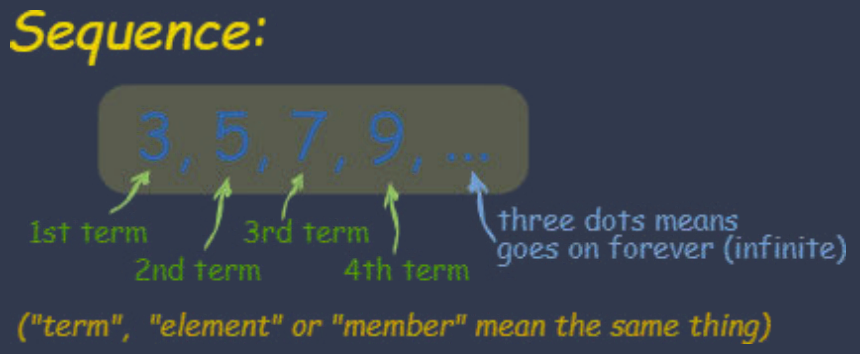
Lesson 2:

Introducing Geometric Sequences



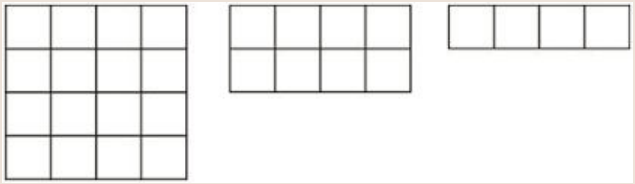
Learning Targets:

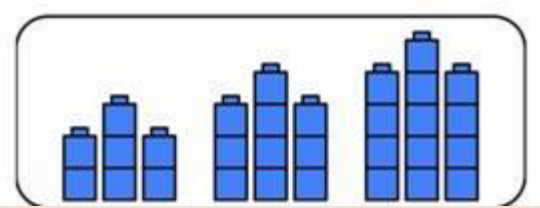
- I can find missing terms in a geometric sequence.

Required Materials:

- Paper
- pencil

Let's explore growing and shrinking patterns.





2.1 Notice and Wonder: A Pattern in Lists

What do you notice?

- 40, 120, 360, 1080, 3240
- 2, 8, 32, 128, 512
- 1000, 500, 250, 125, 62.5
- 256, 192, 144, 108, 81

What do you wonder?

Activity Synthesis:

- 40, 120, 360, 1080, 3240
- 2, 8, 32, 128, 512
- 1000, 500, 250, 125, 62.5
- 256, 192, 144, 108, 81

Is there anything else that you are wondering about now?

Growth factor: the multiplier from one term to the next

2.2 Paper Slicing

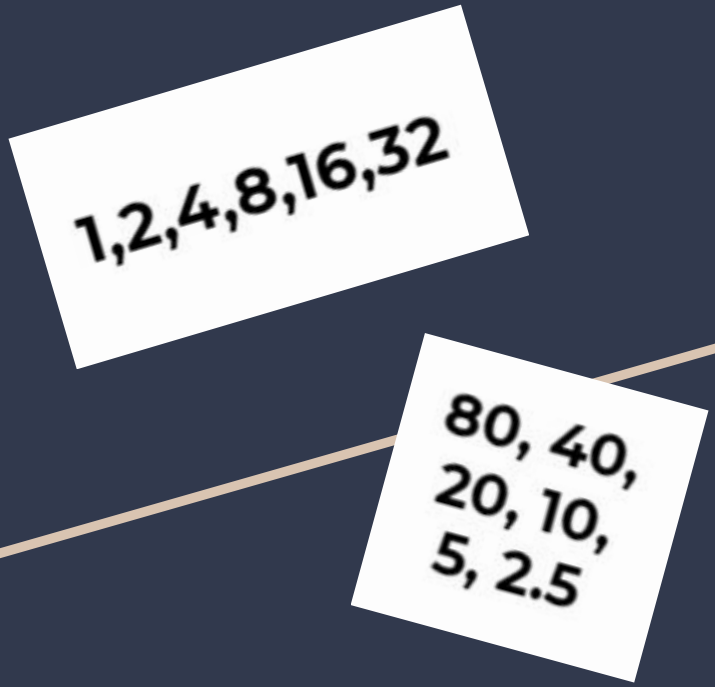
Clare takes a piece of paper, cuts it in half, then stacks the pieces. She takes the stack of two pieces, then cuts in half again to form four pieces, stacking them. She keeps repeating the process.

number of cuts	number of pieces	area in square inches of each piece
0		
1		
2		
3		
4		
5		

What happens to the number of pieces after each cut?

What happens to the area of each piece after each cut?

Activity Synthesis:



When did you stop cutting the paper and complete the table using a pattern?

What was the pattern you noticed?”

“How did you find the results after six cuts?

What is the growth factor for each sequence?

How can you see the growth factor in each graph?

Activity Synthesis:

Geometric Sequence: sequences are characterized by a growth factor

- if you divide any term by the previous term, you always get the same value: the growth factor for the sequence.

2.3 Complete the Sequence

Complete each geometric sequence:

a. 1.5, 3, 6, ___, 24, ___

b. 40, 120, 360, ___, ___

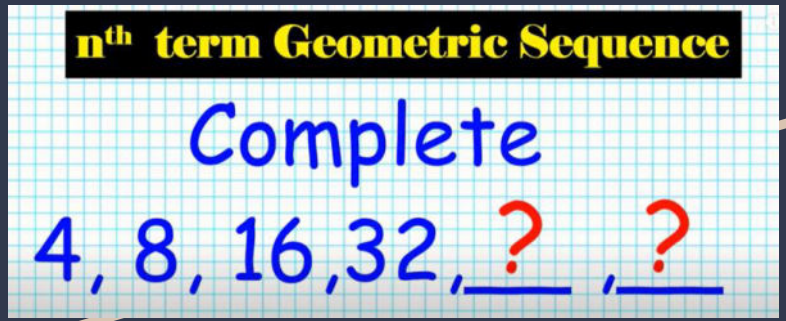
c. 200, 20, 2, ___, 0.02, ___

d.1/7 , ___, 9/7 , 27/7 , ___

e. 24, 12, 6, ___, ___

For each sequence, find its growth factor.

Activity Synthesis:



- What is the growth factor of a sequence?
  - is the quotient of a term and the previous term

- presence of a *growth factor* is what makes a sequence a **geometric sequence**.

Lesson Synthesis:

Create a new geometric sequence.

- Explain why it is a geometric sequence.