

Extending Increasing Patterns

GOAL

Describe and extend increasing number patterns.

Owen is using the recipe below to make bannock for his class. He needs to make five batches.

Bannock

500 mL flour
30 mL baking powder
30 mL sugar
5 mL salt
water

1. Mix the flour, baking powder, sugar, and salt together.
2. Mix with enough water so that the mixture becomes dough.
- 3.
- 4.



How much of each ingredient does Owen need to make five batches of bannock?



Owen's Patterns

The recipe tells me the ingredients for one batch. I'll create a table to figure out the ingredients for five batches.

Bannock Recipe				
Number of batches	Flour (mL)	Baking powder (mL)	Sugar (mL)	Salt (mL)
1	500	30	30	5
2	1000	60	60	10
3	1500	90		
4	2000			
5				


- A.** What is the pattern rule for the amount of baking powder?
- B.** What is the pattern rule for the amount of salt?
- C.** Could 16 be the next number in the table for the amount of salt? How do you know?
- D.** How much of each ingredient is needed to make five batches? Copy and complete Owen's table to show your answer.

Reflecting

- E.** How can you predict the amount of each ingredient needed for seven batches?
- F.** How does the table help you see the pattern for the amount of each ingredient?

Jack's Baked Apples

1	apple
25 mL	brown sugar
10 mL	butter




Checking

1. a) Extend this recipe table for six apples.

Number of apples	Brown sugar (mL)	Butter (mL)
1	25	10
2	50	20

- b) What does the fifth row of numbers tell you?
 c) What patterns did you use to determine the amount of brown sugar and butter needed for six apples?

Practising

2. Kate's trail mix recipe calls for 250 mL of almonds, 125 mL of pumpkin seeds, 50 mL of raisins, and 1 handful of dried apricots.
- a) Make a table to show the amounts for five times Kate's trail mix recipe.
 b) What is the pattern rule for the amount of each ingredient?
 c) Will Kate ever use exactly 264 mL of an ingredient in her trail mix? How do you know?
3. A soccer team needs 11 to 15 players and 2 coaches.
- a) Copy and extend the table for up to 5 teams.
 b) What is the pattern rule for each column?

Number of teams	Number of coaches	Least number of players	Greatest number of players
1	2	11	15
2	4	22	30

- c) So far, 62 students want to play. How many teams can be made? How many players will be on each team? How many coaches will be needed?

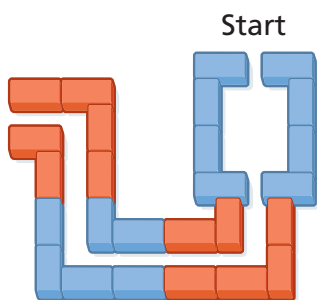


4. At the grand opening of a toy store, 125 people were allowed into the store at 9:00 a.m. Every 15 minutes after that, 10 more people were allowed in.

- a) How many people had been allowed into the store after 60 minutes? Use a table.

Toy Store Grand Opening	
Number of minutes after opening	Number of people
0	125
15	
30	
45	

- b) How many minutes had passed by the time 195 people had been allowed into the store?



5. Morgan is building a maze with blocks. He starts with a rectangle made with 8 blocks. Each time he adds a corner to the maze, he uses 6 blocks.

- a) How many blocks will Morgan use after adding 6 corners?
 b) If Morgan uses 74 blocks, how many corners will he add?

6. Jesse is doing yard work. He gets paid \$18 for raking the lawn, as well as \$3 for every bag of leaves he fills. How much money will Jesse make for raking and filling 8 bags of leaves?

7. Tracy and Nigel created increasing patterns. Both patterns use the numbers 10, 20, and 30.

- a) Do Tracy's and Nigel's patterns have to be the same? How do you know?
 b) What else do you need to know if you want to re-create their patterns?
 c) Write possible patterns that Tracy and Nigel may have created.