| Australian Curriculum <br> This lesson plan could be used to support the teaching and learning of the following Content Description from the Australian Curriculum. <br> Y5 - Measurement and Geometry, Location and Transformation <br> Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG 113) <br> Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG 114) |  |
| :--- | :--- | :--- |
| Child-Friendly Aim: <br> To plot coordinates to draw polygons. | Success Criteria: <br> I can label the x-axis and y-axis. <br> I know that a coordinate is represented by two <br> numbers in brackets, separated by a comma. <br> I can read a coordinate correctly by going along <br> and then up. |
| Key/New Words: <br> Coordinate, axis, quadrant, polygon. | Resources: <br> Lesson Pack |

Prior Learning: It will be helpful if children know how to read and write coordinates accurately.

## Learning Sequence

Wizard Potions: Using the interactive slides on the Lesson Presentation, the children are challenged to collect the
ingredients for the wizard's potion by clicking on the correct position on the 2D grid for the coordinate given.

## Masterit

Enlargeit: Using string, go large scale and plot the coordinates of a shape on large grid. Link to work on perimeter and area.
Alphabetit: Investigate plotting capital letters on a coordinate grid and recording the coordinate positions.
Pictureit: Try designing pictures on a coordinate grid and writing the coordinate positions for a friend to follow.

## Mathematics

## Measurement and Geometry



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## Aim

- To plot coordinates to draw polygons.


## Success Criteria

- I can label the $x$-axis and $y$-axis.
- I know that a coordinate is represented by two numbers in brackets, separated by a comma.
- I can read a coordinate correctly by going along then up.


## Wizard Potions

Collect the ingredients to help the wizard concoct his potion, by reading and plotting the coordinates correctly.


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## Wizard Potions

Collect the ingredients to help the wizard concoct his potion, by reading and plotting the coordinates correctly.


Thank you for helping me to collect my potion ingredients. Click on the cat to see the potion at work.


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## Reading Coordinates



## Coordinate Squares

Work with your partners to plot the coordinate corners of the four different sized squares.


Coordinate Squares




## Spot the Mistake



When plotted, these coordinates should make a rectangle that looks like this:


Click on them and decide which coordinate has been plotted incorrectly.

## Spot the Mistake



When plotted, these coordinates should make a triangle that looks like this:


$$
(5,4) \quad(4,1)
$$

Click on them and decide which coordinate has been plotted incorrectly.

## Spot the Mistake



When plotted, these coordinates should make a hexagon that looks like this:


Click on them and decide which coordinate has been plotted incorrectly.

Show Answer

## Coordinate Polygons



## Sheepdog Championship

Sheepdog Championship Coordinate Game


$(0,4)(2,3)$
$(1,4)(2,6)$
$(1,3)(0,6)$
$(1,4)(4,6)$
(1,3) $(0,6) \quad(3,5)(2,5)$
$(4,5)(1,5)$

$(1,3)(3,5)$
$(1,3)(3,2)$
$(4,5)(1,4)$
$(1,0)(3,1)$
$(2,0)(3,3)$
$(2,1)(1,3)$
$(2,0)[4,3])(4,4](1,6)$ $(5,0)[3,3] \quad(6,7)(7,6)$ $(5,1)[3,1) \quad(4,5])(4,6)$ $\{+1,1)(2,1\}$


## How to play:

- Take it in turns to take a card from the pile.
- Plot the coordinates written on the card on the game board.
- Count the number of sheep you have rounded up.
- The winner is the player who rounds up the most sheep.


## Aim

- To plot coordinates to draw polygons.


## Success Criteria

- I can label the $x$-axis and $y$-axis.
- I know that a coordinate is represented by two numbers in brackets, separated by a comma.
- I can read a coordinate correctly by going along then up.



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## Next Steps

| T | Teacher | I | Independent |
| :--- | :--- | :--- | :--- |
| PPA | Planning, Preparation and Assessment | AL | Adult Led |
| S | Supply | GP | Guided Practice |



Next Steps

| T | Teacher | I | Independent |
| :--- | :--- | :--- | :--- |
| PPA | Planning, Preparation and Assessment | AL | Adult Led |
| S | Supply | GP | Guided Practice |

## Coordinate Squares

To plot coordinates to draw polygons.

Plot the given coordinates to draw four squares of different sizes.


## Coordinate Squares Answers

To plot coordinates to draw polygons.

Plot the given coordinates to draw four squares of different sizes.


## Coordinate Polygons

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.

| 6 |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| 6 |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |



| 6 |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |



| 6 |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## Coordinate Polygons

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.

| 6 |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| 6 |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |
| 1 |  |  |  |  |  |  |  |  |  |  |
|  |  | 1 |  | 2 |  |  |  | - | 5 | 6 |
|  |  |  |  |  |  |  |  |  |  |  |
| 8. $(2,5)(4,5)(5,3)(4,1)(2,1)(1,3)$ |  |  |  |  |  |  |  |  |  |  |
| Polygon = |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |


| 6 |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 1 |  |  |  |  |  |  |  |  |
|  |  | 1 | 2 | 2 | 3 | 4 | 5 | 56 |
| 9. $(1,5)(2,3)(1,1)(5,1)(4,3)(5,5)$ |  |  |  |  |  |  |  |  |
|  | oly | gon |  |  |  |  |  |  |

## Coordinate Polygons

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.


## Coordinate Polygons

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.


## Coordinate Polygons

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.
Extra Challenge: Use a ruler to measure the sides of each polygon to the nearest half cm and calculate the perimeter of each polygon.


1. $(1,1)(8,8)(8,1)$

Polygon $=$
Perimeter $=$


## Polygon $=$

## Perimeter $=$


2. $(3,2)(5,9)(7,2)$

Polygon $=$
Perimeter $=$


## Polygon $=$

Perimeter $=$

| 1098 | $0$ |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $9-$ | - |  |  |  |  |  |  |  |  |  |
|  | $8$ |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 0 |  | 1 | 23 | 3 | 4 | 5 | 56 | 67 | 78 | 8 | 910 |
| 3. $(0,3)(4,6)(10,0)$ |  |  |  |  |  |  |  |  |  |  |  |
| Polygon $=$ |  |  |  |  |  |  |  |  |  |  |  |
| Perimeter $=$ |  |  |  |  |  |  |  |  |  |  |  |


| 10 |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 9 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  |

## Coordinate Polygons

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.
Extra Challenge: Use a ruler to measure the sides of each polygon to the nearest half cm and calculate the perimeter of each polygon.

7. $(1,9)(1,1)(5,1)$ $(10,5)(5,9)$

Polygon =
Perimeter $=$

8. $(2,9)(5,7)(8,9)$
$(8,2)(5,0)(2,2)$
Polygon $=$
Perimeter $=$

9. $(1,7)(4,10)(7,10)(10,7)$ $(10,4)(7,1)(4,1)(1,4)$

Polygon $=$
Perimeter $=$

Coordinate Polygons Answers

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.


| 6 |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |






## Coordinate Polygons Answers

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.
 Coordinate Polygons Answers

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.


Polygon = Square





Polygon $=$ Trapezium


## Coordinate Polygons Answers

To plot coordinates to draw polygons.
000
Plot the given coordinates on the grid and join them up to identify the polygon.




## Coordinate Polygons Answers

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.
$-\infty$
Extra Challenge: Use a ruler to measure the sides of each polygon to the nearest half cm and calculate the perimeter of each polygon.


Polygon $=\begin{aligned} & \text { Right-angled } \\ & \text { Triangle }\end{aligned}$
Perimeter $=12.5 \mathrm{~cm}$


2. $(3,2)(5,9)(7,2)$

Polygon $=\begin{aligned} & \text { Isosceles } \\ & \text { Triangle }\end{aligned}$
Perimeter $=10 \mathrm{~cm}$


Polygon = Trapezium
Perimeter $=9 \mathrm{~cm}$



## Coordinate Polygons Answers

To plot coordinates to draw polygons.

Plot the given coordinates on the grid and join them up to identify the polygon.
Extra Challenge: Use a ruler to measure the sides of each polygon to the nearest half cm and calculate the perimeter of each polygon.


Polygon $=\begin{aligned} & \text { Irregular } \\ & \text { Pentagon }\end{aligned}$
Perimeter $=15 \mathrm{~cm}$

8. $(2,9)(5,7)(8,9)$
$(8,2)(5,0)(2,2)$
Polygon = $\begin{aligned} & \text { Irregular } \\ & \text { Hexagon }\end{aligned}$
Perimeter $=15 \mathrm{~cm}$


## Sheepdog Championship Coordinate Game

Cut out and shuffle the game cards. On your turn, choose a card and plot the coordinates on the game board. You have successfully


## Sheepdog Championship Coordinate Game

| $(0,0)$ | $(0,4)(2,3)$ | $(1,4)(4,6)$ | $(1,3)(3,5)$ | $(1,0)(3,1)$ | $(2,0)(4,3)$ | $(4,4)(7,5)$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $(0,4)$ | $(1,4)(2,6)$ | $(3,4)(2,6)$ | $(4,3)(3,4)$ | $(2,0)(3,3)$ | $(5,0)(3,3)$ | $(6,4)(7,6)$ |
| $(1,4)$ | $(1,3)(0,6)$ | $(3,5)(2,5)$ | $(4,5)(1,4)$ | $(2,1)(1,3)$ | $(5,1)(3,1)$ | $(6,5)(4,6)$ |
| $(1,0)$ |  | $(4,5)(1,5)$ |  |  | $(4,1)(2,1)$ |  |
|  |  |  |  |  |  | 等 |
| $(4,1)(5,3)$ | $(5,0)(6,2)$ | $(5,2)(6,4)$ | $(6,4)(9,6)$ | $(8,3)(9,6)$ | $(8,0)$ | $(9,0)$ |
| $(6,1)(6,3)$ | $(8,0)(6,1)$ | $(8,2)(6,3)$ | $(8,4)(7,6)$ | $(10,3)(9,5)$ | $(9,0)$ | $(10,0)$ |
| $(6,2)(6,4)$ | $(8,2)(5,1)$ | $(8,4)(5,3)$ | $(8,5)(7,5)$ | $(10,6)(8,5)$ | $(9,3)$ | $(10,3)$ |
| $(5,2)(4,4)$ |  |  | $(9,5)(6,5)$ |  | $(8,3)$ | $(9,3)$ |
| 串 | 为 |  |  |  |  |  |

## Sheepdog Championship Coordinate Game

Cut out and shuffle the game cards. On your turn, choose a card and plot the coordinates on the game board. You have successfully rounded up all the sheep within the shape made by the points you have plotted. The player who rounds up the most sheep wins!


## Sheepdog Championship Coordinate Game




Measurement and Geometry | Coordinate Polygons

| To plot coordinates to draw polygons. |  |  |
| :--- | :--- | :--- |
| I can label the $x$ and $y$-axis. |  |  |
| I know that a coordinate is represented by <br> two numbers in brackets, separated by a <br> comma. |  |  |
| I can read a coordinate correctly by going <br> along and then up. |  |  |

Measurement and Geometry | Coordinate Polygons

| To plot coordinates to draw polygons. |  |  |
| :--- | :--- | :--- |
| I can label the x and y-axis. |  |  |
| I know that a coordinate is represented by <br> two numbers in brackets, separated by a <br> comma. |  |  |
| I can read a coordinate correctly by going <br> along and then up. |  |  |

Measurement and Geometry | Coordinate Polygons

| To plot coordinates to draw polygons. |  |  |
| :--- | :--- | :--- |
| I can label the $x$ and $y$-axis. |  |  |
| I know that a coordinate is represented by <br> two numbers in brackets, separated by a <br> comma. |  |  |
| I can read a coordinate correctly by going <br> along and then up. |  |  |

Measurement and Geometry | Coordinate Polygons

| To plot coordinates to draw polygons. |  |  |
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Measurement and Geometry | Coordinate Polygons

| To plot coordinates to draw polygons. |  |  |
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| I can label the $x$ and $y$-axis. |  |  |
| I know that a coordinate is represented by <br> two numbers in brackets, separated by a <br> comma. |  |  |
| I can read a coordinate correctly by going <br> along and then up. |  |  |

Measurement and Geometry | Coordinate Polygons

| To plot coordinates to draw polygons. |  |  |
| :--- | :--- | :--- |
| I can label the $x$ and $y$-axis. |  |  |
| I know that a coordinate is represented by <br> two numbers in brackets, separated by a <br> comma. |  |  |
| I can read a coordinate correctly by going <br> along and then up. |  |  |

Measurement and Geometry | Coordinate Polygons

| To plot coordinates to draw polygons. |  |  |
| :--- | :--- | :--- |
| I can label the $x$ and $y$-axis. |  |  |
| I know that a coordinate is represented by <br> two numbers in brackets, separated by a <br> comma. |  |  |
| I can read a coordinate correctly by going <br> along and then up. |  |  |

