

Target: Algebraic Thinking: Describe patterns in tables and graphs.

Activity 20: LOOK FOR AND EXTEND PATTERNS AS A CLASS

Directions: A pattern is a kind of repetition. Look for a pattern to predict what will happen again in the same way. Make a number table to help see the pattern.

Look for and extend patterns to solve these problems. Create a number table to help you.

Example:

Jami read books. He read 1 books the first week, 4 books the second week, 7 books the third week, and so on. In this pattern, how many did he read the seventh week?

week	1	2	3	4	5	6
books	1	4	7			

How many books did Jami sell the first week? the second week? the third week? the fourth week? the fifth week? the sixth week?

1. Ronald learned to make bird houses. The more he made, the faster he was able to make them. The first week he made 2 bird houses. The second week he made 4 bird houses. The third week he made 8 bird houses. He followed this pattern for making more bird houses for five weeks until he ran out of materials. How many bird houses did he make the fifth week?

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2. Jay Young sees a pattern in the stones in a wall in his yard. He sees that the bottom row of stones is made with 25 bricks. He sees the second row is made with 20 bricks. He sees the third row is made with 15 bricks. How many bricks does he see in the fifth row?

3. Tim's teacher gave the class the mystery pattern below to solve.

3 9 27 81 ?

What is the rule for the pattern?

Hint: In the top row of the table, record the rule used in the pattern:

Rule	$\times 3$	$\times 3$	$\times 3$			
Number	3	9	27	81		

4. The table below shows the total dollars Ed and Jan earned. Following this pattern, how much money will Ed earn when Jan earns \$36?

Total Dollars Earned

	Monday	Tuesday	Wednesday	Thursday		
Ed	\$5	\$10	\$15	\$20		
Jan	\$6	\$12	\$18	\$24		

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Activity 21: LOOK FOR AND EXTEND PATTERNS WITH A PARTNER

Directions: A pattern is a kind of repetition. Look for a pattern to predict what will happen again in the same way. Make a number table to help see the pattern.

Look for and extend patterns to solve these problems. Create or use a number table to help you as needed.

1. Wendy went jogging every other day for two weeks to train for a marathon. The first time she jogged 3 miles. The second time she jogged 6 miles. The third time she jogged 9 miles. She continued this pattern. How many miles did she jog the seventh time she went?
2. Cole made a design with shapes in art class. He used 6 diamonds to create the first row of the design. He used 10 diamonds to create the second row of the design. He used 14 diamonds to create the third row. How many diamonds did he use to create the seventh row?
3. Look at the table below. When numbers are put in an adding machine, other numbers come out.

In	Out
9	19
12	22
15	25
18	?

If 18 goes in, what will come out?

4. Tia has written a number pattern that begins with 1, 3, 6, 10, 15. If she continues this pattern, what are the next four numbers in her pattern?

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Activity 22: LOOK FOR AND EXTEND PATTERNS ON YOUR OWN

Directions:

Look for and extend patterns to solve these problems. Create or use a number table to help you as needed.

1. Candy bars are on sale at the store. If you buy only one candy bar it costs 25 cents. If you buy two candy bars, they cost 45 cents together. If you buy three candy bars, they cost 65 cents in all. If you buy four candy bars, they cost 85 cents in all. How much do seven candy bars cost?

2. Sean received \$100 for his birthday. The first day he received the money he spent \$10. The next day he spent \$20. The third day he spent \$30. In how many days did he spend all of the \$100?

3. Look at the table below.

Input Number	Output Number
90	75
80	65
70	55
60	45
50	

Part A Complete the pattern by writing the output number for the input number 50.

Part B What is the rule for the pattern?

Part C Based on this pattern, if the input number is 30, what is the output number?