

PATTERN DETECTIVES LESSON PLAN

Dates	December 9th	Subject	Mathematics	Grade Level	1
Length of Class Period	45 minutes	Unit of Study	Patterns	Lesson #	14
Developed by	Stephanie MacFarlane				

IDENTIFY DESIRED RESULTS

Learner Outcomes from the Program of Studies
 What are the SPECIFIC outcomes to be addressed in this series of lessons?

Subject Area: Mathematics

General Outcome/Guiding Question: What can patterns communicate?

Specific Outcomes (List):

- The same pattern can be represented with different elements.
- A pattern core is a sequence of one or more elements that repeats as a unit.
- Identify the pattern core, up to four elements, in a cycle.
- Create different representations of the same repeating pattern or cycle, limited to a pattern core of up to four elements.
- Extend a sequence of elements in various ways to create repeating patterns.

Subject Area: Physical Education

General Outcome/Guiding Question: How might awareness of the surroundings impact movement?

Specific Outcomes (List):

- Demonstrate various ways of moving safely through space during physical activity.

Subject Area: English Language Arts and Literature

General Outcome/Guiding Question: In what ways can listening and speaking be applied to develop oral communication?

Specific Outcomes (List):

- Practise listening and speaking skills through sharing oral stories.
- Listening involves maintaining attention and focus.
- Listening includes asking and responding to questions.
- Respond orally to questions during discussions.
- Listen to and follow two-step instructions.

General Outcome/Guiding Question: What messages are conveyed through ideas and information within texts?

Specific Outcomes (List):

- Listen to a variety of fictional and informational texts that are read aloud.
- Respond to texts that have been read aloud.
- Understand words and phrases from texts that have been read aloud.
- Discuss the main idea of a variety of texts.
- Interpret information from illustrations or visuals in texts.
- Share personal connections to ideas or information in texts.
- Locate information in texts to answer questions.

Objective in student-friendly language

Assessment Strategies

What will students understand/experience/appreciate as a result of this lesson?	What will I accept as evidence of learning/development? Have I employed formative assessment? Do I make use of prior assessments in this lesson?
<p>By the end of this series of lessons students will...</p> <p>Student Friendly Objectives:</p> <ul style="list-style-type: none"> • I can identify the core of a pattern • I can label a pattern • I can sort patterns by their core • I can find non-pattern examples 	<p>I will know that the students have reached these outcomes through these assessments (formative and summative):</p> <ol style="list-style-type: none"> 1. Students demonstrate their ability to represent a pattern by showing their work on their whiteboard 2. Observe/make note of student responses to read aloud prompts 3. Formative: Observe how students engage with the activity 4. Formative: Observe if students understand what is not a pattern (new skill)
<p style="text-align: center;">Resources</p> <p>What materials/resources/technology will be required?</p>	<p style="text-align: center;">Personalization/Differentiation</p> <p>How will you attend to the needs of ALL learners in this lesson?</p>
<p>Technology needed:</p> <ul style="list-style-type: none"> • None <p>What books, worksheets, or other materials are needed for this lesson?</p> <ul style="list-style-type: none"> • Chart paper – pre-prepared with bubbles for students to write in (x8) and one with “not a pattern” • Pattern strips (pre-cut and placed around the room) • Class set of whiteboards, markers, and erasers 	<p>Universal Interventions (all students):</p> <ul style="list-style-type: none"> • Active engagement with students • Prompt students during the read aloud to increase engagement • Pattern strips are placed in easily accessible locations • Whiteboards are easily erasable if mistakes are made • Show students a pattern strip so they know what they are looking for <p>Targeted Interventions (small groups of students):</p> <ul style="list-style-type: none"> • Preferential seating (select students have assigned desks and rocking chairs) • Students can use a mat for the floor • Select students have learning (fidget) tools • Some students may need support deciphering the pattern • Some students may need to be guided to finding a pattern strip (i.e., with hints) • Particular students will be chosen for specific tasks that suit their strengths <p>Individual Interventions (specific students):</p> <ul style="list-style-type: none"> • Student 1: <ul style="list-style-type: none"> ○ Can use manipulatives at a desk to show patterns • Student 2: <ul style="list-style-type: none"> ○ Choose for non-verbal tasks to include him in the lesson • Student 3:

	<ul style="list-style-type: none"> ○ Translate some components of the activity instructions in Spanish, as required ● Student 4: <ul style="list-style-type: none"> ○ <u>Parallel Task</u>: Using bear manipulatives to make and extend patterns ○ Using task bin system if dysregulated with the parallel task ○ With EA support if available ● Student 5: <ul style="list-style-type: none"> ○ Use dinosaur as a reminder to participate safely in the activity (pre-established routine) ● Student 6: <ul style="list-style-type: none"> ○ May require prompting during the read aloud to maintain his attention ○ Teacher support to find and sort patterns and stay on task
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LESSON PLAN SEQUENCE – LESSON 1

Introduction		
How will you ACTIVATE prior knowledge and ENGAGE them in the lesson and how does this lesson connect to prior lessons?		
What prior knowledge do students need in order to progress with this lesson? How will you assess prior knowledge and link to new concepts in this lesson plan series?		
<ul style="list-style-type: none"> ● We have used whiteboards in a similar setting before, students should know the routine ● Students have previously seen and demonstrated their understanding of all the types of patterns in the past 2 weeks of lessons (in a we do, you do format) <ul style="list-style-type: none"> ○ AB, AABB, AAB, ABB, ABC, ABAC, ABCB, and ABCD ● Students have participated in a similar find the pattern activity with AB patterns ● Students understand the expectations of a read aloud ● Students understand what a pattern core is ● Students have practiced building patterns when given a pattern core using manipulatives 		
Learning/Activity Sequence		
How will students ENGAGE, EXPLORE, EXPLAIN, ELABORATE, and/or EVALUATE their understandings of the outcomes.		
What is the TEACHER doing? What is your plan for the body of the lesson? What steps are taken during the lesson?	What are the STUDENTS doing? How are they engaged while you are teaching the lesson?	Approx. time
<ul style="list-style-type: none"> ● Gather students at the easel 	<ul style="list-style-type: none"> ● Transitioning to easel from movement break ● Sit in front of the easel 	2 minutes
<ul style="list-style-type: none"> ● Read <i>Pitter Pattern</i> ● Prompt students to extend the pattern and say the core of patterns that are in the book ● Connect to other experiences in the classroom/our routine 	<ul style="list-style-type: none"> ● Listening to the story ● Engaging with the story as prompted by the teacher 	5-10 minutes

<ul style="list-style-type: none"> • Ask, “What some pattern cores we have learned about?” • Assign a student to hand out markers, erasers, and whiteboards • Guide students to write each idea as a heading on separate chart papers • As students suggest a pattern, the class draws an example of the pattern on a whiteboard • Discuss that some things are not a pattern • Place chart papers at the front of the room 	<ul style="list-style-type: none"> • Raise their hands when sharing • Share their ideas • Come up to the easel to write the pattern core on the pre-prepared chart paper • Drawing the appropriate pattern on their whiteboard • Raise their whiteboard to show the teacher when they have drawn their pattern 	10-15 minutes
<ul style="list-style-type: none"> • Instruct students to hunt for pattern strips and place them on the correct chart paper • Ensure that each student knows they will only find 3 strips each 	<ul style="list-style-type: none"> • Looking for pattern strips • Bringing patter strips to the chart paper and correctly sorting them 	10 minutes
<p>Conclusion</p> <p>How will you ensure students walk away with a sense of understanding the PURPOSE of the lesson and its IMPORTANCE to their learning?</p>		
<ul style="list-style-type: none"> • Bring students back to the easel • Check the work as a class • Guide students to putting incorrect strips where they belong 		

PRE-SERVICE TEACHER REFLECTION, PARTNER TEACHER FEEDBACK AND ADVICE, AND NEXT STEPS

<ul style="list-style-type: none"> • How do you feel your students experienced this lesson? • How were they able to make explicit and self-evaluate their growing understanding, skills and/or knowledge? • How did you employ formative assessment for/of/as learning? • Were you successful in reaching all students? How do you know? How did you accommodate for diverse learners and those requiring accommodations? • Were there opportunities to address Indigenous, intercultural, and interdisciplinary activities and knowledge? • What went well and what needs refinement? • What will you need to review or revisit in the next lesson?
<p>Next Steps:</p> <ul style="list-style-type: none"> • Students need more practice with pattern sorting. We will review these again as a warmup for the next patterns unit. Instead of hiding the strips around the room, students will each be assigned a pattern strip to sort. We will work on this as a whole group activity. • The next lesson in the sequence will be a build and translate activity • This unit will conclude with a summative assessment in which students must demonstrate their understanding of all the pattern curricular outcomes. They will be assessed with a four-point rubric that is broken down into various pattern stems drawn from the program of studies.

Worked Well:

- Students enjoyed the scavenger hunt component and were eager to engage with it. We had previously done a pattern scavenger hunt, so they understood the expectations of the task.
- I was able to get an idea of which students were able to independently complete patterns when given a pattern rule
- Students were engaged with the book and eager to share their ideas. There were many connections made, which was helpful for understanding which students were able to identify patterns in the world around them. I made sure to call on specific students to share/engage with the story to ensure all students were involved in learning.
- The book was a good scaffold for the question on the summative assessment (“Where do we see patterns in the world around us?”)
- Students correctly identified the strips that were not patterns, which is a skill we haven’t covered as extensively

Areas of Improvement:

- The timeline of the lesson should be adjusted. I tried to fit too much into one lesson. Instead of having each student draw the pattern on a whiteboard, we could have co-created the examples like we have previously done on the chart paper. This would have ensured the lesson was more focused on the sorting rather than representing the pattern as this was not the goal of the lesson.
- Charts should have been displayed close together so that all the options were easily accessible and easily found
- More emphasis on what is not a pattern
- Sending students to get one pattern at a time would have made it less chaotic and allowed students to go at their own pace, instead of being overwhelmed with three options. Faster students would be limited to three strips so there is still enough for everyone.
- When students are done, they can be sent to help a friend
- Needed more time to debrief the sorting and re-sort the wrong ones
- Would be a good opportunity to introduce the vocabulary “attribute”

Partner Teacher Suggestions:

- Students were sitting for a long time, which impacted their ability to show their understanding
- We didn’t need to do each pattern on the whiteboard, it was a long task for them. Maybe do it together instead.
- The book was a good way for them to connect patterns to the world around them. It would be a good resource to revisit in future lessons
- The pattern sorting could be used as a warmup activity in future lessons