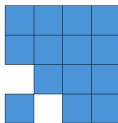
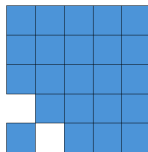
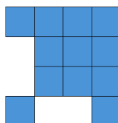
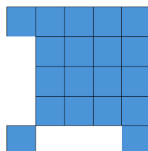
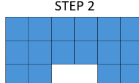
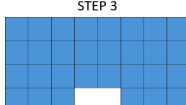
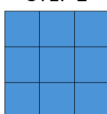
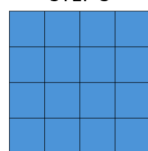
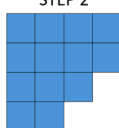
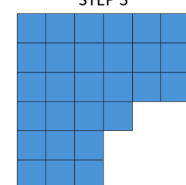


M. $f(x) = (x + 2)^2 - 2$	G. <table><tr><th>x</th><th>$f(x)$</th></tr><tr><td>0</td><td>2</td></tr><tr><td>1</td><td>7</td></tr><tr><td>2</td><td>14</td></tr><tr><td>3</td><td>23</td></tr><tr><td>4</td><td>34</td></tr></table>	x	$f(x)$	0	2	1	7	2	14	3	23	4	34	A. STEP 1  STEP 2  STEP 3 	S. Francisco has a square garden whose side length is 2 more than each stage number. Francisco always removes 2 spots on the garden near one of the corners.
x	$f(x)$														
0	2														
1	7														
2	14														
3	23														
4	34														
N. $f(x) = (x + 1)^2 + 3$	H. <table><tr><th>x</th><th>$f(x)$</th></tr><tr><td>0</td><td>4</td></tr><tr><td>1</td><td>7</td></tr><tr><td>2</td><td>12</td></tr><tr><td>3</td><td>19</td></tr><tr><td>4</td><td>28</td></tr></table>	x	$f(x)$	0	4	1	7	2	12	3	19	4	28	B. STEP 1  STEP 2  STEP 3 	T. Each week Eva’s grandma rewards her for solving math problems. She gets the number of problems she solves plus 1, all squared. Eva has \$3 from last week.
x	$f(x)$														
0	4														
1	7														
2	12														
3	19														
4	28														
O. $f(x) = 2(x + 1)^2 - 2$	I. <table><tr><th>x</th><th>$f(x)$</th></tr><tr><td>0</td><td>0</td></tr><tr><td>1</td><td>6</td></tr><tr><td>2</td><td>16</td></tr><tr><td>3</td><td>30</td></tr><tr><td>4</td><td>48</td></tr></table>	x	$f(x)$	0	0	1	6	2	16	3	30	4	48	C. STEP 1  STEP 2  STEP 3 	U. Isaac, Kaylina, and Lexi are working with a tile pattern that starts with 6 tiles in step 1, 16 tiles in step 2, and 30 tiles in step 3. The tile pattern continued.
x	$f(x)$														
0	0														
1	6														
2	16														
3	30														
4	48														
P. $f(x) = (x + 1)^2$	J. <table><tr><th>x</th><th>$f(x)$</th></tr><tr><td>0</td><td>1</td></tr><tr><td>1</td><td>4</td></tr><tr><td>2</td><td>9</td></tr><tr><td>3</td><td>16</td></tr><tr><td>4</td><td>25</td></tr></table>	x	$f(x)$	0	1	1	4	2	9	3	16	4	25	D. STEP 1  STEP 2  STEP 3 	V. Lily is purchasing paint for the square ceiling. The cost of paint is one plus the side length of the ceiling, then squared.
x	$f(x)$														
0	1														
1	4														
2	9														
3	16														
4	25														
Q. $f(x) = 3x^2 + 1$	K. <table><tr><th>x</th><th>$f(x)$</th></tr><tr><td>0</td><td>1</td></tr><tr><td>1</td><td>4</td></tr><tr><td>2</td><td>13</td></tr><tr><td>3</td><td>28</td></tr><tr><td>4</td><td>49</td></tr></table>	x	$f(x)$	0	1	1	4	2	13	3	28	4	49	E. STEP 1  STEP 2  STEP 3 	W. Erik, Christian, and Ben want to know the area of glass for 3 square windows. The window side lengths are the same as the step number. They started with 1 square piece of glass.
x	$f(x)$														
0	1														
1	4														
2	13														
3	28														
4	49														

R.

$$f(x) = (x + 2)^2$$

L.

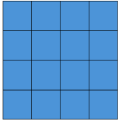
x	$f(x)$
0	4
1	9
2	16
3	25
4	36

F.

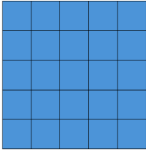
STEP 1



STEP 2



STEP 3



X.

Jesus and Johnny are planning a pizza party for all their class periods. They add 2 to the period number then square the number to get the total number of pizzas to bring for each period.

Directions: Cut each square and match the function with its corresponding table, pattern, and story.

4.02 EXPLORE: Multiple Representations

Today's Learning Targets – I can:

- ☐ Match different representations of the same pattern
- ☐ Express reasoning for selected matches in writing

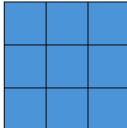
Group Activity

Setup: Group all the pattern, table, equation, and text description cards together in separate stacks.

Each student in a group of four will take one of the stacks. **DO NOT** let others see the cards in your stack.

Example:

1. The first student has the stack of table cards and puts down BB.
2. The student to the right puts down the matching pattern card AA and explains why it was chosen.
3. The next student to the right puts down the matching text description card DD and also explains.
4. The last student puts down the matching equation card CC.
5. The last student collects the matching cards and puts down a new equation card to start the next round.

Pattern AA.			Table BB.	Equation CC.	Text Description DD.								
STEP 1	STEP 2	STEP 3	<table><tr><td>x</td><td>$f(x)$</td></tr><tr><td>1</td><td>1</td></tr><tr><td>2</td><td>4</td></tr><tr><td>3</td><td>9</td></tr></table>	x	$f(x)$	1	1	2	4	3	9	$f(x) = x^2$	A growing perfect square whose side length is equal to the step number.
x	$f(x)$												
1	1												
2	4												
3	9												
													

Instructions:

- In each row, write the **letter** for each card that represents the same pattern, equation, text description, and table of values that are in play.
- Write down your reasoning why you think the pattern, table, equation, or description card belongs.
- Every card will be used once and only once.

Pattern	Table	Equation	Description
Card: AA Explanation: <i>card AA matches because the area of the shapes in the pattern grows at a rate of step number squared which matches x and $f(x)$ in the table.</i>	Card: BB Explanation: <i>first card</i>	Card: CC Explanation: <i>card CC matches because the area for each step grows at a rate of x squared, where x is the step number</i>	Card: DD Explanation: <i>card DD matches because the square's side length matches the step number shown in the pattern.</i>

[illegible]

Sentence Frames

I have a **Pattern Card** and I am matching it to a...

- ...**Table Card**
 - I choose card ____ because the area of the shapes in the pattern grows at a rate of ____ (plus ____) squared (plus/minus ____), which matches ____ and ____ in the table.
- ...**Equation Card**
 - I choose card ____ because the areas of each stage in the pattern match the ____ and ____ in the equation.
- ...**Description Card**
 - I choose card ____ because the description mentions ____ and ____ grows at a rate equal to the ____ of the shapes shown in each ____ of the pattern.

I have a **Table Card** and I am matching it to a...

- ...**Pattern Card**
 - I choose card ____ because the area of the shapes in the pattern grows at a rate of ____ (plus ____) squared (plus/minus ____), which matches ____ and ____ in the table.
- ...**Equation Card**
 - I choose card ____ because the ____ and ____ values in the table equal the same values when used in the equation.
- ...**Description Card**
 - I choose card ____ because the description mentions ____ and ____ grows at a rate equal to the values in the table.

I have an **Equation Card** and I am matching it to a...

- ...**Pattern Card**
 - I choose card ____ because the areas of each stage in the pattern match the ____ and ____ in the equation.
- ...**Table Card**
 - I choose card ____ because the ____ and ____ values in the table equal the same values when used in the equation.
- ...**Description Card**
 - I choose card ____ because description mentions ____ and ____ grows at a rate equal to the ____ and ____ in the equation.

I have a **Description Card** and I am matching it to a...

- ...**Pattern Card**
 - I choose card ____ because the description mentions ____ and ____ grows at a rate equal to the ____ of the shapes shown in each ____ of the pattern.
- ...**Table Card**
 - I choose card ____ because the description mentions ____ and ____ grows at a rate equal to the values in the table.
- ...**Equation Card**
 - I choose card ____ because description mentions ____ and ____ grows at a rate equal to the ____ and ____ in the equation.