Engaging student pages accompany each lesson within ORIGO Stepping Stones. In the Student Journal for this year level, there are two pages for each lesson.
For more information on program content for *ORIGO Stepping Stones* Year 2 visit origoeducation.com/stepping-stones.

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9.1 Skip Counting by 2 or 5

This piece of ribbon is 2 metres long.

Imagine three of these pieces of ribbon were joined together like this.

What is a quick way to work out the total length without measuring?

You can count in twos: 2, 4, 6. The total length is 6 metres long.

Imagine six pieces of ribbon are joined together. What is the total length? How do you know?

How many pieces would be joined to make a length of ribbon that is 16 metres long? How do you know?

Step Up

I. Each short piece of ribbon below is 2 m long. Count in steps of 2 to work out the total length.

a. [Diagram of ribbon pieces] ______ m

b. [Diagram of ribbon pieces] ______ m

c. [Diagram of ribbon pieces] ______ m
2. Look at the number track above. Start at 2. Count in steps of 2. Colour red the numbers you say.

3. Complete each sentence.
   a. \(6\) steps of \(2\) is 12
   b. \(\_\) steps of \(2\) is 18
   c. \(\_\) steps of \(\_\) is 26
   d. \(\_\) steps of \(\_\) is 34

4. Look at the number track above. Start at 5. Count in steps of 5. Loop the numbers you say.

5. Complete each sentence.
   a. \(2\) steps of \(5\) is 10
   b. \(\_\) steps of \(5\) is 15
   c. \(\_\) steps of \(\_\) is 25
   d. \(\_\) steps of \(\_\) is 35

Step Ahead
Count in steps of 2 or 5 to complete each of these.

a. \(\_\) steps of \(\_\) is 20
b. \(\_\) steps of \(\_\) is 30

c. \(\_\) steps of \(\_\) is 40
d. \(\_\) steps of \(\_\) is 50
Imagine you start at 0 and make jumps of 2 along this number line. What numbers will you land on? How do you know?

How many jumps will you make to reach 10?

What addition sentence could you write to match the jumps that you made?

Step Up 1. Complete each sentence. Use the number line above to help you.

a. 4 jumps of 2 is \( 2 + 2 + 2 + 2 = \)

b. 3 jumps of 2 is \( + + + = \)

c. 7 jumps of 2 is \( + + + + + + + = \)
2. Complete these sentences. Use the number line above to help you.

a. 3 jumps of 5 is ______
   \[ _5 + _5 + _5 = ____ \]

b. 4 jumps of 5 is ______
   \[ _5 + _5 + _5 + _5 = ____ \]

c. 5 jumps of 5 is ______
   \[ _5 + _5 + _5 + _5 + _5 = ____ \]

d. 2 jumps of 5 is ______
   \[ _5 + _5 = ____ \]

e. 8 jumps of 5 is ______
   \[ _5 + _5 + _5 + _5 + _5 + _5 + _5 + _5 = ____ \]

Step Ahead

a. Write the missing numbers.

\[ 2 + 2 + 2 + 2 + 2 = ____ \]
   \[ ____ \text{ jumps of } ____ \text{ is } ____ \]

\[ 5 + 5 = ____ \]
   \[ ____ \text{ jumps of } ____ \text{ is } ____ \]

b. Write what you notice.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
Look at these bags of apples. What do you notice?

How many bags are there?
How many apples are in each bag?
How could you work out the total number of apples without counting each apple?

You could count in steps of 4. That's 4, 8, 12. 3 bags of 4 apples is 12 apples.

How could you arrange these apples into different equal groups?

You could make 2 bags of 6 apples.

Step Up

I. Write numbers to describe the equal groups.

a. 

   bags of is

b. 

   boxes of is

c. 

   bunches of is

d. 

   packs of is
2. Draw pictures to match each. Then write the total.

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<td>a.</td>
<td>3 bags of 2 is</td>
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<td>2 stacks of 5 is</td>
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Step Ahead

Arrange these boxes into equal groups. Complete the sentence. Draw a picture to show your thinking.

___ groups of ___ is ___
Adding Equal Groups

Look at these jars of marbles.

How many jars do you see? How many marbles in each jar? How could you work out the total number of marbles?

What addition sentence could you write to show your thinking?

Imagine there were 4 marbles in each jar. What would be the total number of marbles? How do you know?

Step Up

I. Write numbers to describe the equal groups.

a.  
   
   _____ groups of _____ is _______

b.  
   
   _____ groups of _____ is _______

c.  
   
   _____ groups of _____ is _______

d.  
   
   _____ groups of _____ is _______
2. Write numbers to describe the equal groups. Then write an addition sentence to match.

**a.**

___ groups of ____ is ________
____ + ____ + ____ = ________

**b.**

___ rows of ____ is ________
____ + ____ = ________

**c.**

___ tubes of ____ is ________
____ + ____ + ____ = ________

**d.**

___ stacks of ____ is ________
____ + ____ + ____ + ____ = ________

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**Step Ahead**

Look at how these equal groups have been described. Write what you notice.

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9.5 Describing Arrays

Where are some places that you might see things arranged in rows?
An arrangement in rows with the same number in each row is called an array.

Look at this array of bugs.
How many rows of bugs are there? How many bugs are in each row?

What is a number story you could tell to match the array?

Imagine another row of four bugs joined the band.
How many rows will there be? How many bugs will be in each row? How many bugs will there be in total? How do you know?

Step Up

1. Write numbers to describe each array.

a. rows with in each row

b. rows with in each row
2. Write the missing numbers.

a.

\[ \underline{3} \text{ rows} \quad \underline{4} \text{ in each row} \]

b.

\[ \underline{4} \text{ rows} \quad \underline{3} \text{ in each row} \]

c.

\[ \underline{5} \text{ rows} \quad \underline{3} \text{ in each row} \]

d.

\[ \underline{4} \text{ rows} \quad \underline{5} \text{ in each row} \]

Step Ahead

Draw an array to match each story. Then draw a ✔ beside the array that is greater.

a. The beetles march in rows of 5. There are 3 rows.

b. The ants march in rows of 4. There are 4 rows.
9.6 Adding Equal Rows

Look at these bugs.
What is this type of arrangement called?

How many rows are there?
How many bugs in each row?

How could you find the total number of bugs?
What number story and addition sentence could you write?

There are 4 rows with 5 bugs in each row. That is $5 + 5 + 5 + 5 = 20$.

Step Up

I. Loop each row of bugs. Write the missing numbers.

a. 3 rows
   5 ladybugs in each row
   ____ + ____ + ____ = ______

b. ____ rows
   ____ ladybugs in each row
   ____ + ____ = ____

c. ____ rows
   ____ ladybugs in each row
   ____ + ____ + ____ = ____

d. ____ rows
   ____ ladybugs in each row
   ____ + ____ + ____ = ____
2. Write a number story to match each picture.

a.  

b.  

c.  

d.  

Step Ahead  
Draw an array of bugs that has 5 rows.  
Then write a number story and addition sentence to match.

a.  

b.  

c.  

d.  

**9.7 Using the Turnaround Idea with Arrays**

Look at these sheets of stamps.

How would you describe what happened to the first array to make the second array?

What is the same about the arrays? What is different?

How could you work out the total number of stamps in each array?

What addition sentences could you write to match?

What is the same about the two sentences? What is different?

Which addition sentence is easier to work with? Why?

**Step Up**

1. Draw a picture to show each array turned on its side.

   a. 
   
   b. 

2. Write the missing numbers. Then draw a ✓ beside the addition sentence that was easier to solve.

a. 

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2 + 2 + 2 + 2 = ___

b. 

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___ + ___ + ___ = ________  ___ + ___ + ___ + ___ = ________

c. 

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___ + ___ + ___ + ___ + ___ = ________  ___ + ___ + ___ = ________

Step Ahead 
Write two addition sentences to match this picture.
Choose three different pattern blocks.

a. Join them together. Then trace around them.

b. How many sides does your new shape have?

What two shapes do you see?

This shape was made by tracing around two pattern blocks.

How many sides does the new shape have?

Step Ahead

Each shape below was made using three pattern blocks. Draw lines on the shapes to show which blocks were used.

Step Up

1. Choose two other pattern blocks.
   a. Join them together. Then trace around them below.

b. How many sides does your new shape have?
2. Choose three different pattern blocks.
   a. Join them together. Then trace around them.

3. Choose three different pattern blocks.
   a. Join them together. Then trace around them.

b. How many sides does your new shape have?

b. How many sides does your new shape have?

Step Ahead
Each shape below was made using three pattern blocks. Draw lines on the shapes to show which blocks were used.
What shape could this be? How do you know?

Draw another quadrilateral that matches the clues.

Then draw a shape that does not match.

Step Up

Draw a shape to match each label.

a. a triangle with exactly two sides the same length

b. a rectangle with all sides the same length
Step Ahead

a. Write some clues like those above to describe a 2D shape.

b. Exchange clues with another student and draw a shape to match.
9.10 Making Designs with Line Symmetry

Follow these steps.

**Step 1**
Fold a sheet of paper in half and then draw a line along the crease as shown.

**Step 2**
Fold the paper in half again and draw a shape on one side like this.

**Step 3**
Flip the folded paper over and trace the shape you see through the paper.

Unfold the paper. How much of the whole shape is shown on each side of the mirror line?

**Step Up**

1. Draw the mirror image on the other side of the dashed line.

   a.  
   b.  

For Step 3, try placing the folded paper against a window.
2. Imagine you flipped the design over the dashed line. Draw what you would see.

### Draw a different hexagon on the left side of each dashed line.

Then draw the mirror image on the other side of the dashed line.

#### a.

```
  . . . .
  . . . .
  . . . .
  . . . .
```

#### b.

```
  .
  .
  .
  .
```

#### c.

```
  . . .
  . . .
  . . .
```

#### d.

```
  .
  .
  .
```

### Step Ahead

Draw a different hexagon on the left side of each dashed line. Then draw the mirror image on the other side of the dashed line.

#### a.

```
  . . . .
  . . . .
  . . . .
  . . . .
```

#### b.

```
  .
  .
  .
  .
```
Look at this letter. Follow the steps below. Draw what you would see.

Step 1
Flip the letter up or down.
Is up different to down?

Step 2
Now turn it a quarter-turn clockwise.
Is there another way you could make it look this way?

Step 3
Now flip it to the right.

Start with the shape in Step 3.
Repeat Steps 1 to 3.
Draw what it will finally look like.

Step Up

1. Turn the letter a quarter-turn clockwise each time to make a pattern.

a. P

b. M
2. Look at how the shapes change in each pattern. Draw lines to match the patterns to the labels. Not every label has a match.

- Flip upside-down
- One-half turn clockwise
- One-quarter turn anticlockwise
- Flip sideways
- One-quarter turn clockwise

Step Ahead: These repeating patterns were made by rotating each letter a quarter-turn clockwise. Draw the missing parts in each pattern.

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9.12 Working with Parts of a Whole (Equal Size)

Flipping a shape is like seeing it in the mirror — everything is back-to-front.

Some computers use the word ‘rotate’.

Rotate means the same as ‘turn’.

Describe how you would move the grey shape so that it exactly covers its matching orange shape.

If computer access is available download the electronic support page. Then use the flip and rotate tools in the software to make the orange shapes match the purple shapes.
Step Up

For each orange shape, colour the □ to show what you would do to make it match the purple shape above.

a.  
- Flip
- Turn

b.  
- Flip
- Turn

c.  
- Flip
- Turn

d.  
- Flip
- Turn

Step Ahead

1. Write two ways you can move Shape A to exactly cover Shape B?

   a.  

   b.  

2. Which capital letters will look the same if you flip them sideways?

   □