
Introduction/Hook:	Opinion Poll: What is your favourite season? Winter, Spring, Summer, Fall?
Body:	Walk and exploration of our environment in winter. As a class, complete the "See, Think, Wonder" Chart... what do you <u>see and know</u> about winter? Why do you think we have winter? What do you wonder about winter?
Closure:	Students complete the sentence, "When I think about winter I have a question about...."

Lesson 2

Name & Time (Minutes Allotted):	Fall vs. Winter Venn Diagram (30 minutes + group walk time)
Learning Standards: Curricular Competencies	Science: CC2, CC7, CC14
Learning Standards: Content	Science: C8
Instructional Objectives	TSWBAT share differences and similarities between fall and winter. TSWBAT observe on the walk and use sight, touch, and hearing to learn

	about what is different about winter from fall. TSWBAT share one change between the fall and winter seasons.
Assessment:	Formative <i>for</i> learning What: Venn Diagram How: Teacher will listen to the contributions from students and from the group as a whole and notice areas that need further teaching and exploration. Formative <i>as</i> learning What: Group Winter Walk How: Students will be sharing with one another on the walk about what they see, hear, and feel that tells us about winter. Formative <i>as/for</i> learning What: Reflection question sharing How: Teacher will listen to each students sharing and gauge their understanding of the differences between the two seasons, students will learn from hearing each others sharing.
Teaching Strategies:	Story, brainstorming, group walk, reflection and sharing
Materials:	Book, Venn Diagram on whiteboard or large paper
Lesson Activities:	
Introduction/Hook:	Read: Goodbye Autumn, Hello Winter by Kenard Pak
Body:	Group Brainstorm: Fall vs. Winter Venn Diagram Group Walk, making note of what we see, hear, and feel that may tell us about the change between fall and winter. Review Venn Diagram – do we need to add or change anything from what we saw on our walk?
Closure:	Reflection Question: What is one change that that you noticed on the walk from fall to winter?

Lesson 3

Name & Time (Minutes Allotted):	Seasons of a Tree (30 minutes)
Learning Standards: Curricular Competencies	Science: CC1 Arts Education: CC1, CC2, CC8
Learning Standards: Content	Science: C8 Arts Education: C2
Instructional Objectives	TSWBAT work as a group to complete their “season tree” using natural items TSWBAT share as a group about their art piece and listen to other groups share
Assessment:	Formative <i>as</i> learning What: Group art work How: Students will be working collaboratively and engaging with one another while also learning from one another Formative <i>for/as</i> learning What: Group Sharing about art piece How: Teacher and students will learn from one another as group sharing takes place. Teacher will be able to observe where further oral sharing and/or listening skills need to be modeled and taught further.
Teaching Strategies:	Story, collection of natural objects, observations of seasons through outdoor art, group sharing
Materials:	Book
Lesson Activities:	
Introduction/Hook:	Read: Tap the Magic Tree by Christie Matheson

Body:	Group Work: Students are split into four groups, each group is given one “season tree” to create: Winter, Spring, Summer, Fall. Using the items around them in nature each group creates, using branches from the forest floor, an expression of what the tree may look like in that season. IE: Winter: bare with snow; Spring: bits of moss as leaves beginning to grow/berries as flowers, Summer: lots of green moss as a tree full of leaves, Fall: fall coloured forest items (deteriorating leaves)
Closure:	Group Sharing: Each group has a turn to share with the class what the season their tree is in, what items they used and what they represent on the tree.

Lesson 4

Name & Time (Minutes Allotted):	Winter Mountain Scene (40 minutes or possibly two art blocks)
Learning Standards: Curricular Competencies	Science: CC1, CC9 Arts Education: CC1, CC2
Learning Standards: Content	Science: C8 Arts Education: C1, C2
Instructional Objectives	TSWBAT use different techniques and process to create art. TSWBAT share their observations and experiences in creating their art.
Assessment:	Formative <i>as</i> learning What: Winter Mountain Scene How: Students will explore techniques including watercolour paint with the addition of sprinkling salt. Formative <i>for</i> learning What: Students will share their observations and experiences in creating their art piece. How: Teacher will listen to student sharing
Teaching Strategies:	Pictures, varied art materials, reflection
Materials:	Black construction paper, white card stock, q-tips, white acrylic paint, water colour paper, water colour paint, salt, paintbrushes, scissors, glue
Lesson Activities:	
Introduction/Hook:	Show pictures of aspen groves during different parts of the year. Show sample of aspen grove art.
Body:	Lead students in creating this part piece, general steps: <ul style="list-style-type: none"> - Black construction paper, cut out mountains from the white card stock – talk about the different mountains and have students create the mountains of their choosing - Once mountains are cut out, glue on black paper and create snow with white acrylic paint and q-tips - On watercolour paint students choose the “winter sky colours” that they’d like on their mountains and paint after a tutorial on how watercolour paint works. Once the paper have been painted sprinkle salt on top, watch what happens to the paint. - Once dried, sprinkle off the salt and cut out triangles and glue as many or few as you’d like on the mountain range on the black paper.
Closure:	Reflection sharing: What was your favourite part of creating your winter mountain scene? What did you see when you sprinkled salt on the watercolour paint?

Lesson 5

Name & Time (Minutes Allotted):	Footprints in the Snow (30 minutes plus walking time at McArthur Island)
Learning Standards: Curricular Competencies	Science: CC2, CC7, CC14
Learning Standards: Content	Science: C8

Instructional Objectives	TSWBAT observe natural (or made) animal tracks and include them in their observation booklets. TSWBAT Share their observations with the class as well as what they wish they had seen.
Assessment:	Summative <i>as</i> learning What: Completed animal track booklets How: Teacher will review students completion of observation and recording. Formative <i>as</i> learning What: Student sharing with a partner How: Students will listen to one another share and consider similarities and differences that their classmate has in relation to their thoughts.
Teaching Strategies:	Story, discussion, nature walk, observation booklets, partner share
Materials:	Book, animal track booklets, plastic animals
Lesson Activities:	
Introduction/Hook:	Read: Let's Go! Animal Tracks in the Snow! By Diane Polley I wonder if you think animal tracks look different in the winter/snow than in other seasons?
Body:	Walk and look for animal tracks – stop to fill in “animals and their prints” booklet. Alternatively, have plastic animals that students can use to make prints in the snow and then completed the “animals and their prints” booklet.
Closure:	Partner Share: What was your favourite animal print that you saw? What do you wish you had seen?

Lesson 6

Name &Time (Minutes Allotted):	This is what I noticed... (30 minutes)
Learning Standards: Curricular Competencies	Science: CC2, CC4, CC9, CC14
Learning Standards: Content	Science: C8
Instructional Objectives	TSWBAT engage in observation and share orally. TSWBAT engage in observation and share by completing the observation sheet with a picture and a few words.
Assessment:	Formative <i>as</i> learning What: Observation and oral sharing How: Students are learning as they engage in a period of quiet observation and share with the class orally. Summative <i>of</i> learning What: “This is what I noticed when I looked closer at...” observation sheet How: Teacher will be able to have a discussion with each student about their completed observation sheet and see how they observed and how they communicated their observations on the sheet.
Teaching Strategies:	Brainstorm, observation, oral sharing, written/drawn sharing
Materials:	Observation sheets
Lesson Activities:	
Introduction/Hook:	Invite students to brainstorm what they like doing in the winter outside?
Body:	Students will choose a place to observe something that is only here/or is different because it's winter (snow, ice, frozen mud, etc). Students will spend two-four minutes quietly observing and then come back to the group and participate in a circle share. Students then choose something else to observe and this time after four minutes complete the “this is what I noticed when I looked closer at _____” sheet with a picture and few word description.

Closure:	Partner Share: How did you feel taking a closer look at one part of winter?

Lesson 7

Name & Time (Minutes Allotted):	Snowflakes (30 minutes)
Learning Standards: Curricular Competencies	Science: CC1, CC2, CC7
Learning Standards: Content	Science: C8
Instructional Objectives	TSWBAT make observations about snowflakes from looking at them through a magnifying glass and also looking at close-up pictures of snowflakes. TSWBAT create an observational drawing of a snowflake with a sentence. TSWBAT share one wonder they have about snowflakes with the class.
Assessment:	Formative <i>as</i> learning What: Observing snowflakes How: Students will be learning as they explore and take a close look at snowflakes. They will engage in discussion with others about what they see. Summative <i>of</i> learning What: Observational drawing and sentence. How: Teacher will have a conversation with students about their drawing and sentence. Formative <i>as/for</i> learning What: Wonder sharing How: Students will hear each others “wonders” and teacher will be able to take note of things to provide further learning and inquiry on.
Teaching Strategies:	Observation, story, getting a closer look through different means, drawing, wonder sharing
Materials:	Black paper, magnifying glasses, pictures of snowflake details, white crayons, lined paper
Lesson Activities:	
Introduction/Hook:	Read: No Two Alike by Keith Baker
Body:	Give each student (or groups of two) a black piece of paper and a magnifying glass. Help students find some “fluffy” snow to put on the paper lightly and have them look through the magnifying glass to take a closer look. Gather the students back together and show some pictures of snowflakes (make sure they show design and details). Have students make an observational drawing of a snowflake on black paper using a white crayon and write one sentence (on lined paper) about something they noticed about their snowflake.
Closure:	Students share one wonder about snowflakes.

Lesson 8

Name & Time (Minutes Allotted):	Snowflake Creations (40 minutes)
Learning Standards: Curricular Competencies	Science: CC1, CC14
Learning Standards: Content	Science: C8
Instructional Objectives	TSWBAT participate in each of the three stations, creating snowflakes using different materials. TSWBAT share observations about the snowflakes they made.
Assessment:	Formative <i>as</i> learning What: Snowflake stations How: Students will engage in creating snowflakes with varied materials and

	in varied formats for ongoing inquiry into snowflakes. Formative <i>for</i> learning What: Reflection/observation sharing How: Teacher will heard the reflections and sharing's from students.
Teaching Strategies:	Review of art from day before, exploration stations, group discussion
Materials:	Paper pattern block cut-outs, black circle cutouts, variety of loose parts, white clay
Lesson Activities:	
Introduction/Hook:	Look at the snowflake drawings from the previous lessons. Students are invited to share observations.
Body:	Introduce the three snowflake stations; students will rotate in three groups and spend time at each station. 1) Creating snowflakes with pattern block shapes on black cutout circles 2) Creating snowflakes out of loose parts 3) Creating snowflakes out of white clay and a few loose parts
Closure:	Ask students if any two of the snowflakes that were made today were the exact same? Were their common features?

Lesson 9

Name &Time (Minutes Allotted):	Snow Paint Snowflakes (20 minutes)
Learning Standards: Curricular Competencies	Science: CC1 Arts Education: CC1, CC2
Learning Standards: Content	Science: C8 Arts Education: C1, C2
Instructional Objectives	TSWBAT use “snow paint” to design and create snowflakes in the snow.
Assessment:	Formative <i>as</i> learning What: “Snow paint” snowflakes How: Students will have an opportunity to engage with “snow paint” and explore creating art/snowflake paintings in the snow.
Teaching Strategies:	Story, outdoor art, gallery walk
Materials:	Book, snow paint, paintbrushes, eyedroppers
Lesson Activities:	
Introduction/Hook:	Read: Snow by Cynthia Ryland
Body:	Students create snowflakes in the snow using “snow paint” and paintbrushes and/or eyedroppers.
Closure:	Gallery Walk: walk around and admire everyone’s snowflakes

Lesson 10

Name &Time (Minutes Allotted):	Celebrating Winter! (Whole afternoon)
Learning Standards: Curricular Competencies	Science: CC1, CC9
Learning Standards: Content	Science: C8
Instructional Objectives	TSWBAT complete their page of the classroom collaborative book.
Assessment:	Summative <i>of</i> learning What: Collaborative book page How: Teacher will discuss with each student and review for completion and expressed learning about winter.
Teaching Strategies:	Picture slideshow, collaborative book, winter collaboration, special treat
Materials:	Picture slideshow, blank/prepared book pages (hole punched), folder/duotang for book pages, hot chocolate
Lesson Activities:	

Introduction/Hook:	Picture slideshow with photos from the different activities, explorations and learning's from the unit are shown.
Body:	<p>“My favourite thing about winter is...” – book page with the completion of a sentence and a picture. (book page has a second sentence about “one thing about winter I learned is...”</p> <p>Winter Play and Celebration! Snow angels, snow forts, snow exploration, winter animal observing – fun outside in winter!</p>
Closure:	Read the classroom book “My favourite thing about winter is...” as the children sip a cup of hot cocoa.

Resources:

<http://mrsmyerskindergarten.blogspot.com/search?q=snow>

Extensions to Unit:

This unit can be extended to focus next on animal behaviors and needs during winter: habitat, food, hibernation, migration, adaption etc.

Reflections and Revisions

To be completed after unit is taught.