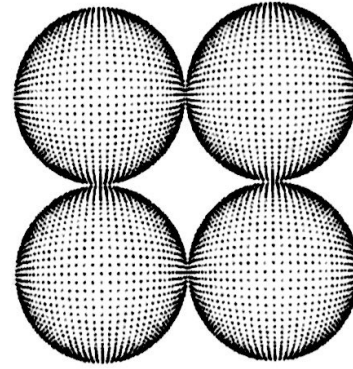
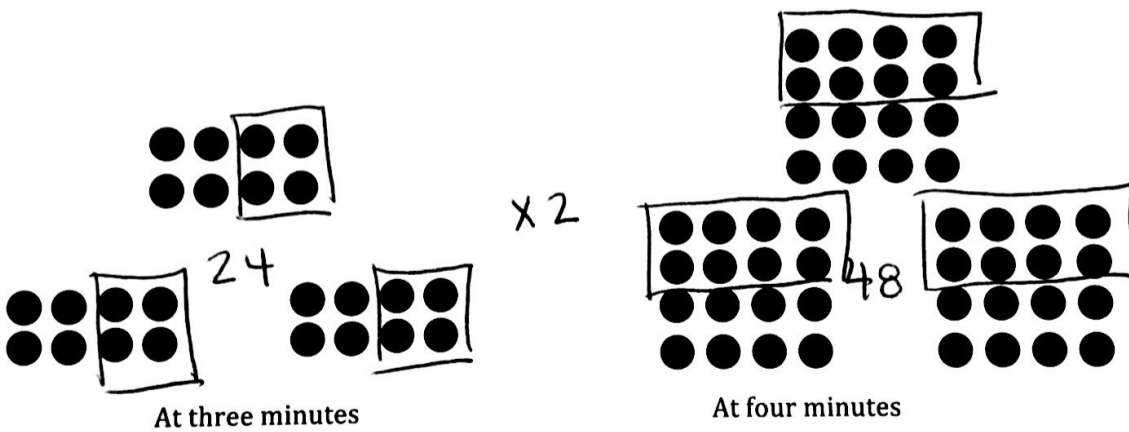
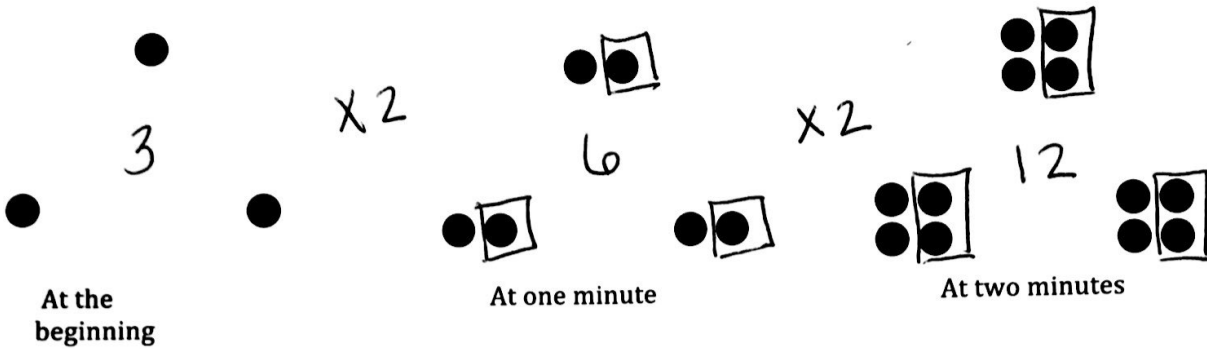


# 1.3 Growing, Growing Dots

## A Develop Understanding Task



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1. Describe and label the pattern of change you see in the above sequence of figures.

The amount of dots are doubling each time

2. Assuming the sequence continues in the same way, how many dots are there at 5 minutes?

$$48 + 48 = 96$$

$$48 \times 2 = 96$$

3. Write a recursive formula to describe how many dots there will be after  $t$  minutes.

$$\text{Next} = \text{previous} \times 2$$

$$f(t) = 2 f(n-1) ; f(0) = 3 \text{ (at 0 minutes there are 3 dots)}$$

↑ previous term

4. Write an explicit formula to describe how many dots there will be after  $t$  minutes.

0	3	$3 \cdot 2^0$
1	6	$3 \cdot 2^1$
2	12	$3 \cdot 2 \cdot 2 = 3 \cdot 2^2$
3	24	$3 \cdot 2 \cdot 2 \cdot 2 = 3 \cdot 2^3$
4	48	$3 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 3 \cdot 2^4$

$$f(t) = 3 \cdot 2^t$$

start number ↑ pattern

\* Geometric sequences are sequences that are multiplied by the same number every time