

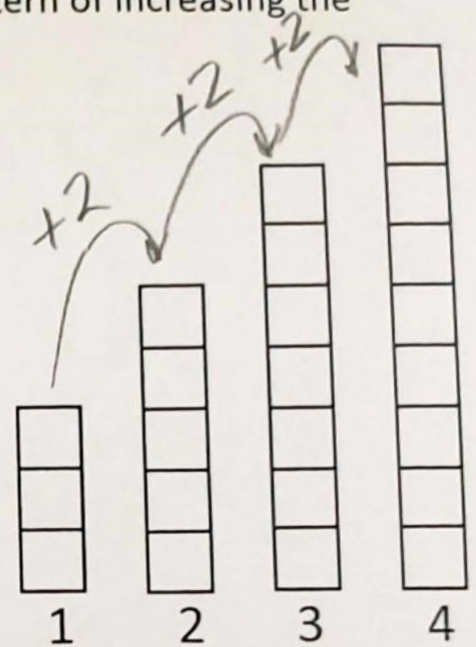
DATE:

ESSENTIAL QUESTION(S): How can I generate a table given a growing pattern? What are ways I can model a context problem? What steps can I use to generate an equation? What are the characteristics of a linear function?

REVIEW:

NOTES:

Scott has decided to add push-ups to his daily exercise routine. He is keeping track of the number of push-ups he completes each day in the bar graph below, with day one showing he completed three push-ups. After four days, Scott is certain he can continue this pattern of increasing the number of push-ups he completes each day.



1. Create a table to help you determine how many push-ups will Scott complete on day 10.

D	Pushups
0	1
1	3
2	5
3	7
4	9

rate of change = m

in counting order

2. How many push-ups will Scott do on day n ?

$m=2$ $b=1$

$f(x) = 2x + 1$

explicit equation is a formula that can find a # in a sequence w/o (without) any previous terms!

Explicit equation

$f(x) = mx + b$
 ↑ rate of change "slope"
 ↑ zero term

Recursive is a formula that uses the previous term to find the next term.

Recursive

$$a_n = a_{n-1} \pm m; a_0 = \#$$

current term ↑
 previous term ↑
 rate of change "grows" ↑

Explicit

$$f(x) = mx + b$$

3. Model the number of push-ups Scott will complete on any given day using a recursive equation.

$$a_n = a_{n-1} + 2$$

$$a_3 = a_2 + 2$$

$$a_3 = 5 + 2 = 7$$

D	PU
0	1
1	3
$a_2 \rightarrow 2$	5
$a_3 \rightarrow 3$	7
4	9

+2

4. Aly is also including push-ups in her workout and says she does more push-ups than Scott because she does fifteen push-ups every day. Is she correct? Explain.

D	PU
0	0
1	15
2	30
3	45
4	60

+15

$$m = 15 \quad b = 0$$

$$f(x) = 15x + 0$$

$$a_n = a_{n-1} + 15; a_0 = 0$$

must have a starting value!