Unit 5 Lesson 2: Patterns of Growth

1 Which One Doesn't Belong: Tables of Values (Warm up)

Student Task Statement

Which one doesn't belong?

Table A

x	y
1	8
2	16
3	24
4	32
8	64

Table B

x	y
0	0
2	16
4	32
6	48
8	64

Table C

x	y
0	1
1	4
2	16
3	64
4	256

Table D

x	y
0	4
1	8
2	12
3	16
4	20

2 Growing Stores

Student Task Statement

A food company currently has 5 convenience stores. It is considering 2 plans for expanding its chain of stores.

Plan A: Open 20 new stores each year.

1. Use technology to complete a table for the number of stores for the next 10 years, as shown here.

year	number of stores	difference from previous year
0	5	
1	25	
2		
3		
4		
5		
6		
7		
8		
9		
10		

2. a. What do you notice about the difference from year to year?

   b. If there are n stores one year, how many stores will there be a year later?

3. a. What do you notice about the difference every 3 years?

   b. If there are n stores one year, how many stores will there be 3 years later?

Plan B: Double the number of stores each year.

1. Use a technology to complete a table for the number of stores for the next 10 years under each plan, as shown here.

year	number of stores	difference from previous year	factor from previous year
0	5		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

2. a. What do you notice about the difference from year to year?

b. What do you notice about the factor from year to year?

c. If there are n stores one year, how many stores will there be a year later?

3. a. What do you notice about the difference every 3 years?

b. What do you notice about the factor every 3 years?

c. If there are n stores one year, how many stores will there be 3 years later?

3 Flow and Followers

Student Task Statement

Here are verbal descriptions of 2 situations, followed by tables and expressions that could help to answer one of the questions in the situations.

- Situation 1: A person has 80 followers on social media. The number of followers triples each year. How many followers will she have after 4 years?

- Situation 2: A tank contains 80 gallons of water and is getting filled at rate of 3 gallons per minute. How many gallons of water will be in the tank after 4 minutes?

Match each representation (a table or an expression) with one situation. Be prepared to explain how the table or expression answers the question.

A. $80 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

D. $80 + 4 \cdot 3$

B.

x	0	1	2	3	4
y	80	240	720	2,160	6,480

E.

x	0	1	2	3	4
y	80	83	86	89	92

C. $80 + 3 + 3 + 3 + 3$

F. $80 \cdot 81$