LESSON PLANS: SASKATCHEWAN
Grade 4: Pattern and Relations
Pattern Rules

45 MINS

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Outcome: P4.1
• Demonstrate an understanding of patterns and relations by:
- identifying and describing patterns and relations in a chart, table or diagram
- reproducing patterns and relations in a chart, table, or diagram using manipulatives
- creating charts, tables, or diagrams to represent patterns and relations
- solving problems involving patterns and relations.

Introduction to Lesson   10-15 MINS

I am Thinking of a Number!

• To encourage students to begin thinking about patterns, introduce the activity I am Thinking of a Number! in the Grade 4 Saskatchewan curriculum under the Patterns and Relations strand. Display this activity on the interactive whiteboard. You can work through all 10 questions, or as many as you see fit with students.

    Ask students prompting questions:
- What function are you using to determine the number?
- Is your number increasing or decreasing?
- If we were to make a pattern, what rule could we use?

• To build on students' knowledge, display the curriculum activity Pick the Next Number.

    Ask students:
- What rule could be given to this pattern?
- Is you pattern increasing or decreasing?
- How do you know?
- If the pattern was 10 numbers, could we determine the last number in the sequence?
- How would you describe this pattern?

ITEMS NEEDED
✔ Mathletics teacher login
✔ Interactive whiteboard
✔ Mathletics eBook handouts
✔ Hundreds charts
✔ Counters
✔ Marian Small handouts

ASSESSMENTS
✔ Have students write out their reflections.
✔ Participation
✔ Collect and assess Marian Small handout.

ACCOMMODATIONS/ MODIFICATIONS
✔ Teacher can choose to use the Interactive instead of the handout.
✔ Change number to skip count by to determine easier or harder patterns.
✔ Encourage students to use hundreds charts or number lines for skip counting and determining pattern rules.

EXTENSION OF LEARNING
✔ Suggested curriculum activities: Missing Numbers, Missing Values, Venn Diagram 1, Find the Missing Number 1
✔ Rainforest Maths, Grade 4: Patterns.

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The Lesson
🕐 30-35 MINS

eBook: Describing Patterns in a Hundreds Chart

- On the interactive whiteboard, log in to your **Teacher Console > eBooks > Grade 4 > Patterns and Algebra,** page 3, Patterns and functions. Show students the hundreds chart. If you have a hundreds chat in the classroom, you could use this as well. **Ask students:** Can we skip count using a hundreds chart? What could we skip count by? Shade the numbers in as you skip count.

- Using the questions on page 3, skip count together using the hundreds chart. Students should look at the hundreds chart and investigate what patterns they see. Students can follow along using their own hundreds chart.
  Ask students: What patterns can you begin to see? Are the patterns increasing or decreasing? Can you see other patterns beside horizontally? What could be the pattern rule? What could the next numbers in the pattern be? Look at all 4 hundreds charts and discuss how the patterns are similar and how they differ.

Odd or Even Apex? Marian Small Video

- Play the Marian Small video through the Teacher Console by going to **eBooks > Grade 4 > Odd or Even Apex? > Video**. Play the video once through from beginning to end, allowing students to formulating their own ideas. Play the video again, pausing to ask the prompting questions that are throughout the video. Allow students time to investigate in their groups and determine a pattern rule. **Ask students:** Why is it difficult to determine a pattern rule? What do we have to consider when creating a pattern rule? What happens if the 3 base numbers are changed? Discuss what strategies and reasoning students used and developed to determine their patterning rules.

Marian Small Interactive/Handout

- Print the Marian Small student handout from the same eBook as above. Have students begin to work through their own patterns and write out their patterning rules. On the interactive whiteboard, the teacher can use the interactive problem with a guided math group while others are working on the handouts, or can do a whole-class discussion and begin generating ideas before students do work independently.

After the lesson
🕐 5-10 MINS

Discussion Questions: Teacher can use his/her discretion and have whole-group or table-group discussions.
Questions to discuss: Where can you see number patterns in real life? How do all the patterns relate that you did today? Was the hundreds chart or the number pyramid an easier way to see a pattern? What did you do when you were trying to determine a pattern rule?