Position and Direction

20.04.20

Date: 20.04.20

LO: To be able to describe movement along straight lines

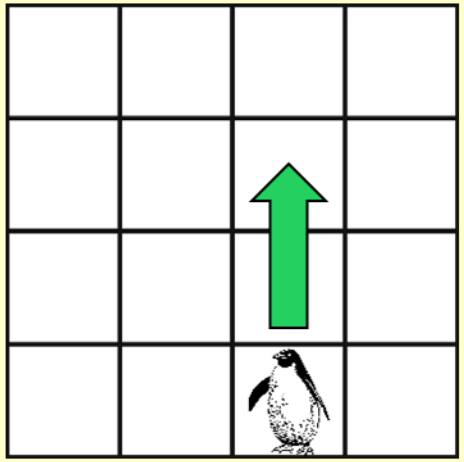
Success Criteria

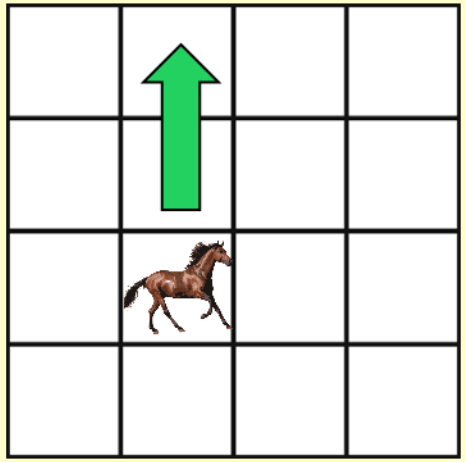
- ✓ I can use terms like “forwards”, “backwards”, “up”, “down”, “left” and “right” to describe an object’s movement in straight lines on a grid
- ✓ I can explain my reasoning when using terms like “forwards”, “backwards”, “up”, “down”, “left” and “right” to describe an object’s movement in straight lines on a grid

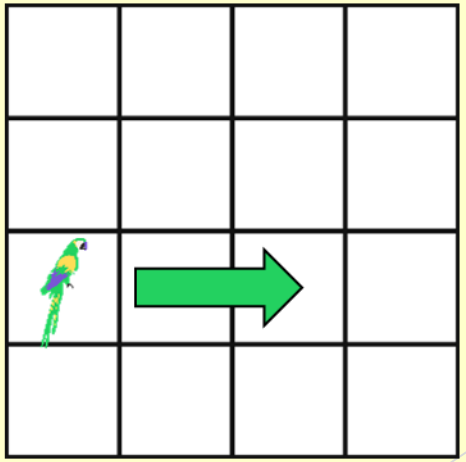
Starter

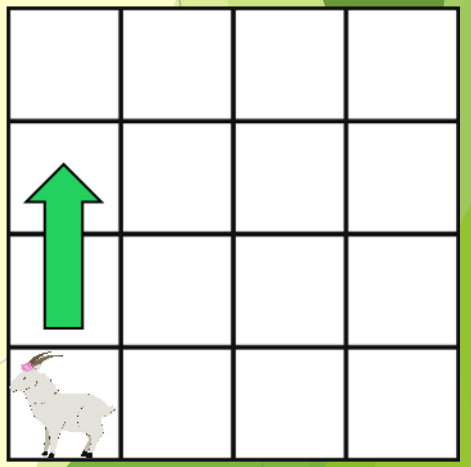
Can you use the positional language to explain to a grown up which image doesn't belong.
Remember to use I know that statements.
I know that it is… because …

Which one doesn't belong?







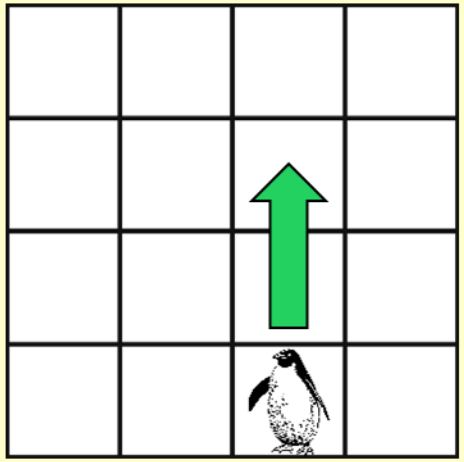


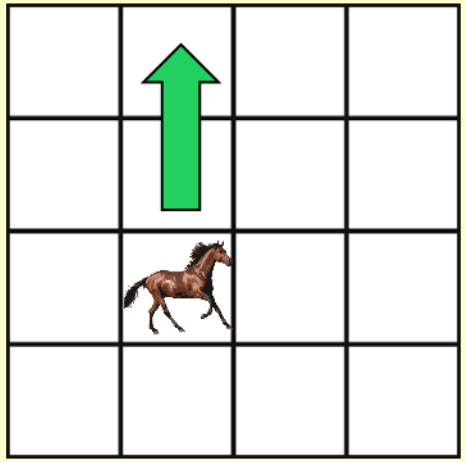
Explain your answer.

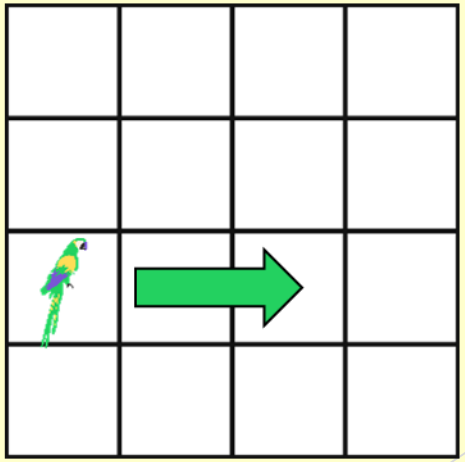
Starter

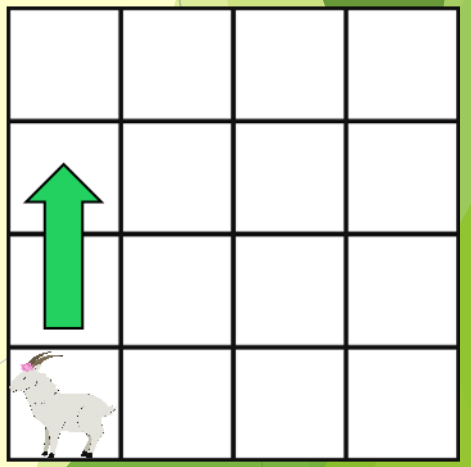
ANSWER: The parrot doesn't belong as it moves right by two spaces, whereas the penguin, horse and goat move forwards (or up) two spaces.

Which one doesn't belong?







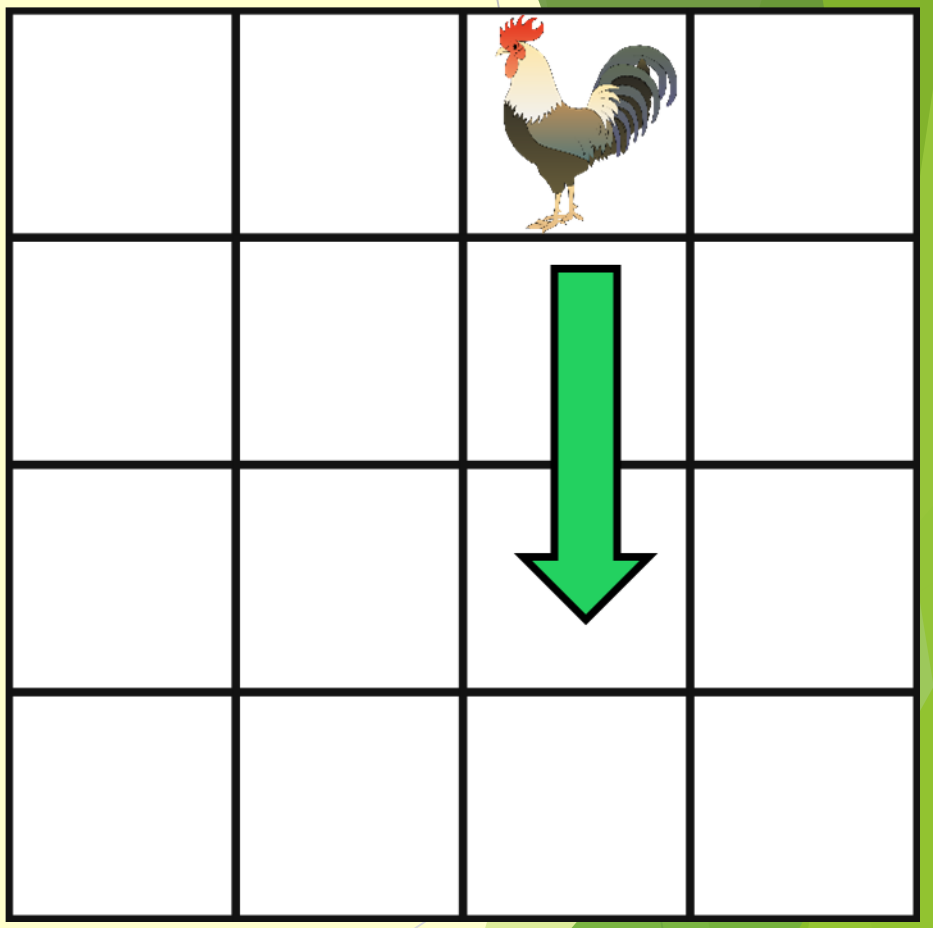


Explain your answer.

Descriptive teaching

Look at the grid, then complete the sentence below.

The rooster has moved _____ two spaces.

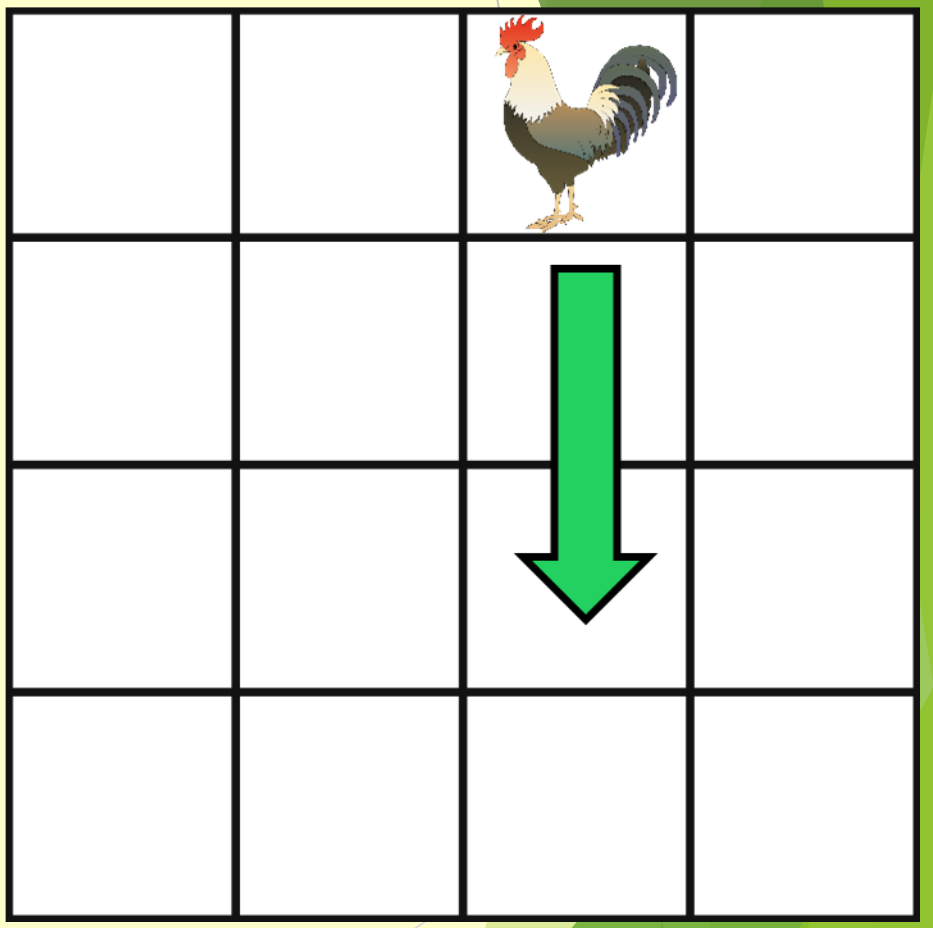


How would you describe the direction of the rooster?

Descriptive teaching

Look at the grid, then complete the sentence below.

The rooster has moved _____ two spaces.

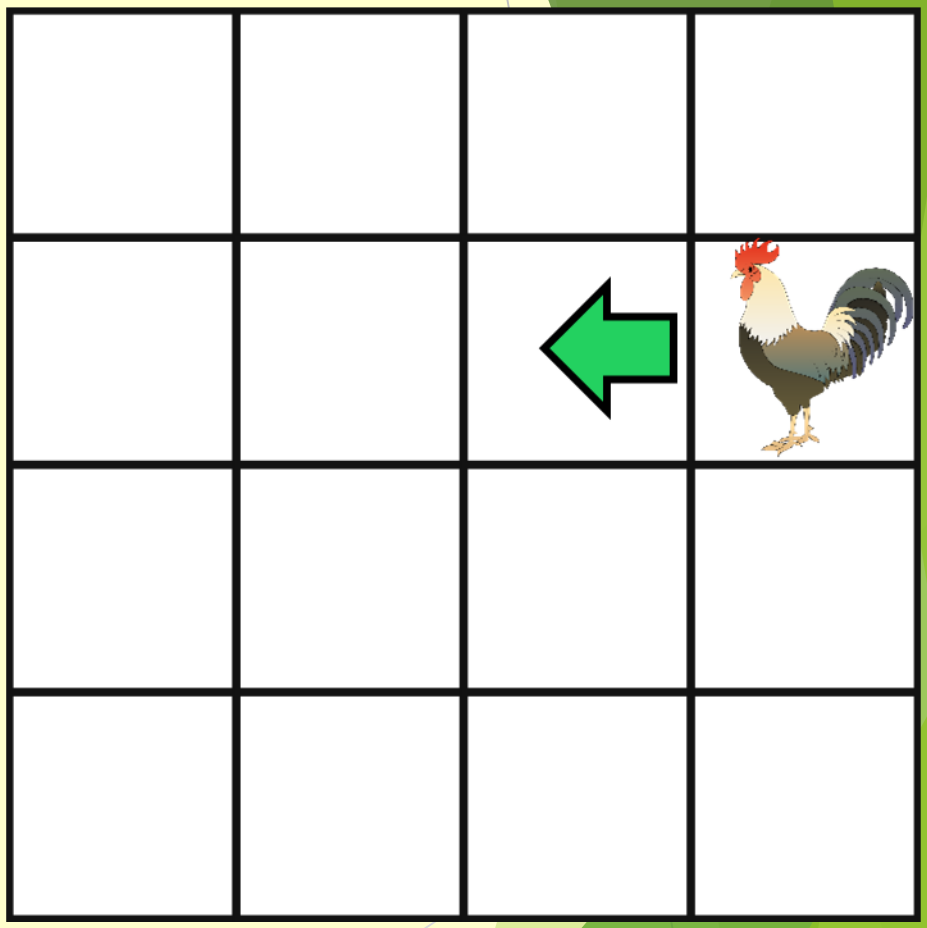


ANSWER: BACKWARDS

Descriptive teaching

Look at the grid, then complete the sentence below.

The rooster has moved _____ one space.

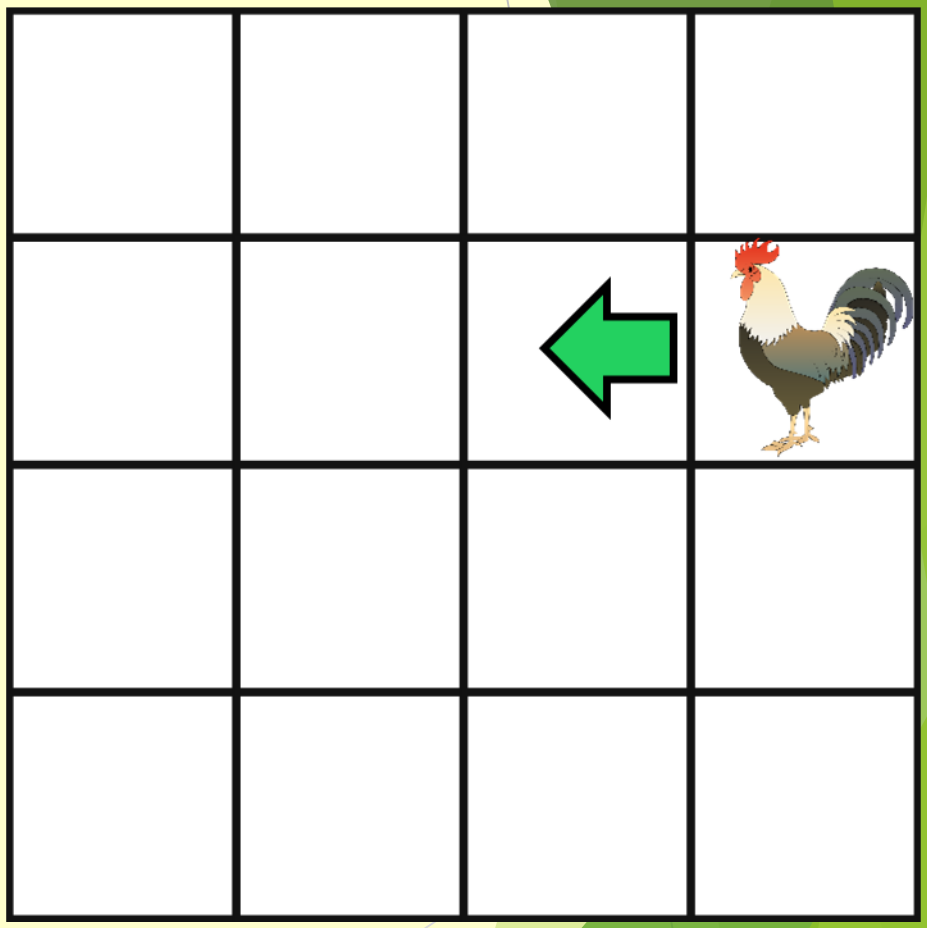


How would you describe the direction of the rooster?

Descriptive teaching

Look at the grid, then complete the sentence below.

The rooster has moved _____ one space.

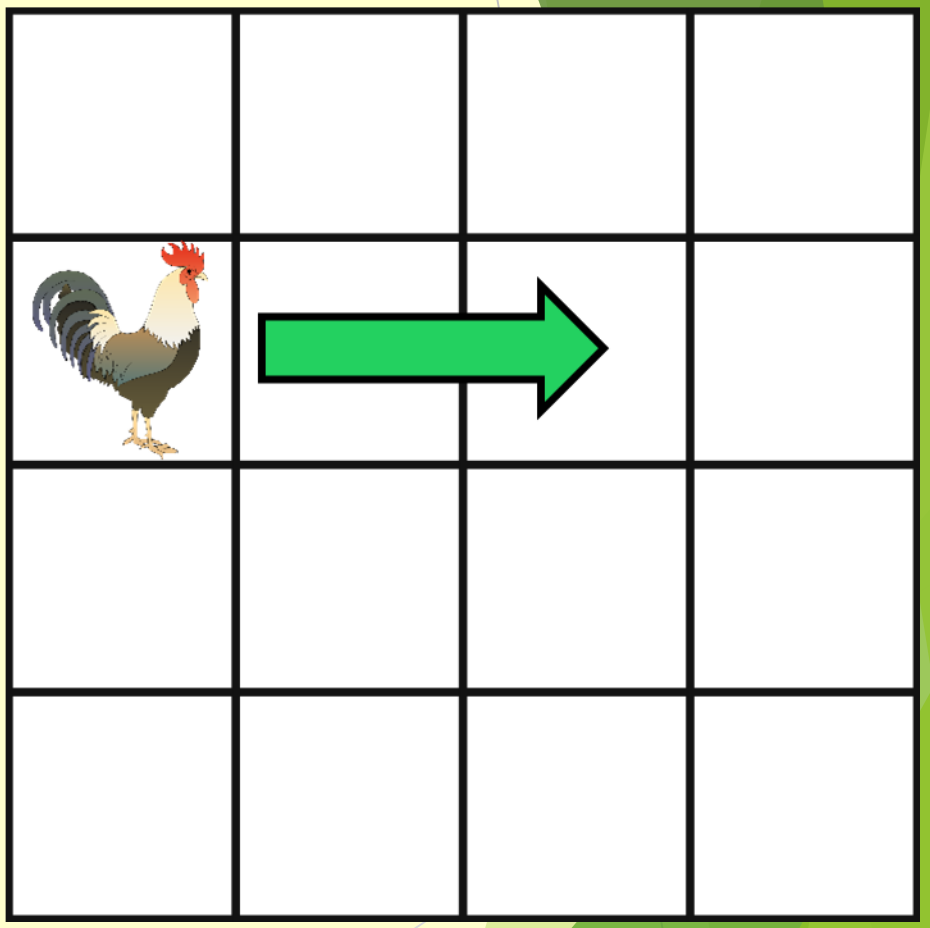


ANSWER: LEFT

Descriptive teaching

Look at the grid, then complete the sentence below.

The rooster has moved _____ two spaces.

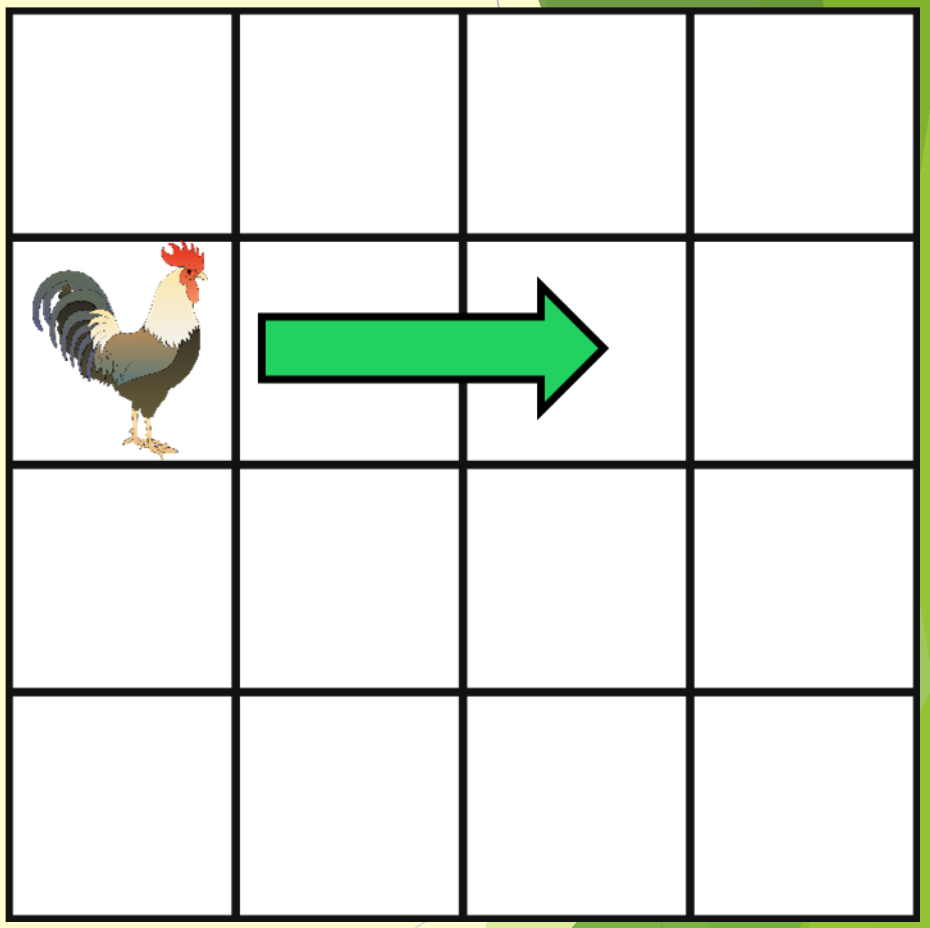


How would you describe the direction of the rooster?

Descriptive teaching

Look at the grid, then complete the sentence below.

The rooster has moved _____ two spaces.

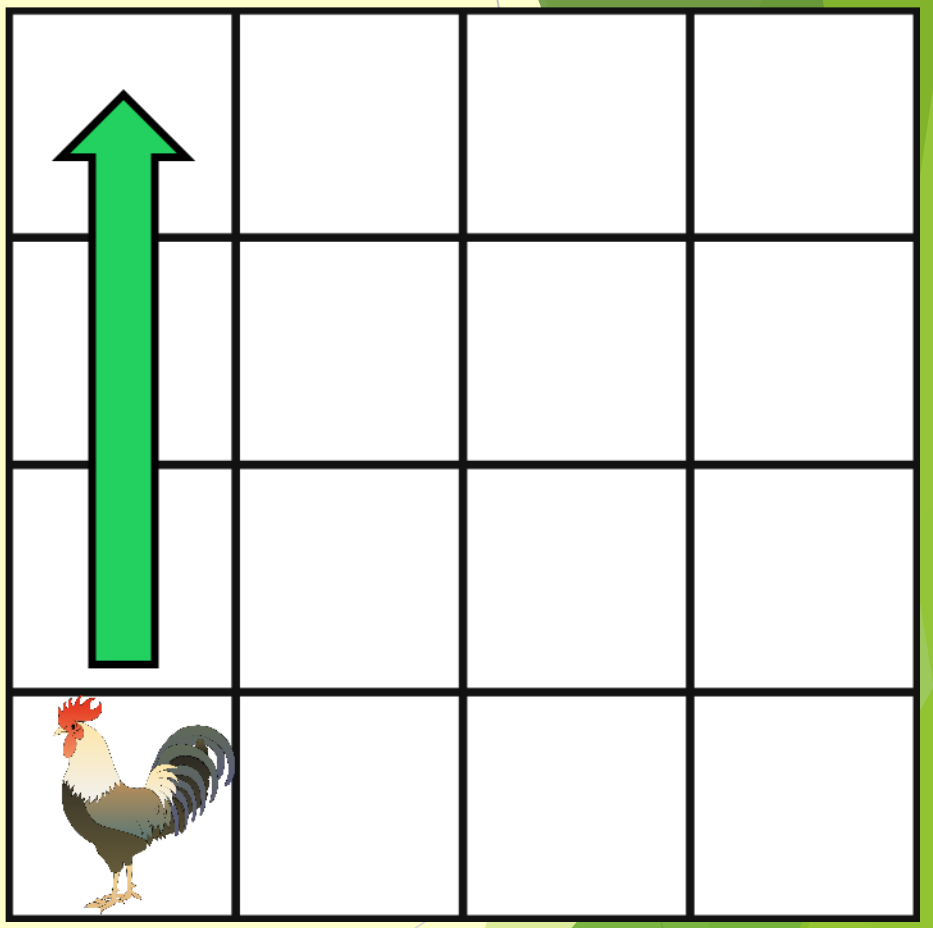


ANSWER: RIGHT

Descriptive teaching

Look at the grid, then complete the sentence below.

The rooster has moved _____ three spaces.

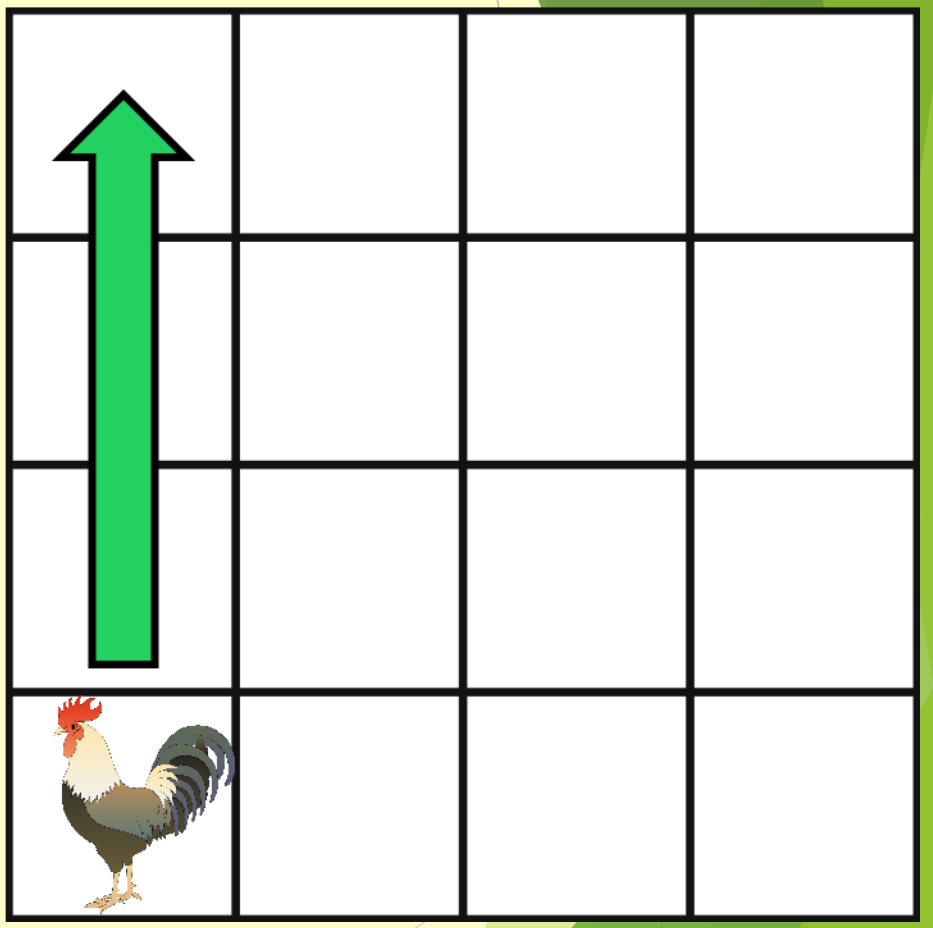


How would you describe the direction of the rooster?

Descriptive teaching

Look at the grid, then complete the sentence below.

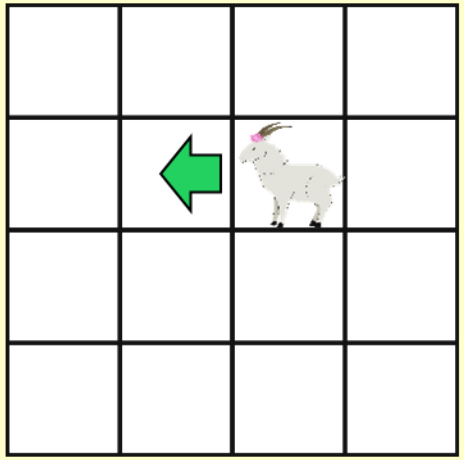
The rooster has moved _____ three spaces.



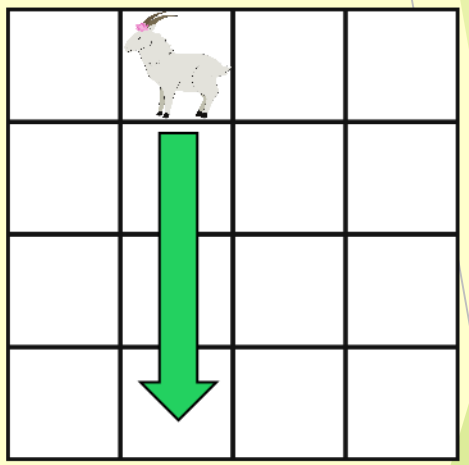
ANSWER: FORWARDS

Descriptive doing

Look at the grids, then complete the sentences below.



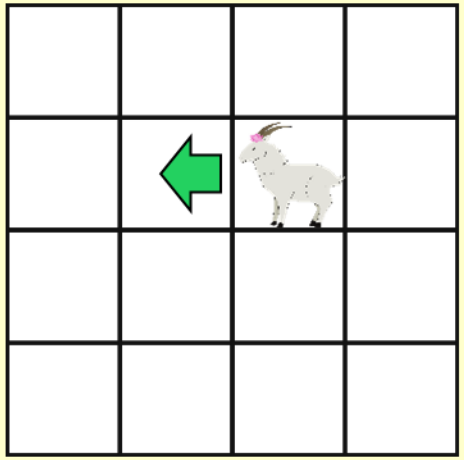
The goat has moved _____ one space.



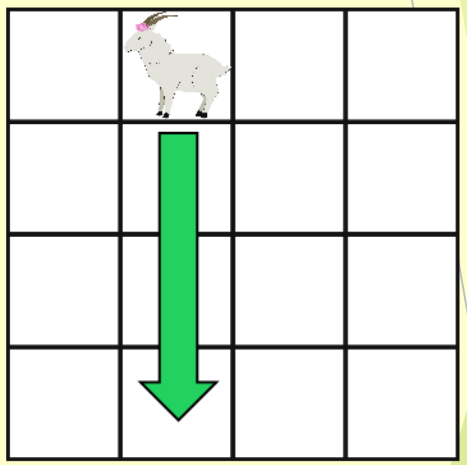
The goat has moved _____ three spaces.

Descriptive doing

Look at the grids, then complete the sentences below.



The goat has moved _____ one space.



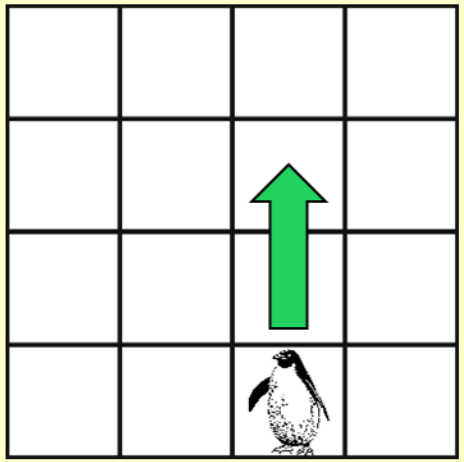
The goat has moved _____ three spaces.

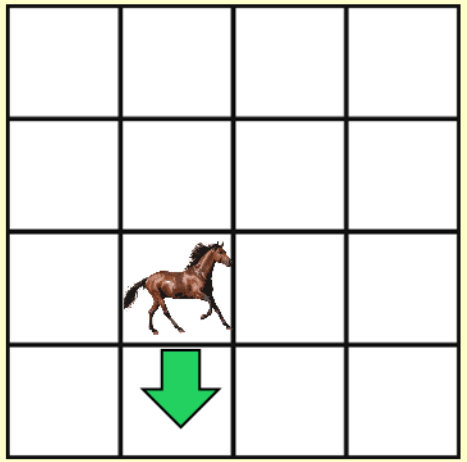
ANSWER: LEFT

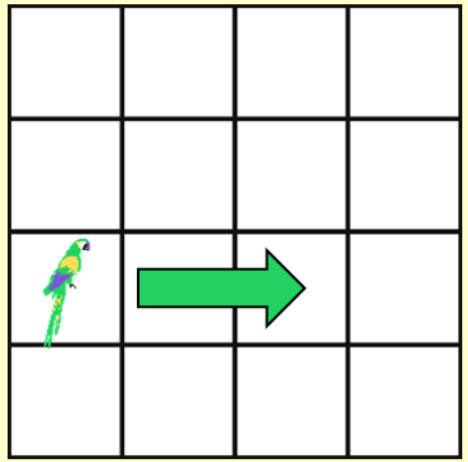
BACKWARDS

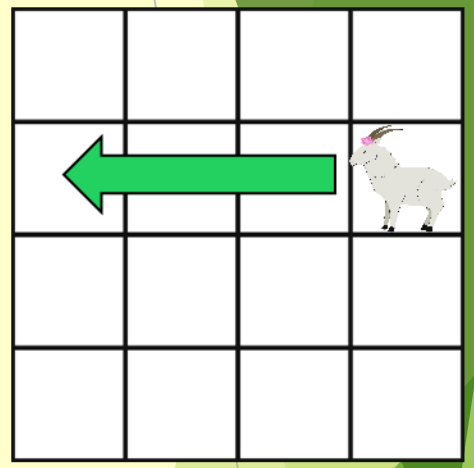
Reflective teaching

Match each image to its direction instructions.









move down
1 space

move right
2 spaces

move left
3 spaces

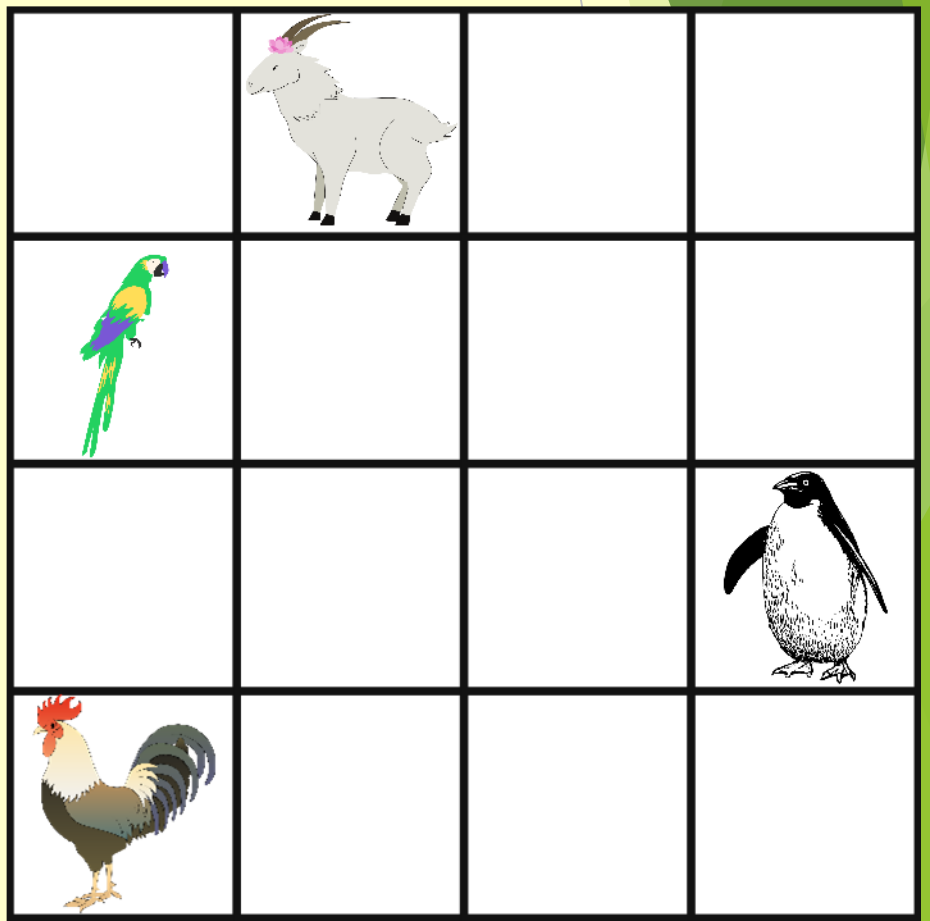
move up
2 spaces

Reflective doing

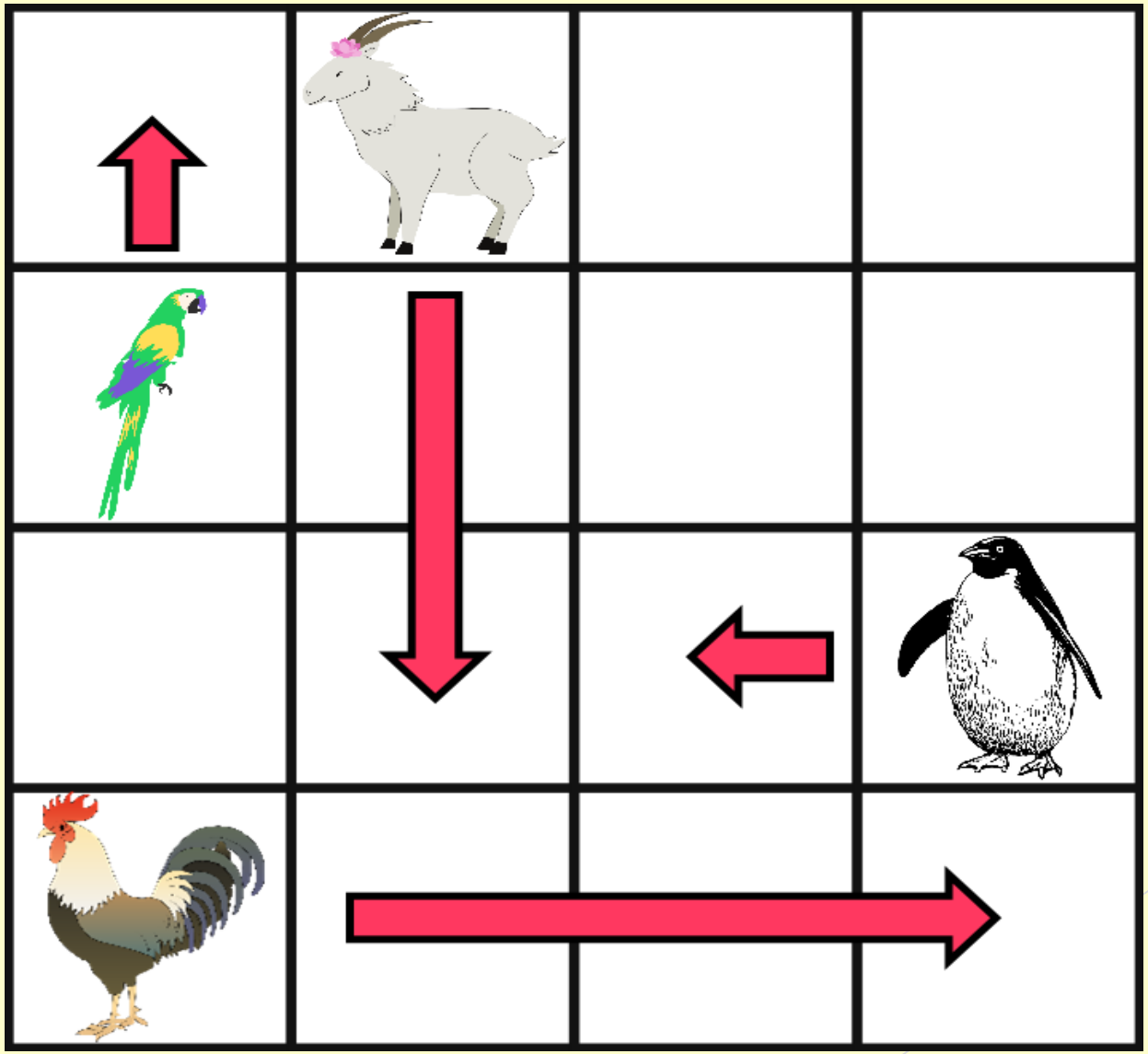
Shown an adult where each animal would end up on the grid.

Place arrows on the grid to show:

- The goat moving backwards two spaces.
- The rooster moving right three spaces.
- The parrot moving forward one space.
- The penguin moving left by one space.



Reflective doing- Answers



Challenges

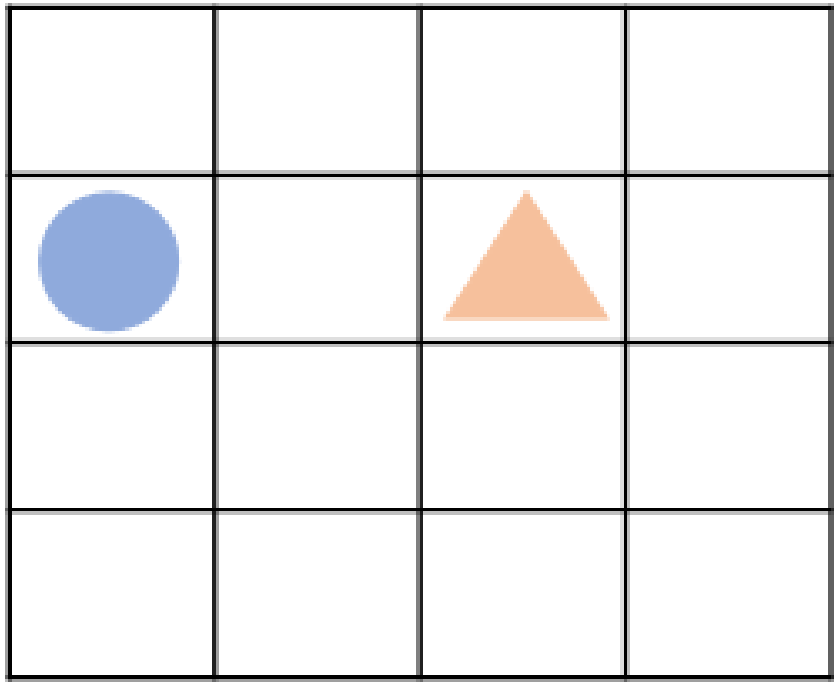
The following slides are questions for you to work through independently. These are reasoning and problem solving question so if it says **EXPLAIN** you need to write how you know the answer.

There are 3 sets of work – Green (the easiest), Orange and Red(the hardest). Choose one set you feel most comfortable with.

You could challenge yourself by completing more than one challenge!

Challenge

1a. Jose thinks the circle is two squares to the right of the triangle.

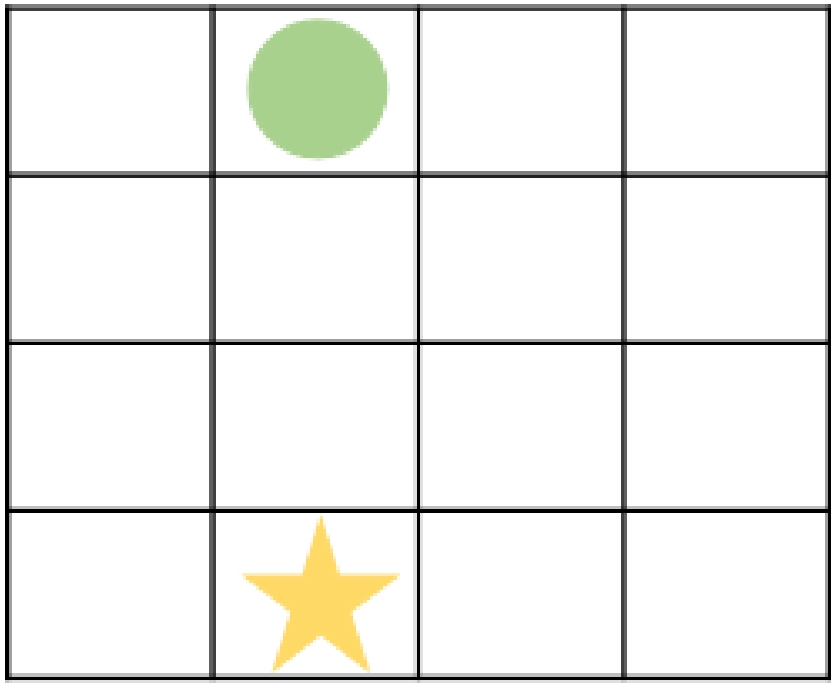


Is he correct? Explain how you know.

D

R

1b. Rhea thinks the star is three squares up from the circle.



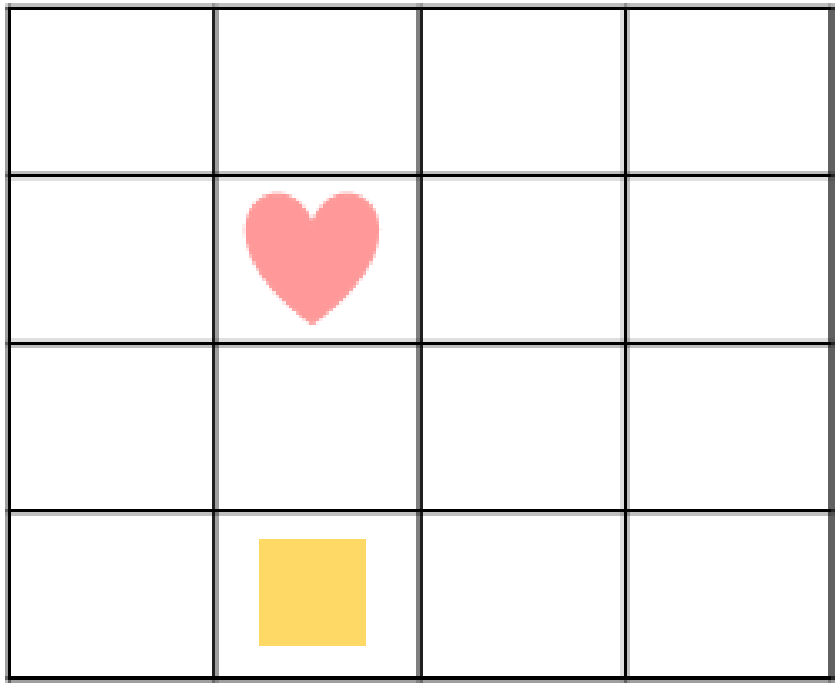
Is she correct? Explain how you know.

D

R

Challenge

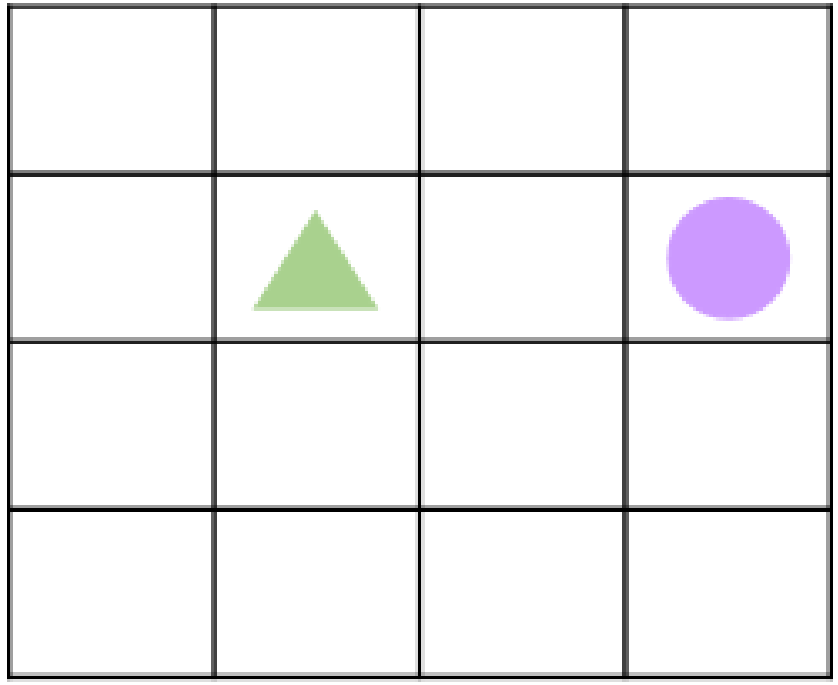
2a. Write a statement using up, down, left or right to describe how the heart can get to the square.



D

PS

2b. Write a statement using up, down, left or right to describe how the circle can get to the triangle.

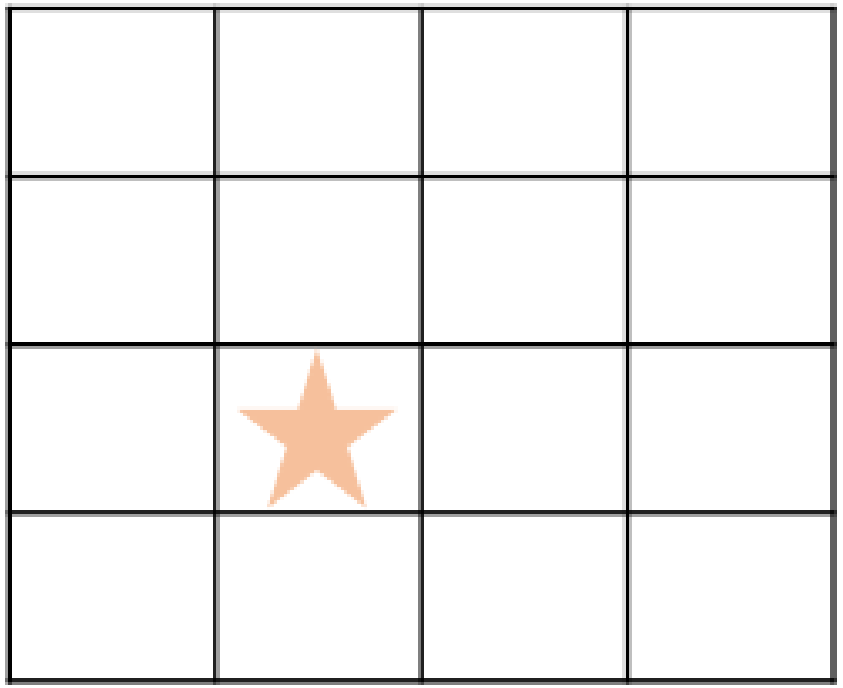


D

PS

Challenge

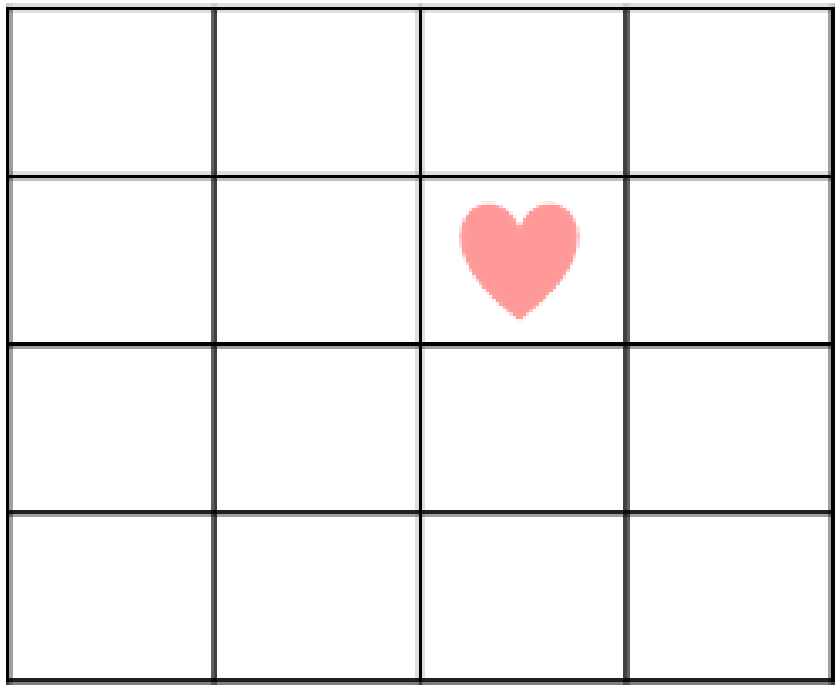
3a. The treasure is buried 2 squares right of the star.



Where is the treasure buried?

PS

3b. The treasure is buried 2 squares left of the heart.

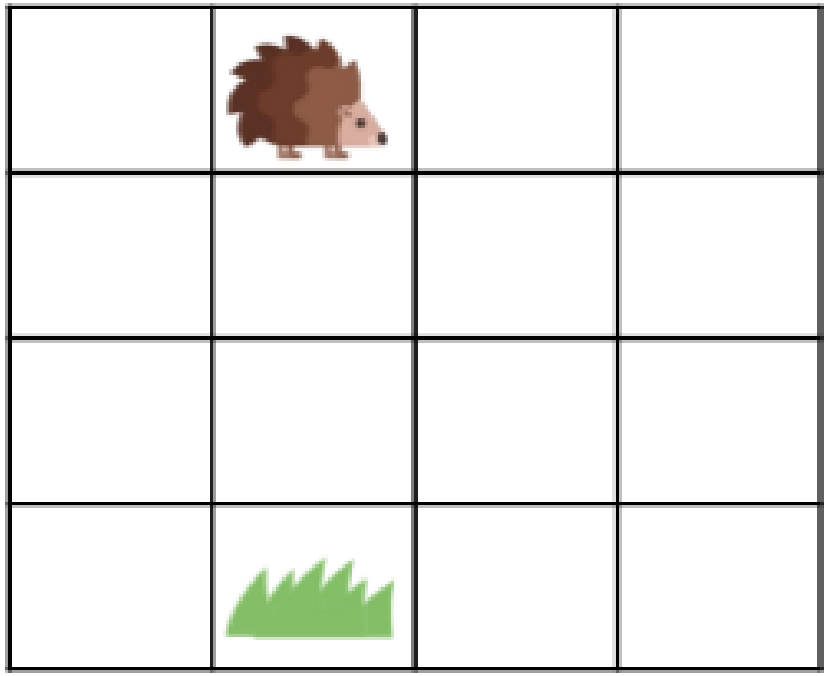


Where is the treasure buried?

PS

Challenge

4a. Cai thinks that if the hedgehog moves 3 squares down, it will find the grass.

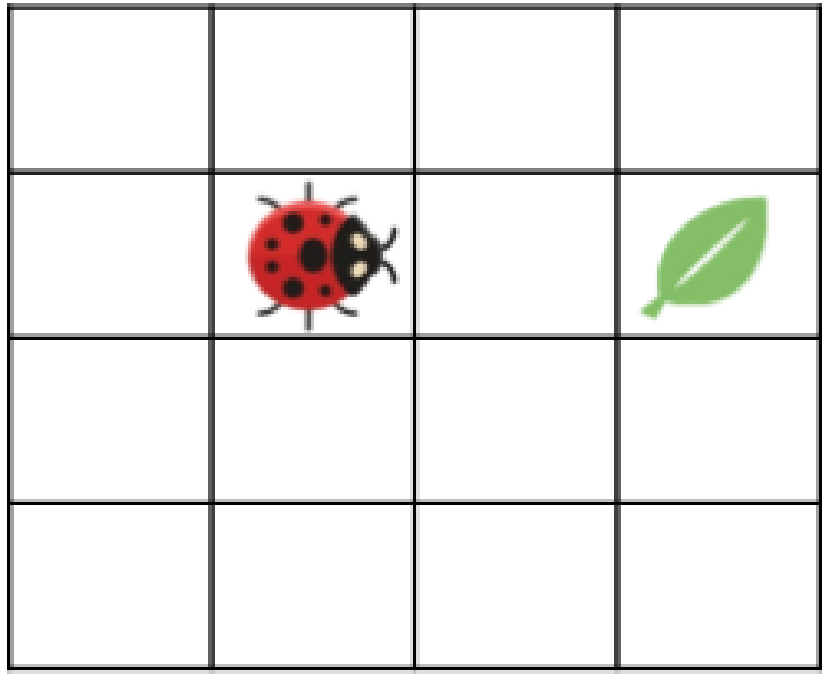


Is he correct? Explain how you know.

E

R

4b. Genie thinks that if the ladybird moves 2 squares right, it will find the leaf.



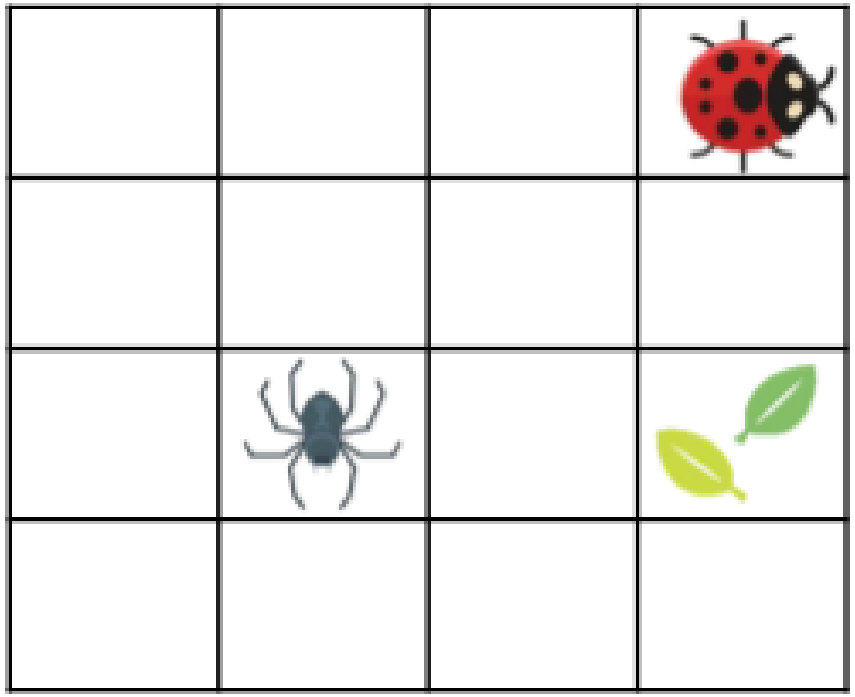
Is she correct? Explain how you know.

E

R

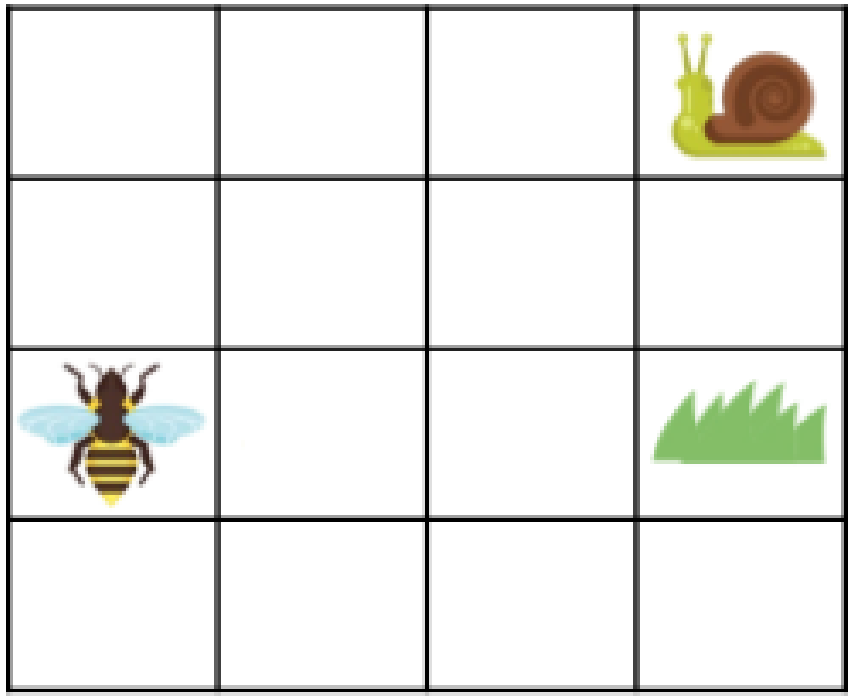
Challenge

5a. Write statements using forwards, backwards, left and right to describe how each creature can get to the leaves.



PS

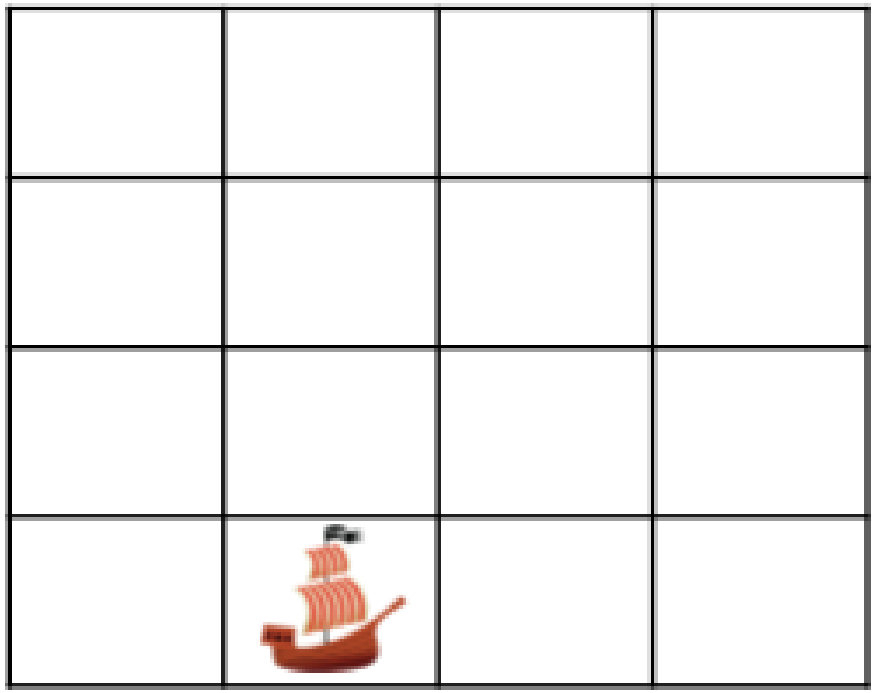
5b. Write statements using forwards, backwards, left and right to describe how each creature can get to the grass.



PS

Challenge

6a. The treasure is buried 2 squares left of the ship.

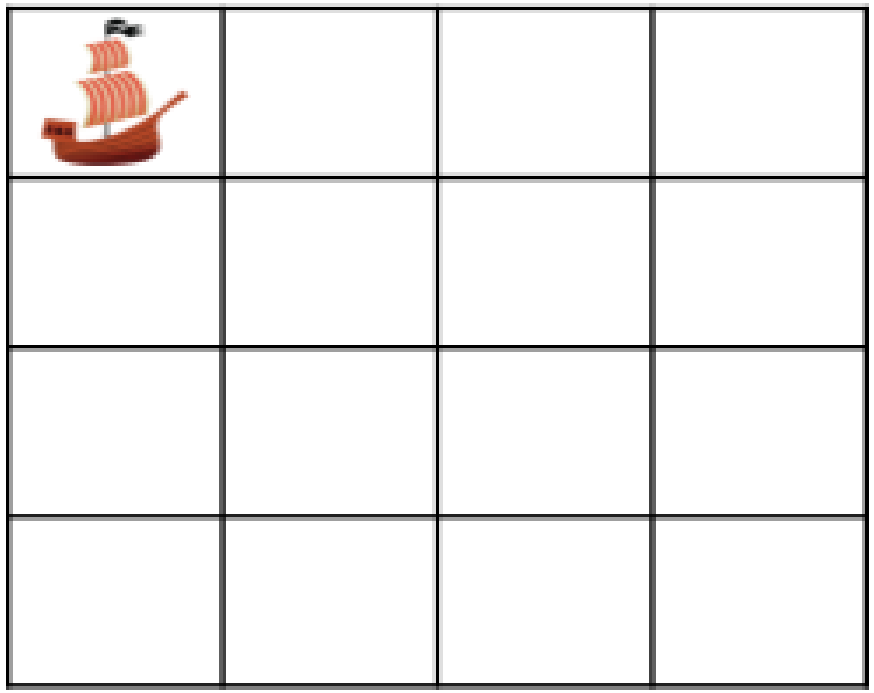


Where is the treasure buried?

E

PS

6b. The treasure is buried 3 squares right of the ship.



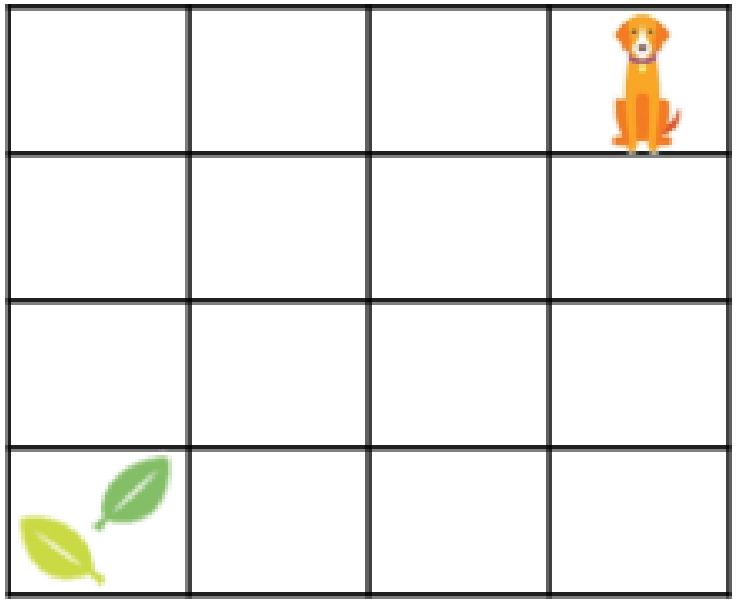
Where is the treasure buried?

E

PS

Challenge

7a. Joy thinks if the dog moves 2 squares down and 3 squares left, it will find the leaves.

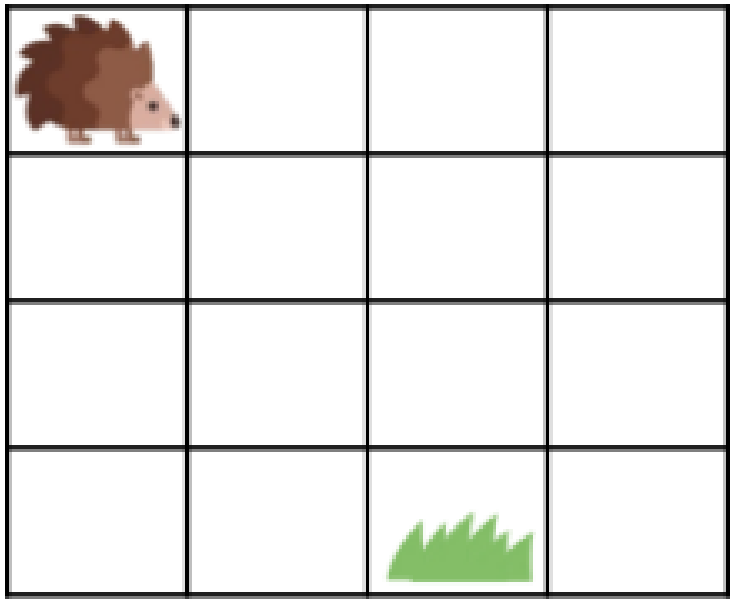


Is she correct? Explain how you know.

GD

R

7b. Paulo thinks that if the hedgehog moves 2 squares right and 3 squares down, it will find the grass.



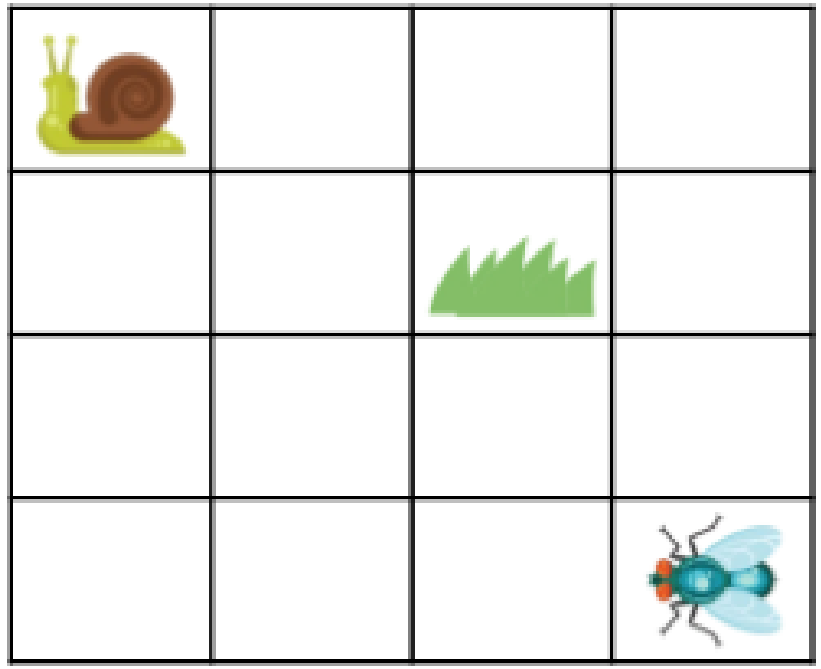
Is he correct? Explain how you know.

GD

R

Challenge

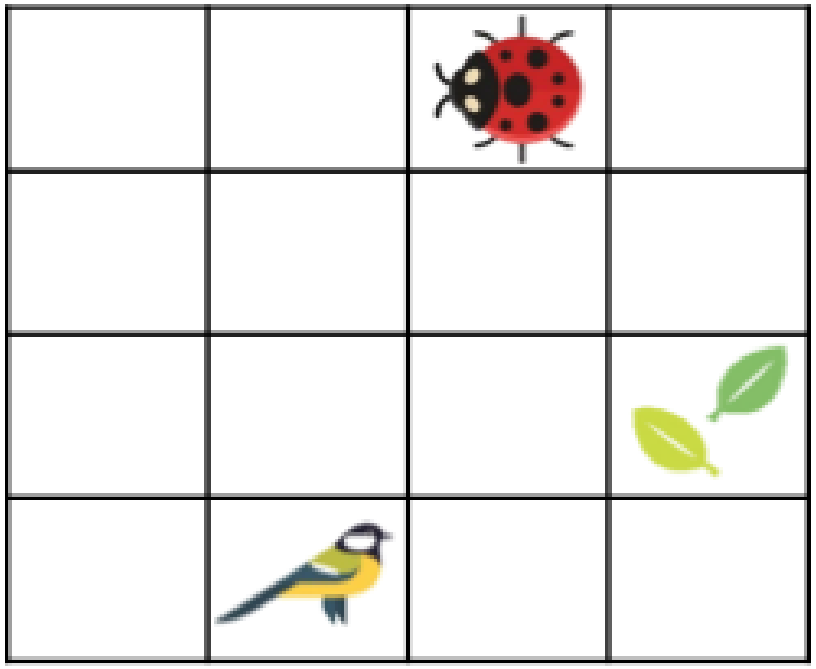
8a. Write statements using forwards, backwards, left and right to describe how each creature can get to the grass.



GD

PS

8b. Write statements using forwards, backwards, left and right to describe how each creature can get to the leaves.

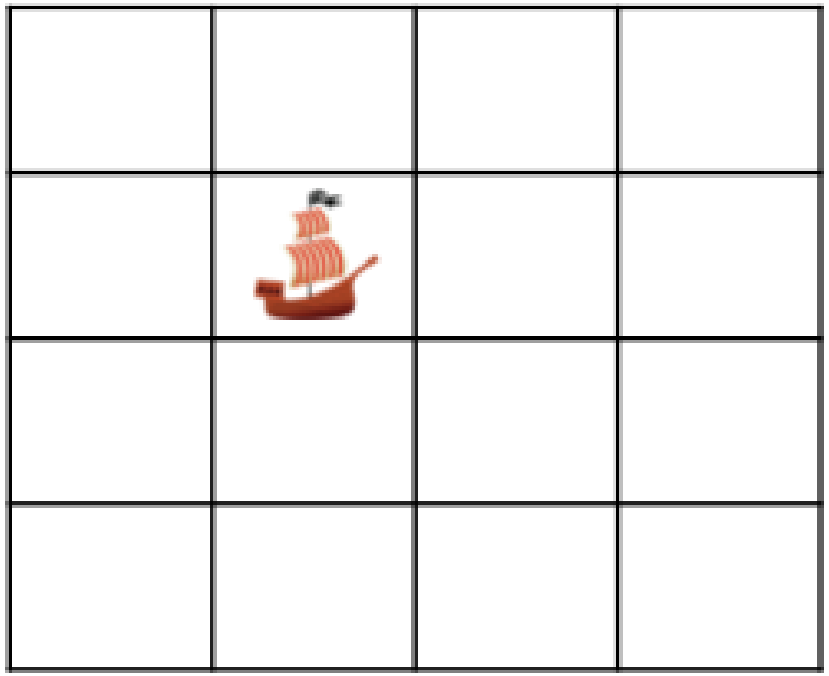


GD

PS

Challenge

9a. The treasure is buried 1 square forward and 2 squares right of the ship.

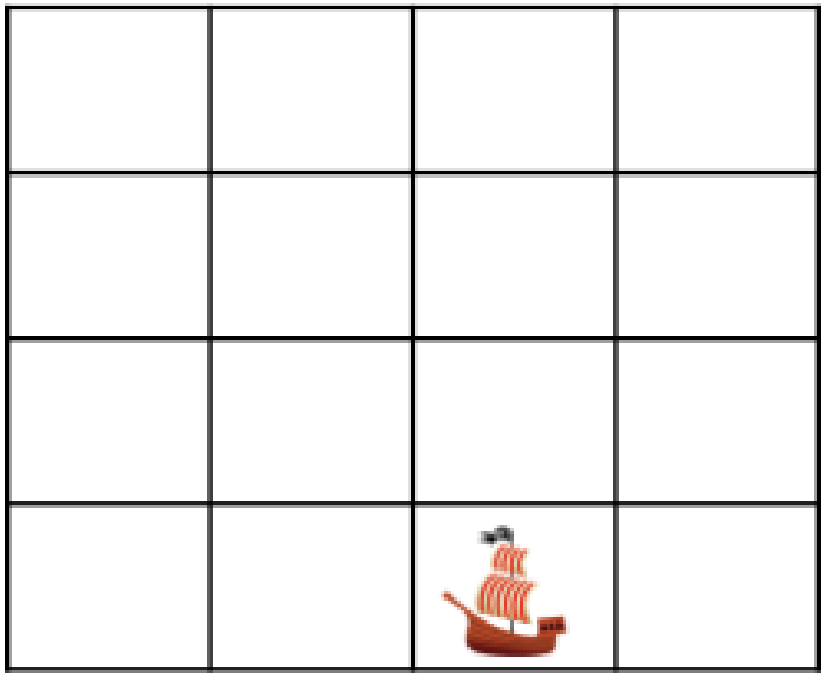


Where is the treasure buried?

GD

PS

9b. The treasure is buried 3 squares right and 2 squares forward from the ship.

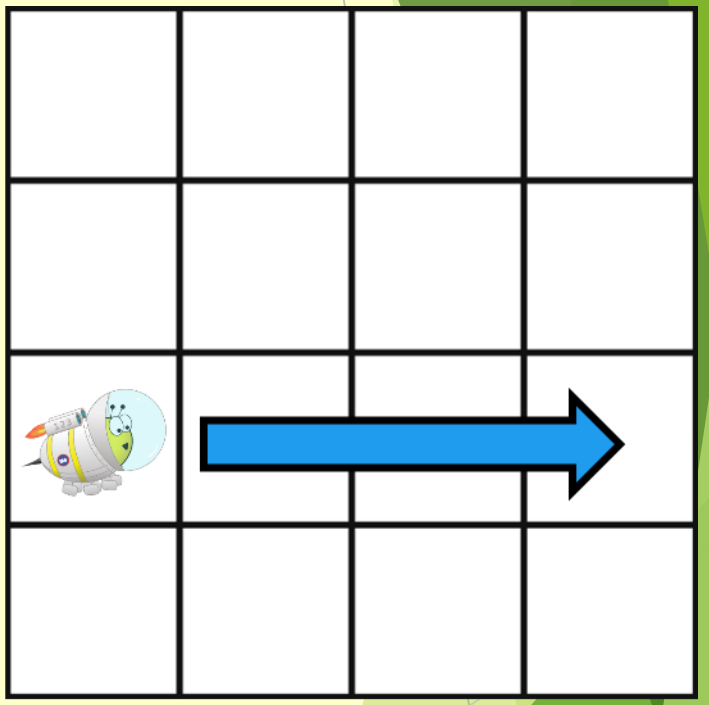


Where is the treasure buried?

GD

PS

Reflection Time



Do you agree with Astrobee's directions?

Explain your answer.

Position and Direction

21.04.20

Date: 21.04.20

LO: To be able to describe full and part turns

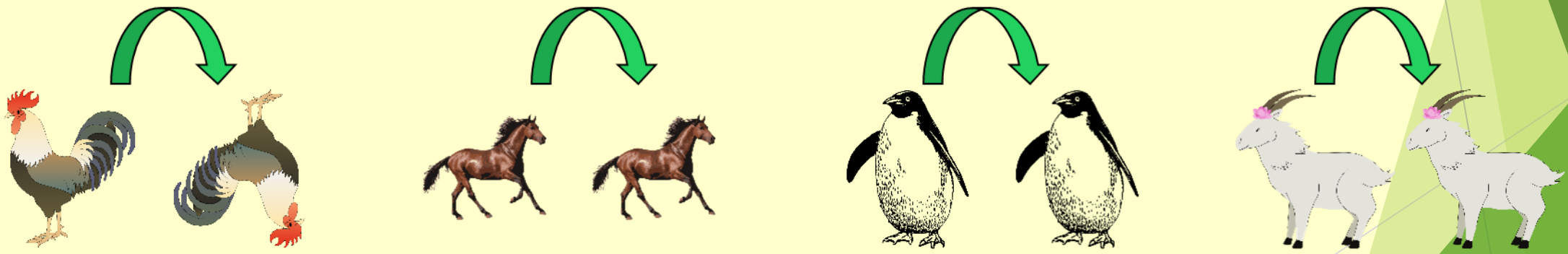
Success Criteria

- ✓ I can use terms like “full turn”, “half turn”, “quarter turn”, “three-quarter turn”, “clockwise” and “anti-clockwise” to describe a person’s rotation or an object’s rotation
- ✓ I can explain my reasoning when using terms like “full turn”, “half turn”, “quarter turn”, “three-quarter turn”, “clockwise” and “anti-clockwise” to describe a person’s rotation or an object’s rotation

Starter

Which image doesn't belong?
I know that….
doesn't belong
because….

Thinking about full and half turns, which pair of animals doesn't belong?

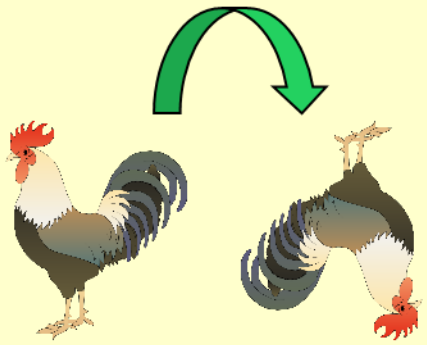


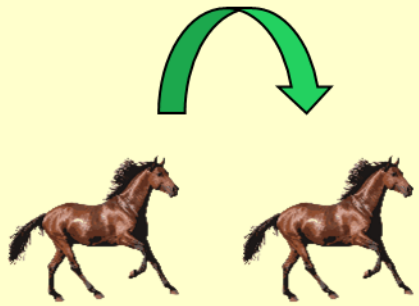
Explain your answer.

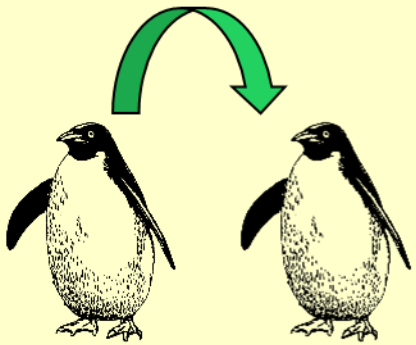
Starter

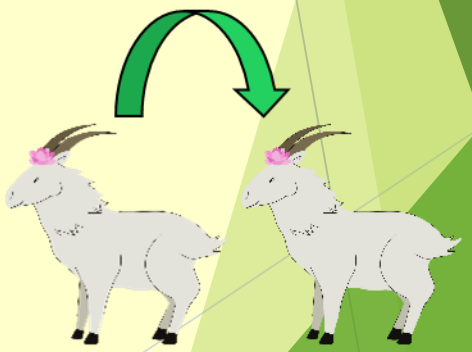
ANSWER: The roosters don't belong as the second rooster has made a half turn, whereas the horses, penguins and goats have made a full turn.

Thinking about full and half turns, which pair of animals doesn't belong?







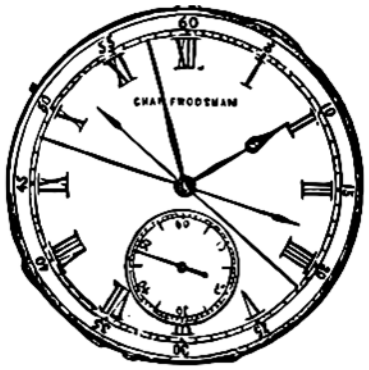
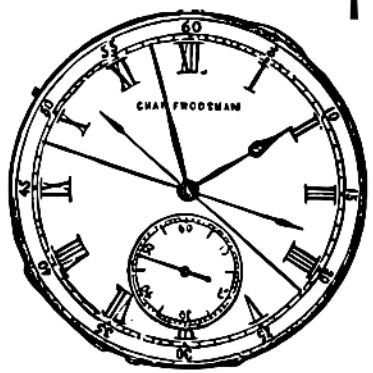


Explain your answer.

Descriptive doing

Find out about clockwise and anti-clockwise using this website https://www.bbc.co.uk/bitesize/clips/zjyb9j6

Complete the Frayer model below. Use a dictionary if you need to!

definition:	characteristics:
example: 	non-example: 

clockwise

Descriptive doing- Answer

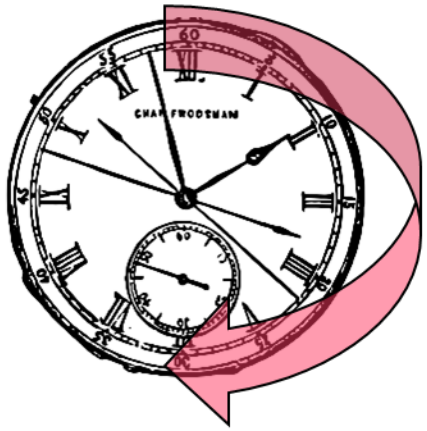
Complete the Frayer model below. Use a dictionary if you need to!

definition:
When something turns clockwise, it is moving in a circle in the same way as the hands on a clock.

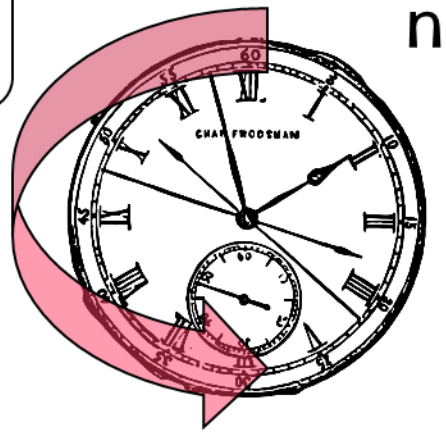
characteristics:
Turning or rotating in a circular way, most often when stuck in position.

clockwise

example:

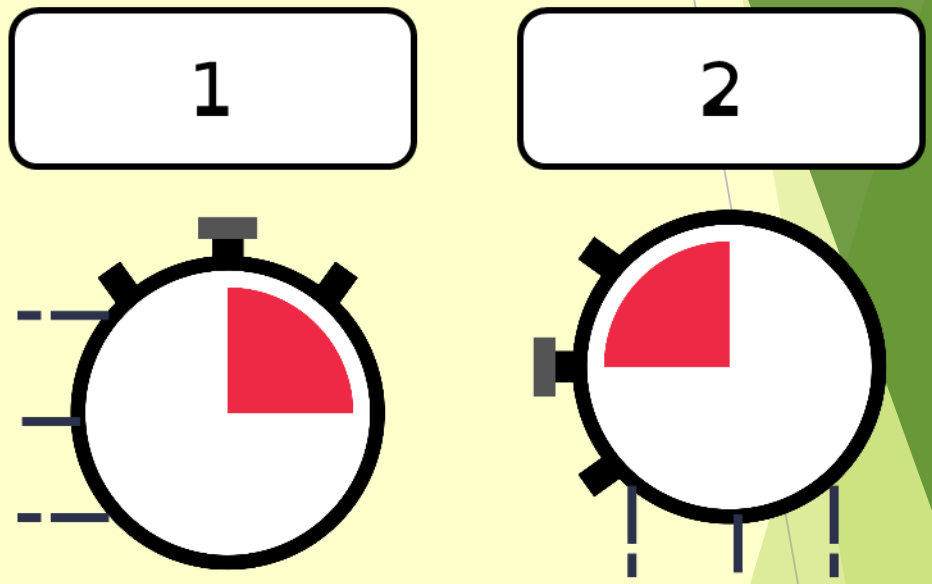


non-example:



Descriptive teaching

Complete the sentence below.



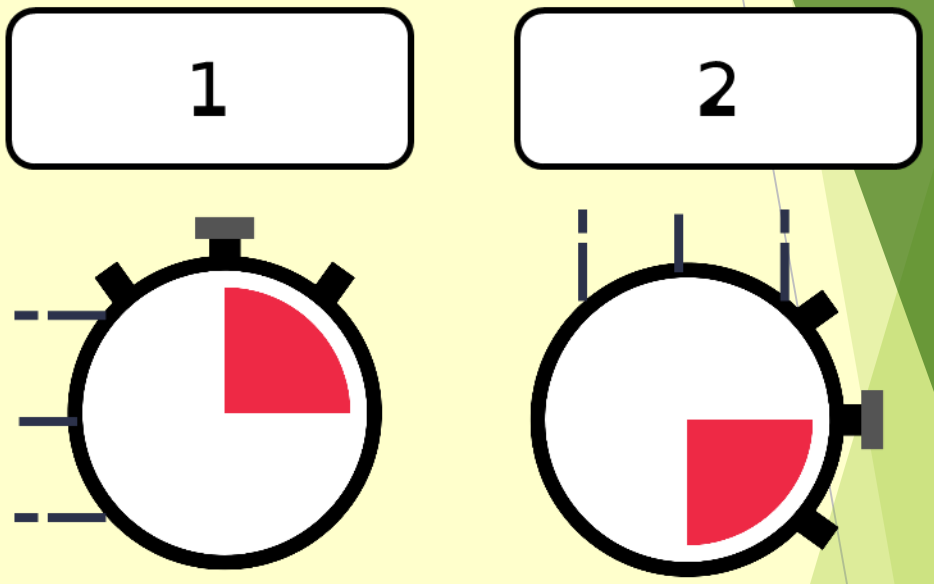
The watch has made a three-quarter turn _____.

Looking at the watches use the words clockwise and anticlockwise to describe which way it has moved. Say the sentence filling in the gaps.

Descriptive teaching

Complete the sentence below.

The watch has made a quarter turn _____.

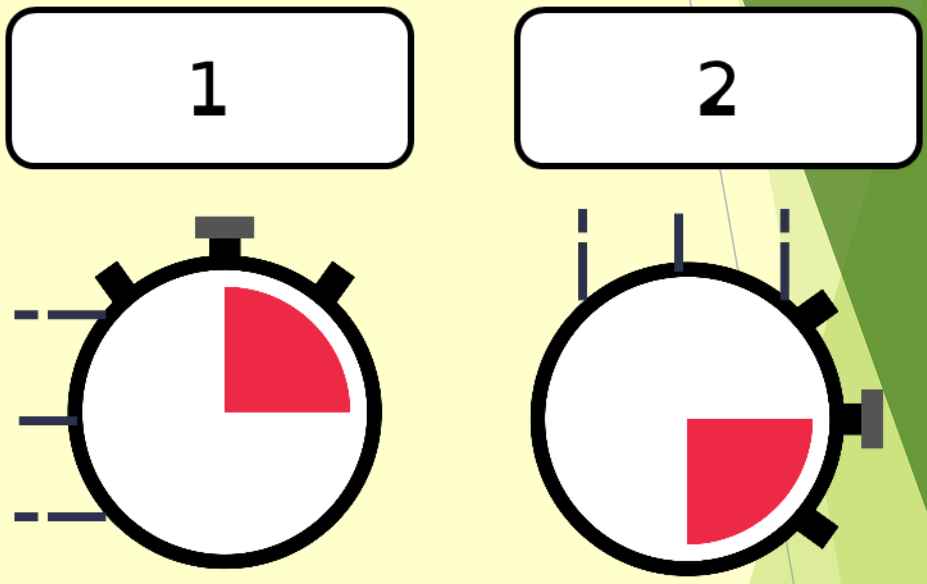


ANSWER: clockwise

Descriptive teaching

Complete the sentence below.

The watch has made a three-quarter turn _____.

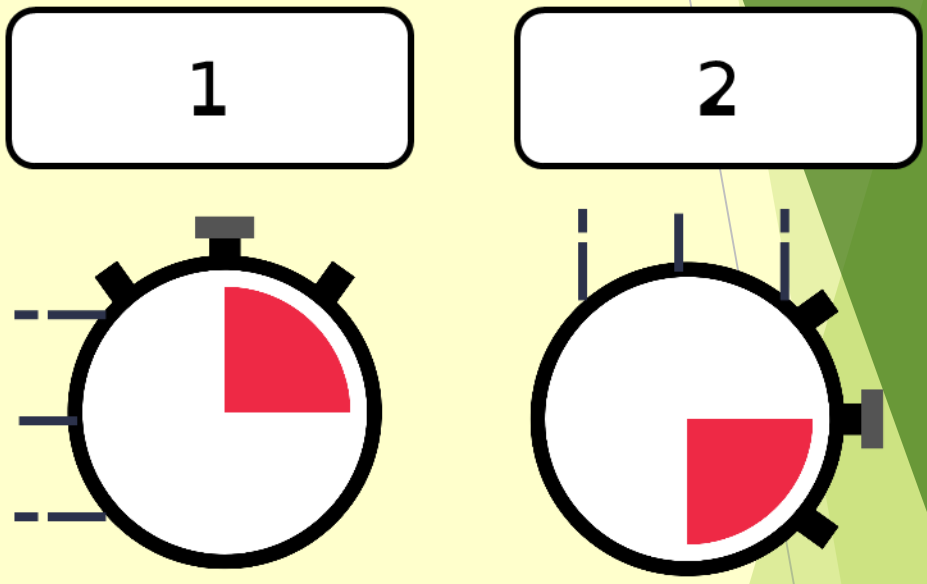


Looking at the watches use the words clockwise and anticlockwise to describe which way it has moved. Say the sentence filling in the gaps.

Descriptive teaching

Complete the sentence below.

The watch has made a three-quarter turn _____.

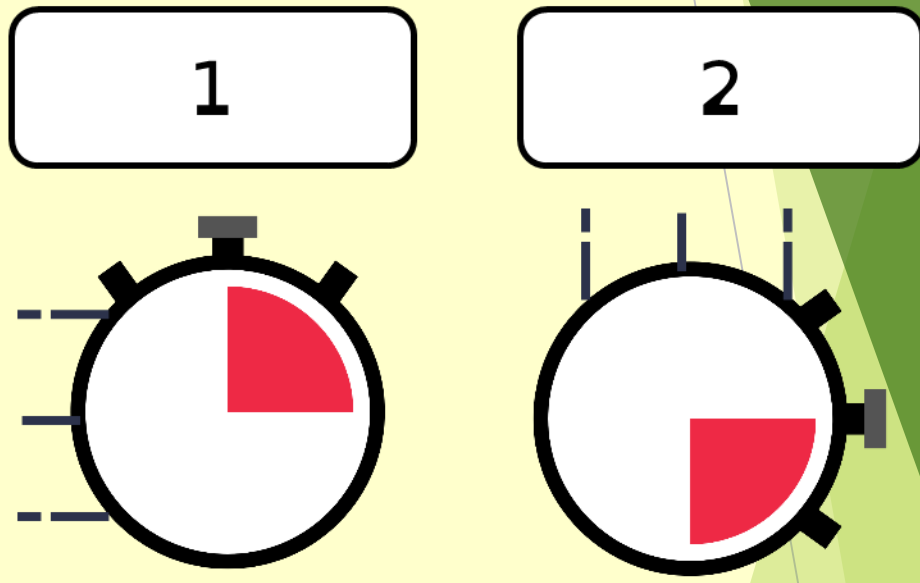


ANSWER: Anti clockwise

Descriptive teaching

Complete the sentence below.

The watch has made a _____ turn.

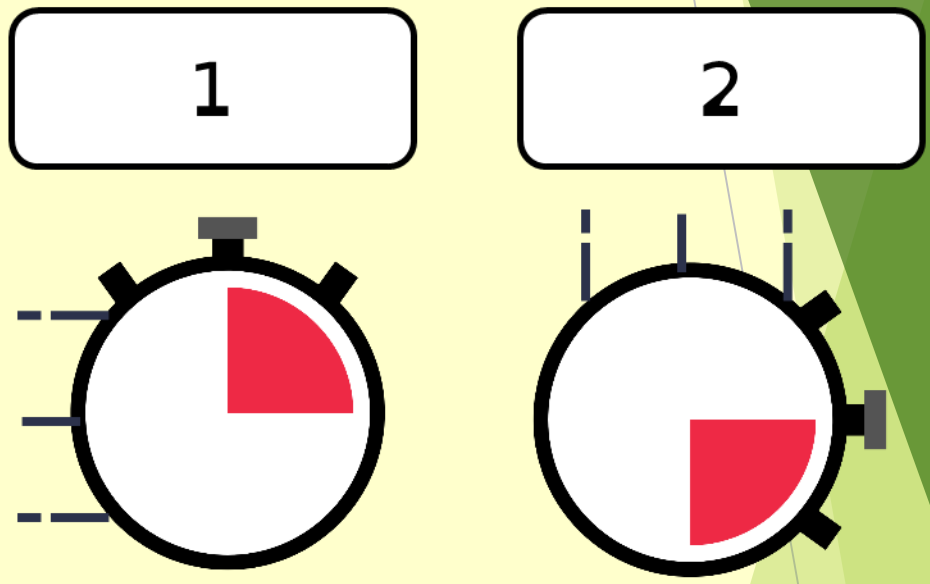


Looking at the watches use the words half, quarter and full to describe turn the watch has made. Say the sentence filling in the gaps.

Descriptive teaching

Complete the sentence below.

The watch has made a _____ turn.



ANSWER: half

Descriptive doing

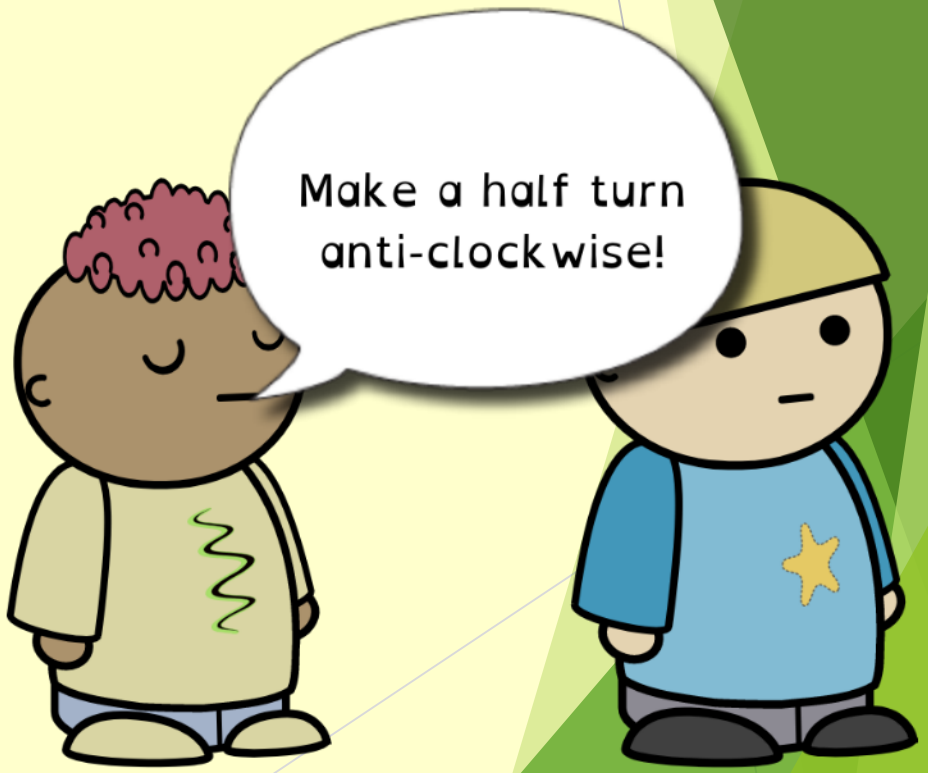
Rotation Practice!

Partner 1 stands on the spot.

Partner 2 gives instructions, like:

- “Make a half turn clockwise.”
- “Make a full turn anti-clockwise.”
- “Make a three-quarter turn clockwise.”
- “Make an anti-clockwise quarter turn.”

Now have a go at using this language and following some instructions.



Reflective teaching

James says, “If two people start facing in the same direction, then turn in opposite directions, they will not be facing in the same direction after they have turned.”

Is James’s statement sometimes, always or never true?

Provide a sketch to help explain your answer.

Try and draw a picture to find out if James’s statement is sometimes, always of never true.

Reflective teaching

James says, “If two people start facing in the same direction, then turn in opposite directions, they will not be facing in the same direction after they have turned.”

ANSWER: James’s statement is only sometimes true. It depends how far they turn. If they both make a half turn they will face in the same direction. If one person makes a quarter turn clockwise and the other makes a three-quarter anti-clockwise turn…

Is James’s statement sometimes, always or never true?

Provide a sketch to help explain your answer.

Challenge

1a. This frog thinks he has made a quarter turn anti-clockwise.

Before

After

What mistake has he made? Explain.

1b. This frog thinks he has made a half turn clockwise.

Before

After

What mistake has he made? Explain.

Challenge

2a. A triangle has been turned.

Toby says,

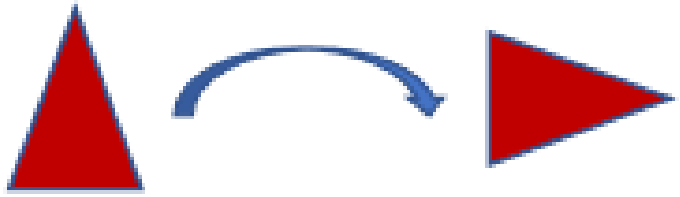
The shape has made a quarter turn clockwise.

Is Toby correct? Explain why.

D

R

2b. A triangle has been turned.



Mary says,

The shape has made a quarter turn anti-clockwise.

Is Mary correct? Explain why.

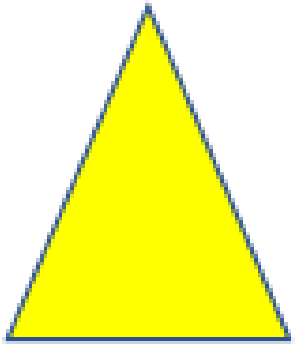
D

R

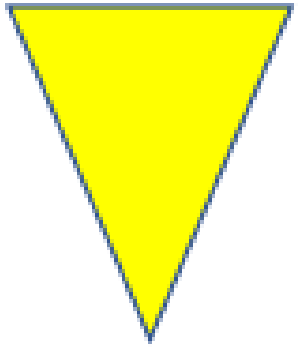
Challenge

3a. How many different ways could Shape A have turned to get to the position of Shape B?

Shape A



Shape B

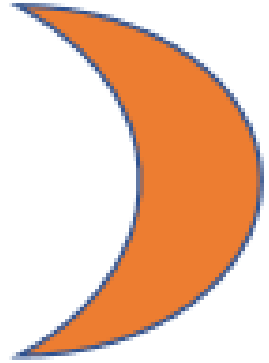


PS

3b. How many different ways could Shape A have turned to get to the position of Shape B?

Shape A

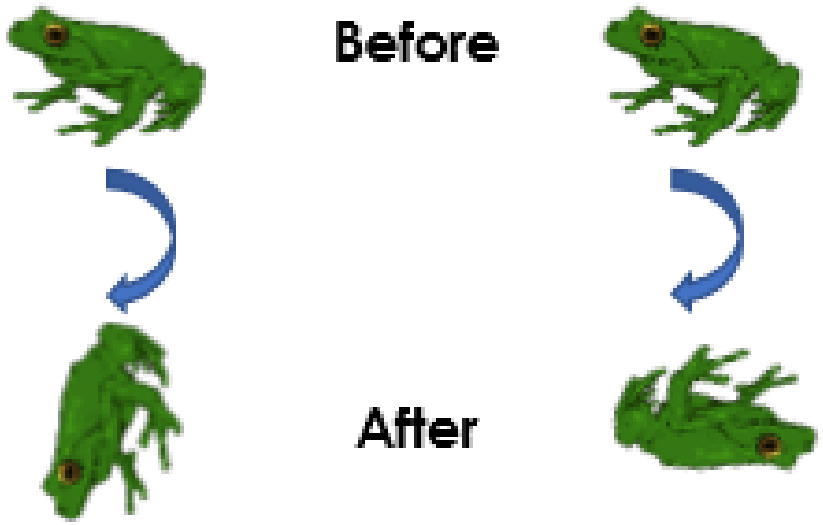
Shape B



PS

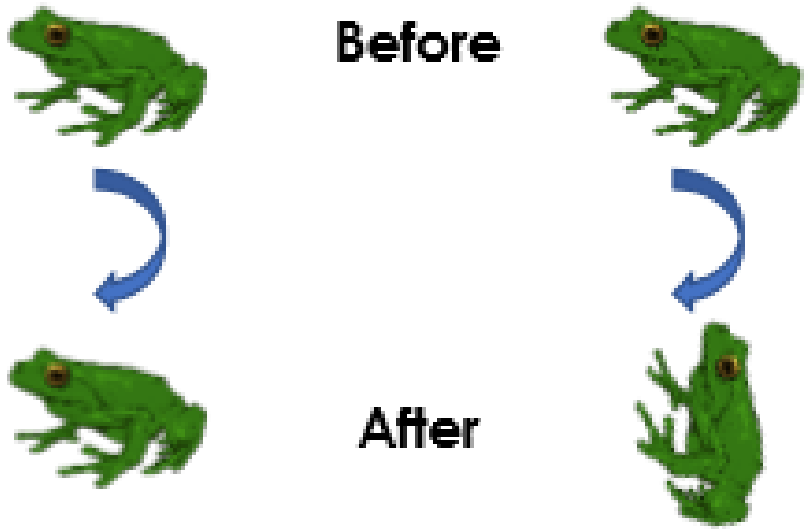
Challenge

4a. Two frogs start in the same position. They want to turn the same amount in the same direction.



What mistake have they made? Explain.

4b. Two frogs start in the same position. They want to turn the same amount in the same direction.



What mistake have they made? Explain.

Challenge

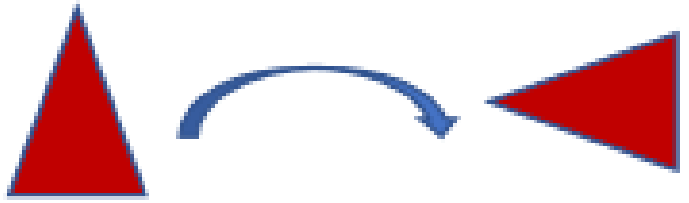
5a. A triangle has been turned.

Josh says,

The shape has made a whole turn anti-clockwise.

Is Josh correct? Explain why.

5b. A triangle has been turned.



Asha says,

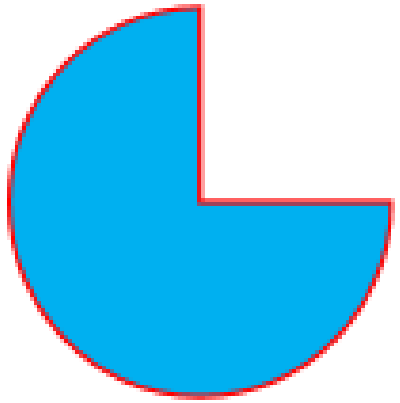
The shape has made a three-quarter turn anti-clockwise.

Is Asha correct? Explain why.

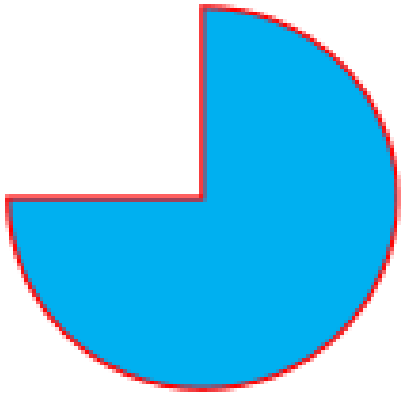
Challenge

6a. How many different ways could Shape A have turned to get to the position of Shape B?

Shape A



Shape B

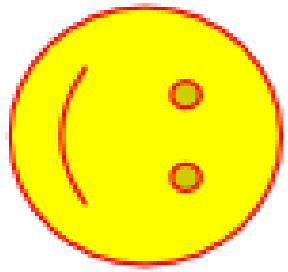


PS

6b. How many different ways could Shape A have turned to get to the position of Shape B?

Shape A

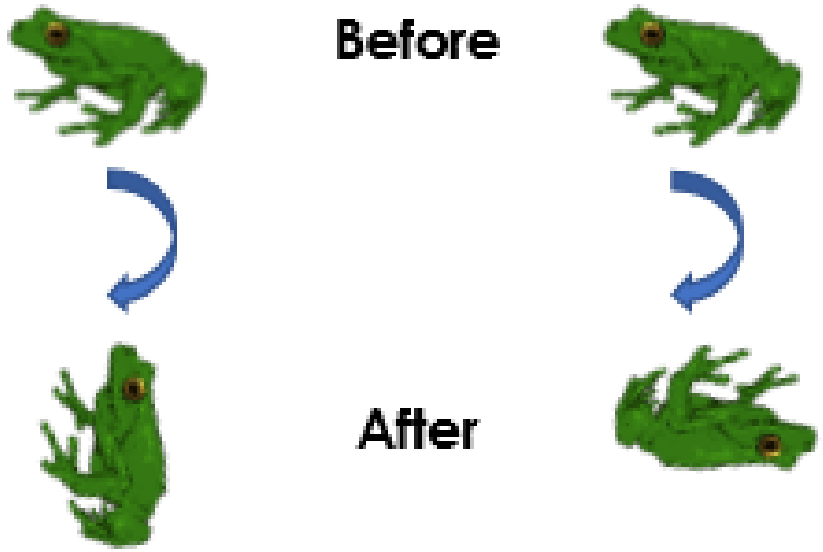
Shape B



PS

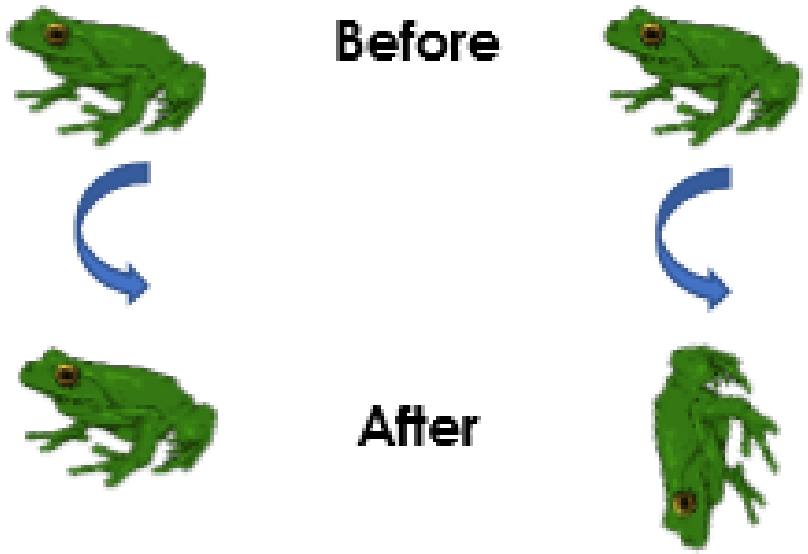
Challenge

7a. Two frogs start in the same position. They want to make a half turn clockwise and a quarter turn anti-clockwise.



What mistake have they made? Explain.

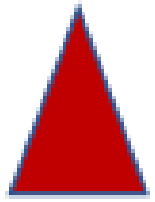
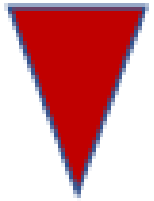
7b. Two frogs start in the same position. They want to make a whole turn anti-clockwise and a three-quarter turn clockwise.



What mistake have they made? Explain.

Challenge

8a. A triangle has been turned.

before  after 

Owen says,

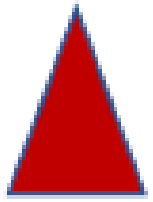
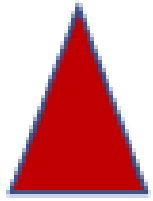
The shape has made a half turn clockwise and a quarter turn anti-clockwise.

Is Owen correct? Explain why.

GD

R

8b. A triangle has been turned.

before  after 

Jess says,

The shape has made a quarter turn clockwise and a whole turn anti-clockwise.

Is Jess correct? Explain why.

GD

R

Challenge

9a. Shape A has turned twice to get to the position of Shape B. Name 3 different ways it could have turned.

Shape A

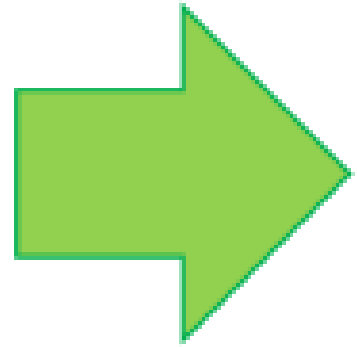
Shape B

PS

9b. Shape A has turned twice to get to the position of Shape B. Name 3 different ways it could have turned.

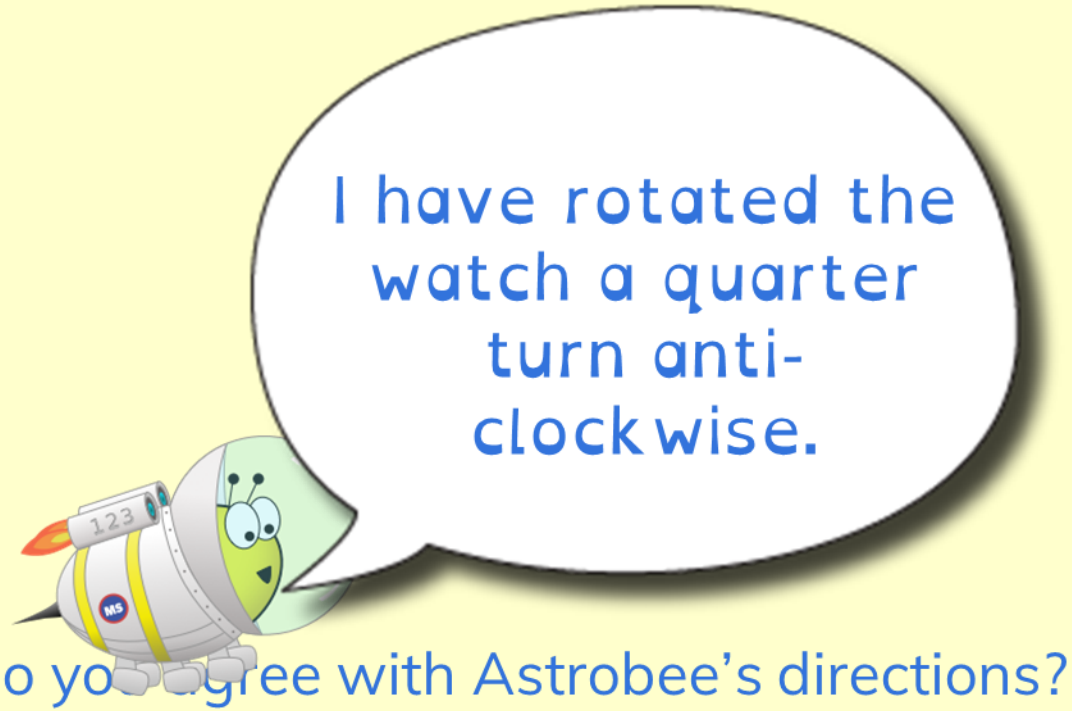
Shape A

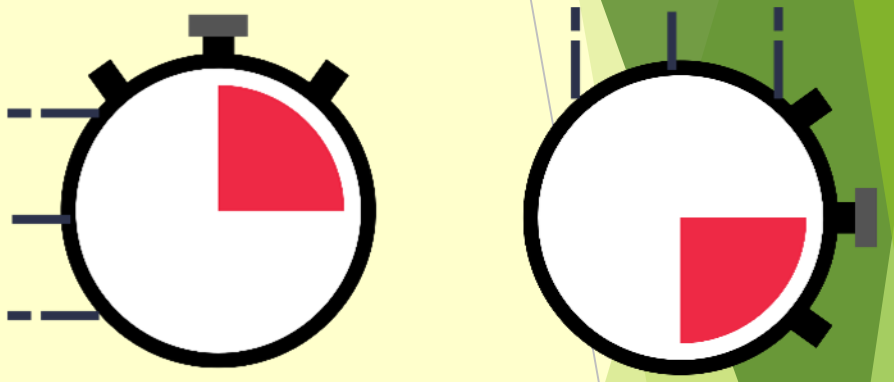
Shape B



PS

Reflection





Do you agree with Astrobee's directions?

Explain your answer in as many ways as you can.

Position and Direction

22.04.20

Date: 22.04.20

LO: To be able to describe linear movements and turns on a grid

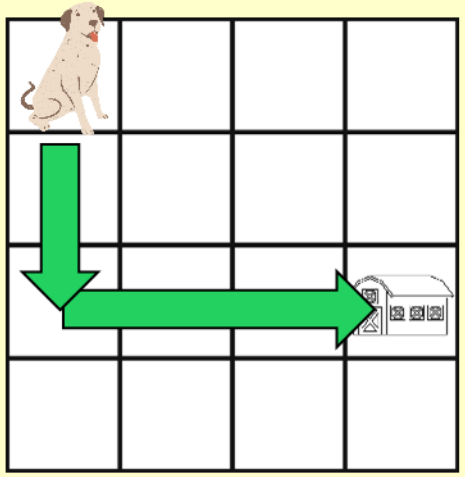
Success Criteria

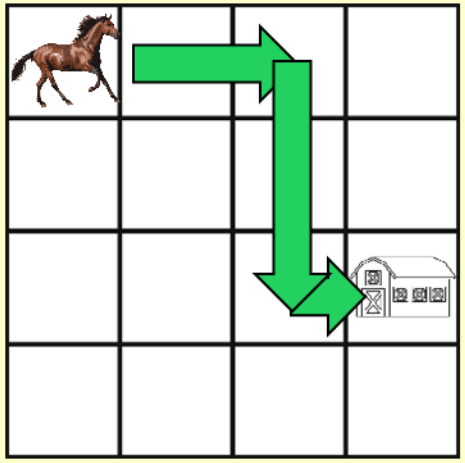
- ✓ I can use my knowledge of movements on a grid and part and full turns to describe linear movements and turns on a grid
- ✓ I can explain my reasoning when using my knowledge of movements on a grid and part and full turns to describe linear movements and turns on a grid

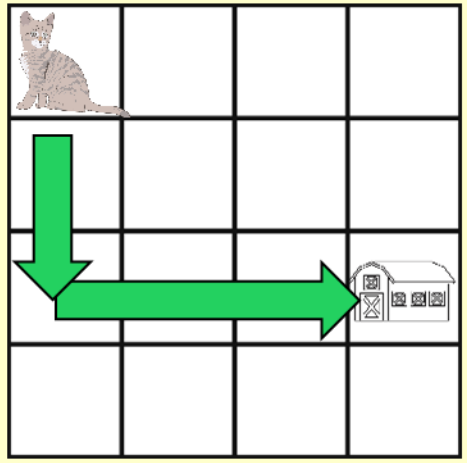
Starter

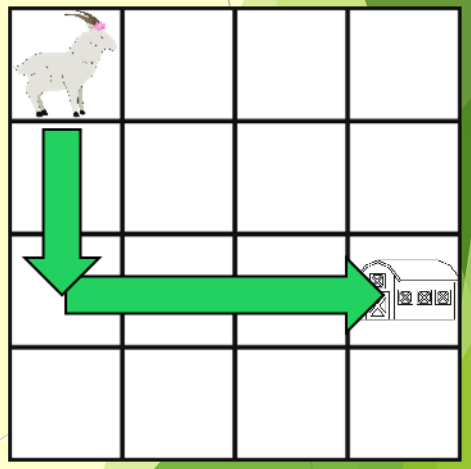
Which image doesn't belong?
I know that….
doesn't belong
because….

Thinking about turns and movement, which one doesn't belong?







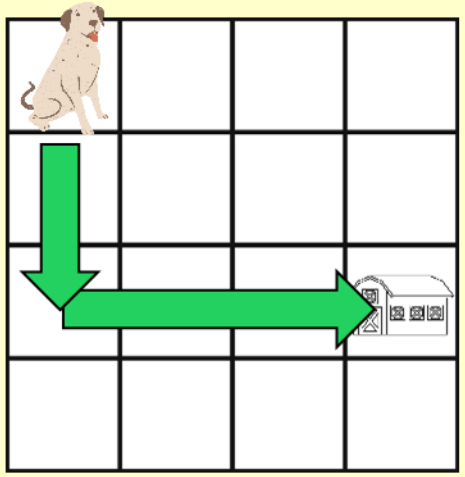


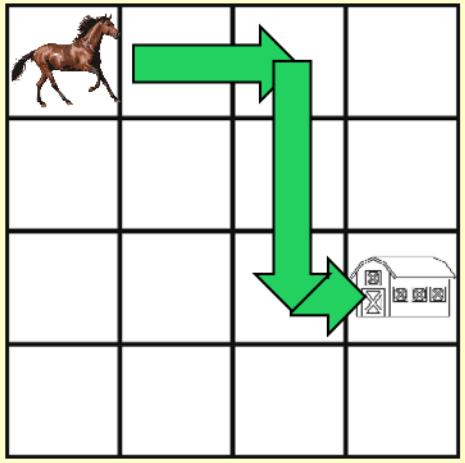
Explain your answer.

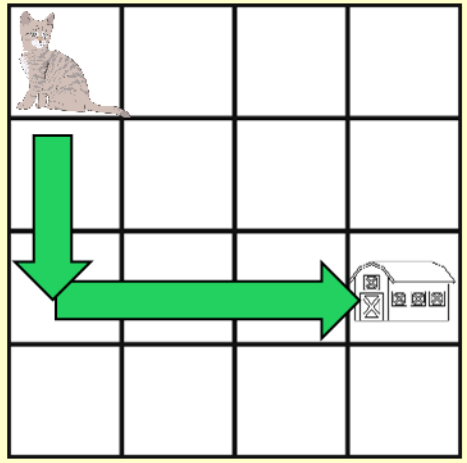
Starter

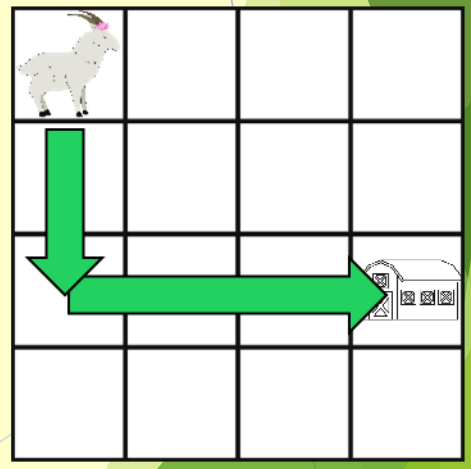
ANSWER: The horse doesn't belong as it has moved right two spaces, made a quarter turn clockwise, then moved down two spaces, made a quarter turn anti-clockwise and moved right another one space. The other animals have moved down one space, made a quarter turn clockwise, then moved right three spaces.

Thinking about turns and movement, which one doesn't belong?









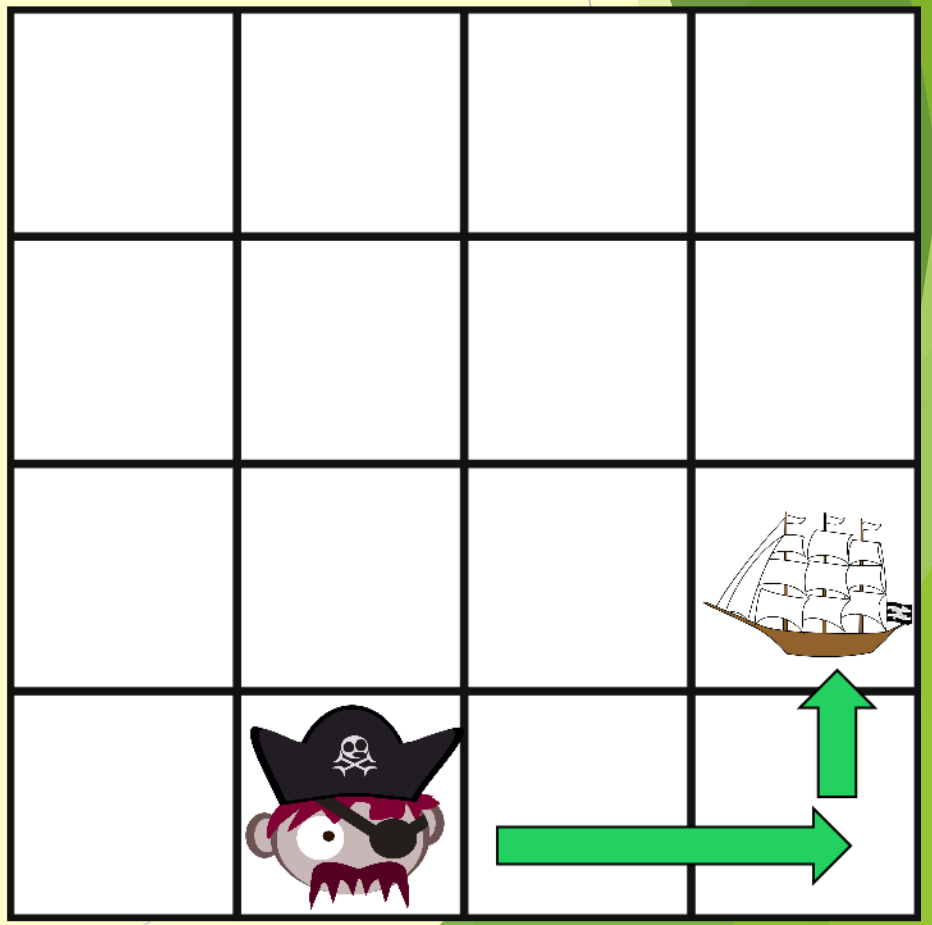
Explain your answer.

Descriptive Teaching

Complete the sentence using positional and directional language.

Complete the sentences below to describe Captain Redbeard's route back to the pirate ship.

Redbeard needs to move _____ along the grid two spaces, make a quarter turn _____ _____, then move ___ the grid one space.

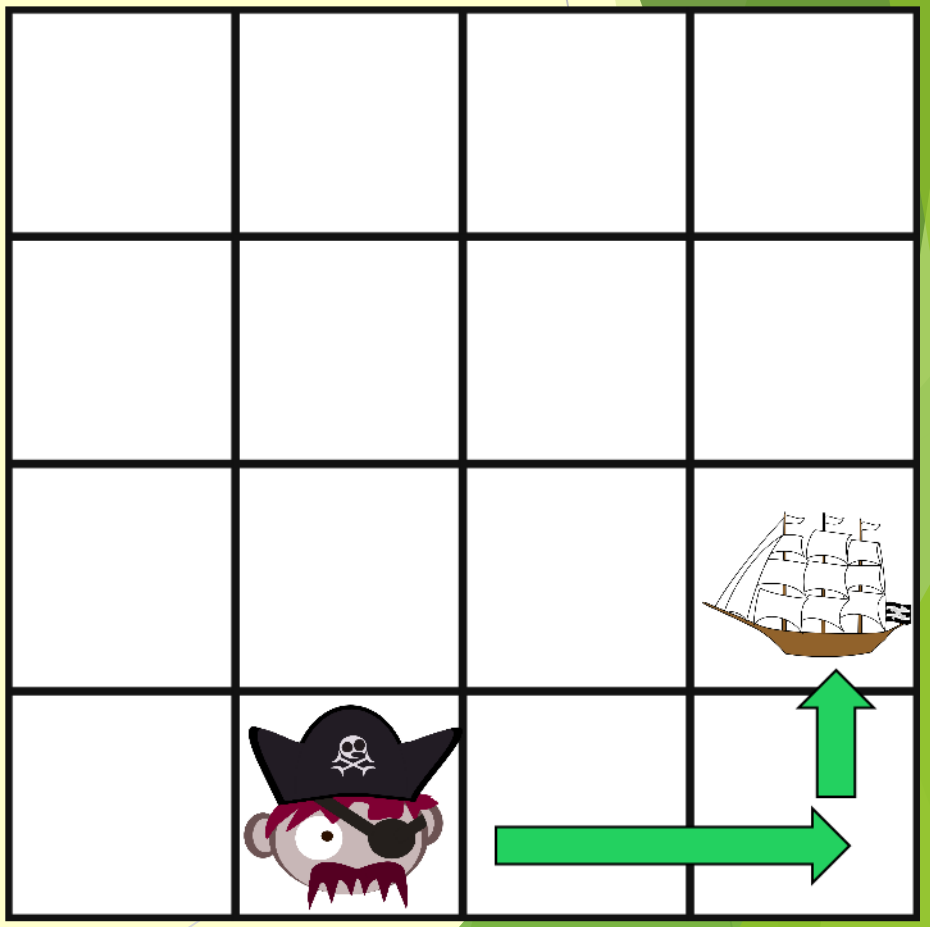


Descriptive Teaching

ANSWERS:
RIGHT
ANTI-CLOCKWISE
UP

Complete the sentences below to describe Captain Redbeard's route back to the pirate ship.

Redbeard needs to move _____ along the grid two spaces, make a quarter turn _____ _____, then move ___ the grid one space.

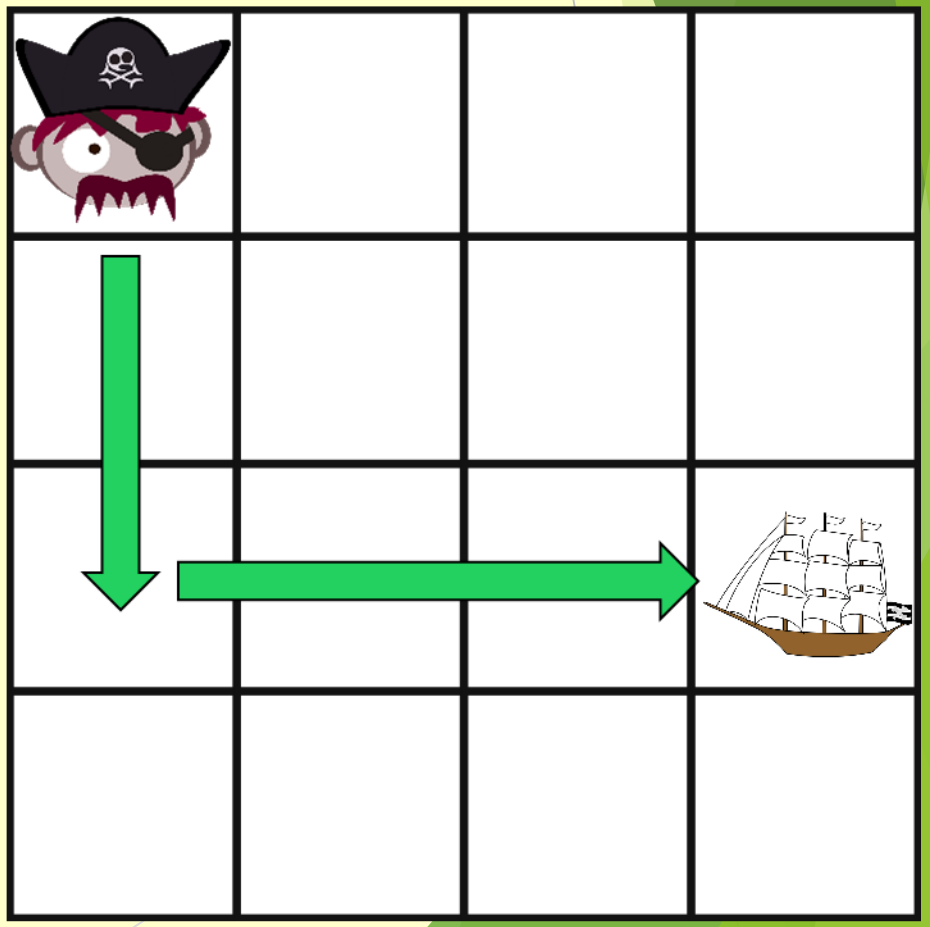


Descriptive Teaching

Complete the sentence using positional and directional language.

Complete the sentences below to describe Captain Redbeard's route back to the pirate ship.

Redbeard needs to move _____ the grid two spaces, make a quarter turn _____ _____, then move _____ on the grid three spaces.

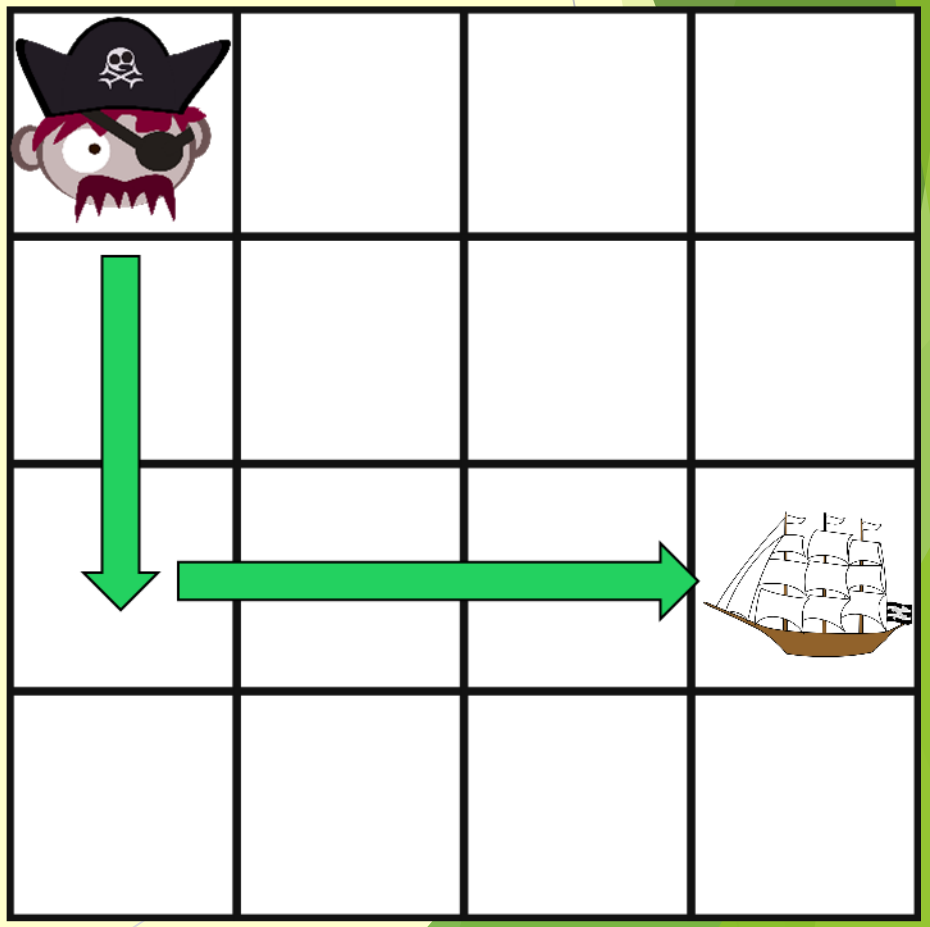


Descriptive Teaching

ANSWERS:
DOWN
ANTI-CLOCKWISE
RIGHT

Complete the sentences below to describe Captain Redbeard's route back to the pirate ship.

Redbeard needs to move _____ the grid two spaces, make a quarter turn _____ _____, then move _____ on the grid three spaces.



Descriptive Doing

When teaching turns, it is particularly to think about the hour mark on a clock that the object is facing in to describe the following turn (especially when discerning between clockwise and anti-clockwise turns).

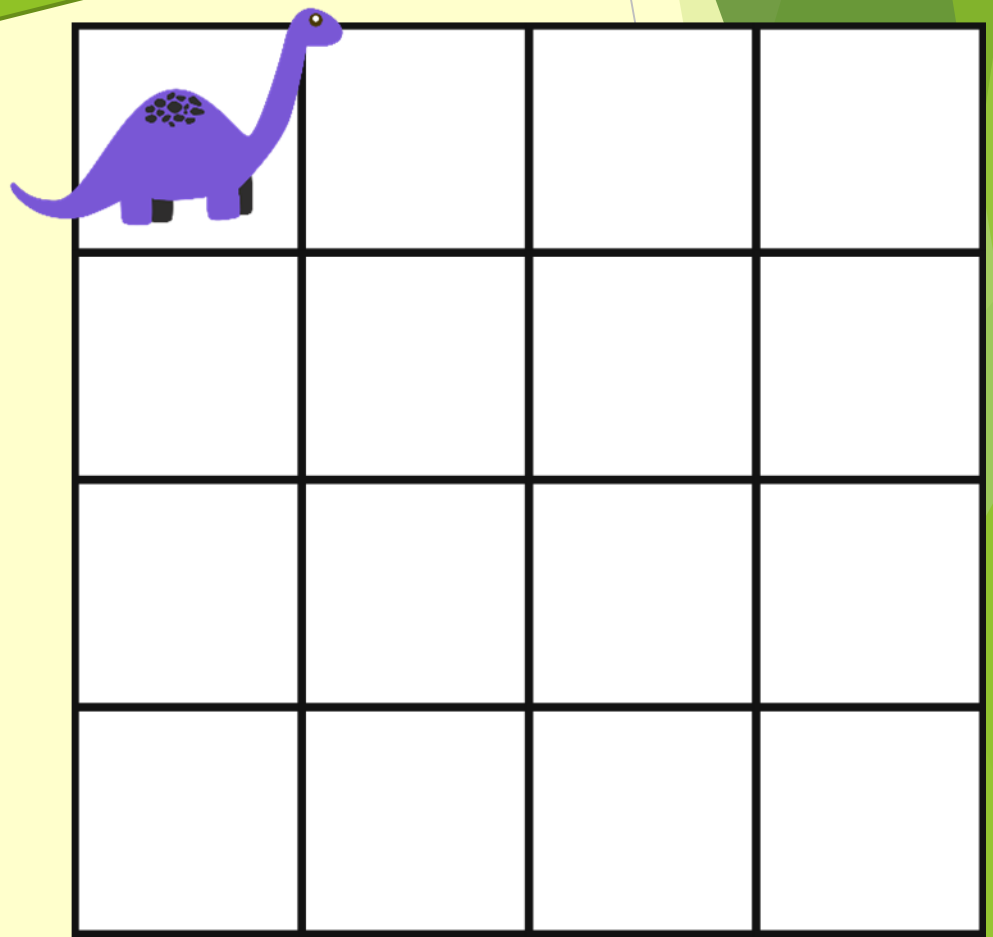
Draw a four space by four space grid.

Partner 1 has a toy (like the dinosaur).

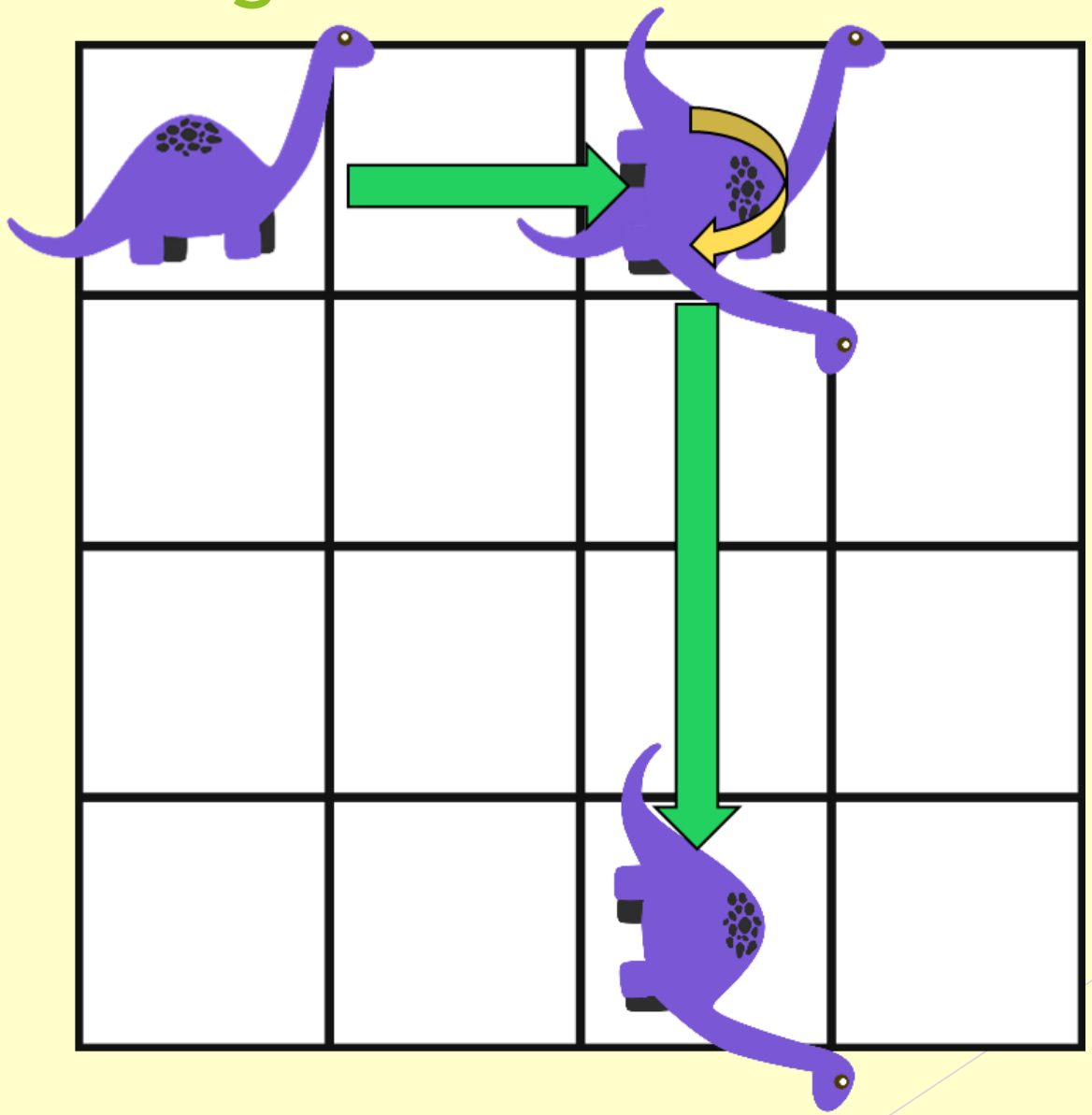
Partner 2 gives instructions like:

- "Move the toy on the grid right by two spaces, then turn it clockwise by a quarter turn, then move it down the grid three spaces."

(You could repeat with children acting as the object on a four by four grid drawn in the garden.)



Descriptive Doing- Answer



Reflective Doing

Create instructions to help Captain Redbeard get to:

a) the treasure chest
b) the pirate ship
c) the gold lamp

Tell an adult the instructions to get to each item.

Reflective Doing

Create instructions to help Captain Redbeard get to:

a) the treasure chest

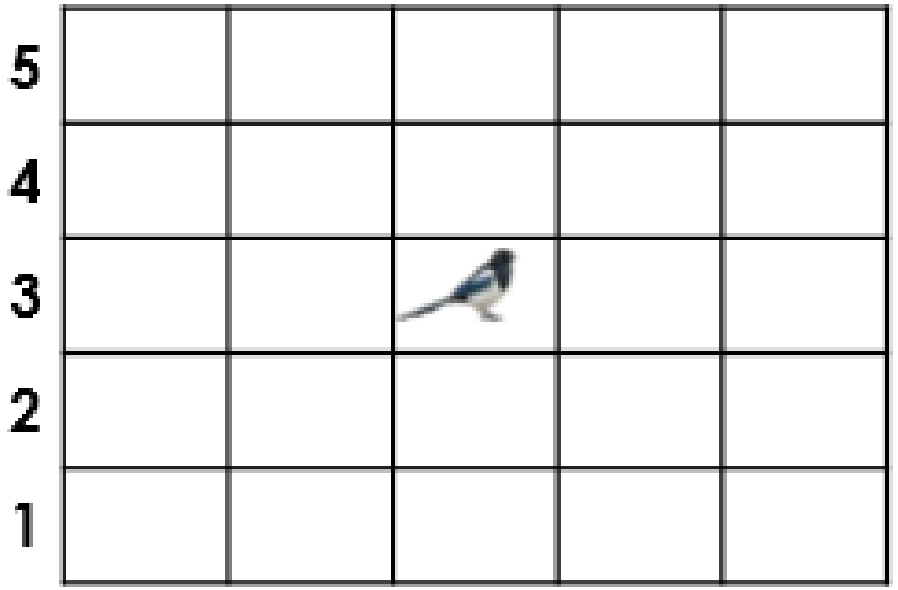
b) the pirate ship

c) the gold lamp

Captain Redbeard should head along the grid right one space, then turn anti-clockwise a quarter turn, then move up the grid two spaces.
Captain Redbeard should go forwards on the grid three spaces, make a quarter turn anti-clockwise, then move one space left on the grid.
Captain Redbeard should head two spaces right on the grid, make a quarter turn anti-clockwise then head up the grid one space.

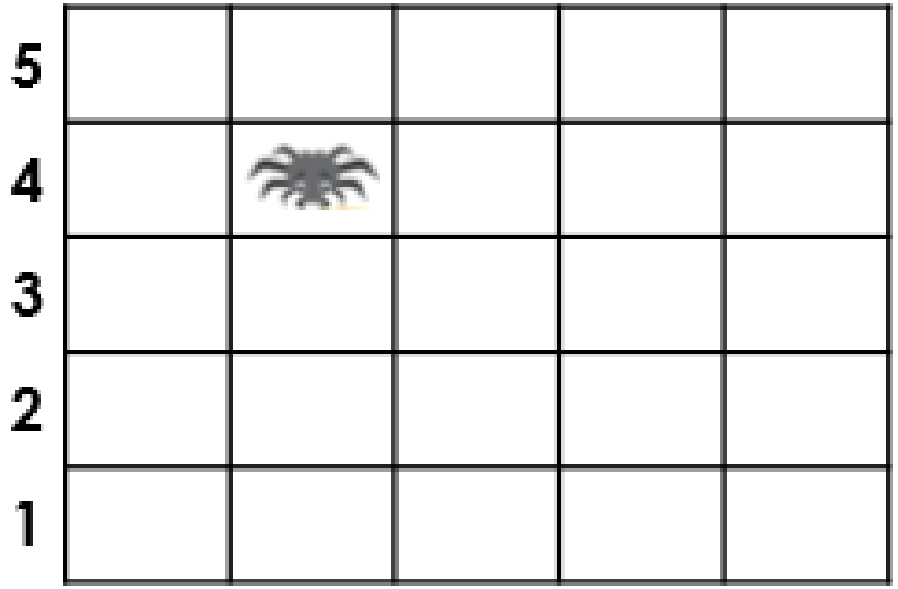
Challenge

1a. The magpie has lost her coins. She knows that she turned a quarter, whole or half turn. Then flew forward two spaces. Draw a cross where her coins could be.



PS

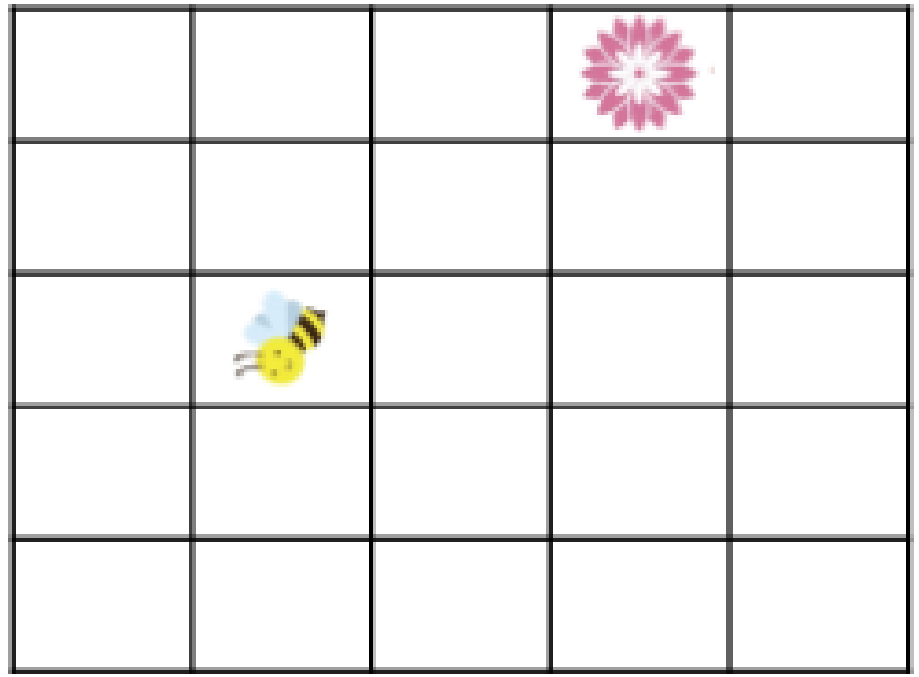
1b. The spider has lost his web. He knows that he turned a quarter, whole or half turn. Then moved forward three times. Draw a cross where his web could be.



PS

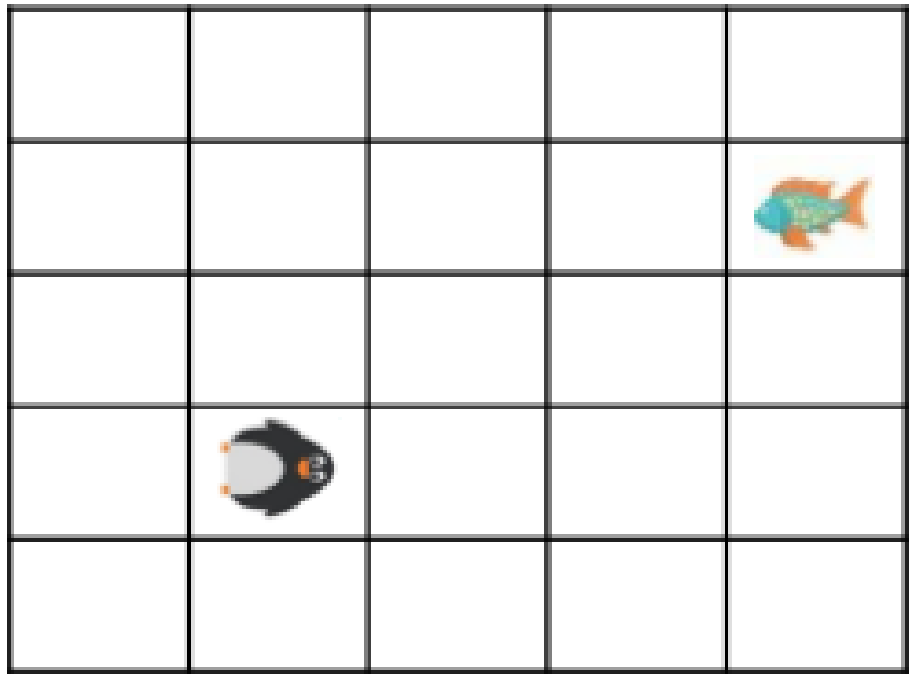
Challenge

2a. The bee is trying to get to the flower. She wants to find it in no more than 4 movements. Describe the route she could take, including the turns that she makes.



PS

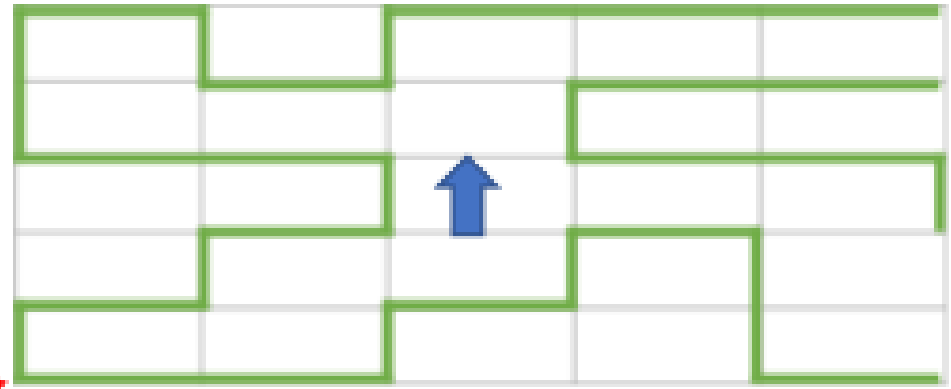
2b. The penguin is trying to find his fish. He wants to find it in no more than 5 movements. Describe the route he could take, including the turns that he makes.



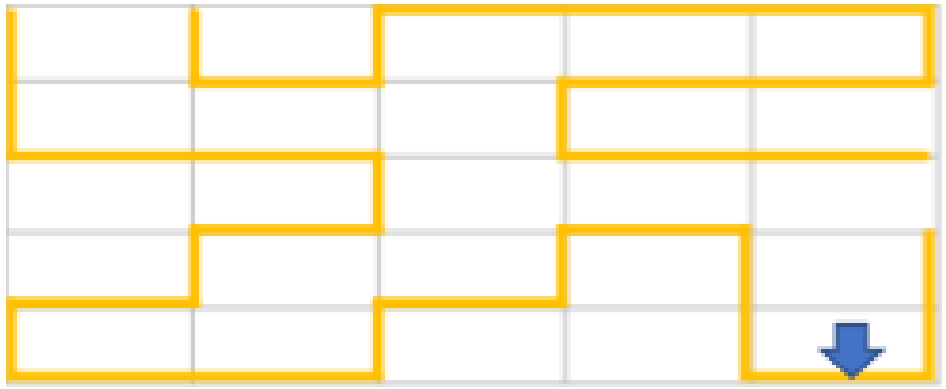
PS

Challenge

3a. Fernando and Xin are lost in the maze, facing the direction of the arrow. Fernando thinks that they can get out if they go forwards and make right quarter turns. Xin thinks they can get out if they walk backwards 2. Who is correct? Give reasons for your answer.

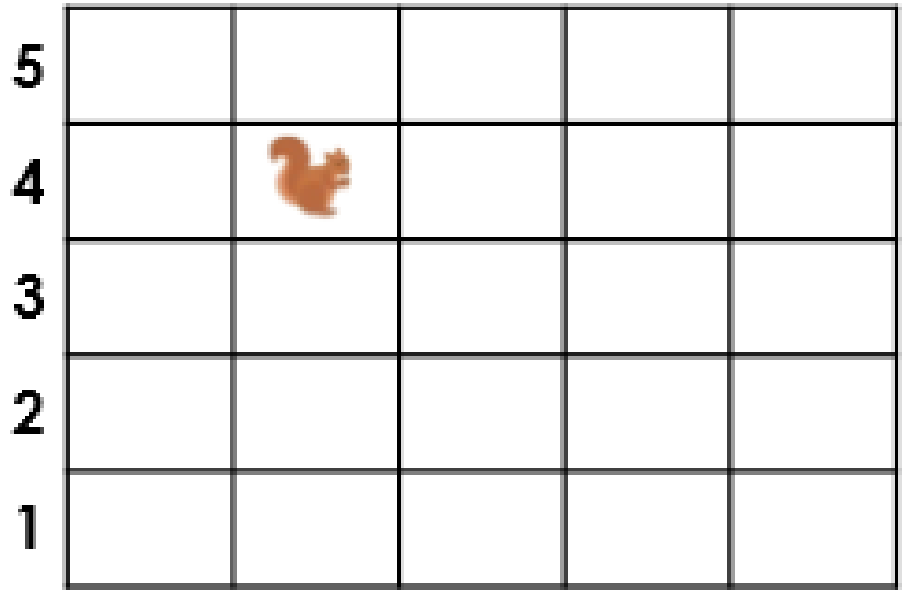


3b. Hamza and Lyla are lost in the maze, facing the direction of the arrow. Hamza thinks that they can get out if they step back 2. Then make 1 right quarter turn. Then step forward 1. Lyla thinks they can get out if they step back 2. Then step left 1. Who is correct? Give reasons for your answer

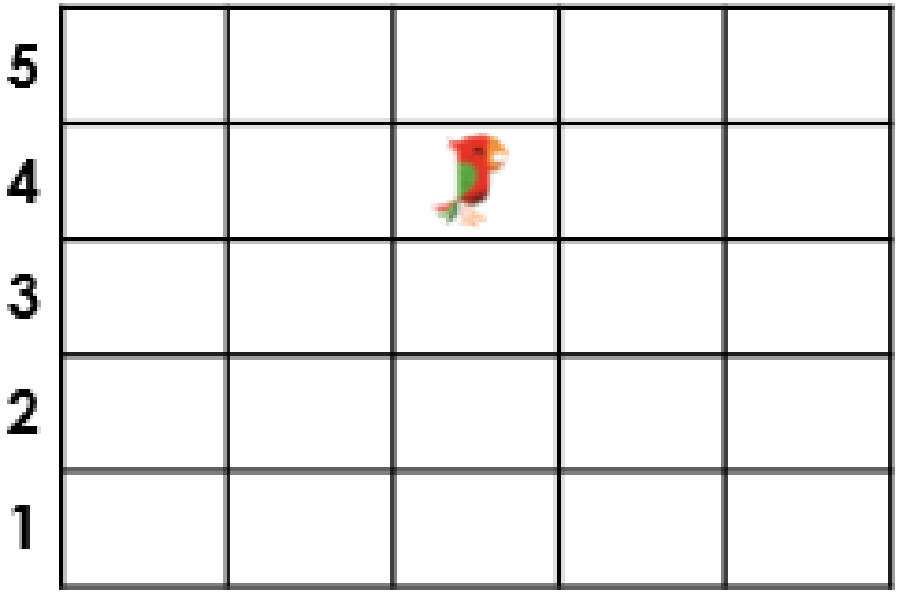


Challenge

4a. The squirrel has lost his nut. He knows that he moved forward 3 times. Turned a quarter, half, three quarter or whole turn. Then walked forward once. Draw a cross where his nut could be.

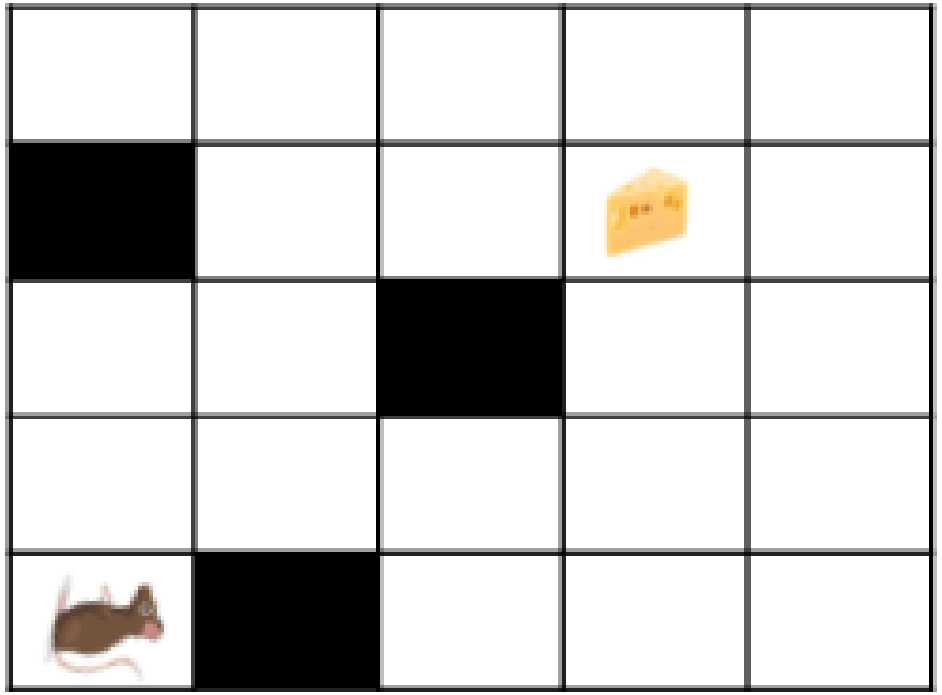


4b. The parrot has lost her cracker. She knows that she moved backwards twice. Turned a quarter, half, three quarter or whole turn. Then walked forward once. Draw a cross where her cracker could be.



Challenge

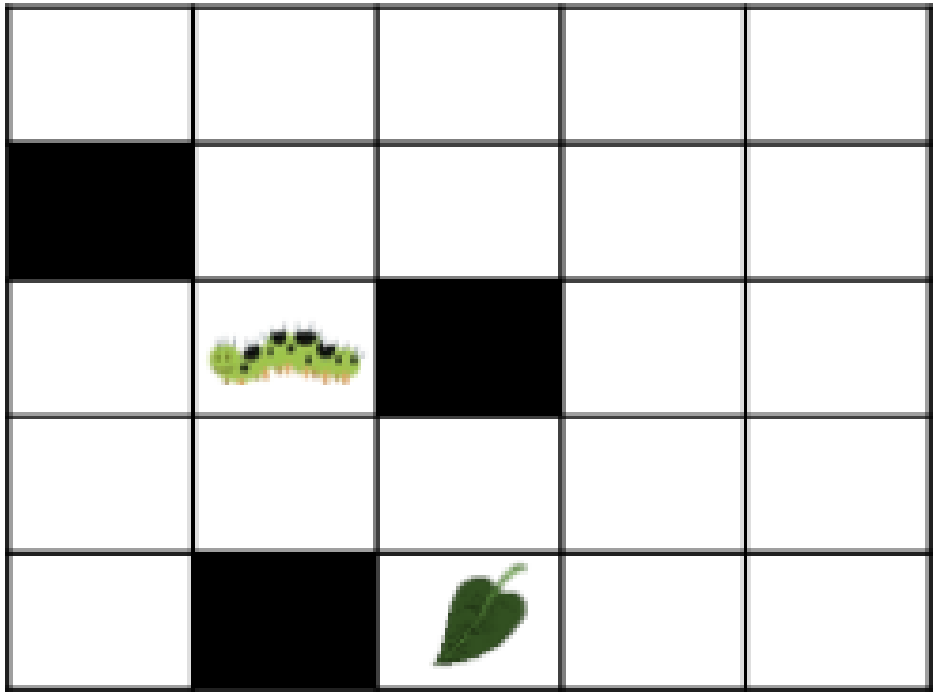
5a. The mouse is trying to find her cheese. She wants to find it in no more than 7 movements. Describe the route she could take, including the turns that she makes.



E

PS

5b. The caterpillar is trying to find his leaf. He wants to find it in no more than 5 movements. Describe the route he could take, including the turns that he makes.

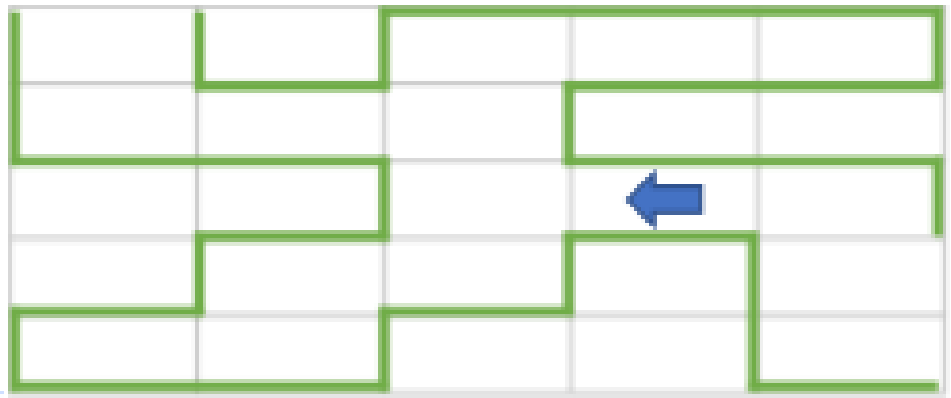


E

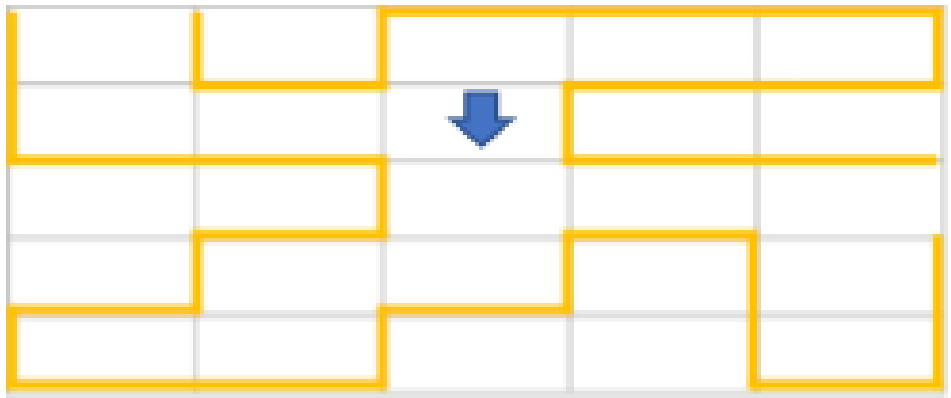
PS

Challenge

6a. Katie and Fahad are lost in the maze, facing the direction of the arrow. Katie thinks that they can get out if they only move forwards and make left turns. Fahad thinks they can get out if they walk back 1, make 1 clockwise quarter turn and walk forward 2. Who is correct? Give reasons for your answer.

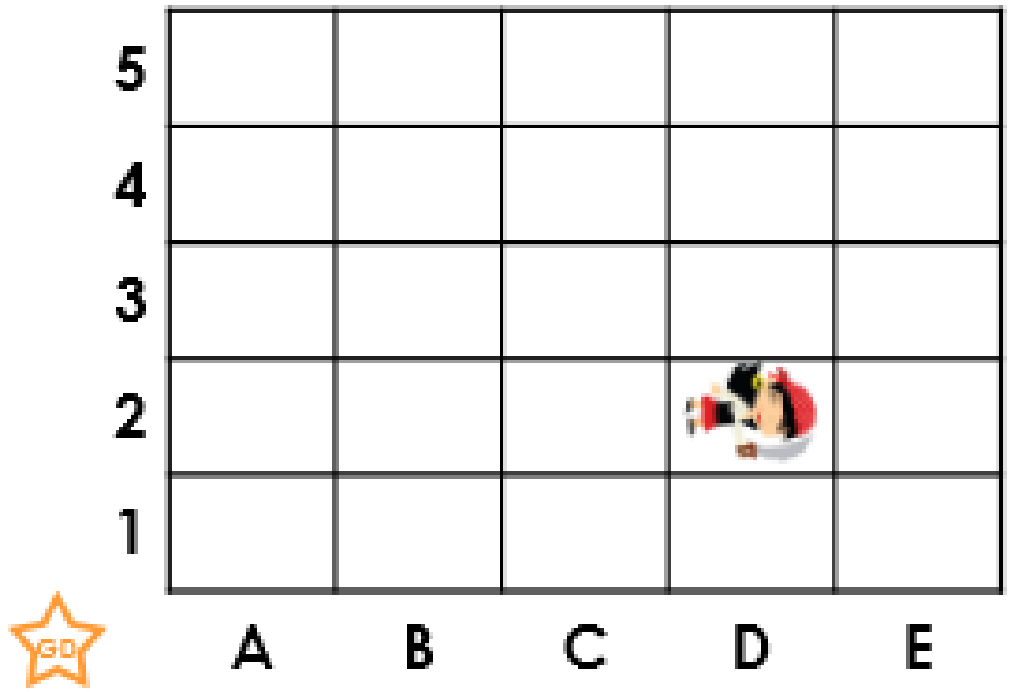


6b. Peter and Noah are lost in the maze, facing the direction of the arrow. Peter thinks that they can get out if they move left 2 and back 2. Noah thinks they can get out if they walk forward 1, make 1 anti-clockwise quarter turn and walk forward 3. Who is correct? Give reasons for your answer.

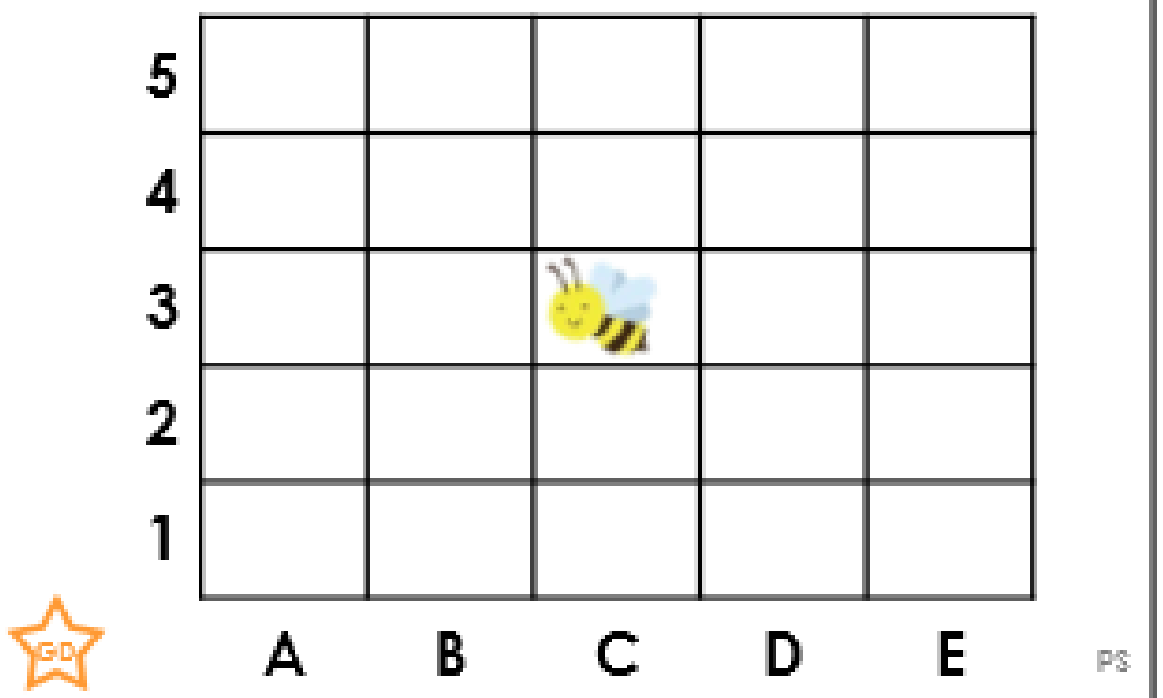


Challenge

7a. The pirate has lost her treasure. She knows that she moved backwards once, quarter turned anti-clockwise, walked left twice, turned and walked right once. Draw a cross where the treasure could be.

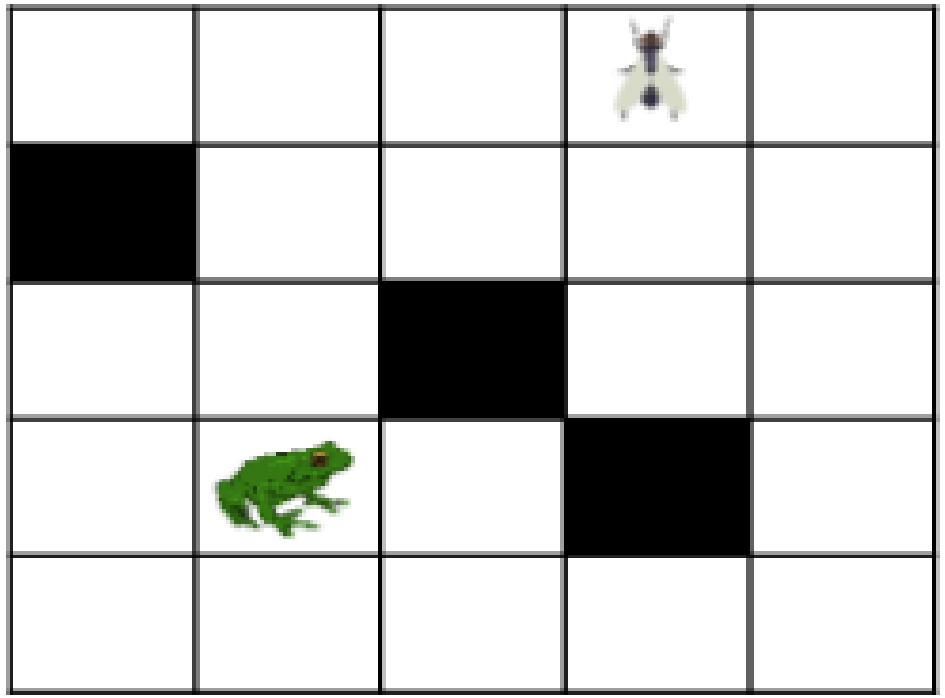


7b. The bee has lost his honey. He knows that he moved forward once, quarter turned clockwise, walked forward once, turned and walked left. Draw a cross where his honey could be.



Challenge

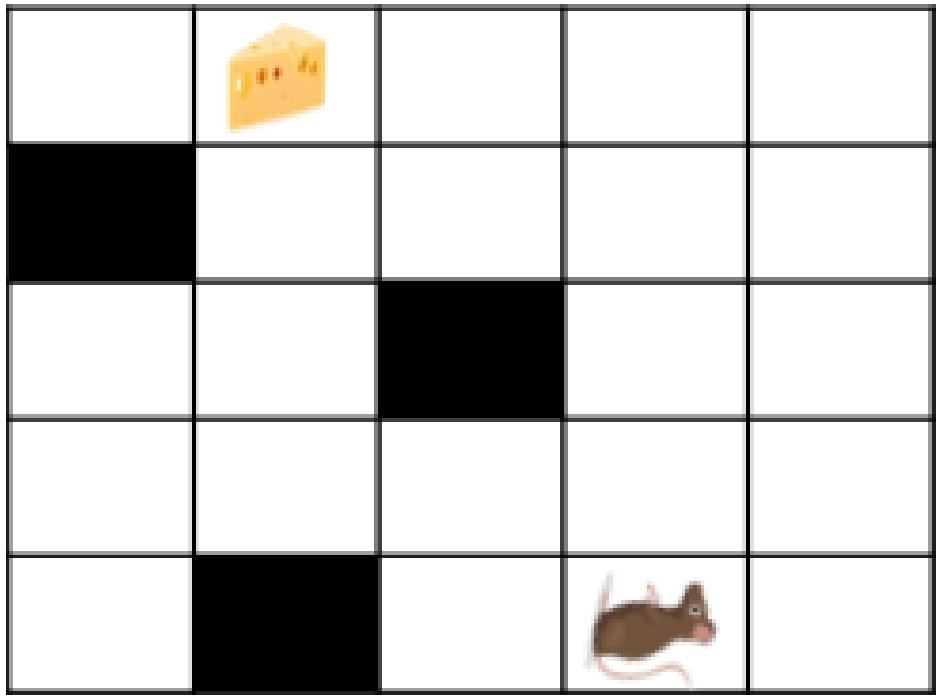
8a. The frog is trying to catch a fly. She wants to catch it in exactly 7 movements. Describe the route she could take, including the turns that she makes.



GD

PS

8b. The rat is trying to find his cheese. He wants to find it in exactly 6 movements. Describe the route he could take, including the turns that he makes.

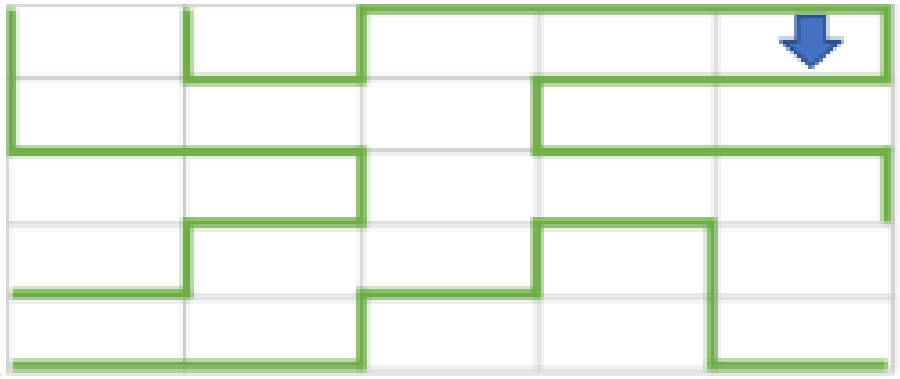


GD

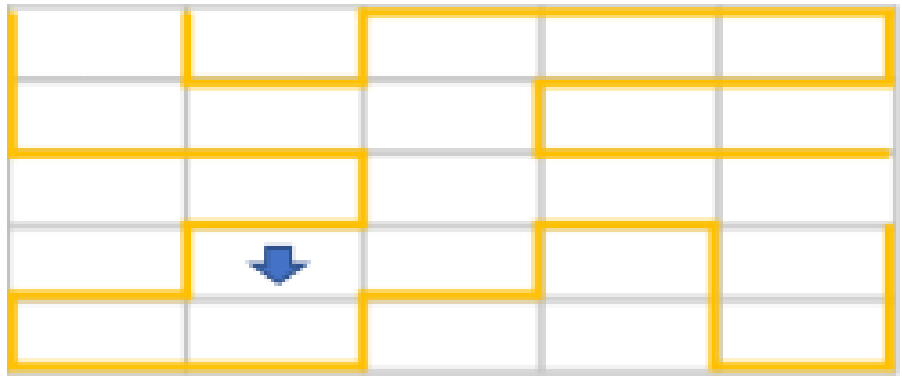
PS

Challenge

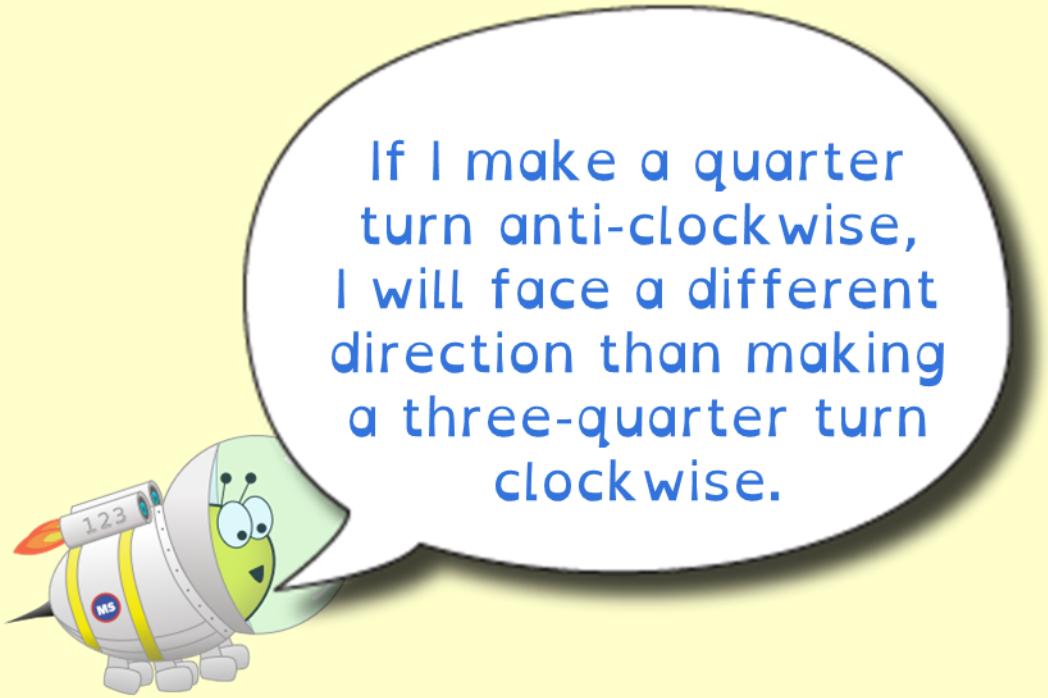
9a. Molly and Jaxon are lost in the maze, facing the direction of the arrow. Molly thinks that they can get out if they only step forwards and right without turning. Jaxon thinks they can get out if make 1 clockwise quarter turn, step forward 1, make 1 half turn and step forward 3. Who is correct? Give reasons for your answer.



9b. Tia and Rhys are lost in the maze, facing the direction of the arrow. Tia thinks that they can get out if they step left 1, move back 2, step right 3 and back 2. Rhys thinks they can get out if they make 1 clockwise three-quarter turn, step forward 1, step left 1 and forward 3. Who is correct? Give reasons for your answer.



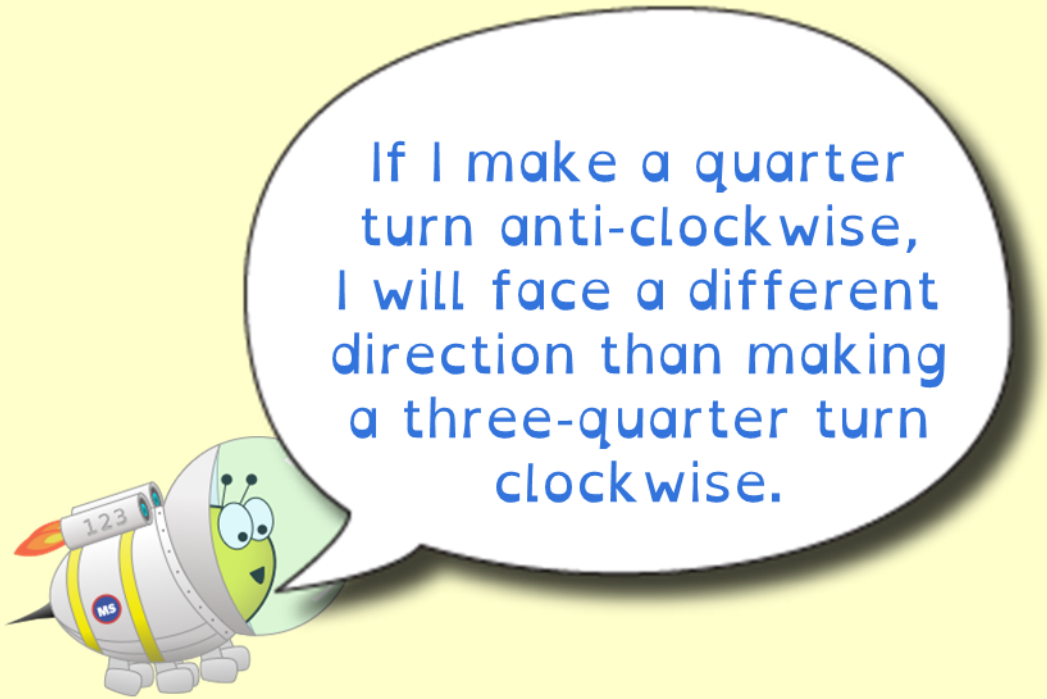
Reflection Time



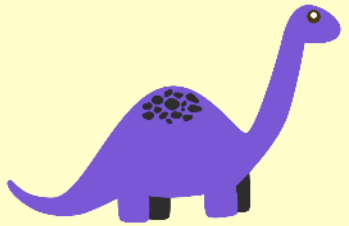
Do you agree with Astrobee's directions?

Provide a sketch to prove your answer.

Reflection Time



quarter turn anti-clockwise



three-quarter turn clockwise

No, I do not agree. If I stand and face the classroom door then turn a quarter clockwise or make a three-quarter turn anti-clockwise, I end facing in the same direction.

Position and Direction

23.04.20

Date: 23.04.20

LO: To be able to make patterns with shapes

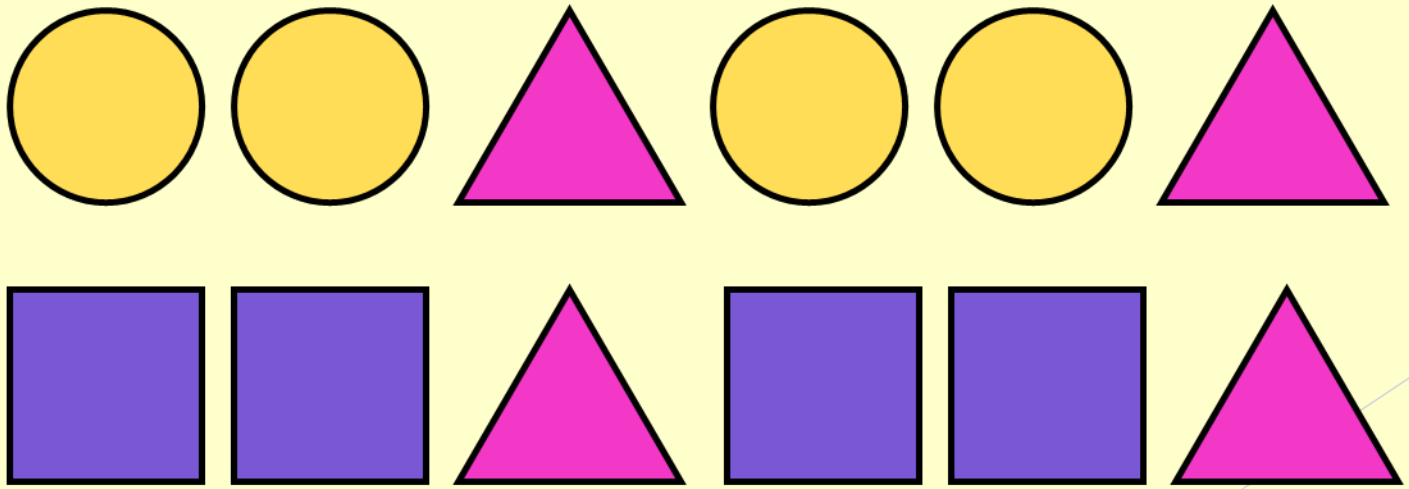
Success Criteria

- ✓ I can create and describe patterns that involve directions, and full and part turns
- ✓ I can explain my reasoning when creating and describing patterns that involve directions, and full and part turns

Starter

Can you explain to a grown up what is the same/ different? How do you know?
I know…. because….

Look at the patterns below, what's the same and what's different?

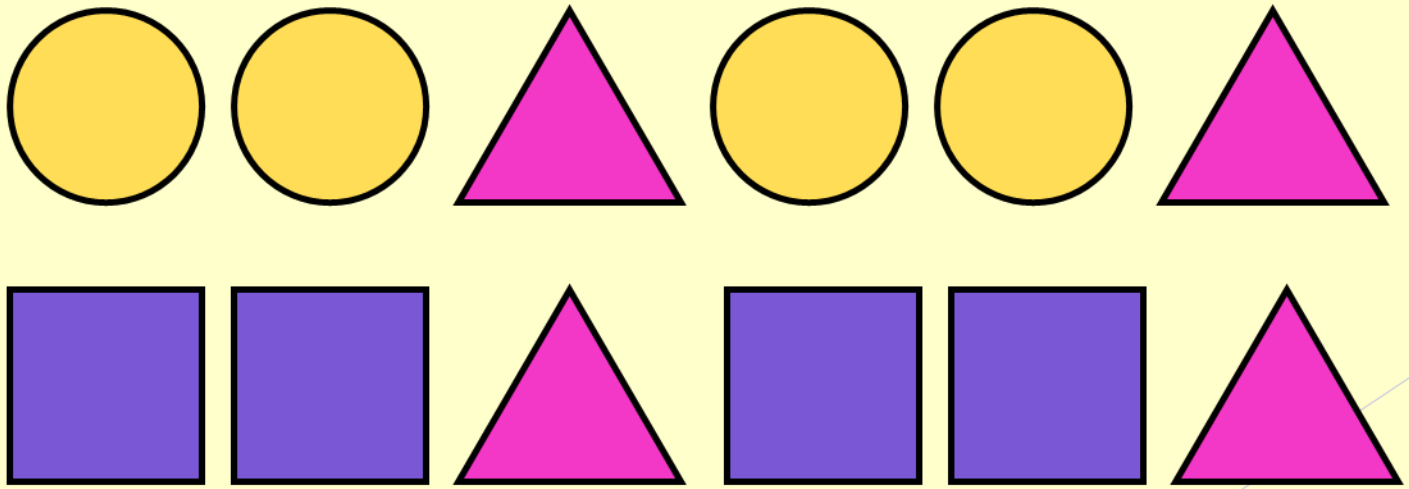


Explain your answer.

Starter

ANSWER: The top pattern shows two yellow circles followed by a pink triangle. The bottom pattern shows two purple squares followed by a pink triangle. Both patterns have pink triangles, but the other shapes are different.

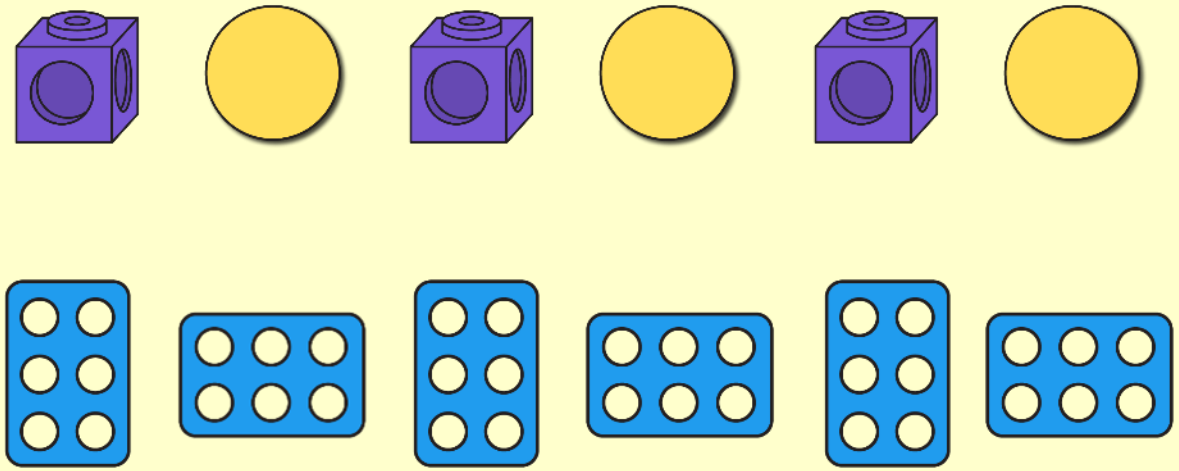
Look at the patterns below, what's the same and what's different?



Explain your answer.

Descriptive Teaching

Use mathematical equipment to make patterns.

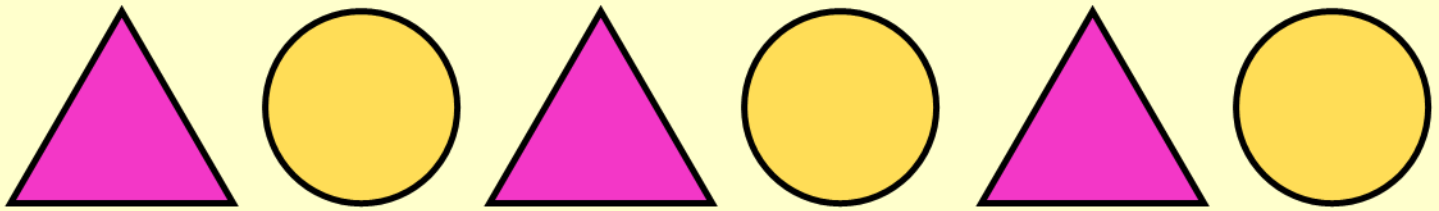


Ask your partner what should come next in your pattern.

What comes next? Can you make your own pattern?

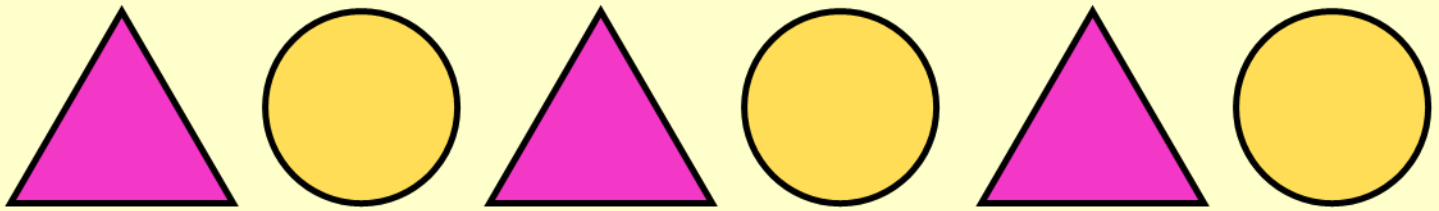
Descriptive Teaching

Continue the pattern below by adding the next three shapes.



Descriptive Teaching

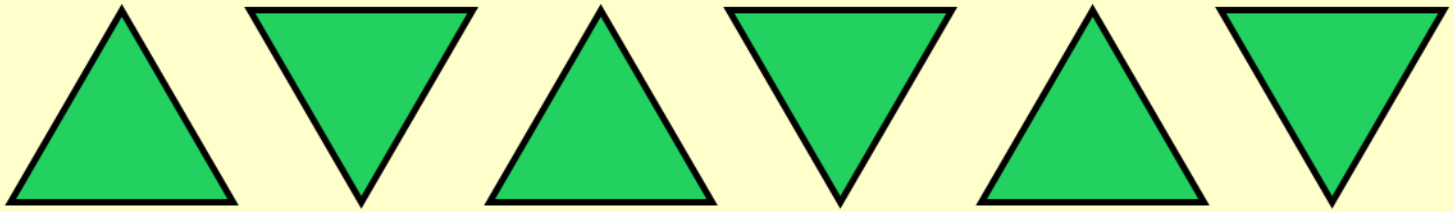
Continue the pattern below by adding the next three shapes.

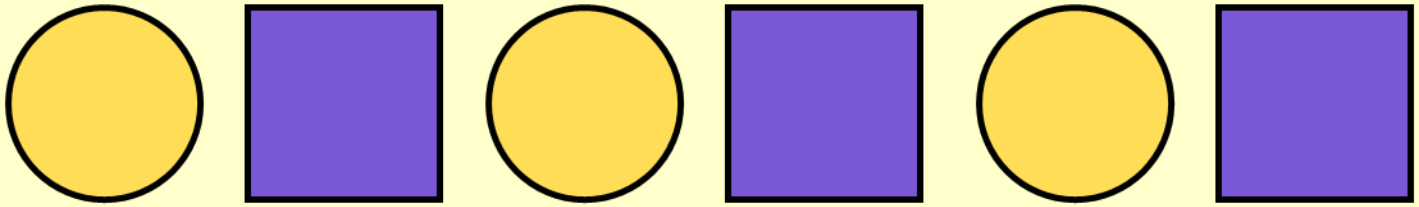


ANSWERS:
Triangle
Circle
Triangle

Descriptive Doing

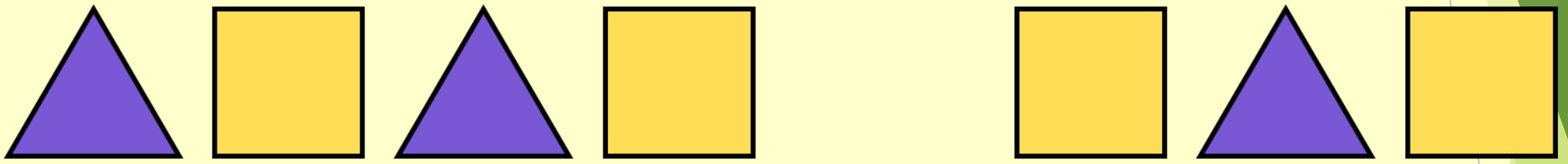
Continue the patterns below by adding the next three shapes.





Descriptive Doing

Which shape should go in the blank space below?

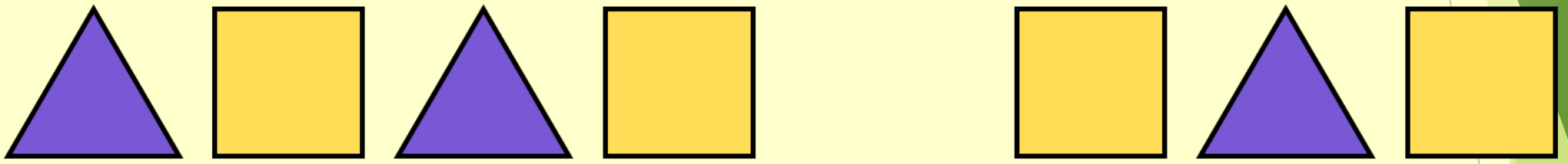


Explain your answer.

Remember to explain your answer.
I know that… comes next because…

Descriptive Doing

Which shape should go in the blank space below?



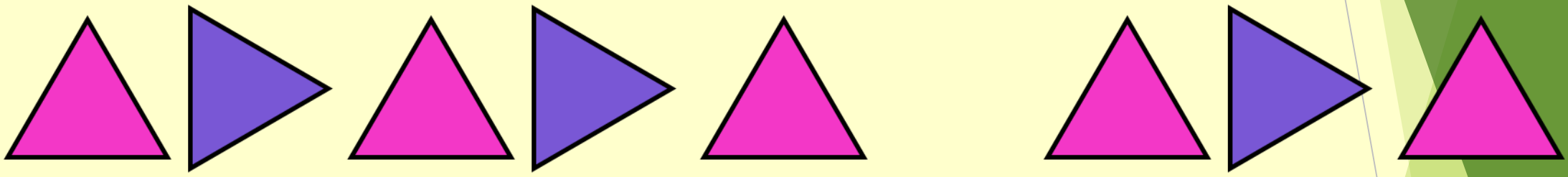
Explain your answer.

ANSWER: A purple triangle is missing as the pattern is purple triangle, yellow square, purple triangle…

Reflective Teaching

Talking Time:

Which shape should go in the blank space below?



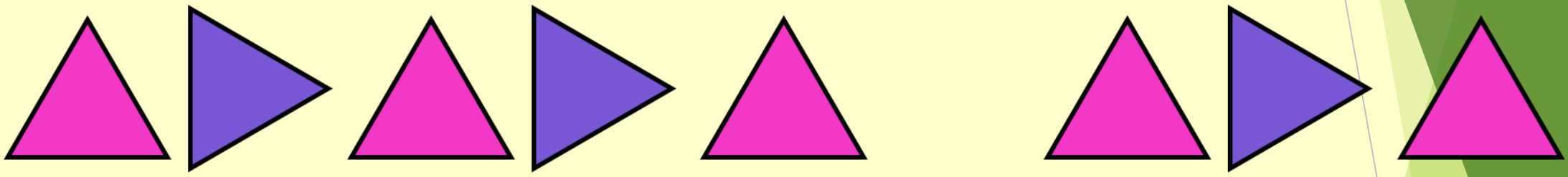
Explain your answer.

Remember to explain your answer.
I know that… comes next because…

Reflective Teaching

Talking Time:

Which shape should go in the blank space below?

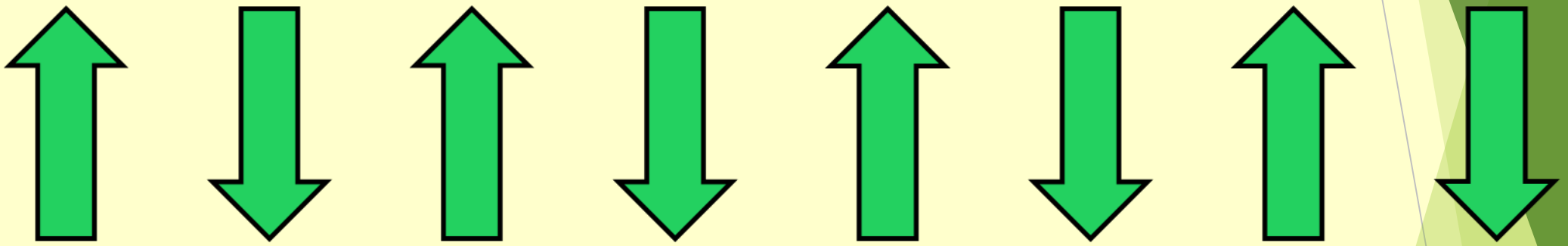


Explain your answer.

ANSWER: A quarter-turned purple triangle is missing as the pattern is pink triangle, purple triangle, pink triangle…

Reflective Doing

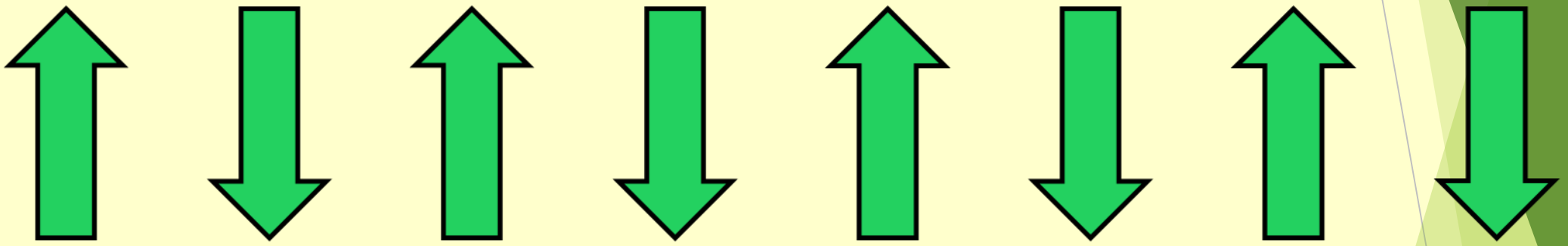
Describe the turn that is made in each step in the pattern below.



Explain your answer.

Reflective Doing

Describe the turn that is made in each step in the pattern below.

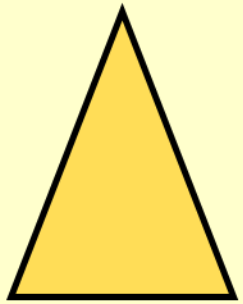


Explain your answer.

ANSWER: The arrows are making a half turn each time as the first arrow is pointing upwards and then the second arrow is pointing downwards…

Reflective Doing

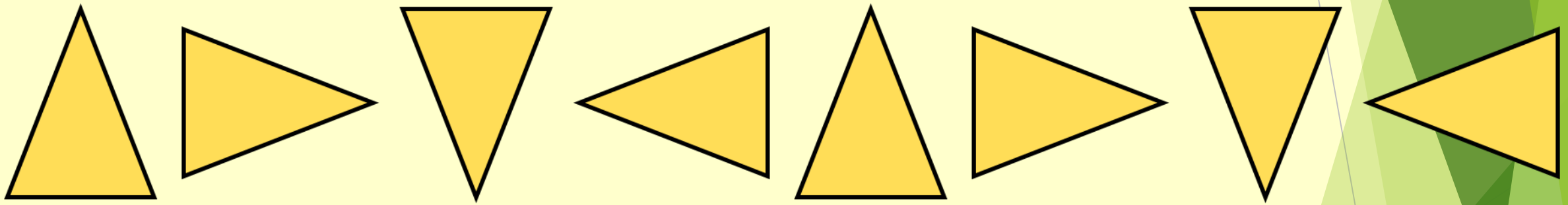
Make as many different patterns you can using a single shape in different directions, using a variety of part turns.



How many ways can you position the triangle using turns?

Reflective Doing- ANSWER

Make as many different patterns you can using a single shape in different directions, using a variety of part turns.



Example shown above.

Challenge

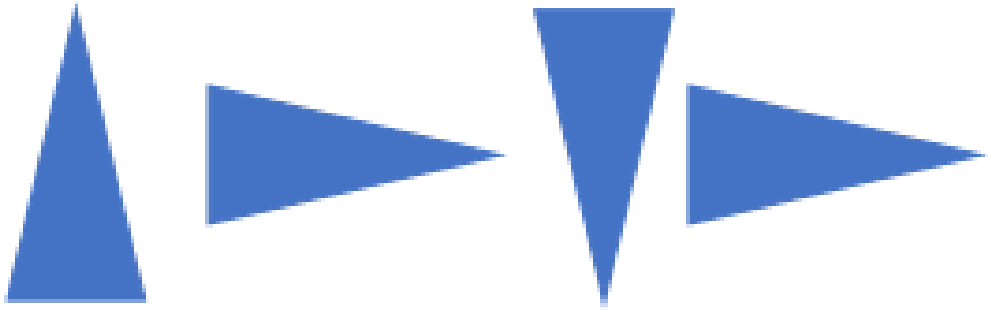
1a. Which shape in this pattern is incorrect?

How do you know?

D

R

1b. Which shape in this pattern is incorrect?



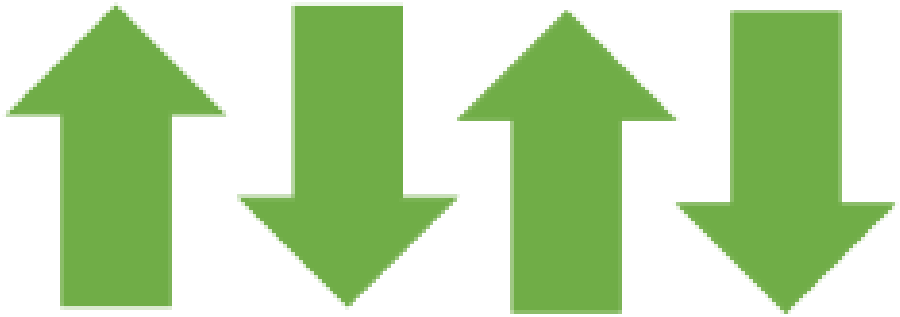
How do you know?

D

R

Challenge

2a. Sam says, "The pattern here is that the shape is making a quarter turn in a clockwise direction each time."

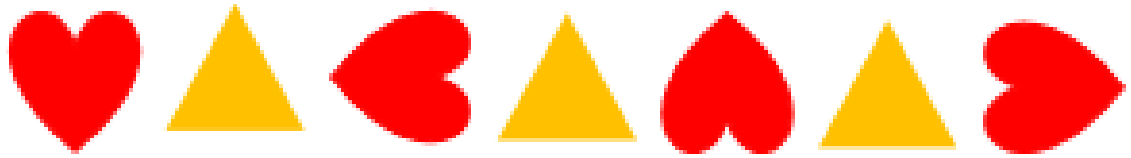


Is he correct? Explain how you know.

D

R

2b. Aisha says, "The pattern here is that the heart is making a quarter turn each time in an anti-clockwise direction."



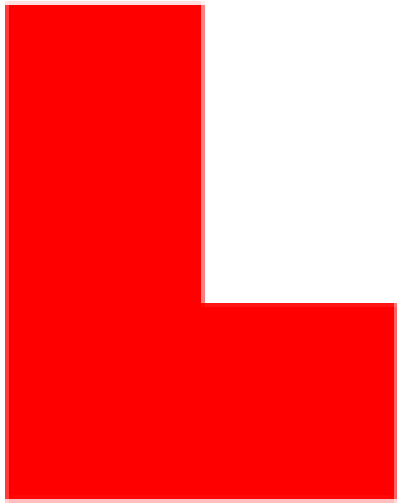
Is she correct? Explain how you know.

D

R

Challenge

3a. What patterns could be made using the shape below?

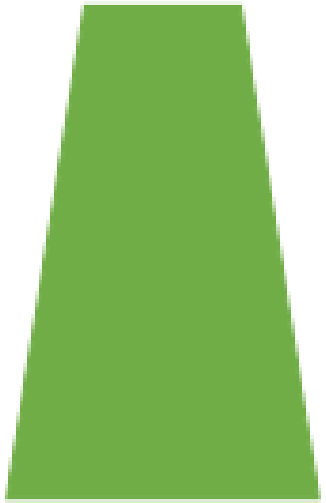


Include a quarter or half turn in either a clockwise or anti-clockwise direction.

D

PS

3b. What patterns could be made using the shapes below?



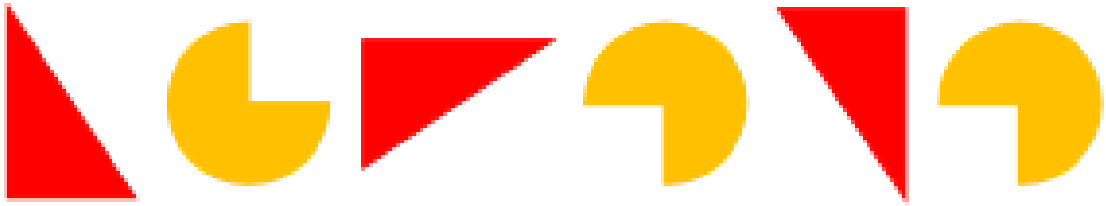
Include a quarter or half turn in either a clockwise or anti-clockwise direction.

D

PS

Challenge

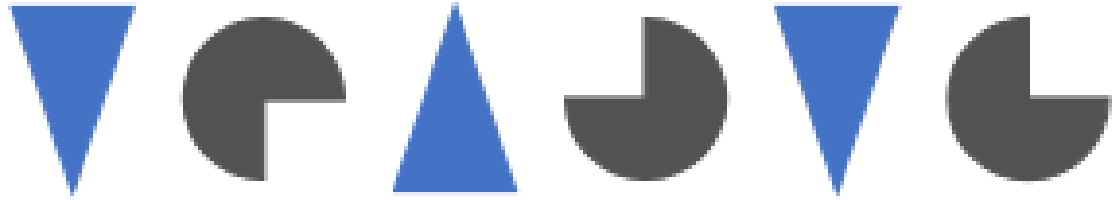
4a. Which shape in this pattern is incorrect?



1 2 3 4 5 6

How do you know?

4b. Which shape in this pattern is incorrect?



1 2 3 4 5 6

How do you know?

Challenge

5a. Kyle says, "The pattern here is that the triangle is making a half turn each time and the rectangle is staying the same."

Is he correct? Explain how you know.

5b. Lucy says, "The pattern here is that the rectangle is making a quarter turn in a clockwise direction each time but the triangle is staying the same."

Is she correct? Explain how you know.

Challenge

6a. What patterns could be made using the shapes below?

Include at least one turn in either a clockwise or an anti-clockwise direction.

PS

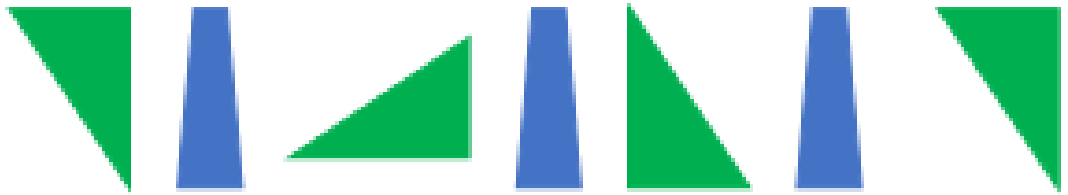
6b. What patterns could be made using the shapes below?

Include at least one turn in either a clockwise or an anti-clockwise direction.

PS

Challenge

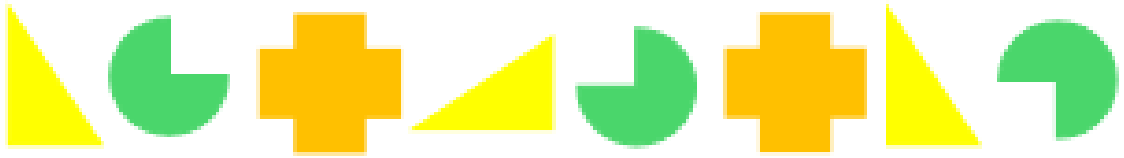
7a. Which shape in this pattern is incorrect?



1 2 3 4 5 6 7

How do you know?

7b. Which shape in this pattern is incorrect?



1 2 3 4 5 6 7 8

How do you know?

Challenge

8a. Ian says, "The pattern here is that the triangle is making a quarter turn in a clockwise direction each time."

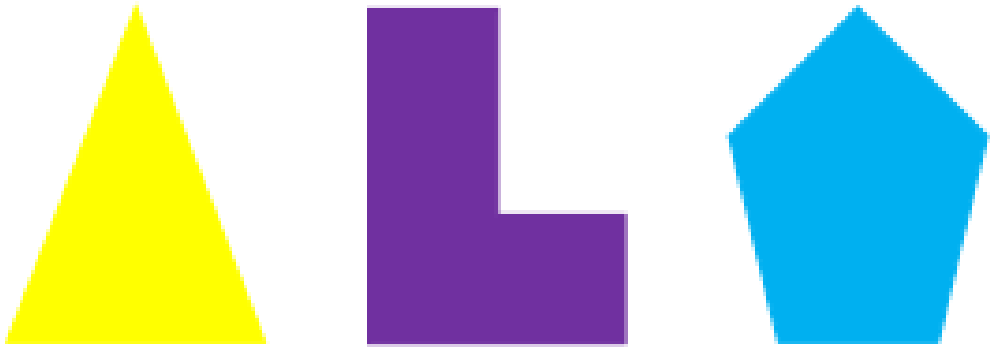
Is he correct? Explain how you know.

8b. Leah says, "The pattern here is that the rectangle and star stay the same and the pentagon makes a half turn in a clockwise direction each time."

Is she correct? Explain how you know.

Challenge

9a. What patterns could be made using the shapes below?



Include all of the shapes and at least 2 turns in either a clockwise or an anti-clockwise direction.

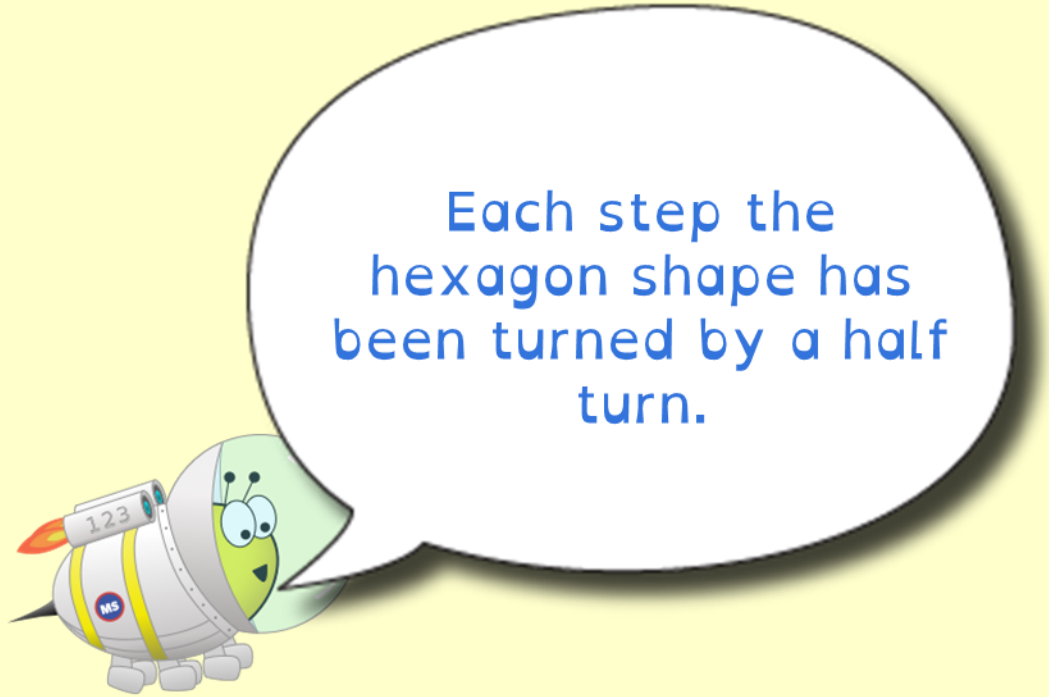
PS

9b. What patterns could be made using the shapes below?

Include all of the shapes and at least 2 turns in either a clockwise or an anti-clockwise direction.

PS

Reflection



Do you agree with Astrobee's description?

Provide a sketch to prove your answer.

Position and Direction

24.04.20

Date: 24.04.20

LO: To be able to consolidate my knowledge

Today you will go on a quest to consolidate all of your learning from this week!
Can you help find the magic key to open the treasure chest?

?

Welcome, welcome one and all,
To the quiz which is huge, not small.
I'm the master of this maze,
Pass through me and you will get the praise.

Who will take this mighty chance?
To win the treasure and join the victory dance.
Could it be you Seren and Ali?
Jump on up and we will see!

Seren and Ali can not believe their luck. It is finally their turn to take on the Master of the Maze. They must try to reach the castle to find the magic key and open the treasure chest.
Can they do it? They are going to need your help.

?

"Here goes!" says Seren. "The moment that we have been waiting for, we will need to work as a team but I'm sure if we work together we will succeed."

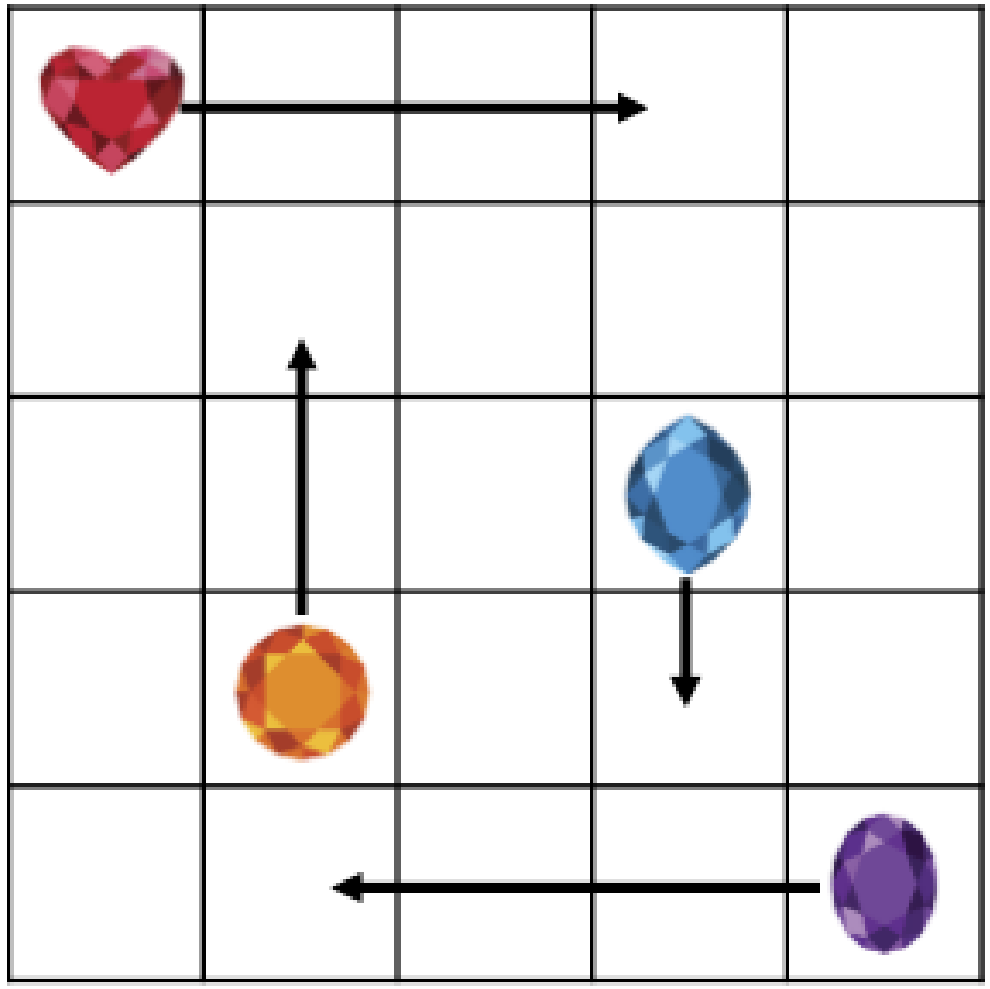
Seren and Ali nervously take to the stage and join the Master of the Maze ready for their first challenge.

"OK you two, your first challenge awaits! Go through door 1 and into the next room and you will find your instructions. Good luck."

1a. Help Seren complete the table to explain how each jewel has moved.

Explain how each coloured jewel has moved.
Make sure you use the words: up, down, left and right.

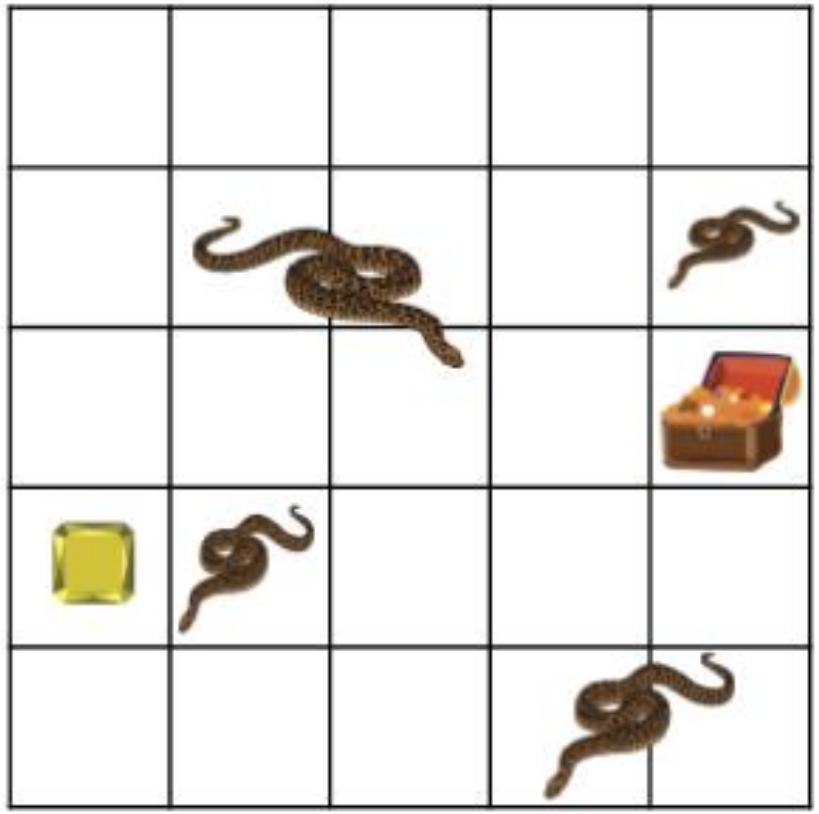
	The orange jewel has moved ___ squares _____
	The red jewel has moved ___ squares _____
	The blue jewel has moved ___ square _____
	The purple jewel has moved ___ squares _____



1b.

The yellow jewel needs to be inside the treasure box.

Draw a line on the grid from the jewel to the chest using the least amount of moves. You can't pass through any squares that have snakes in them.



1c. Ali thinks that he can move the jewel to the chest in 5 steps.
Is he correct? Explain why?

It is a good job that Ali and Seren have your help otherwise I think they might have failed that challenge.

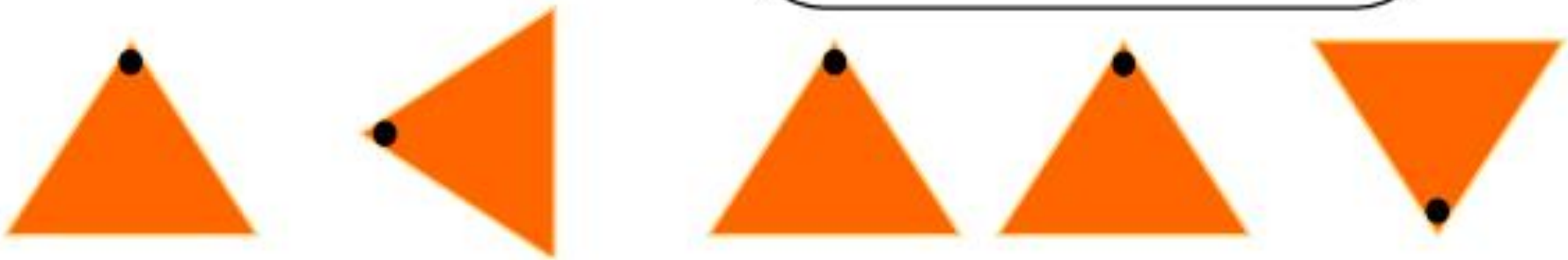
Good work, you have passed the first two challenges, go through door 2 and into the next room, let's see what we have to do next...

This room is so colourful and full of shapes. Ali finds the next challenge.

Look at the five triangles carefully.
B and E are different.
Describe how you can turn them to make them look the same.

We need to make sure that we use the words anti-clockwise, clockwise, quarter, three-quarter and half turns.

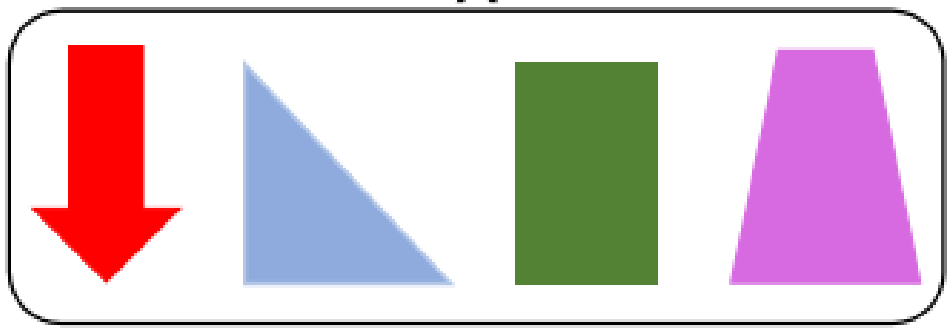
2a.



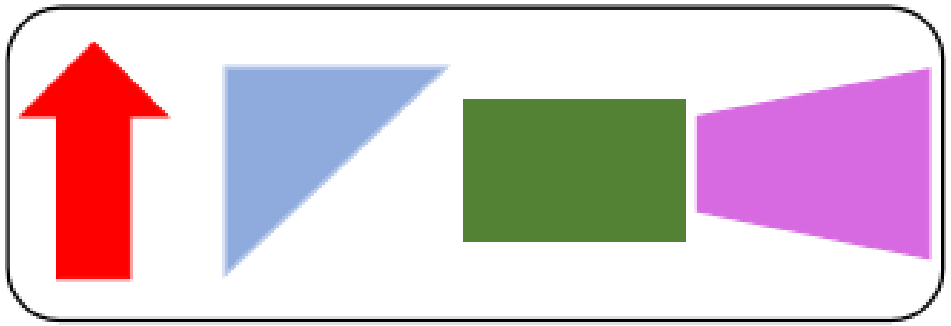
A B C D E

Some of the shapes on the wall tiles have been turned.

A



B

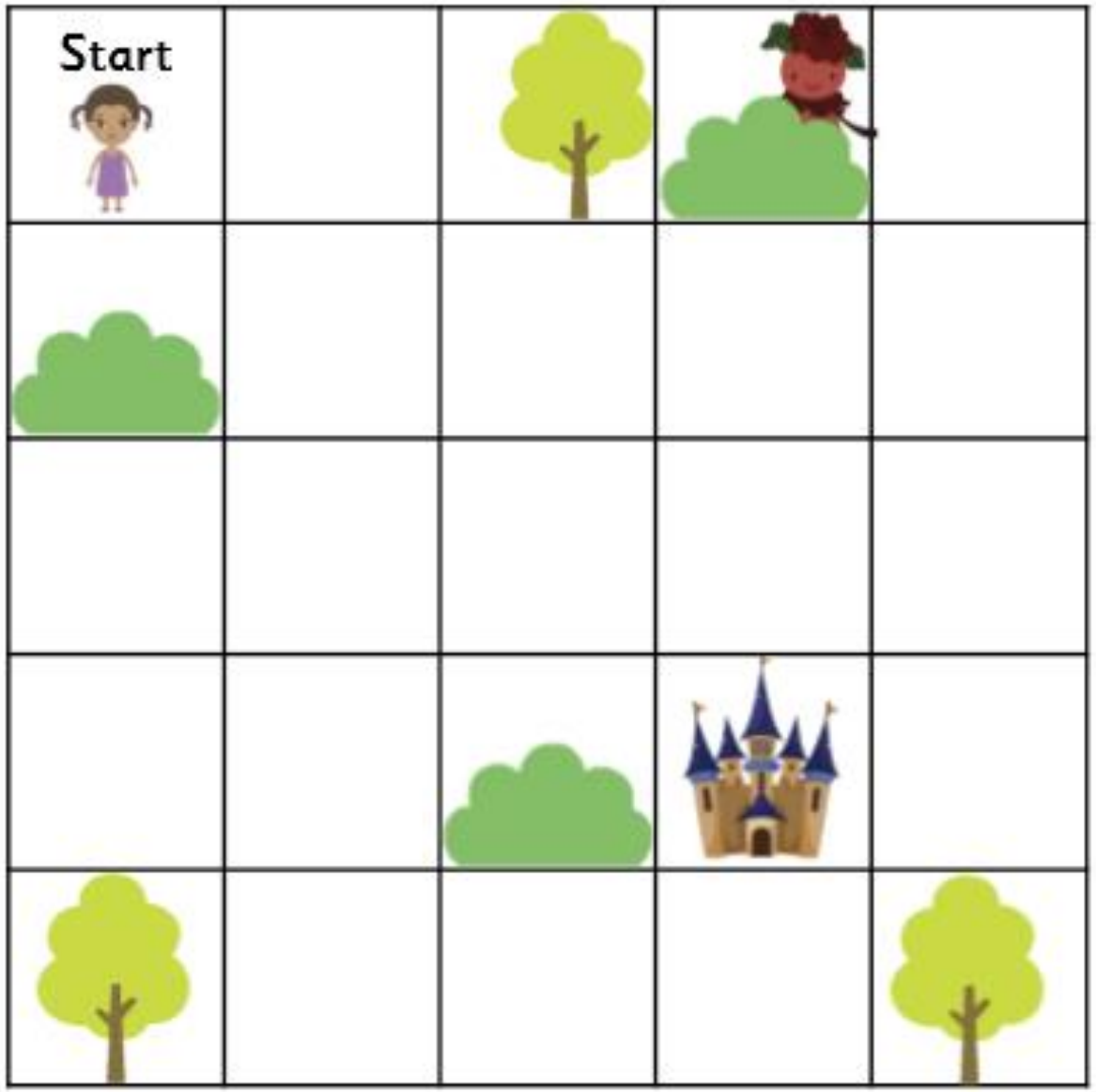


2b. Help Seren to match the tiles.

Describe how you would turn the shapes in tile B so that they match the shapes in tile A.

Suddenly, the door opens and the Master of the Maze appears.
He has the next challenge...
"Fabulous work team. You have done well so far, however, this next part is tricky!" says the Master of the Maze. "You have reached the maze. Work together to get to the castle, you are getting closer to that magic key."

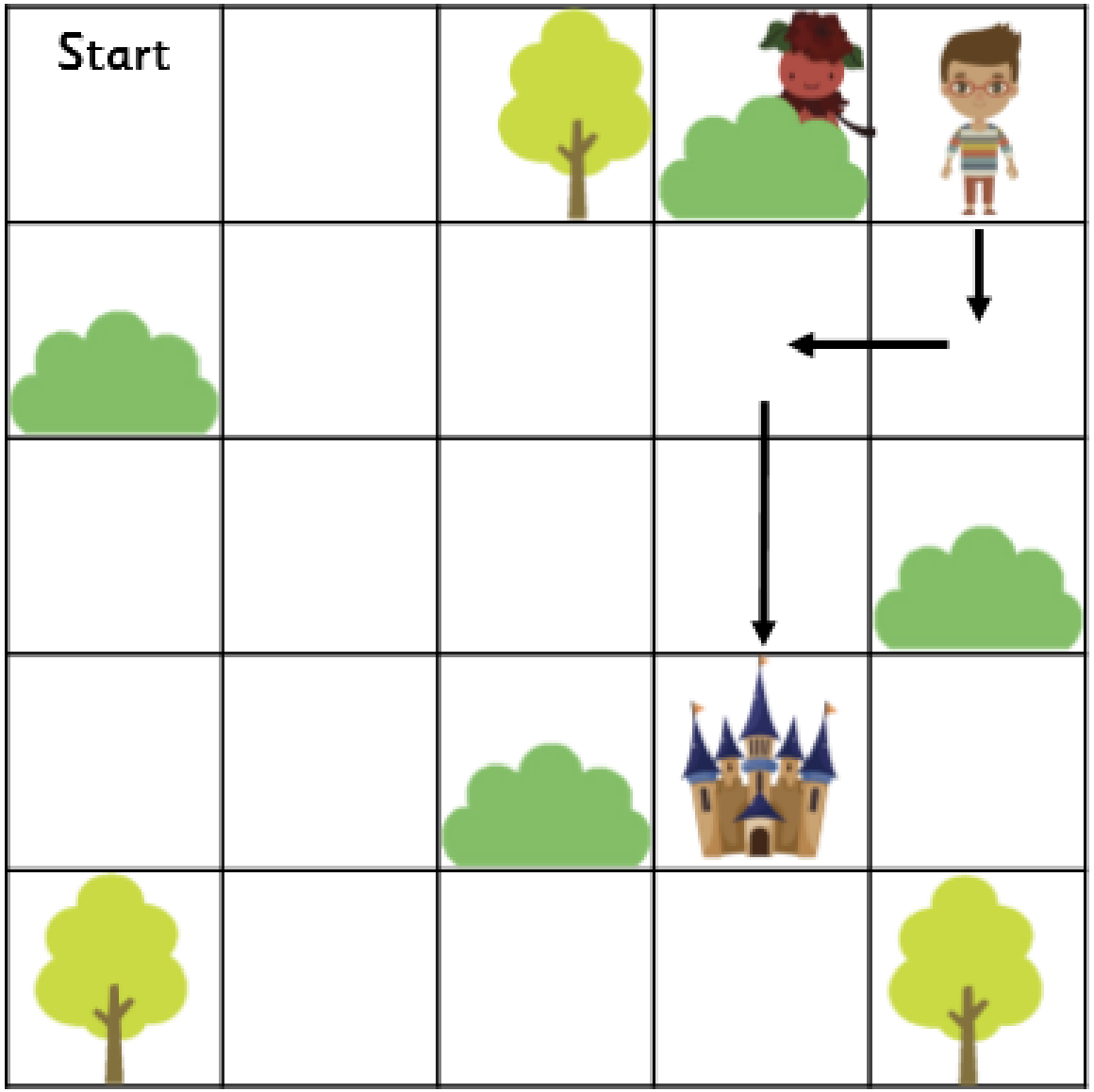
3a. Seren finds the next challenge. Help her to get through the maze and to the castle by following the Instructions. Draw a line for her to follow.



You've done the quiz now here is a maze. Follow the instructions and try not to get lost in a daze!

Turn a quarter turn left
Step forward 1
Turn a quarter turn right
Step forward 2
Step a quarter turn left
Step forward 2
Turn a quarter turn right
Step forward 1

Well done. You have followed the instructions and Seren has reached the Castle.
But where is Ali?
Ali has got lost in the maze.

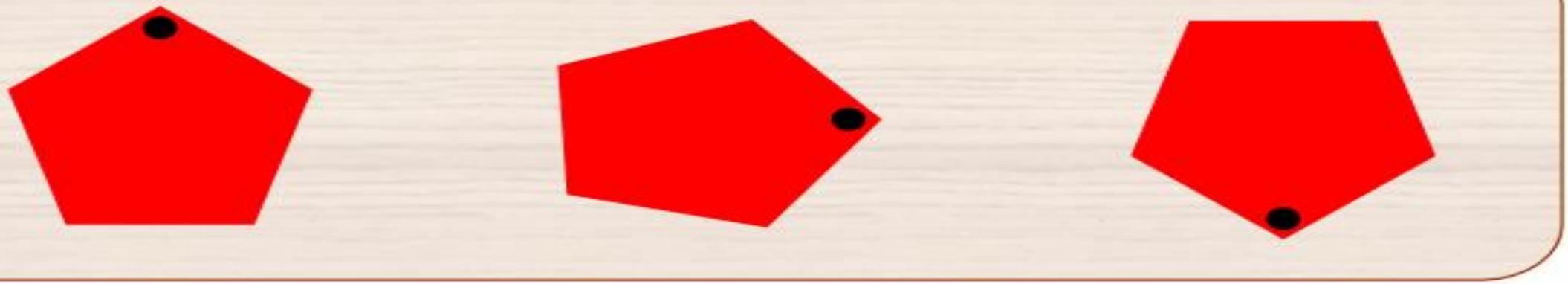


3b. You need to write the instructions for Ali to follow so that he can reach the castle. I have drawn an arrow for the route he should follow.

YES! Seren and Ali have both made it to the castle. There is one more challenge left to complete. Inside the castle door the magic key awaits.

Look carefully at the door of the castle.
Can you continue the pattern. Draw the next three shapes in the sequence.

4a. Look carefully at the pattern.



Draw the next three shapes in the pattern.

4b. Seren says that the shape has been turned half a turn clockwise each time. Is she correct? Explain why.

The door has opened. Well done you have successfully completed the quiz.
You have found the magic key and the treasure is yours to share.

Well done Team.