

Discovering rules of patterns

CAPS Statement

Patterns, functions and Algebra

Geometric patterns:

Determine input values, output values and rules for the patterns and relationships using flow diagrams

Note

You will learn how to:

Extend number patterns

Determine input values, output values and rules for patterns

Use flow diagrams to determine rules and patterns.

Activity 1

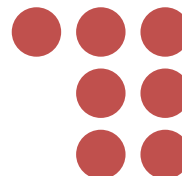
STEP 1



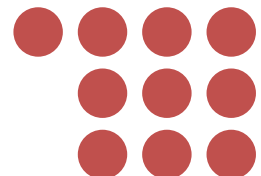
2



3



4



(a) Describe the pattern. _____

(b) Complete the table:

STEP	1	2	3	4	5	6	7
Dots	1	4	7	10			
Differences		$4-1=3$	$7-4=3$				



- c Write out the number sentence for Step 1 to Step 7.

Example: $1+3 = 4 + 3 = __ + __ = 10 + 3 = __ + 3 = \dots\dots\dots$

Step 1 _____.

Step 2 _____.

Step 3 _____.

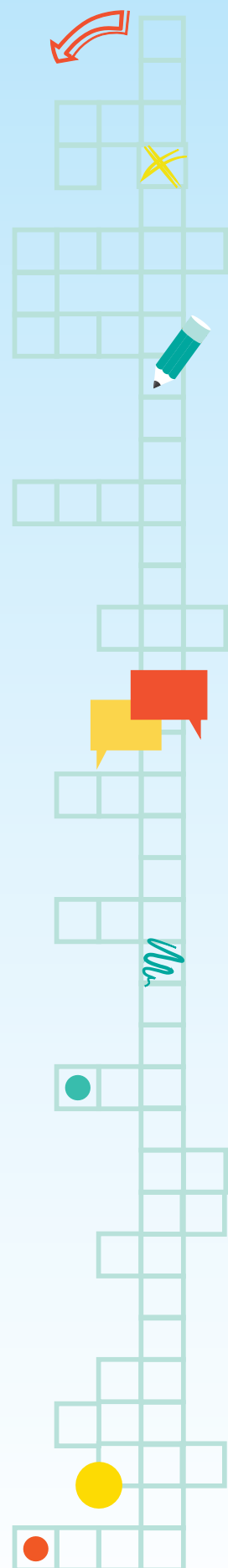
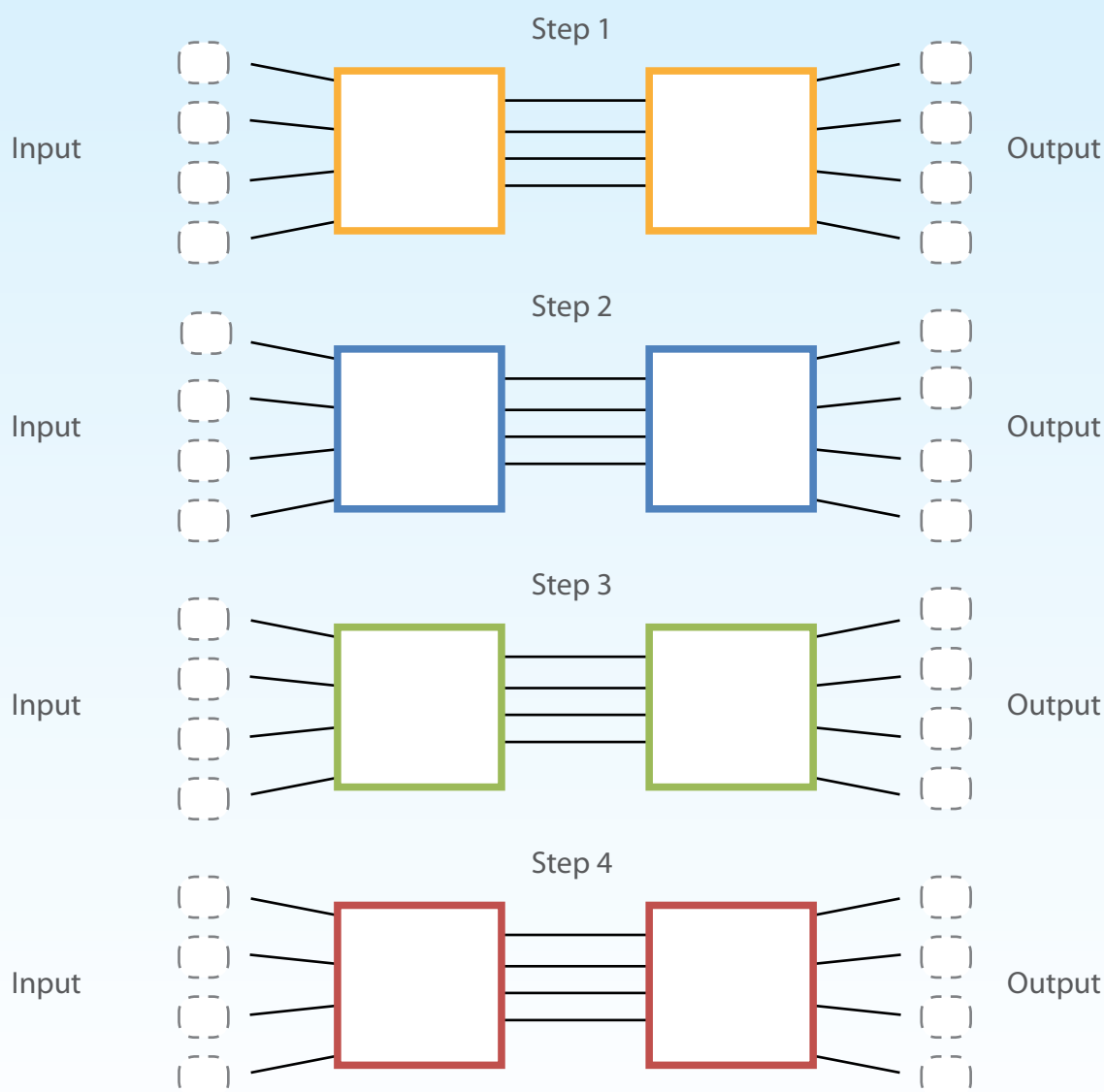
Step 4 _____.

Step 5 _____.

Step 6 _____.

Step 7 _____.

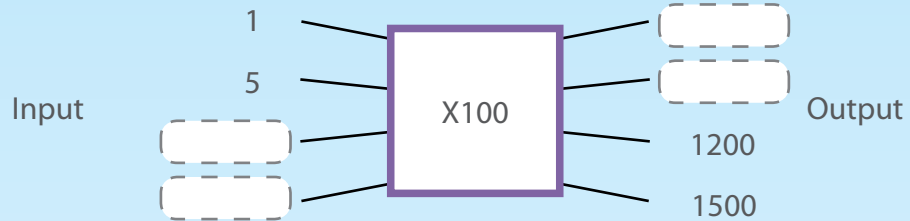
- d Use a flow diagram to show the inputs, rule and outputs for Step 1 to Step 4.



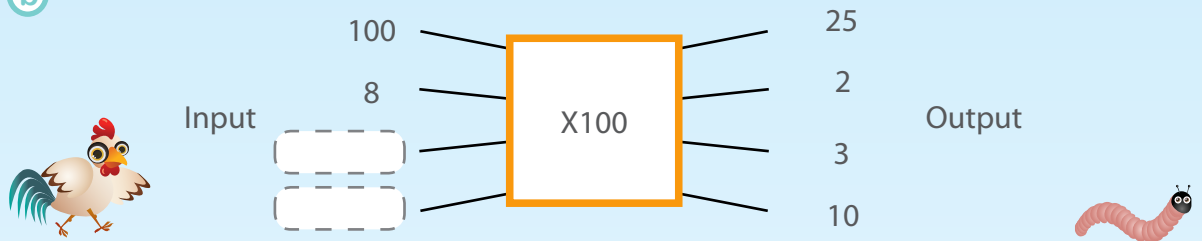
Activity 2

Fill in the missing rule, input values and output values for the flow diagrams below:

(a)



(b)



Activity 3

(a) Fill in the table below:

Input (Step)	1	2	3	4	
Dots	5	9			21
Rule	Input $\times 4 + 1$ $= 5$	Input $\times 4 + 1$ $= 9$			Input $\times 4 + 1$ $= 21$

(b) Draw a pattern for Step 1 to 4 that can represent the table above.

STEP 1

STEP 2

Teacher Tip

Use physical objects to illustrate patterns e.g. beads, pencils etc.

