

LESSON PLANS: ONTARIO

Grade 6: Patterning and Algebra Growing and Shrinking Patterns

 50 MINS

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 Mathletics

Overall Curriculum Expectations:

- Describe and represent relationships in growing and shrinking patterns (where the terms are whole numbers).

Specific Curriculum Expectations:

- Determine the term number of a given term in a growing pattern that is represented by a pattern rule in words, a table of values, or a graph
- Describe pattern rules (in words) that generate patterns by adding or subtracting a constant, or multiplying and dividing by a constant, to get the next term.
- Determine a term, given its term number, by extending growing and shrinking patterns that are generated by adding or subtracting a constant, or multiplying or dividing a constant, to get the next term.

Introduction to Lesson

 10 MINS

Teacher Background:

Play the Marian Small video "Pyramid Prediction." Log in to

Teacher Console > eBooks > Grade 6 > Marian Small's Pyramid Prediction > Videos.

This video has two parts. Play Part 1 of this video, stopping at each section for questioning. Play Part 2 of the video and pause for students to investigate and calculate possible answers for the patterns.

Prompting Questions:

- o What is happening in this row/section of the pyramid?
- o How do you know the pattern rule?
- o Can you determine what the top number would be without filling in the other rows?



ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Computers/tablets
- ✓ Marian Small's "Pyramid Prediction" handout
- ✓ Math journals/blank paper



ASSESSMENTS

- ✓ Observations
- ✓ Discussion during guided math group time
- ✓ Collect and assess journal responses



ACCOMMODATIONS/ MODIFICATIONS

- ✓ Leveled or ability groups for guided math time.
- ✓ Scaffold during guided math.



EXTENSION OF LEARNING

- ✓ Curriculum activities
- ✓ Grade 6 eBook, various sections.
- ✓ Grade 6 "Rainforest Maths"
- ✓ Have students find real-life examples of when they would need to use a numbered pattern or have seen/used a growing/shrinking pattern in their lives.
- ✓ Write a journal response on where you have used a table of values before. When can it be used? What professions would use this type of table?
- ✓ Create your own math game/math brain twister using a table of values or pyramid.

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The Lesson

 25 MINS

Shared Math Activity

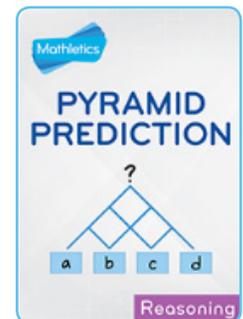
Pyramid Prediction Interactive

- Open Marian Small's Pyramid Prediction interactive found in the eBook "Marian Small's Pyramid Prediction". Display this problem on your interactive whiteboard. Have students choose the numbers to put in the bottom row. Click on the connector boxes.
Ask students: What has happened to the numbers? What rule/pattern can you come up with? Can we predict what the next row of numbers will be? Can we predict the number at the top of the pyramid? How do you know this?

Guided Math Group

Teacher-Led Pyramid Handout Activity

- In leveled/ability groups, teachers should designate a table or spot in the classroom to call over groups to work with them on the Pyramid Prediction handout sheet found in the eBook "Marian Small's Pyramid Prediction." Work with groups to scaffold student learning and determine how your students are grasping this concept. Have students complete three different pyramids (worksheet found with Teacher Notes) and explain to you their steps in completing the question. Stop students during their work and ask them to predict what the top number would be. Guide student learning using the questions found in the Teachers Notes section of this Marian Small eBook.



Independent Math Activity

Concept Search/Journal

- Have students log in to their **Student Console > Concept Search**. Type table of values into the Search bar. Students should investigate this concept and how it is similar to and different from the pyramid patterns.
Prompting questions to post: How are the pyramid and table of values similar? Can you determine a pattern using a table of values? Can you determine a pattern using a pyramid? Which method do you find easier? Students should journal their response and show an example of both ways to describe and represent growing and shrinking patterns. If your students do not have math journals, they can use a math response sheet or loose-leaf paper to express their ideas.

Consolidating the lesson

 15 MINS

Live Math

- Give students time at the end of class to play Live Math against each other. Each round is 60 seconds; you can allot 5–10 minutes for this activity. Add "Top Live Mathlete of the Day" to your board for the person who received the highest number of points.



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