Measurement and Geometry: Location and Transformation: Under the Sea Coordinates

Australian Curriculum
This lesson plan could be used to support the teaching and learning of the following Content Description from the Australian Curriculum.

Y5 – Measurement and Geometry, Location and Transformation
Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)

Child-Friendly Aim: To read and write coordinates in the first quadrant.	**Success Criteria:** I can label the x and y-axis. I know that a coordinate is represented by two numbers in brackets, separated by a comma. I can read and write a coordinate correctly by going along and then up.	**Resources:** **Lesson Pack** Dice
	Key/New Words: Coordinate, axis, quadrant	**Preparation:** Differentiated **Under the Sea Coordinates Activity Sheets** – per child **Coordinate Treasure Hunt Game** – per pair

Prior Learning: It will be helpful if children can describe where things are using the language of position, direction and motion.

Learning Sequence

	**Under the Sea:** Using the scene displayed on the **Lesson Presentation**, the children rehearse the language of position and direction by making mathematical statements about the objects within the picture. Differentiated word banks of vocabulary can be shown as needed to support and extend.	
	**Reading and Writing Coordinates:** Use the information and images on the **Lesson Presentation** to explain that a coordinate is a way to locate a position on a map or graph by indicating how many units along, and how many units up the position is. Move on to explaining the x-axis, y-axis, and quadrant features of coordinates and how they are recorded inside brackets, separated by a comma. Emphasise at all times the importance of reading and writing coordinates in the correct order (along then up).	
	**Missing Coordinates:** Looking at the coordinate grid displayed on the **Lesson Presentation** the children discuss with their partner what the missing coordinate is for the position of the underwater object (mixture of missing x or y coordinates).	
	**Under the Sea Coordinates:** Children complete the differentiated **Under the Sea Coordinates Activity Sheets**; to demonstrate they can read and write coordinates in the first quadrant. Can the children read and write the coordinates by going along and then up the grid?  Write the coordinates for the under the sea objects by reading the coordinate grid accurately (6 by 6 grid).  Write the coordinates for the under the sea objects by reading the coordinate grid accurately (10 by 10 grid).  Write the coordinates for the under the sea objects by reading the coordinate grid accurately (12 by 12 grid) with similarities such as (4, 3) and (3, 4).	
	**Coordinate Treasure Hunt:** Using the **Coordinate Treasure Hunt Resource Sheet** the children work in partners to roll two dice to create a coordinate. They plot the coordinate on the game board and win the treasure at that position. The winner is the player who collects the most treasure.	

Masterit

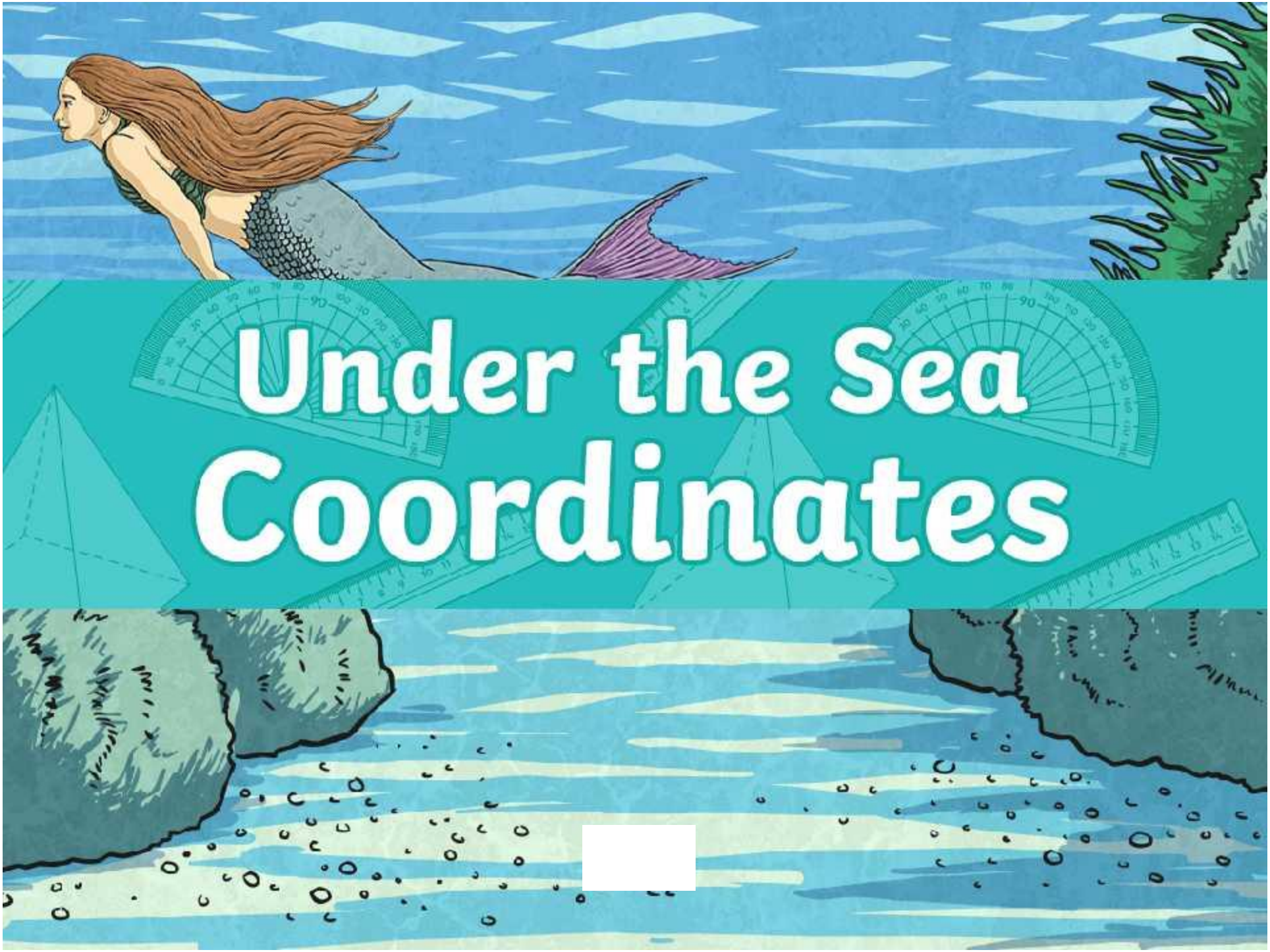
Doit: Use a playground grid or P.E. cones to create a large, outside coordinate quadrant. Place objects at different positions and ask the children to write the coordinate of different objects.

Challengeit: Use these fantastic _____ to rehearse reading and writing coordinates.

Designit: As a class place the floor plan of the school on a grid and then design a treasure hunt around the school with coordinates as the clues.

Mathematics

Measurement and Geometry


Under the Sea
Coordinates

Aim

- To read and write coordinates in the first quadrant.

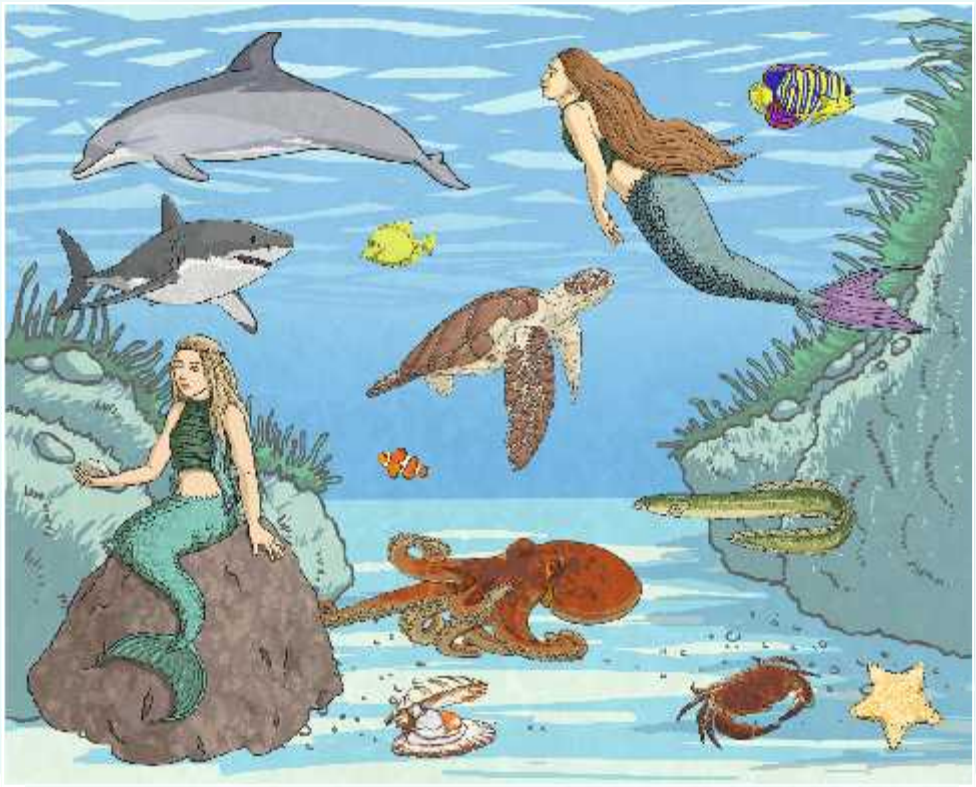
Success Criteria

- 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 and write a coordinate correctly by going along and then up.

Under the Sea

Use the vocabulary of position and direction to describe the under the sea fantasy world.

north
east
south
west
above
below
between
higher
lower
left
right

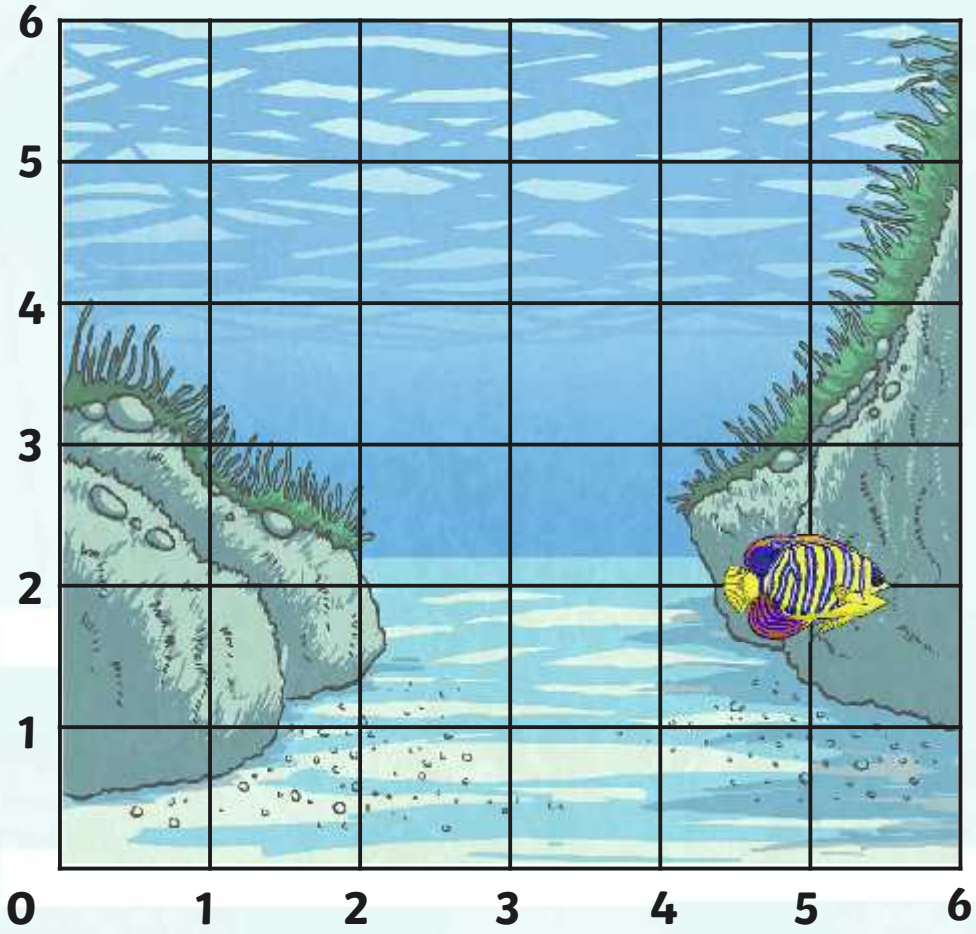


north-east
south-east
south-west
north-west
horizontal
vertical
diagonal
row
column
parallel

Show supporting vocabulary word bank

Hide supporting vocabulary word bank

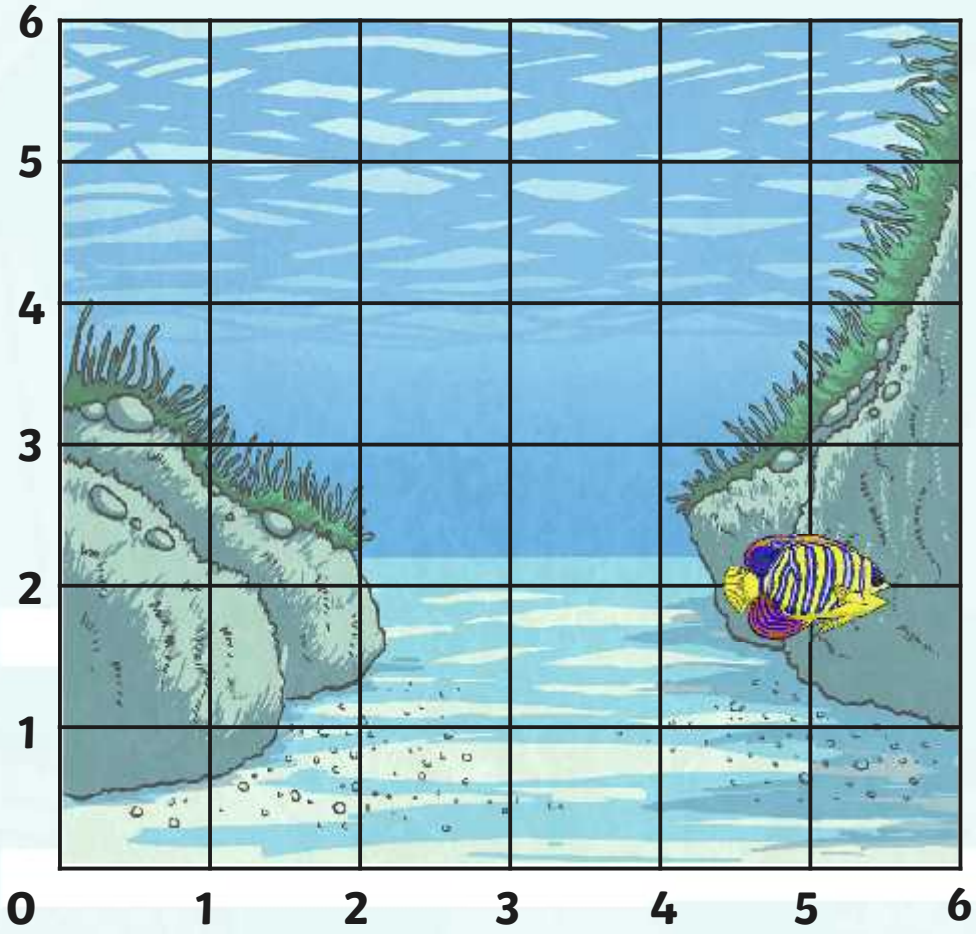
Reading and Writing Coordinates



Coordinates are a useful way to locate a position on a map or grid.

Here is a grid. It shows where the angel fish is swimming. Let's work together to read and write the coordinate.

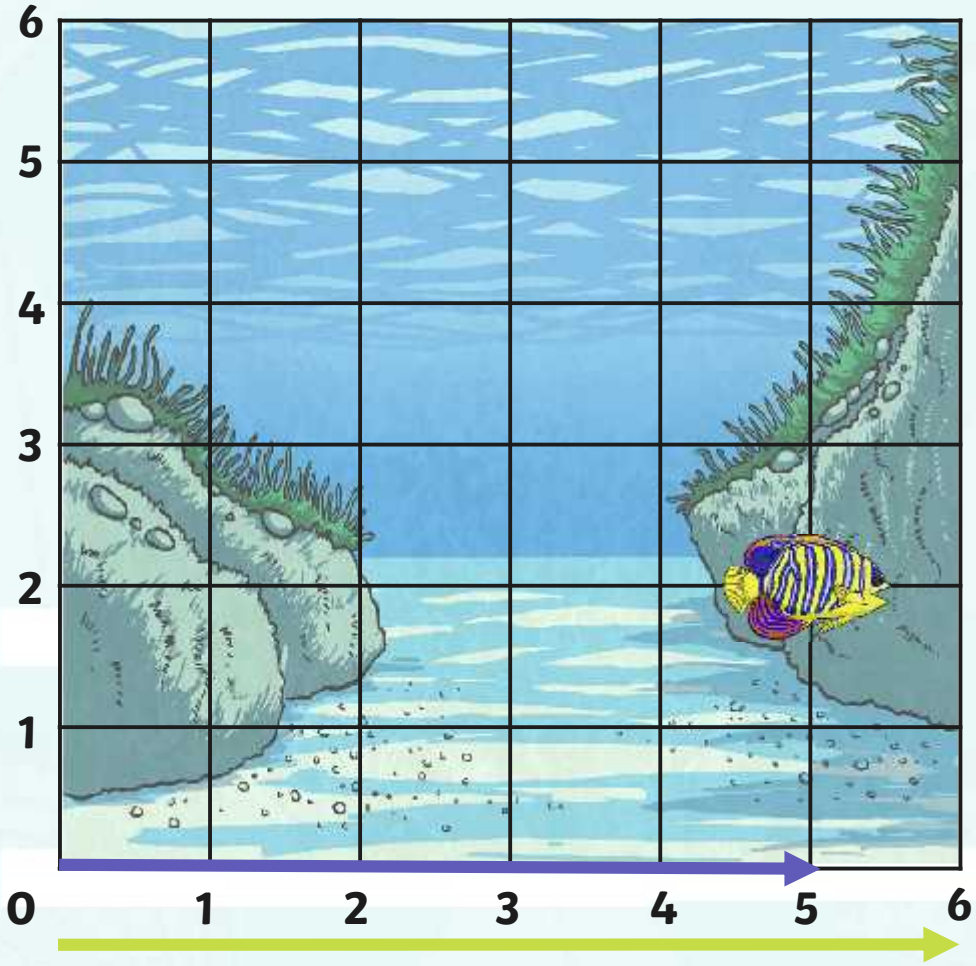
Reading and Writing Coordinates



Look carefully at the numbers across the bottom of the grid and up the side of the grid.

We will use these numbers to give the position of the angel fish.

Reading and Writing Coordinates

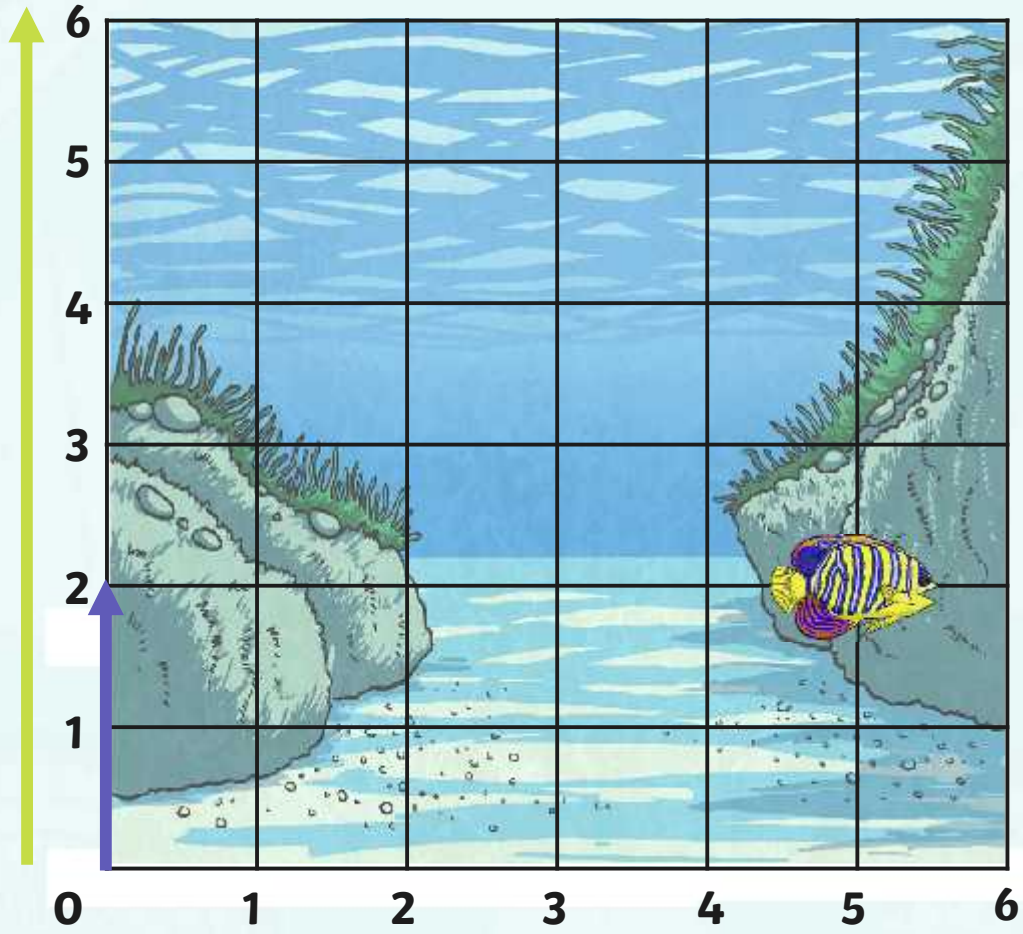


The numbers across the bottom of the grid are on the **x-axis**.

We **always** read the number on the x-axis first.

We can see that the angel fish is positioned on **line number 5** of the x-axis.

Reading and Writing Coordinates

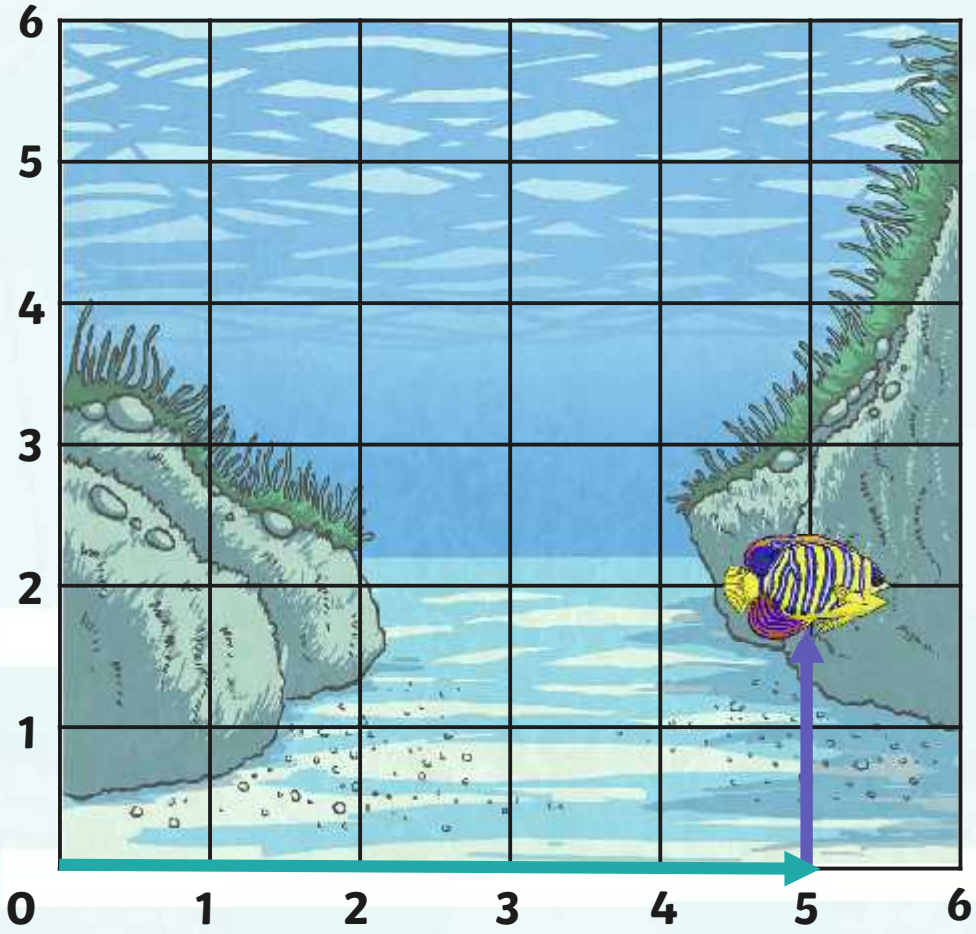


The numbers up the side of the grid are on the **y-axis**.

We **always** read the number on the y-axis **after** the x-axis.

We can see that the angel fish is positioned on **line number 2** of the y-axis.

Reading and Writing Coordinates



We have located the angel fish on **line 5** of the x-axis (across) and **line 2** of the y-axis (up).

There is a special way we write this as a coordinate:

(5, 2)

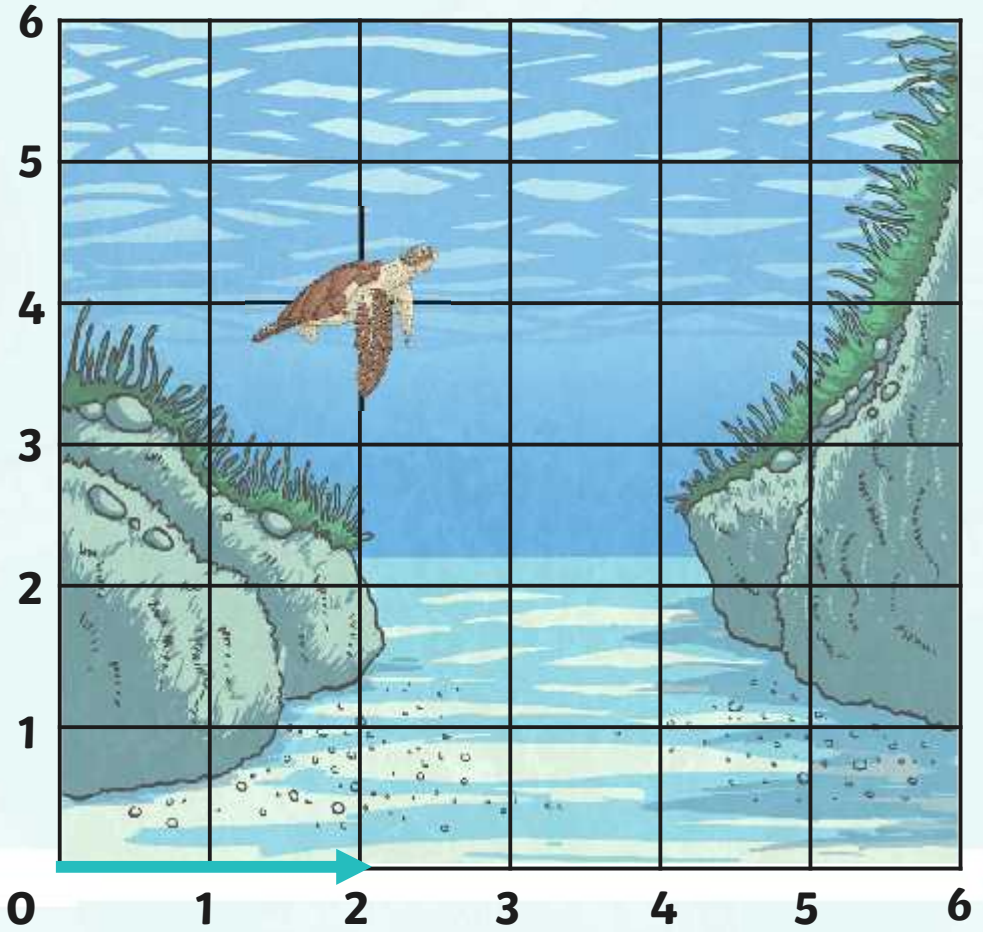
x-axis y-axis

Missing Coordinates

One of the coordinate numbers, describing the position of the sea turtle, is missing.

Work with your partner to work out the missing coordinate number.

(2,?)



Missing Coordinates

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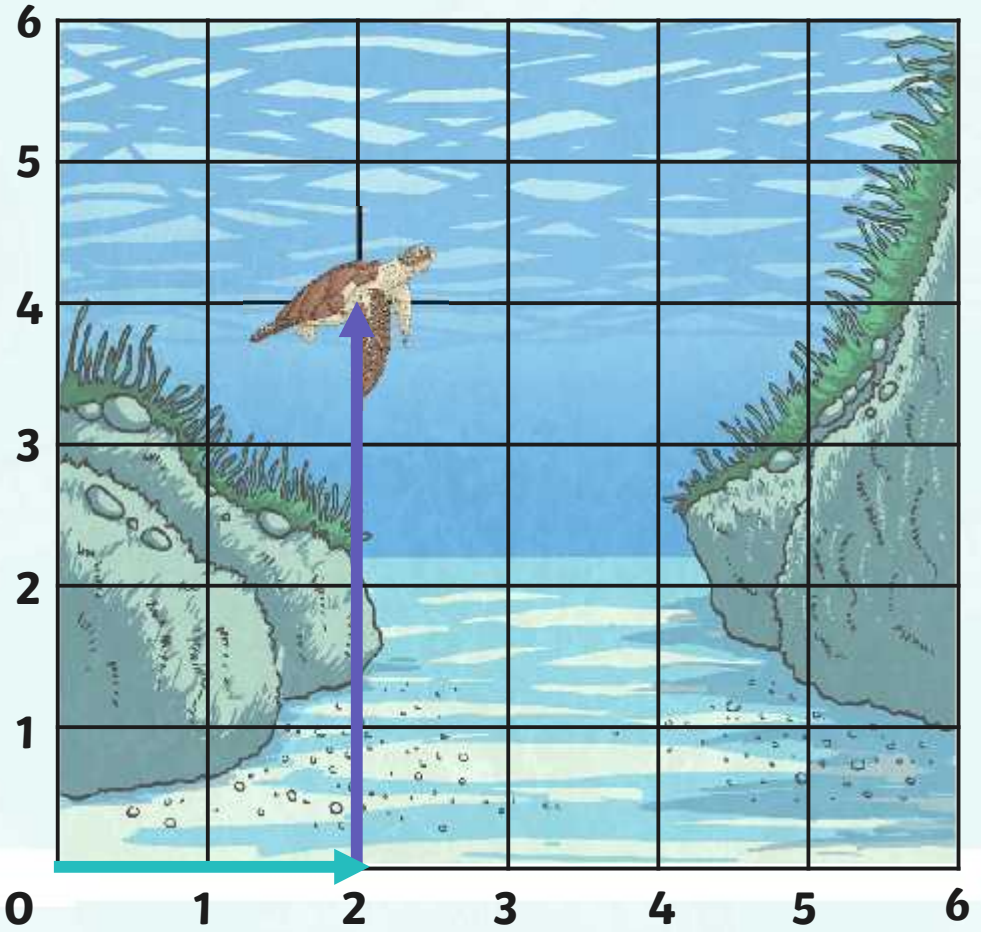


(2,4)

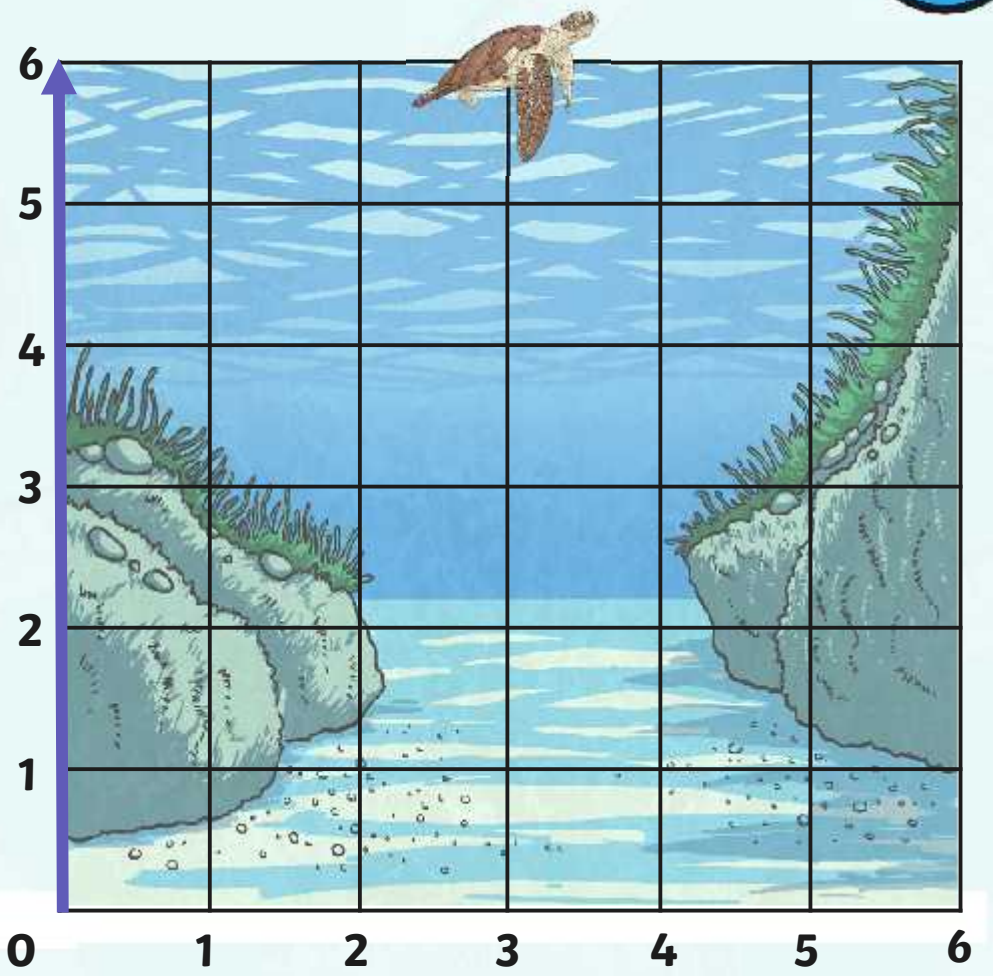
x-axis y-axis

Missing Coordinates

One of the coordinate numbers, describing the position of the sea turtle, is missing.

Work with your partner to work out the missing coordinate number.

(?,6)



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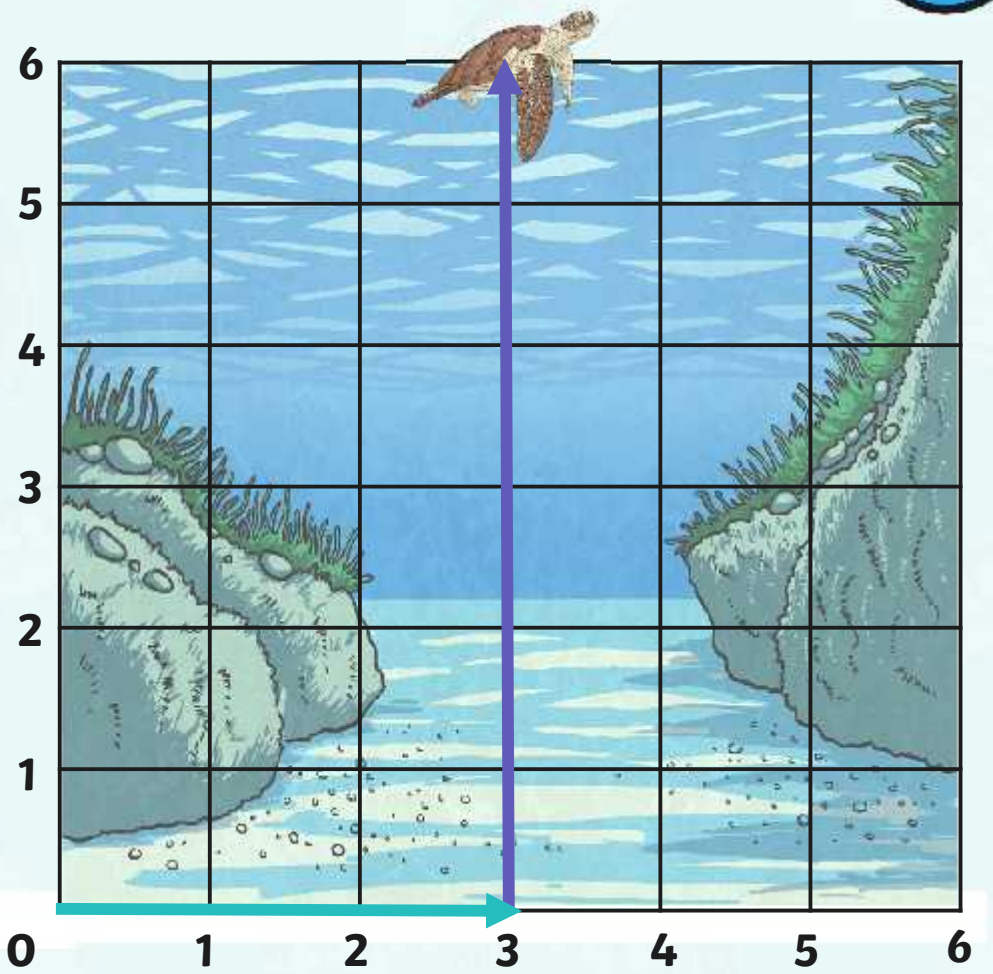


(3,6)

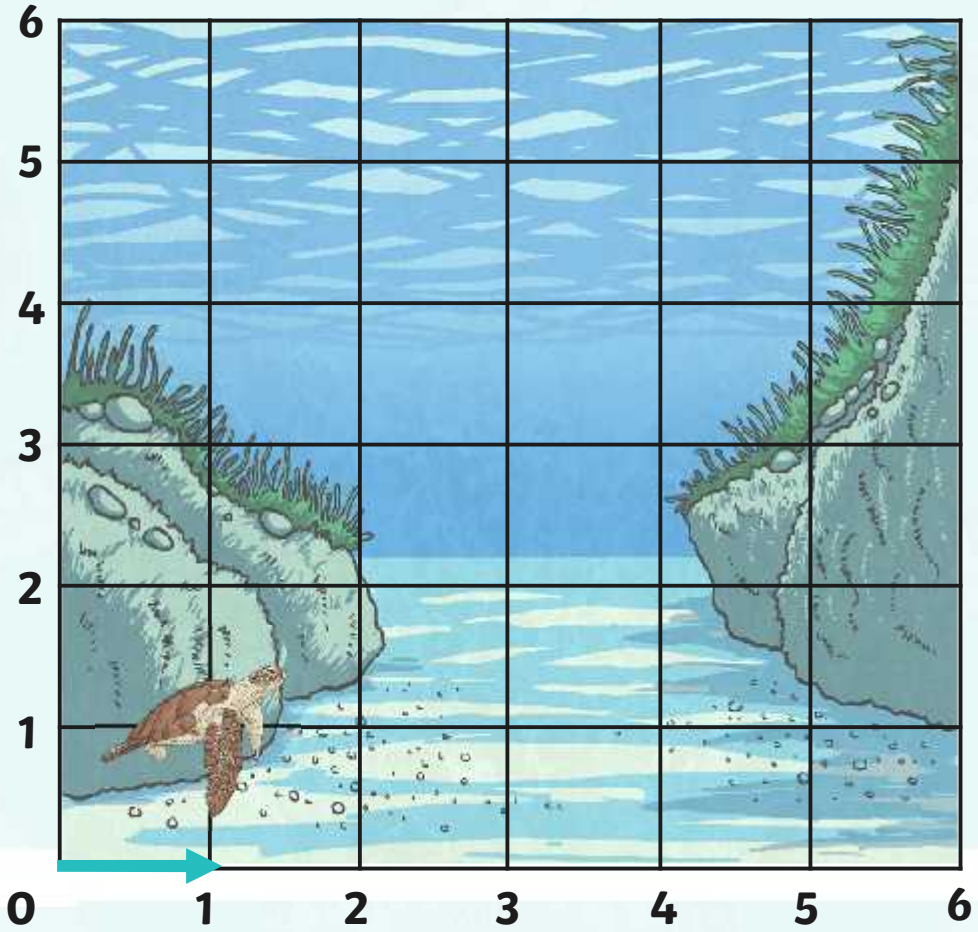
x-axis y-axis

Missing Coordinates

One of the coordinate numbers, describing the position of the sea turtle, is missing.

Work with your partner to work out the missing coordinate number.

(1,?)



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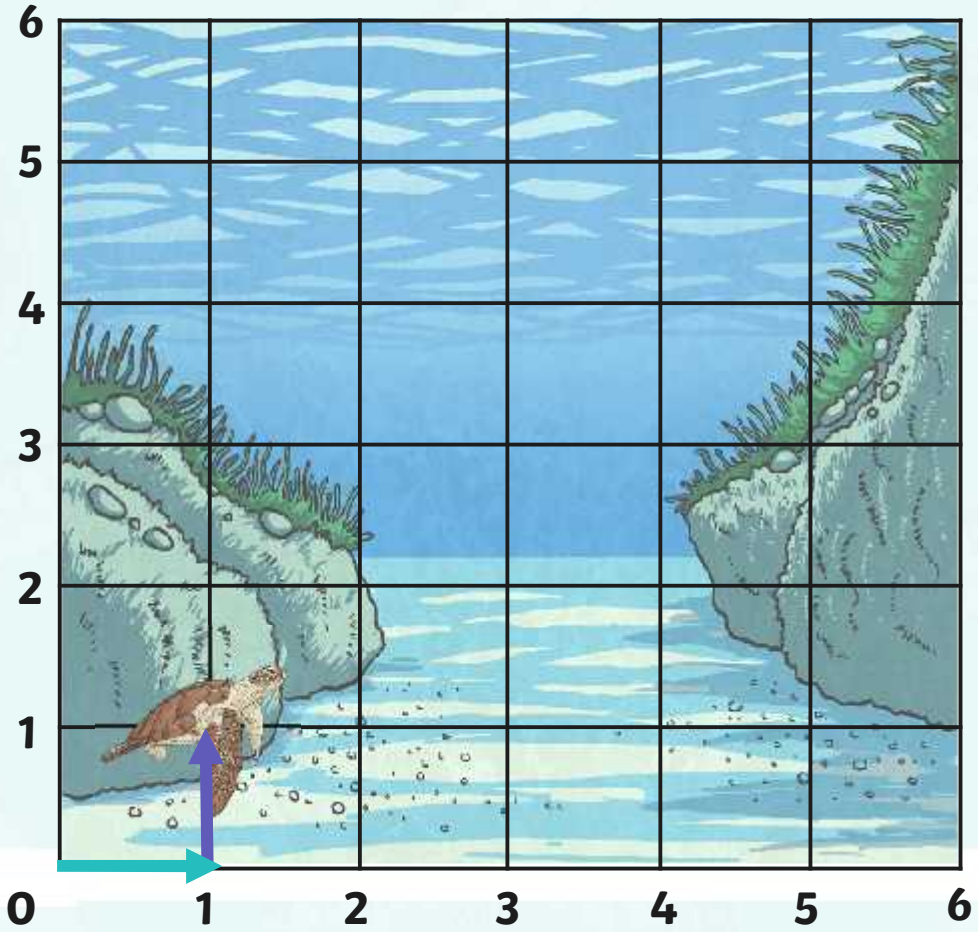
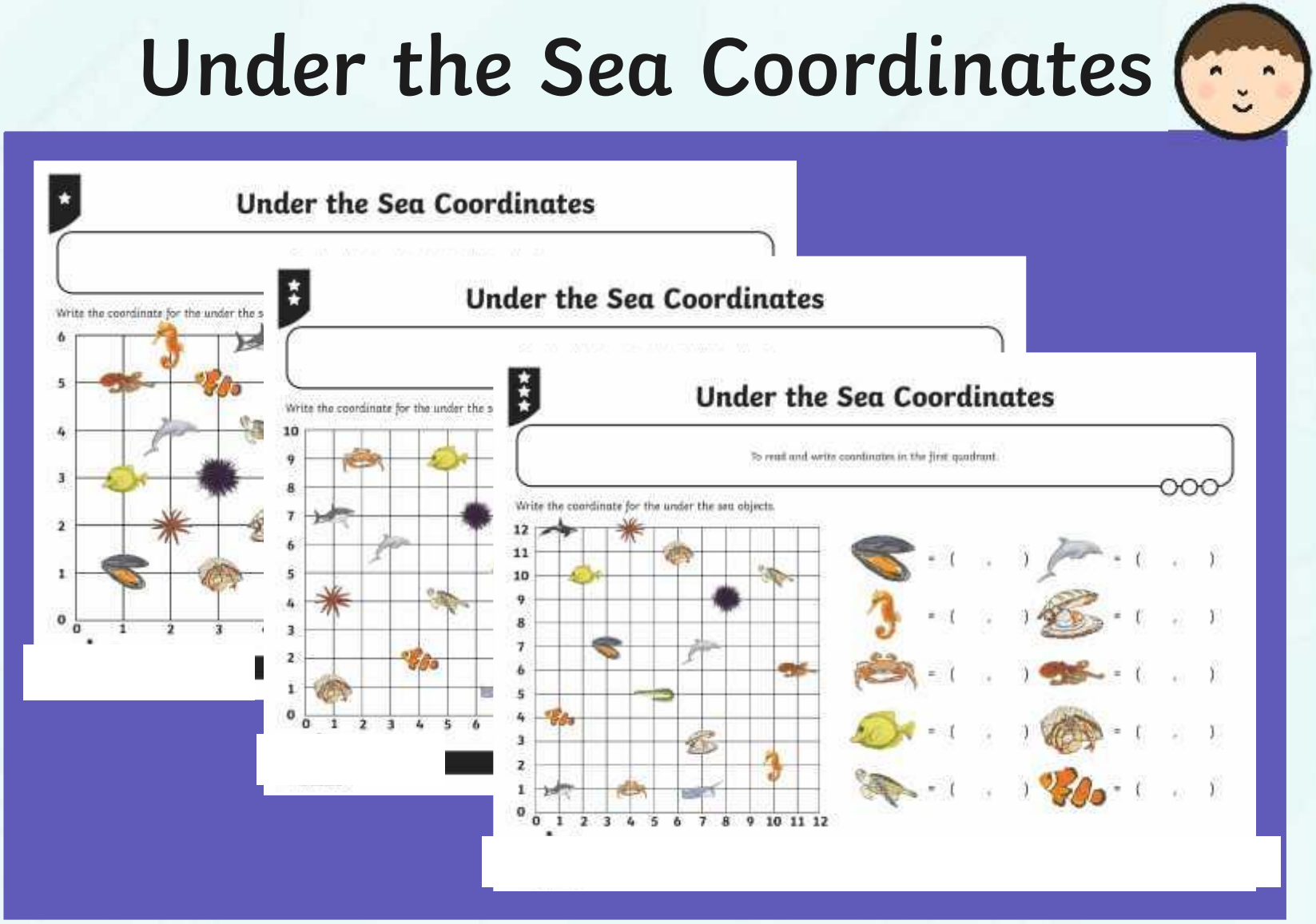
Work with your partner to work out the missing coordinate number.



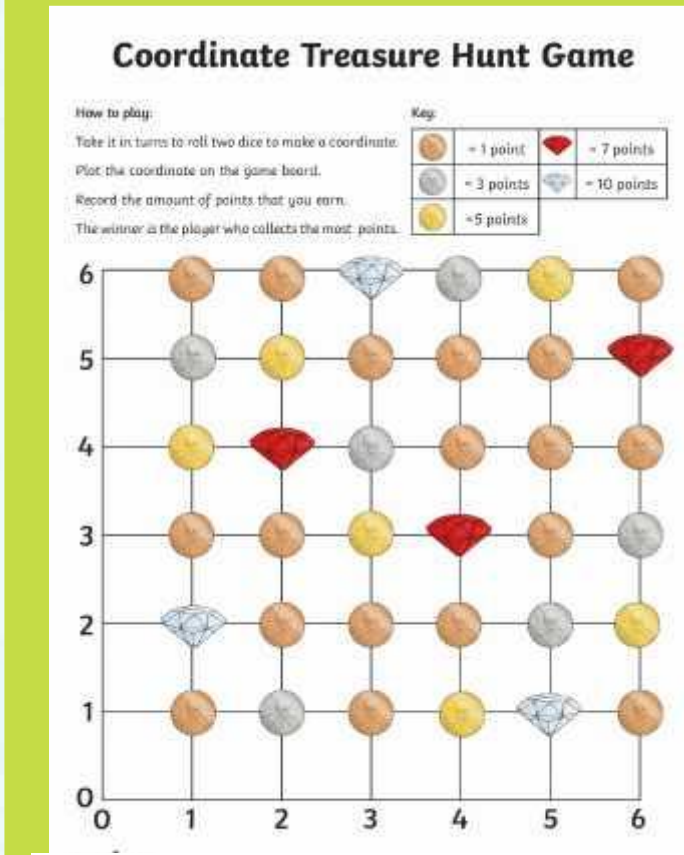
(1, 1)

x-axis y-axis

Under the Sea Coordinates



Coordinate Treasure Hunt



How to play:

- Take it in turns to roll two dice to make a coordinate.
- Plot the coordinate on your game board.
- Record the amount of points that you earn.
- The winner is the player who collects the most points.

A useful tip!

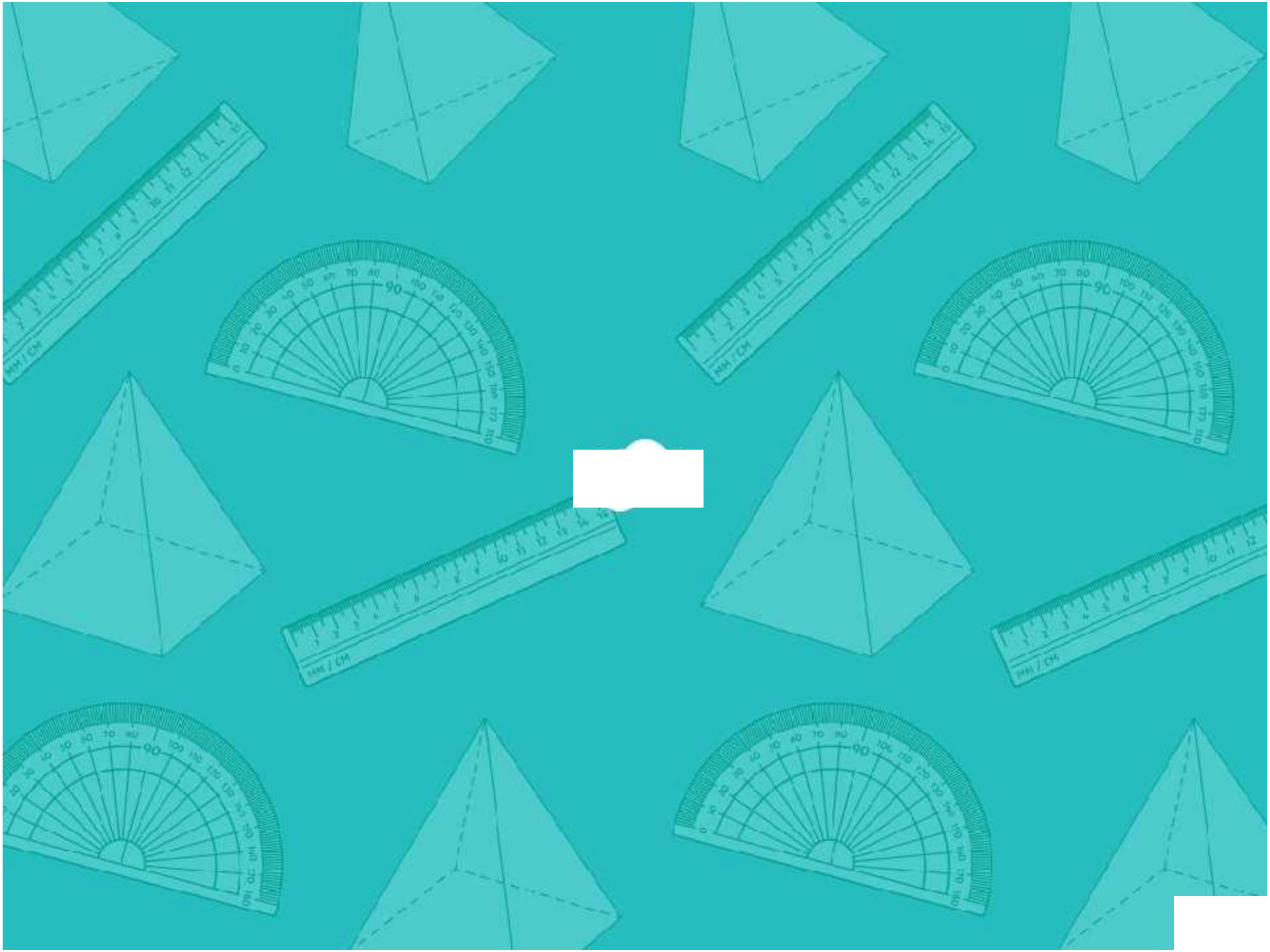
An easy way to remember is 'along the corridor and up the stairs'.

Aim

- To read and write coordinates in the first quadrant.

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 and write a coordinate correctly by going along and then up.



Coordinate Treasure Hunt Game

How to play:

Take it in turns to roll two dice to make a coordinate.

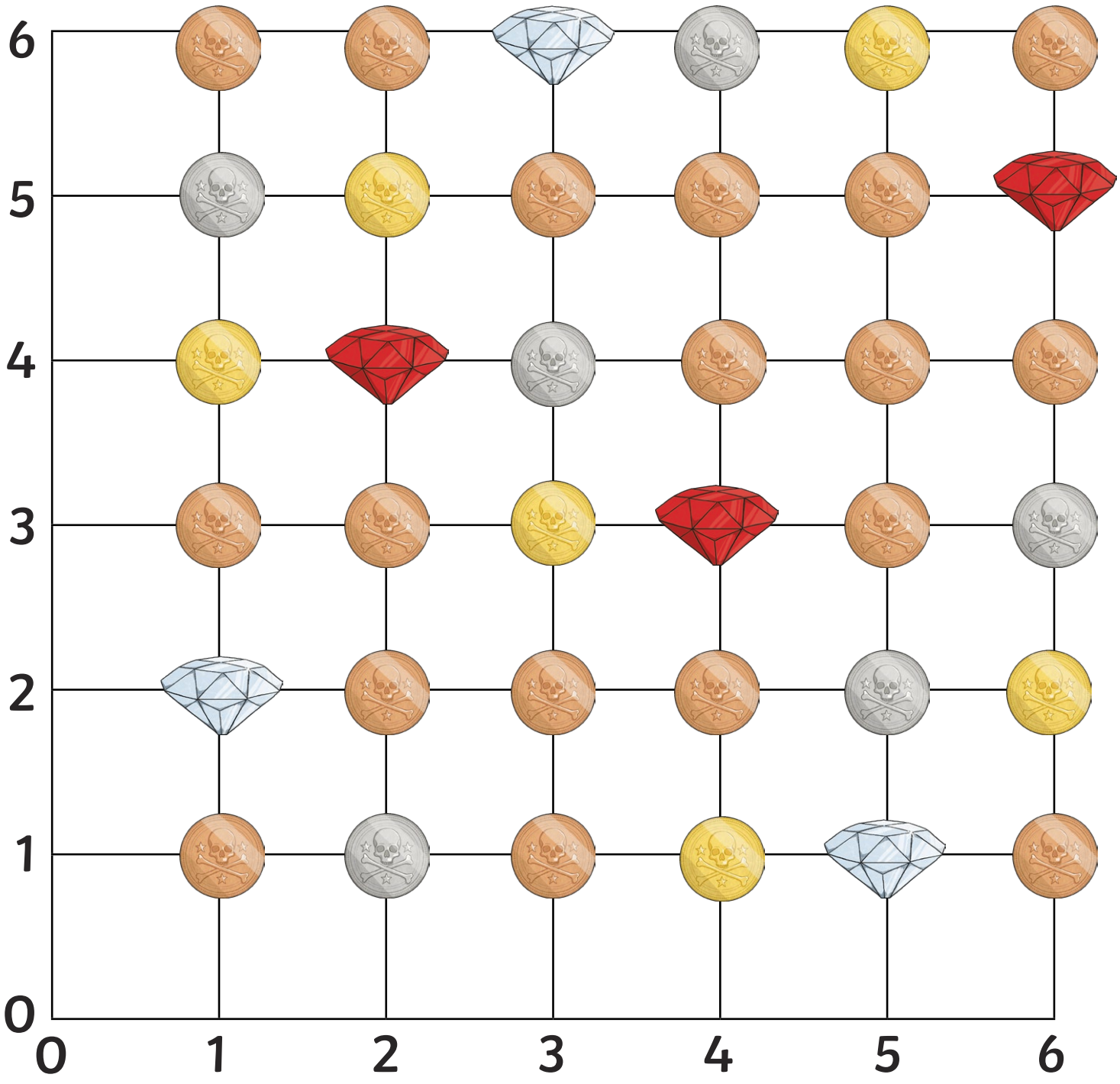
Plot the coordinate on the game board.

Record the amount of points that you earn.

The winner is the player who collects the most points.

Key:

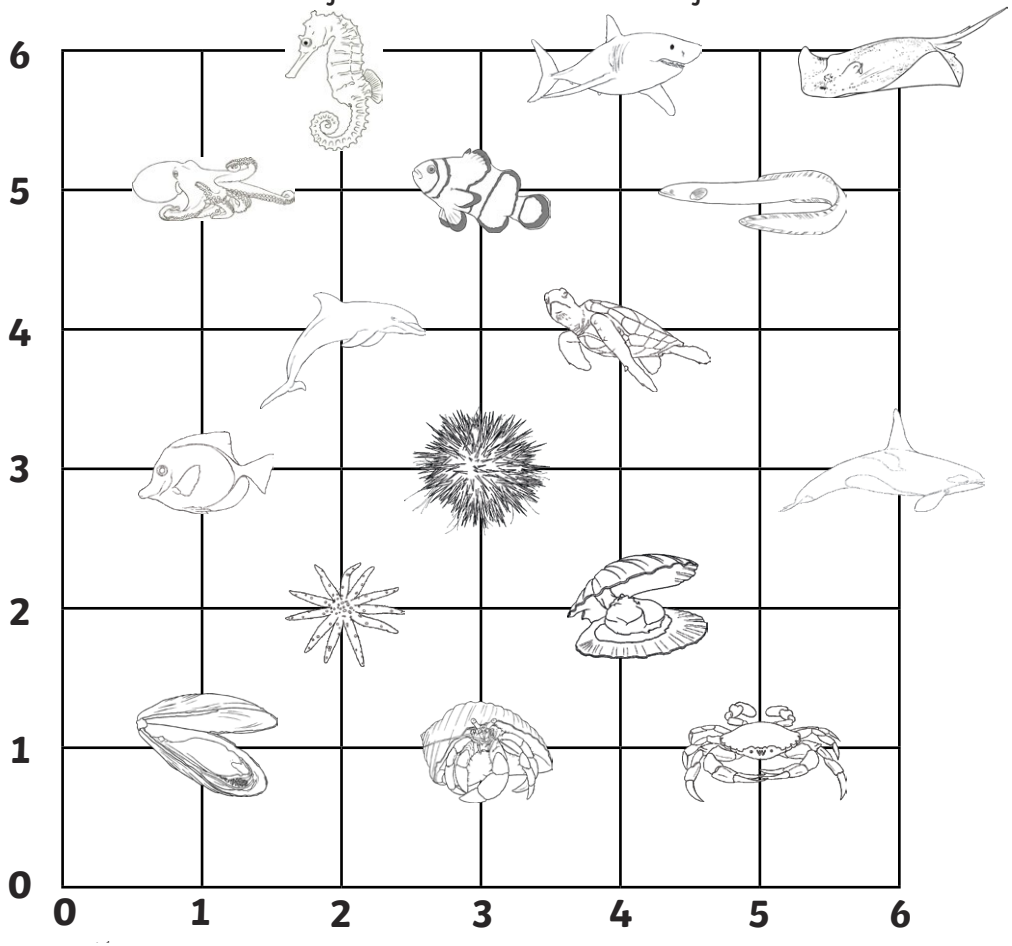
	= 1 point		= 7 points
	= 3 points		= 10 points
	=5 points		

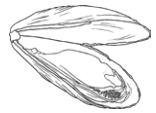


Under the Sea Coordinates

To read and write coordinates in the first quadrant.

Write the coordinate for the under the sea objects.



 = (,)  = (,)

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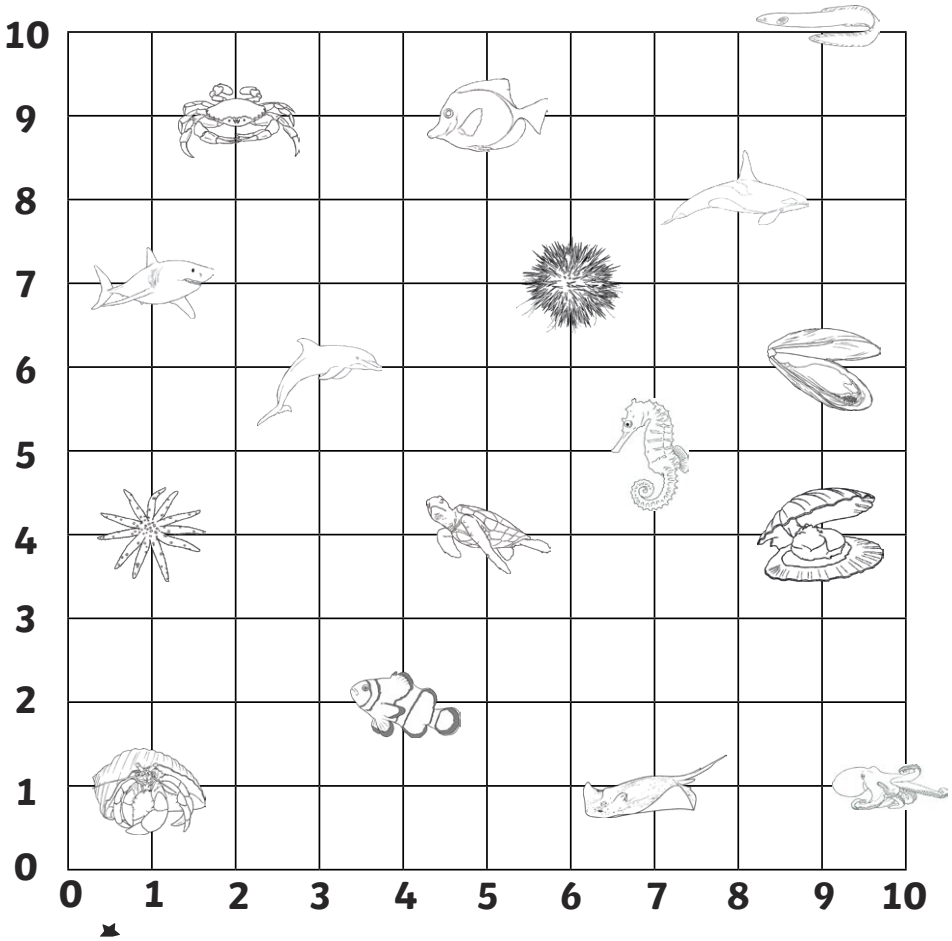

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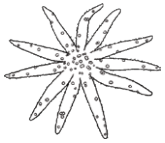
 = (,)  = (,)

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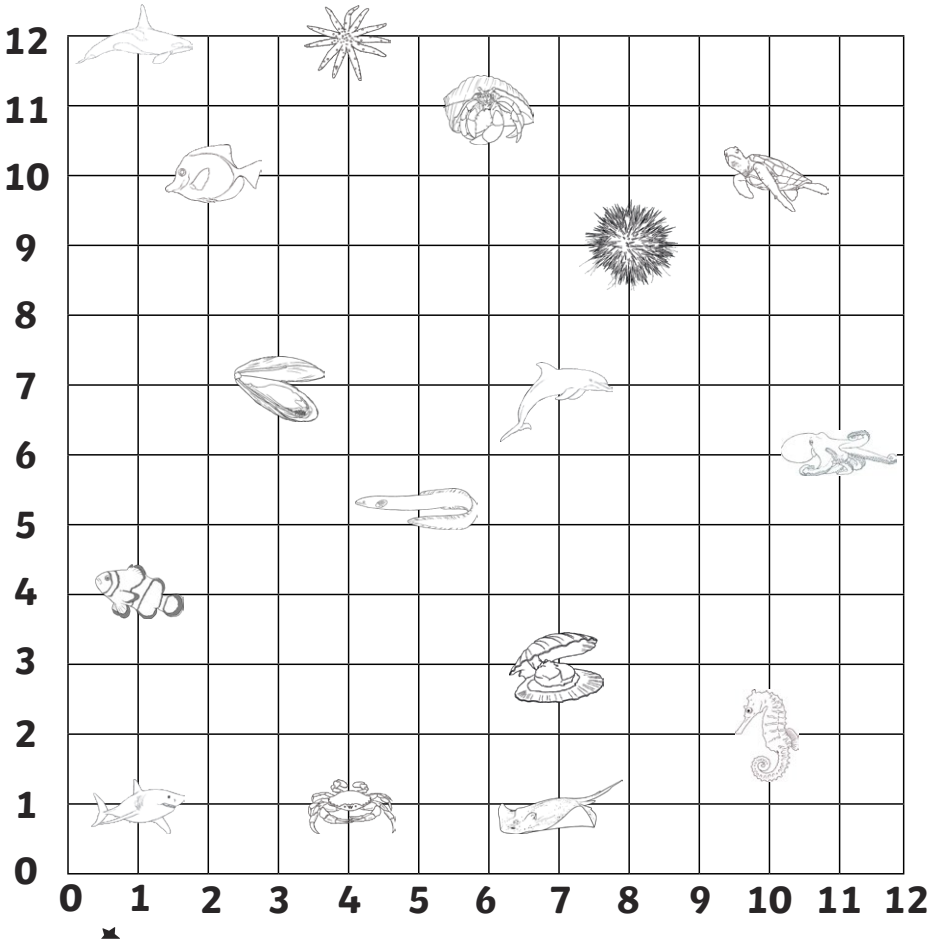

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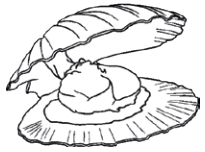 = (,)

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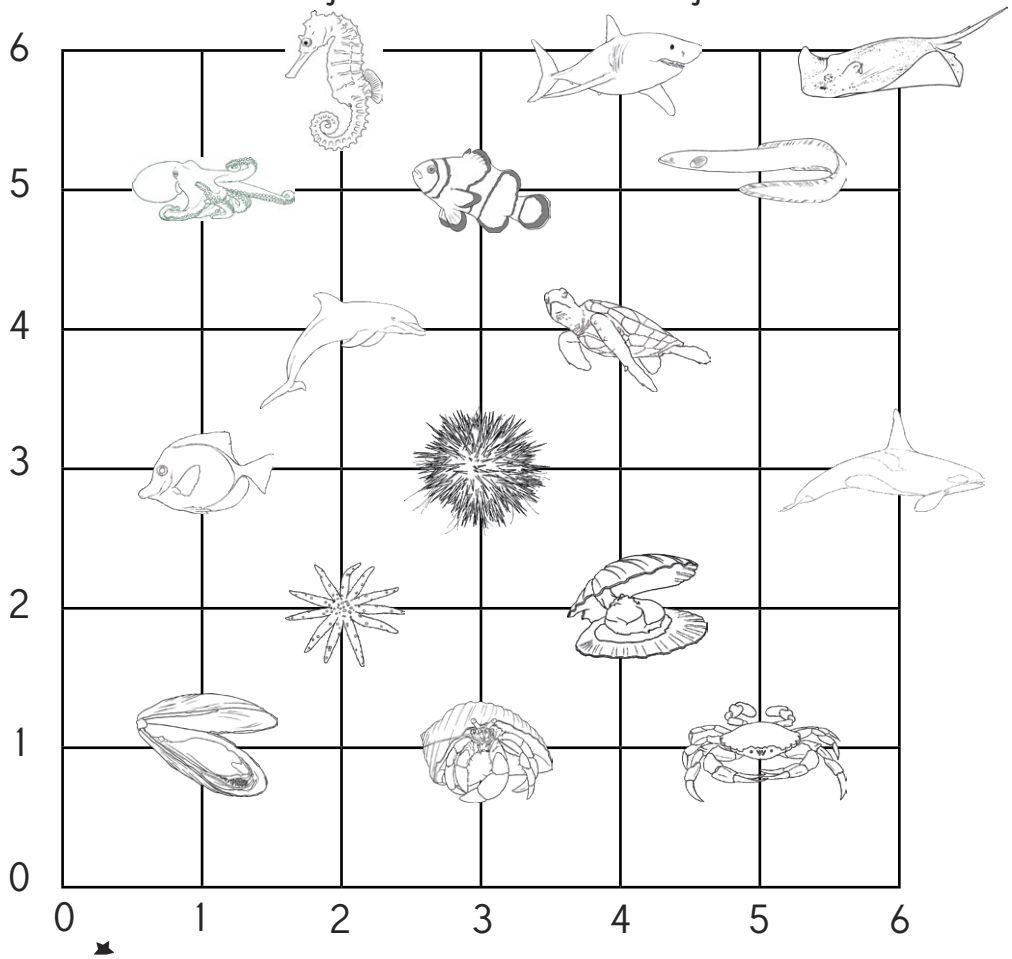
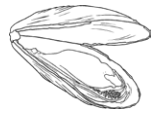
Under the Sea Coordinates - **Answers**

To read and write coordinates in the first quadrant.

Write the coordinate for the under the sea objects.



 = (2 , 2)

 = (1 , 1)

 = (3 , 5)

 = (2 , 6)

 = (5 , 1)

 = (2 , 4)

 = (1 , 5)

 = (3 , 1)

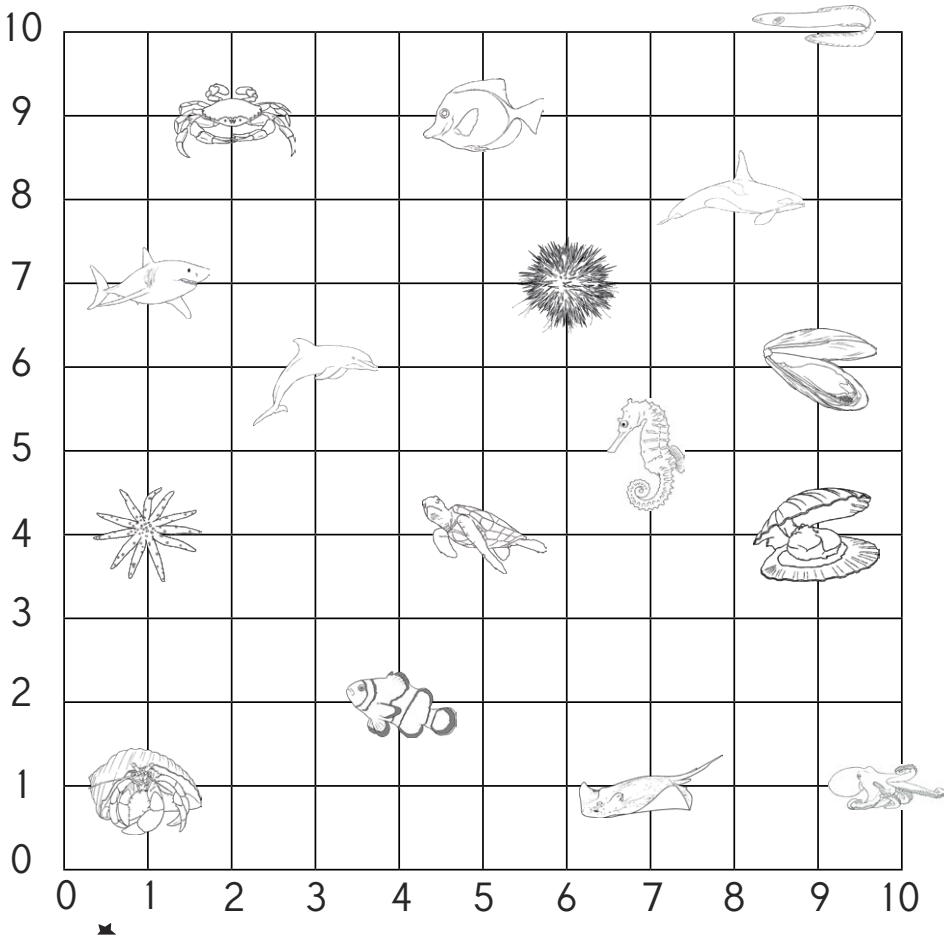
 = (4 , 2)

 = (6 , 6)

Under the Sea Coordinates - **Answers**

To read and write coordinates in the first quadrant.

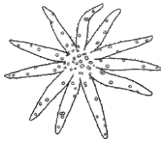
Write the coordinate for the under the sea objects.



 = (1 , 7)

 = (8 , 8)

 = (9 , 10)

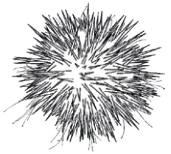
 = (1 , 4)

 = (5 , 4)

 = (1 , 1)

 = (5 , 9)

 = (4 , 2)

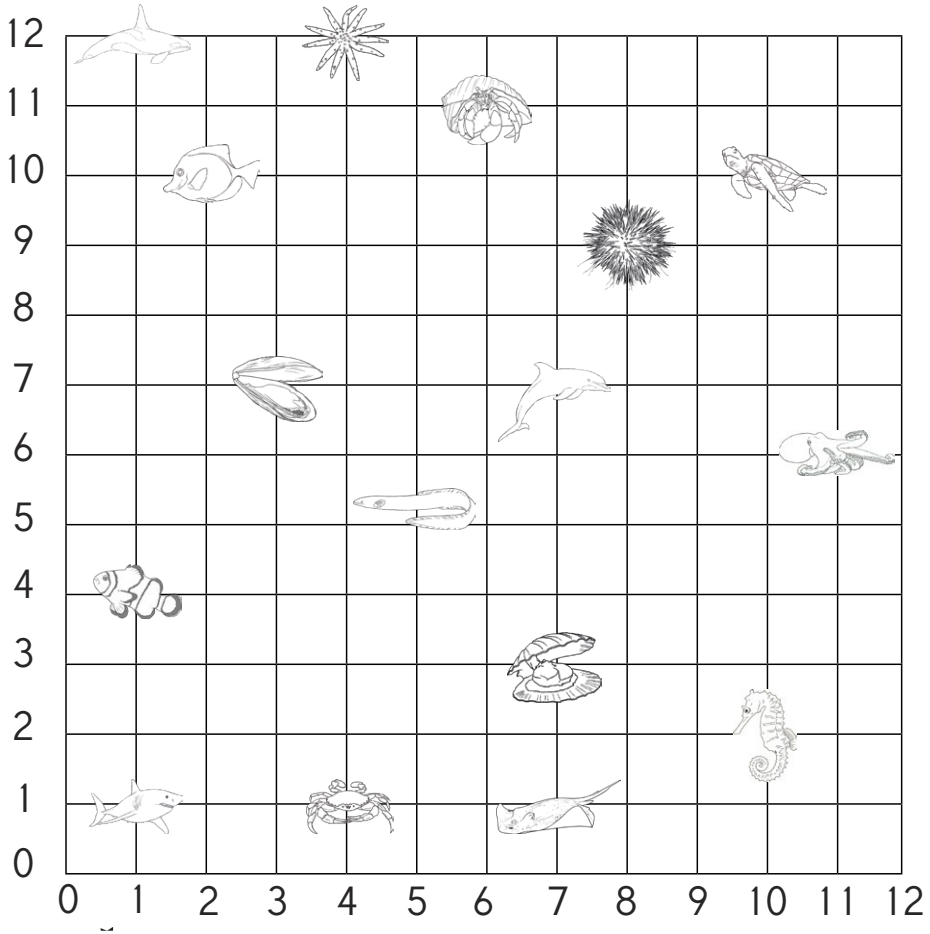
 = (6 , 7)

 = (7 , 1)

Under the Sea Coordinates - **Answers**

To read and write coordinates in the first quadrant.

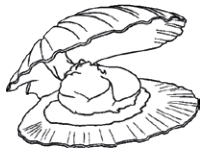
Write the coordinate for the under the sea objects.



 = (3 , 7)

 = (7 , 7)

 = (10 , 2)

 = (7 , 3)

 = (4 , 1)

 = (11 , 6)

 = (2 , 10)

 = (6 , 11)

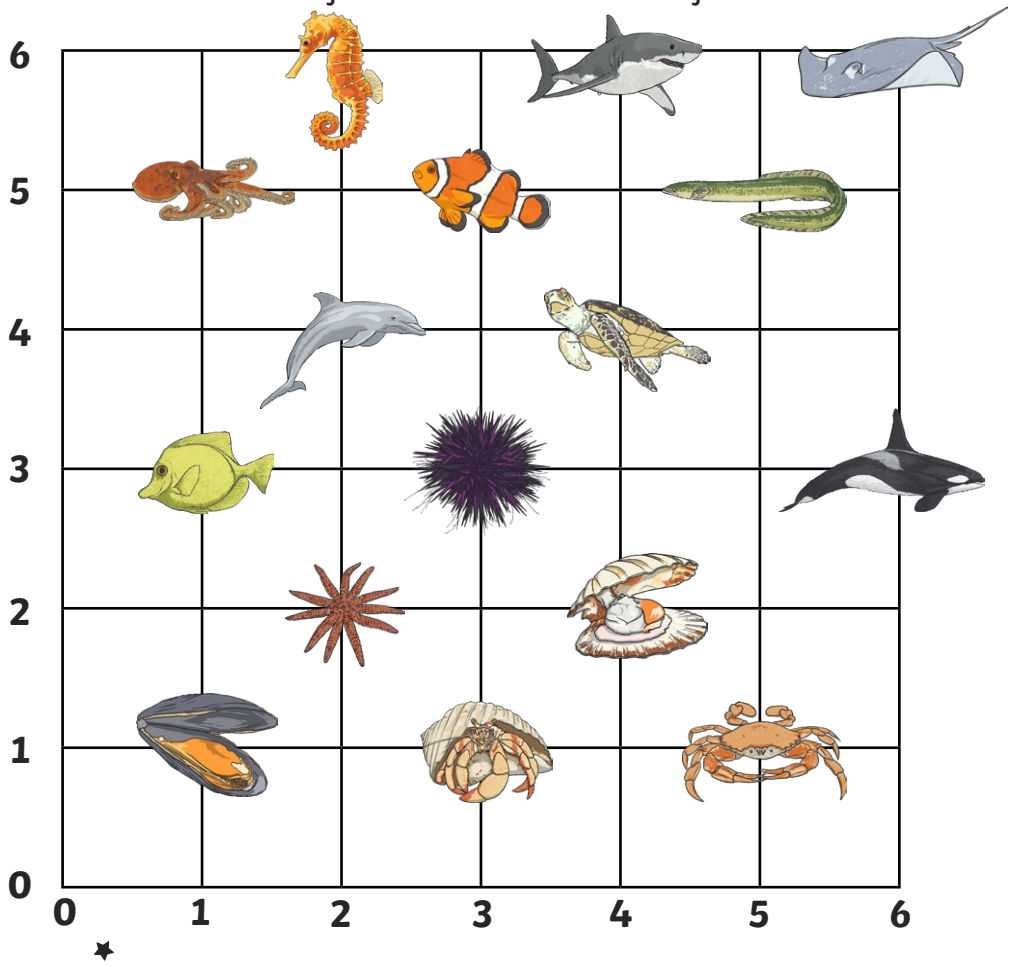
 = (10 , 10)

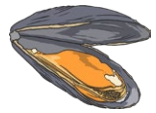
 = (1 , 4)

Under the Sea Coordinates

To read and write coordinates in the first quadrant.

Write the coordinate for the under the sea objects.



 = (,)  = (,)

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Under the Sea Coordinates

To read and write coordinates in the first quadrant.

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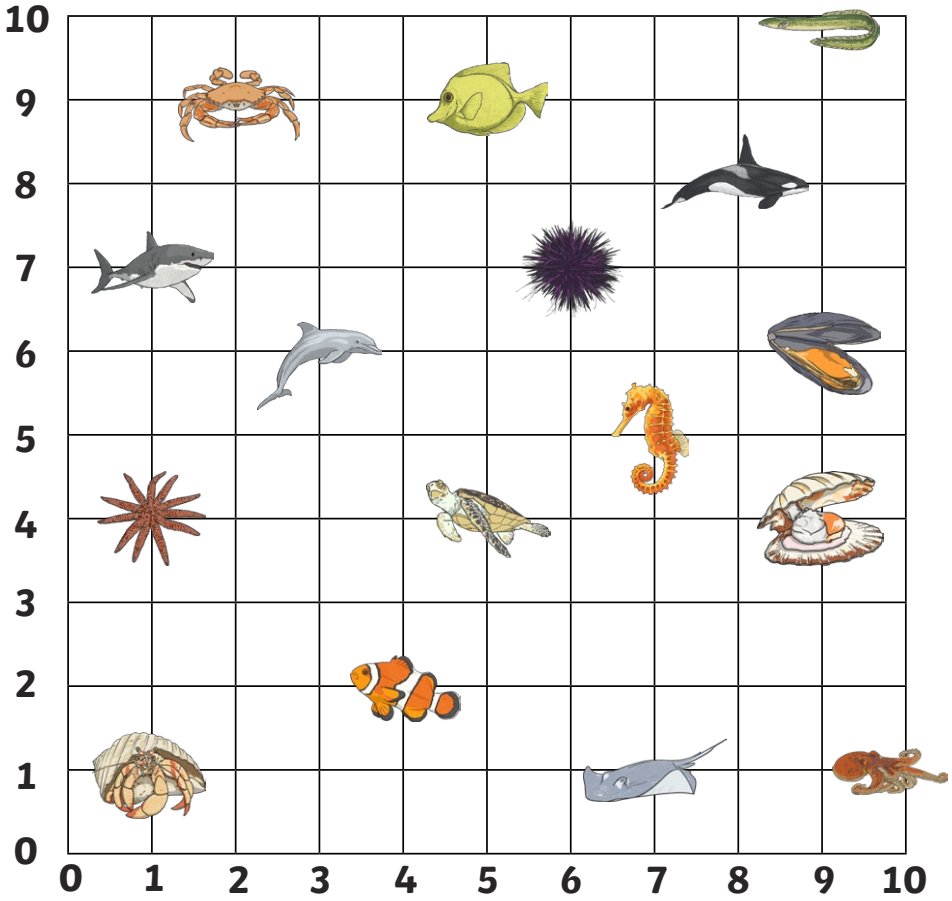

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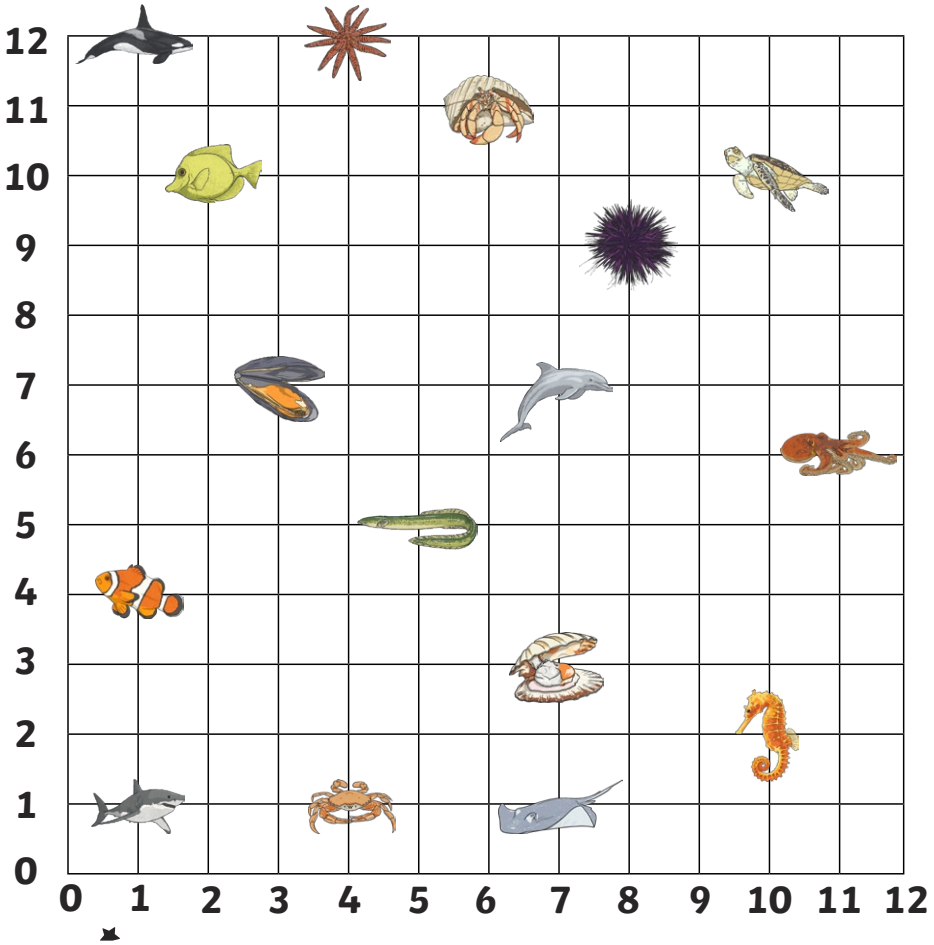

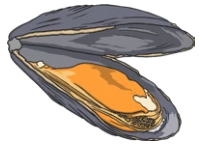 = (,)

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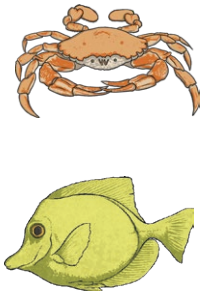 = (,)

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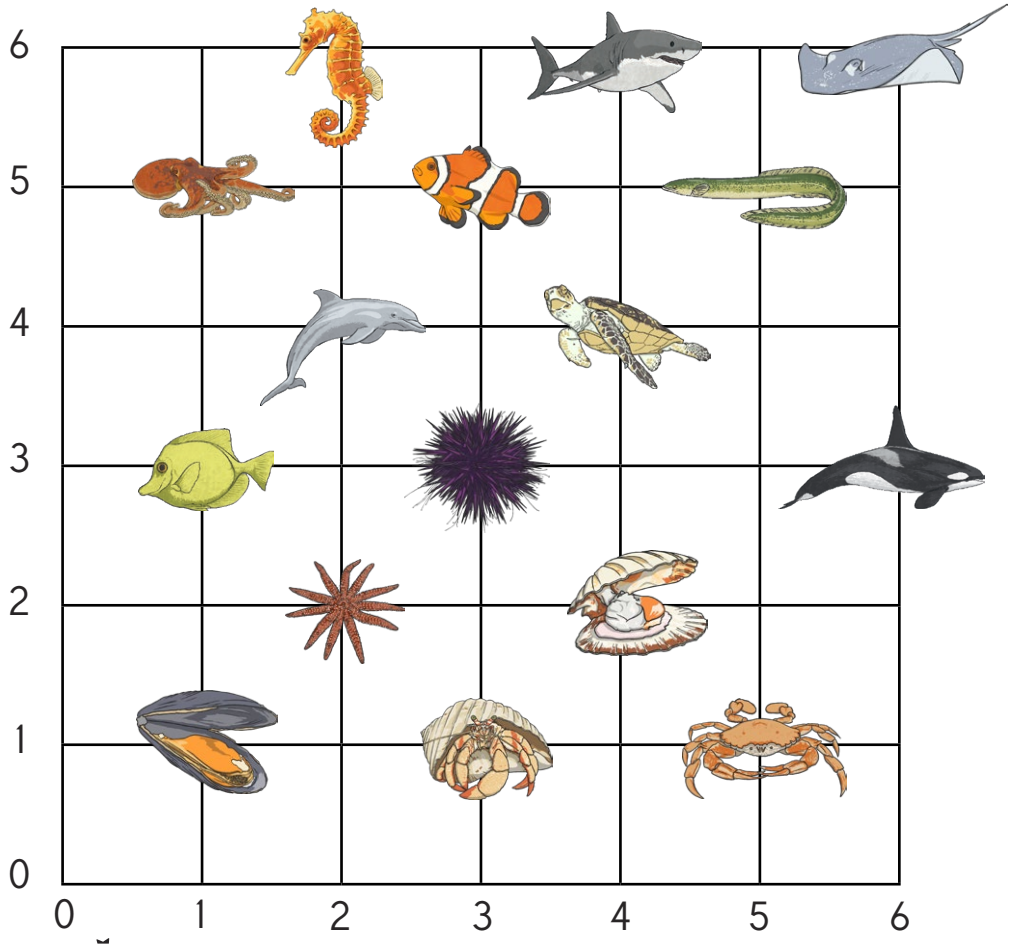
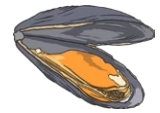
Under the Sea Coordinates - **Answers**

To read and write coordinates in the first quadrant.

Write the coordinate for the under the sea objects.



 = (2 , 2)

 = (1 , 1)

 = (3 , 5)

 = (2 , 6)

 = (5 , 1)

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Under the Sea Coordinates - **Answers**

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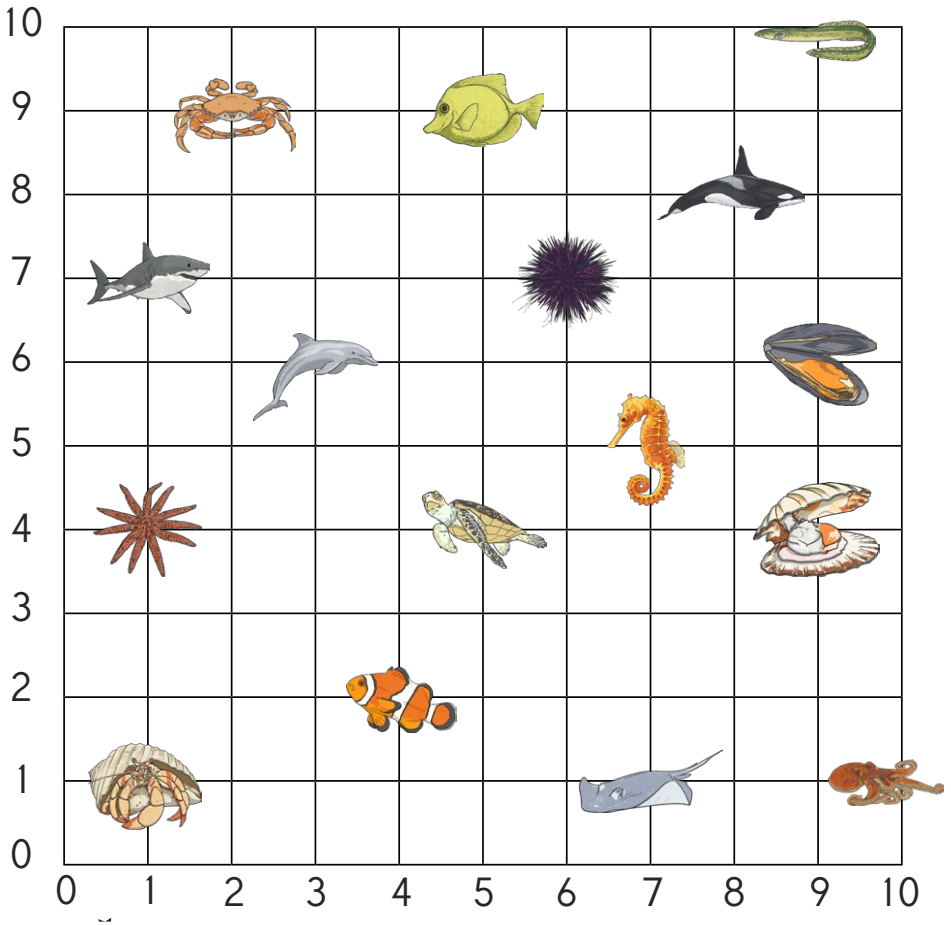

 = (1 , 7)
 = (8 , 8)

 = (9 , 10)
 = (1 , 4)

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Under the Sea Coordinates - **Answers**

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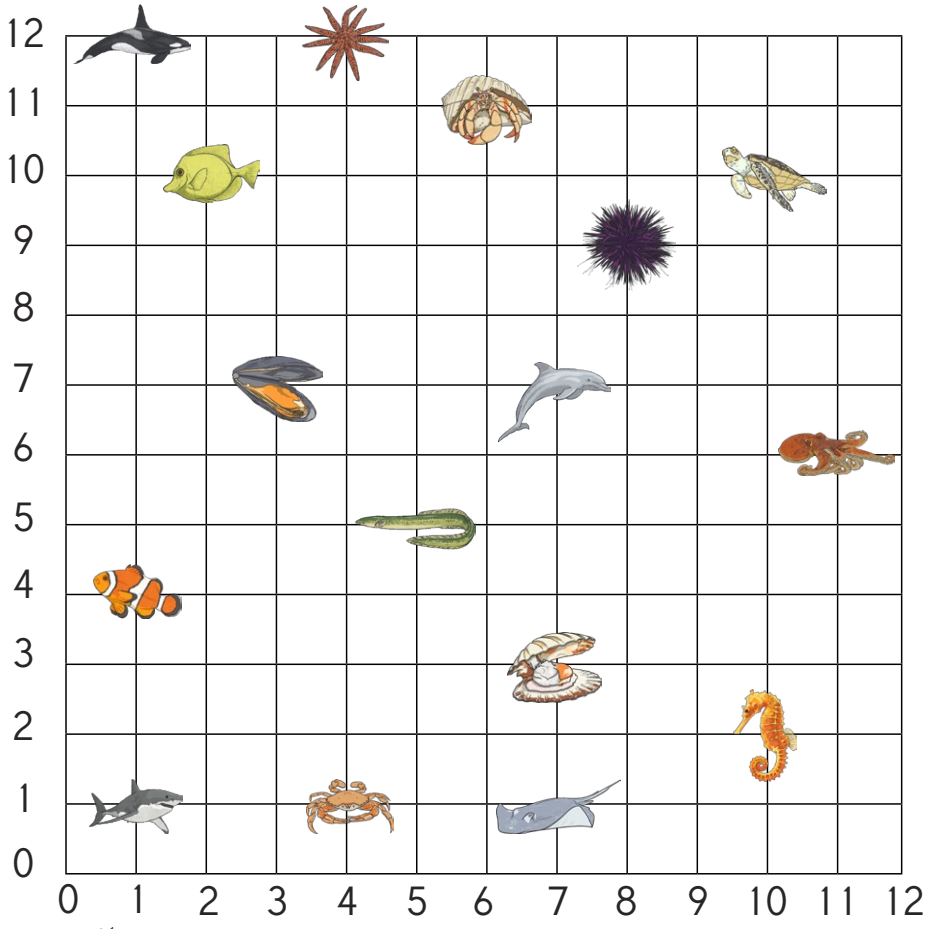

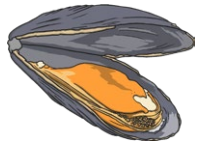 = (3 , 7)

 = (7 , 7)

 = (10 , 2)

 = (7 , 3)

 = (4 , 1)

 = (11 , 6)

 = (2 , 10)

 = (6 , 11)

 = (10 , 10)

 = (1 , 4)

Measurement and Geometry | Under the Sea Coordinates

To read and write coordinates in the first quadrant.		
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.		
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