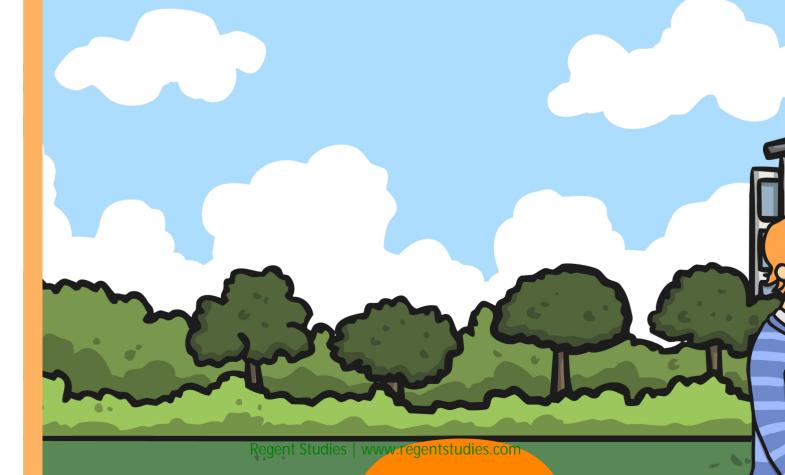


Preparing for







r Turtle Logo























move



forward

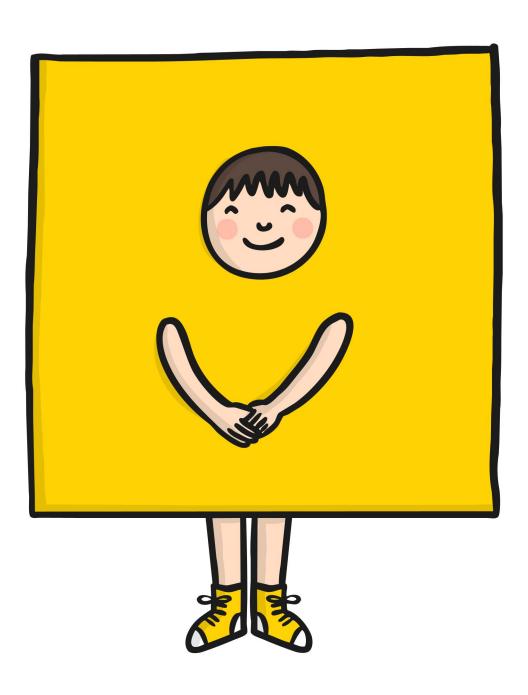




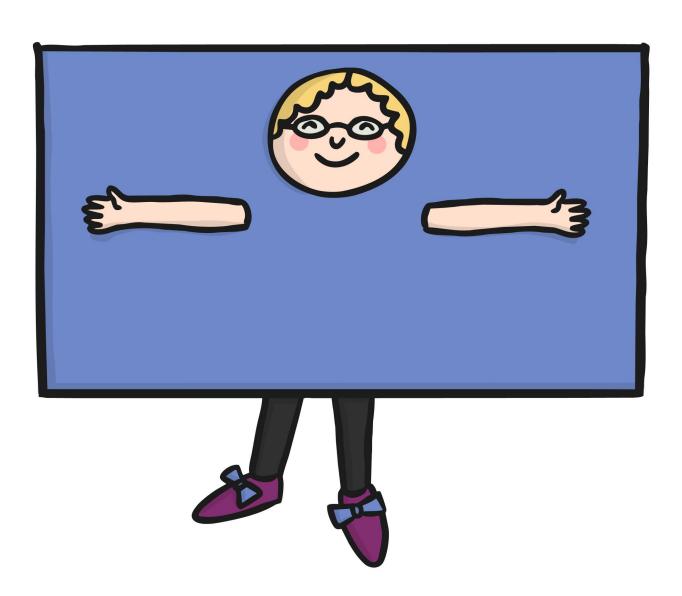
quarter turn



square



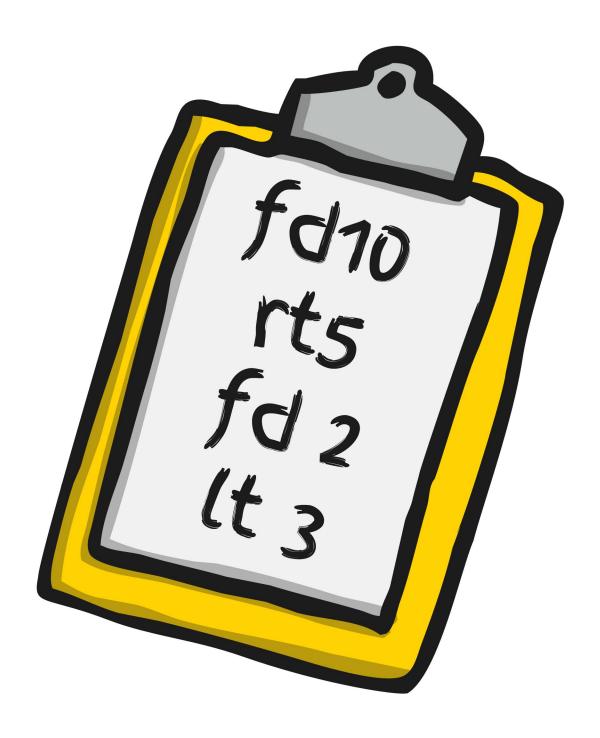
rectangle



commands



algorithm



turn



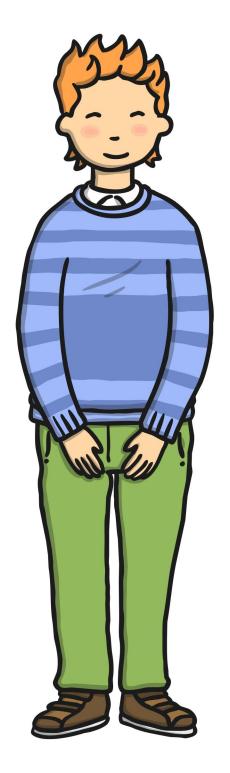
instructions



right 90



forward 4



left 90



MONR



forward

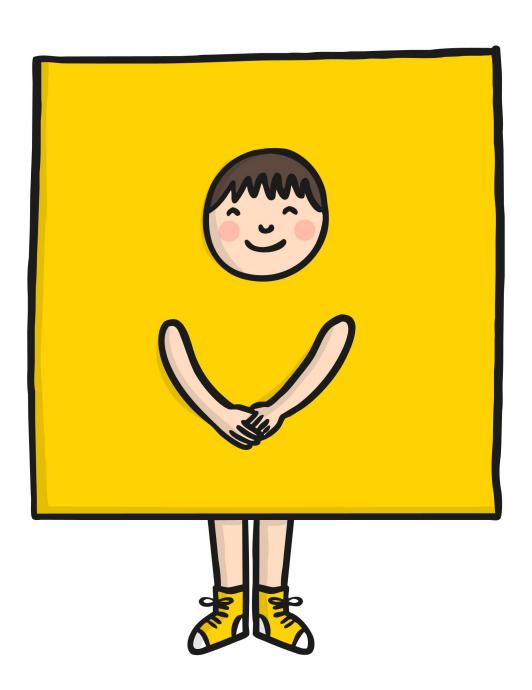




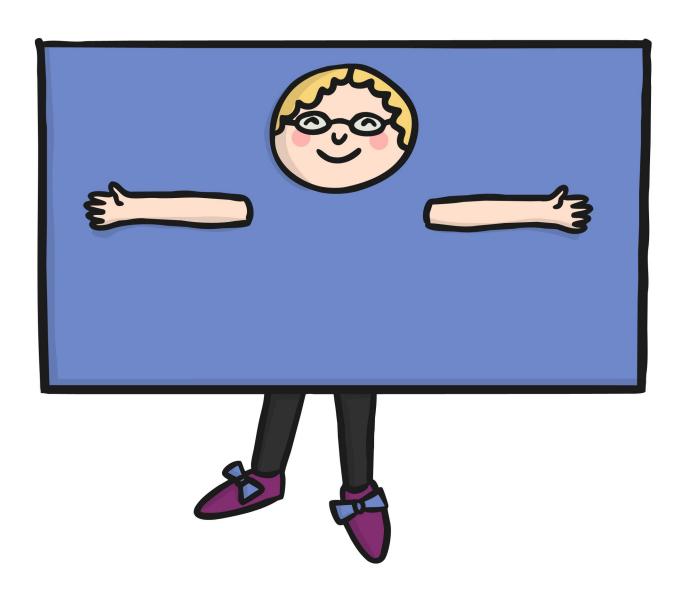
quarter turn



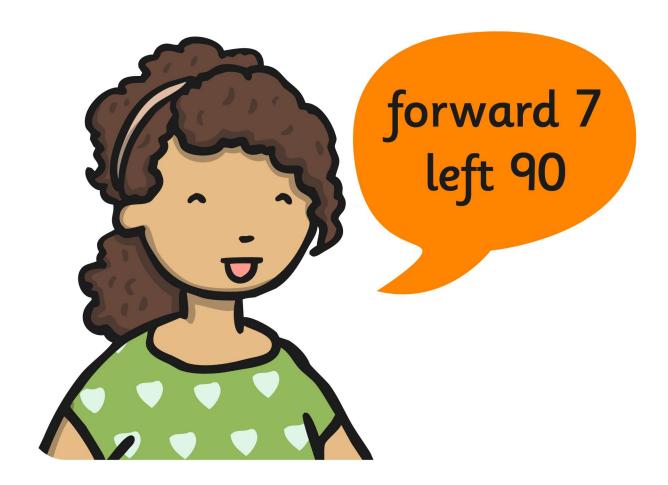
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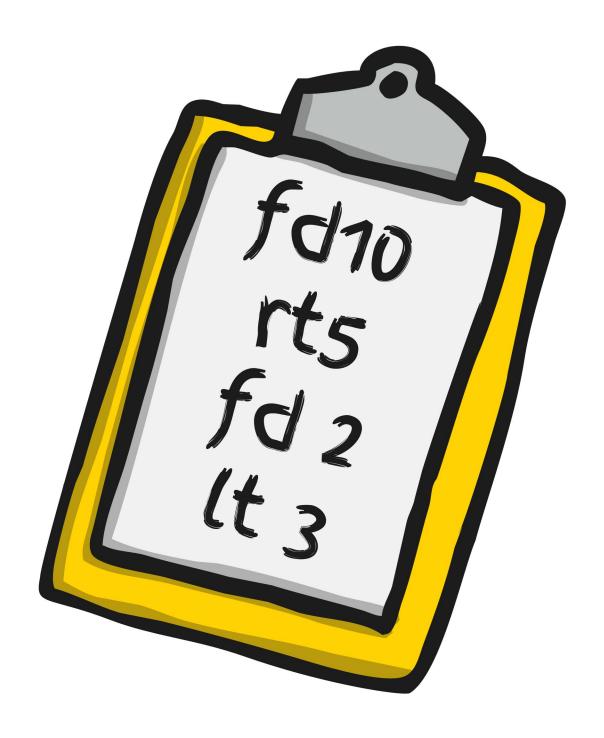
rectangle



commands



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turn



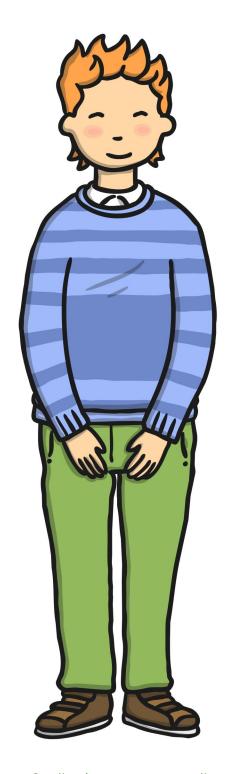
instructions



right 90



forward 4



Left 90



move



forward

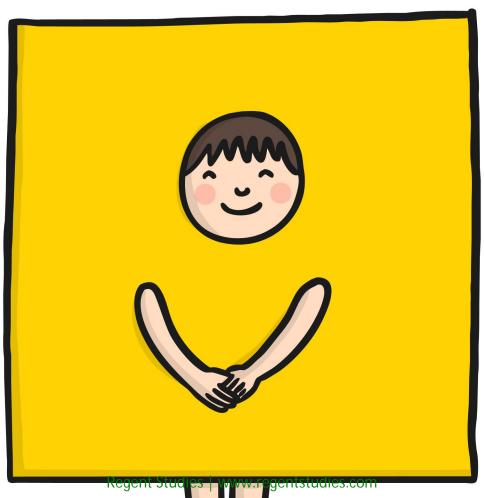




quarter turn

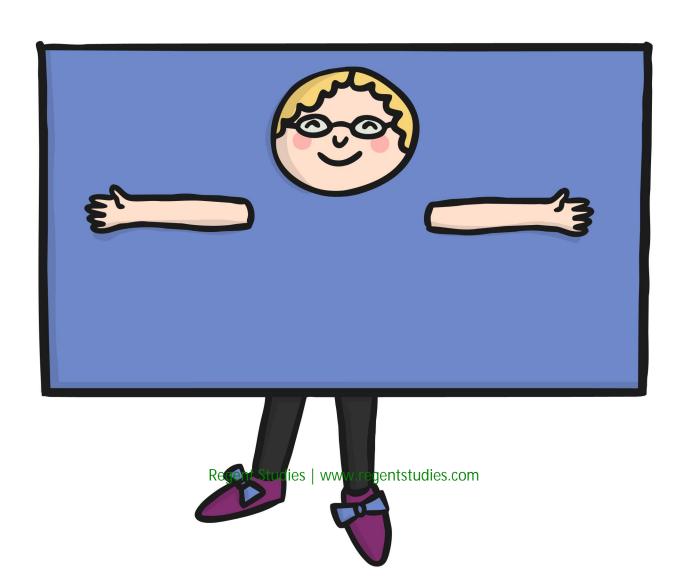


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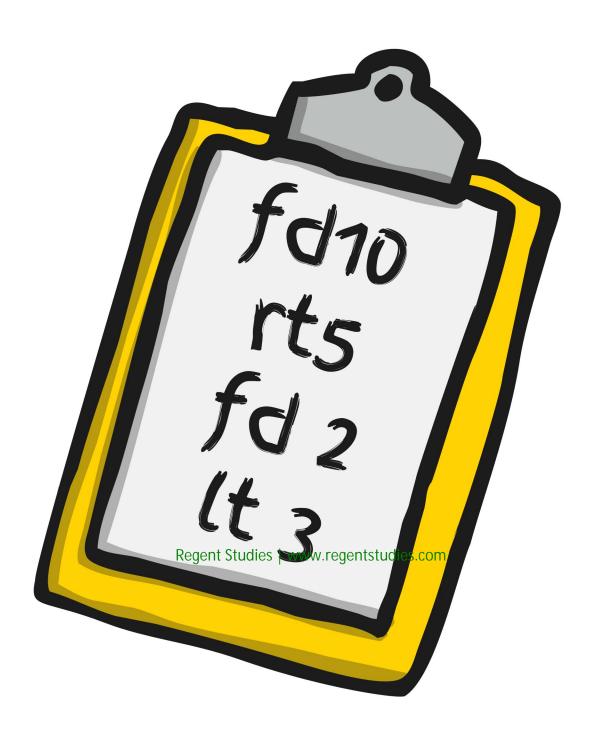
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commands



algorithm



turn



instructions



right 90



forward 4



left 90



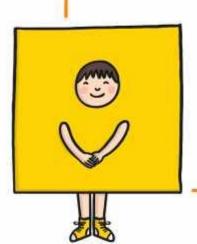
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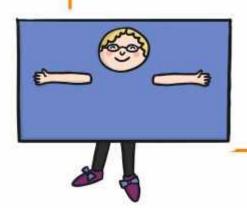












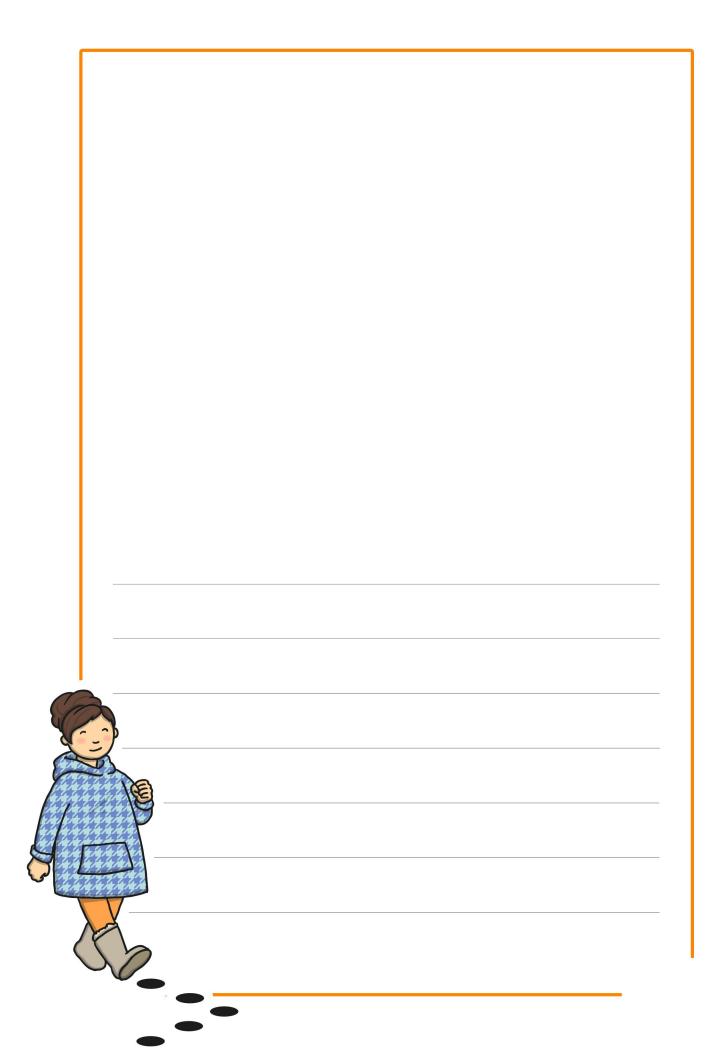
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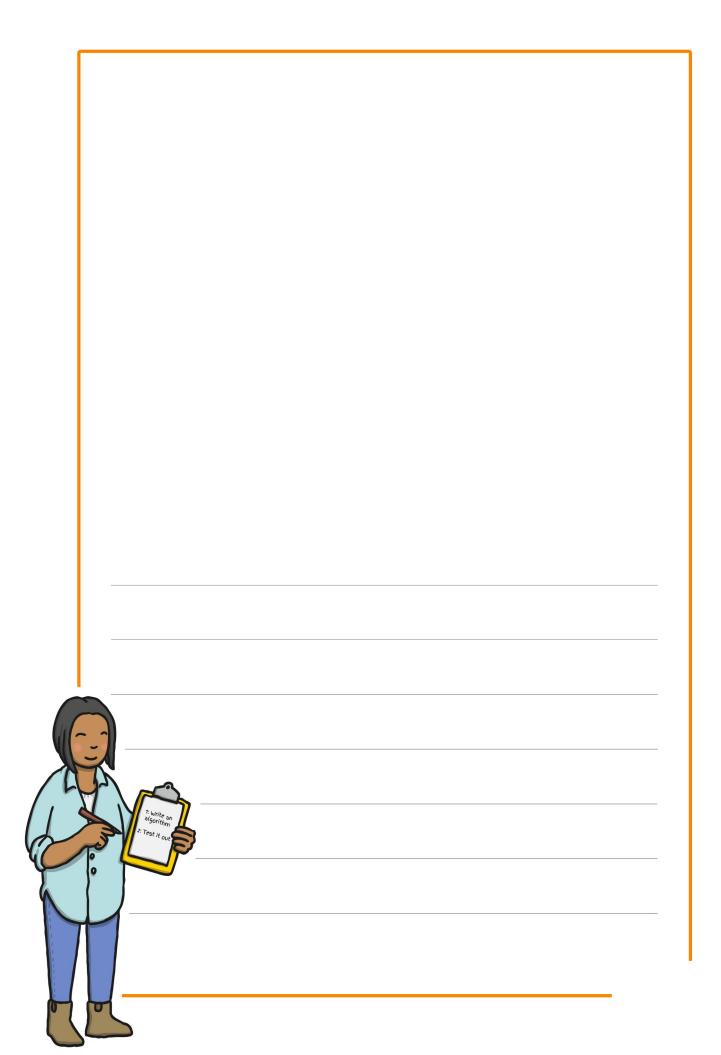
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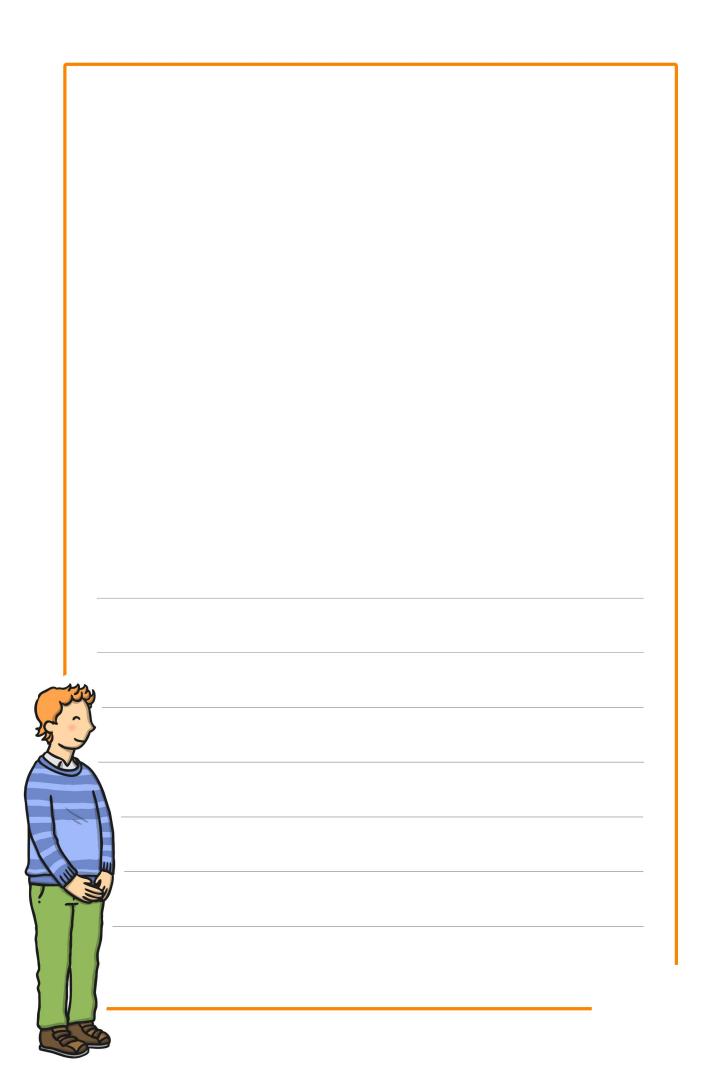
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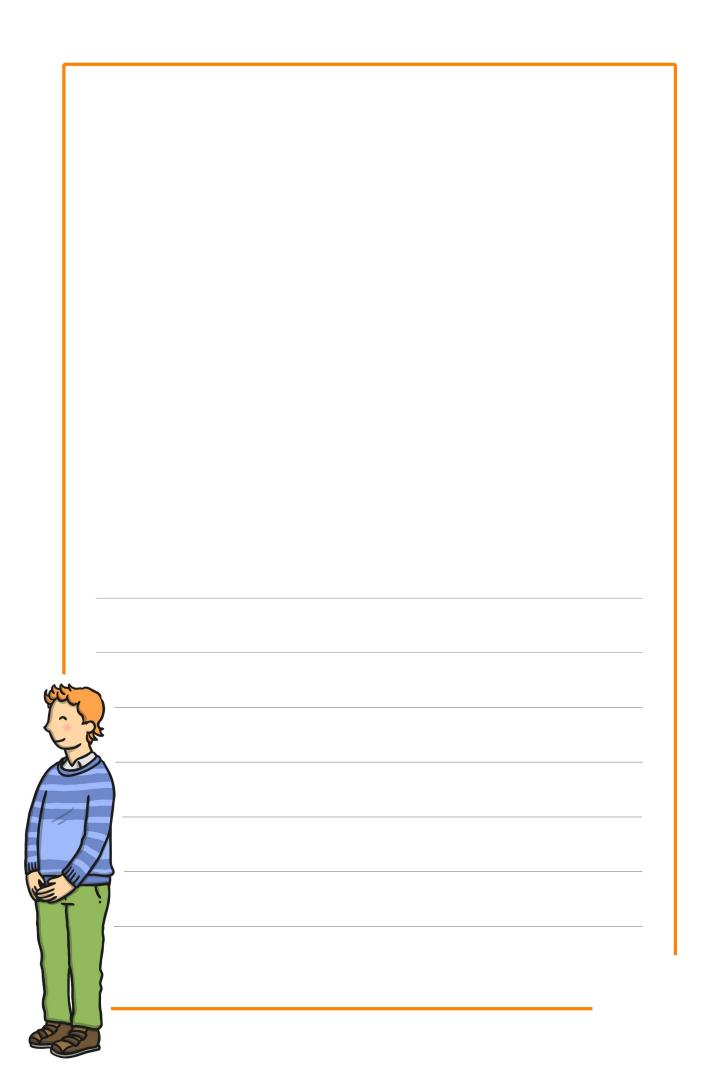
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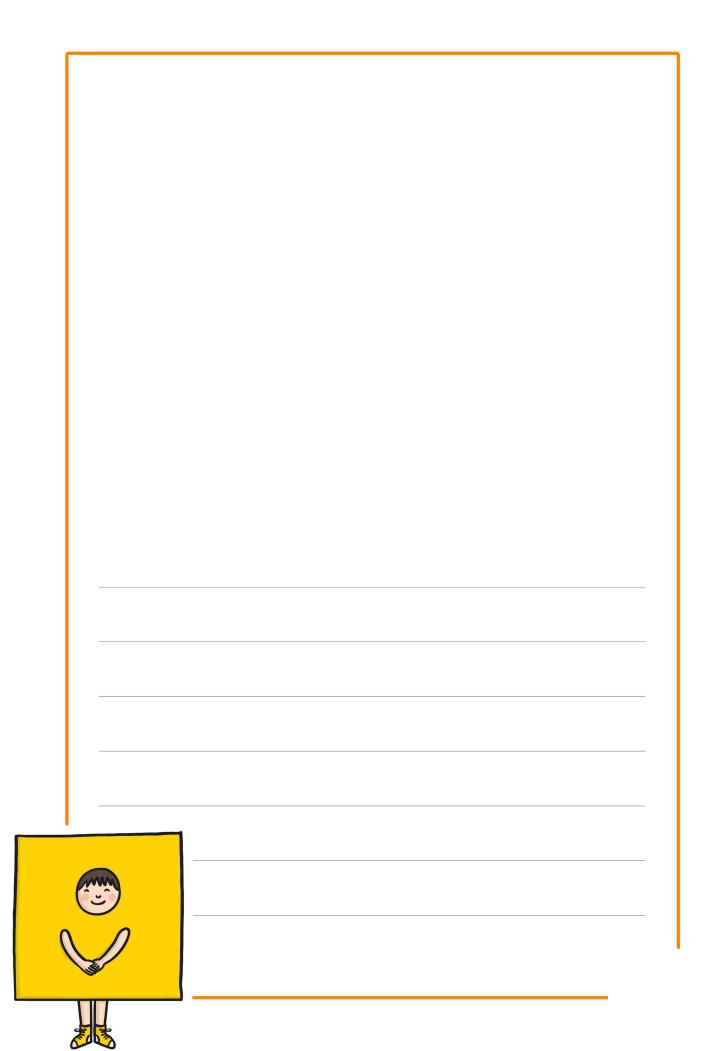
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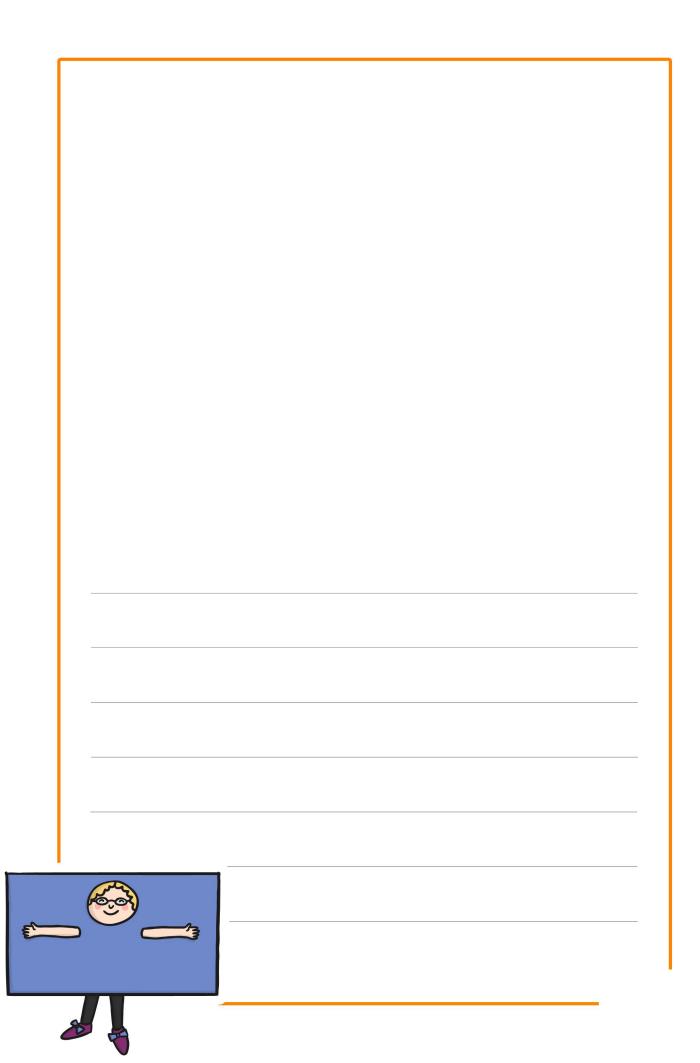


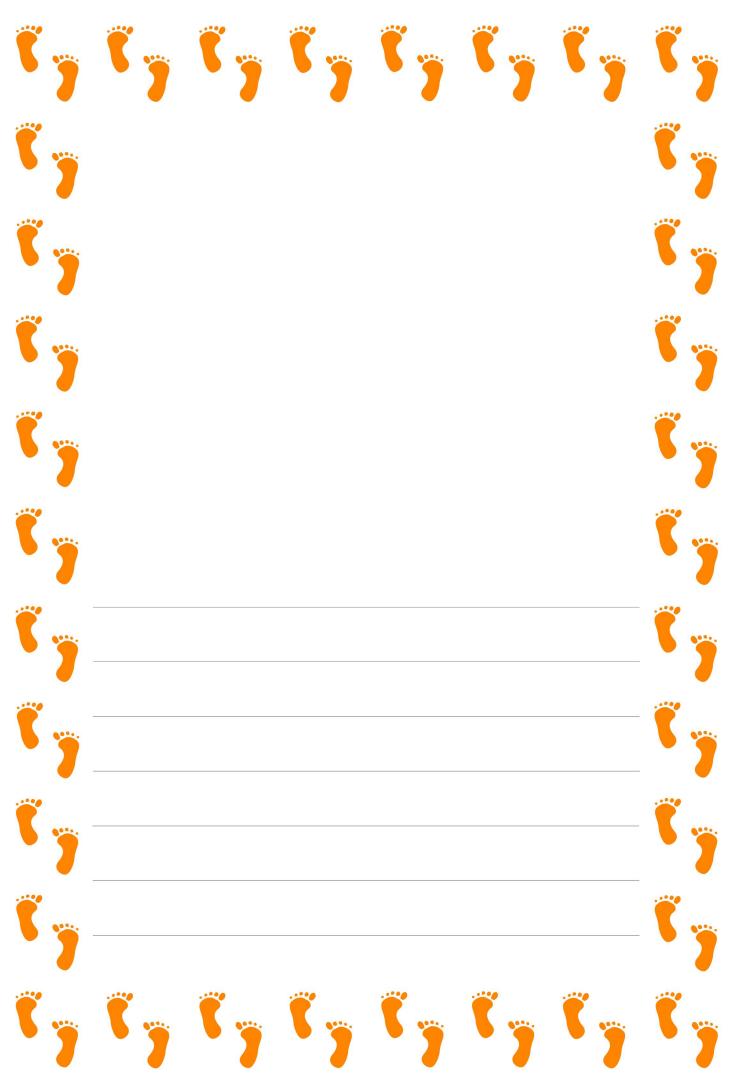






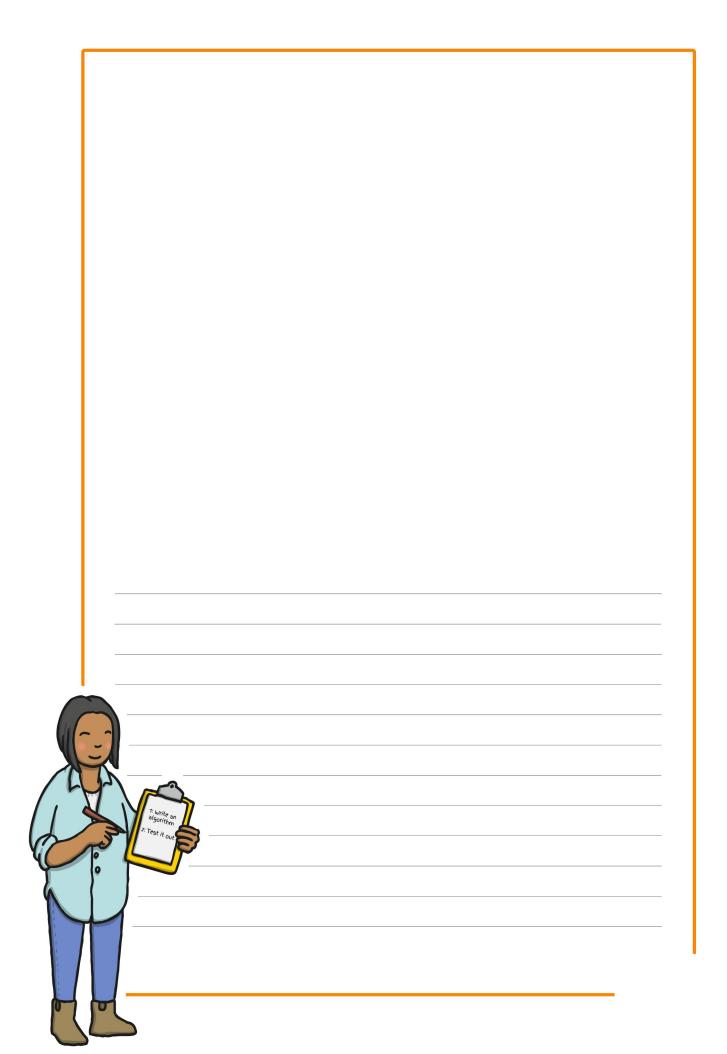


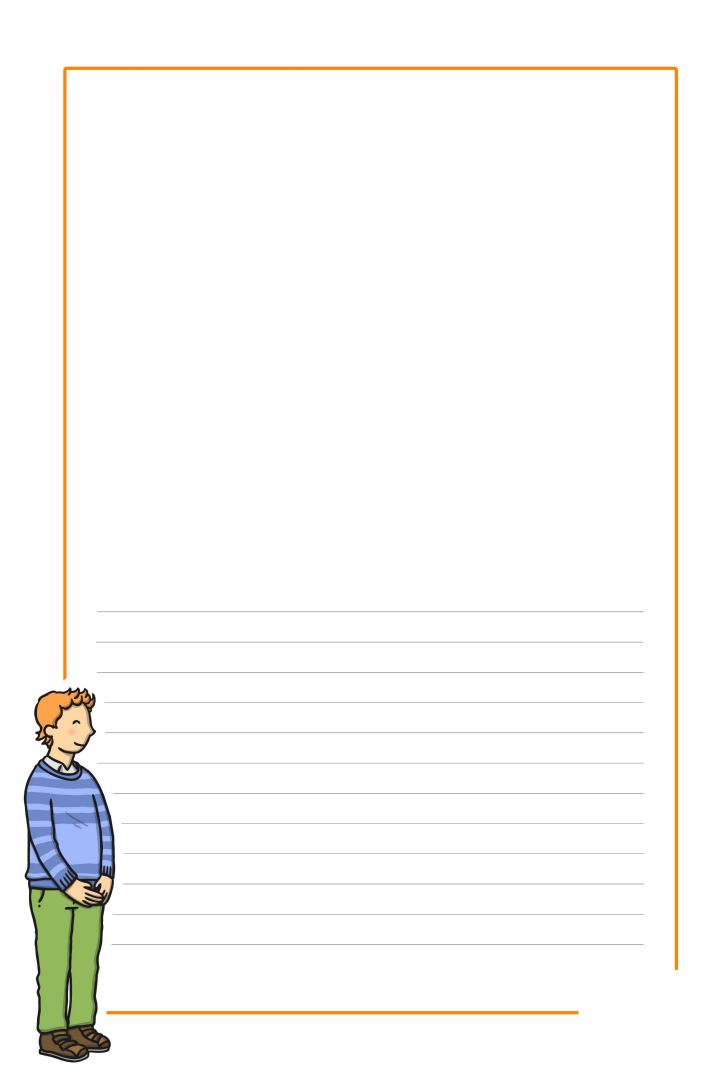




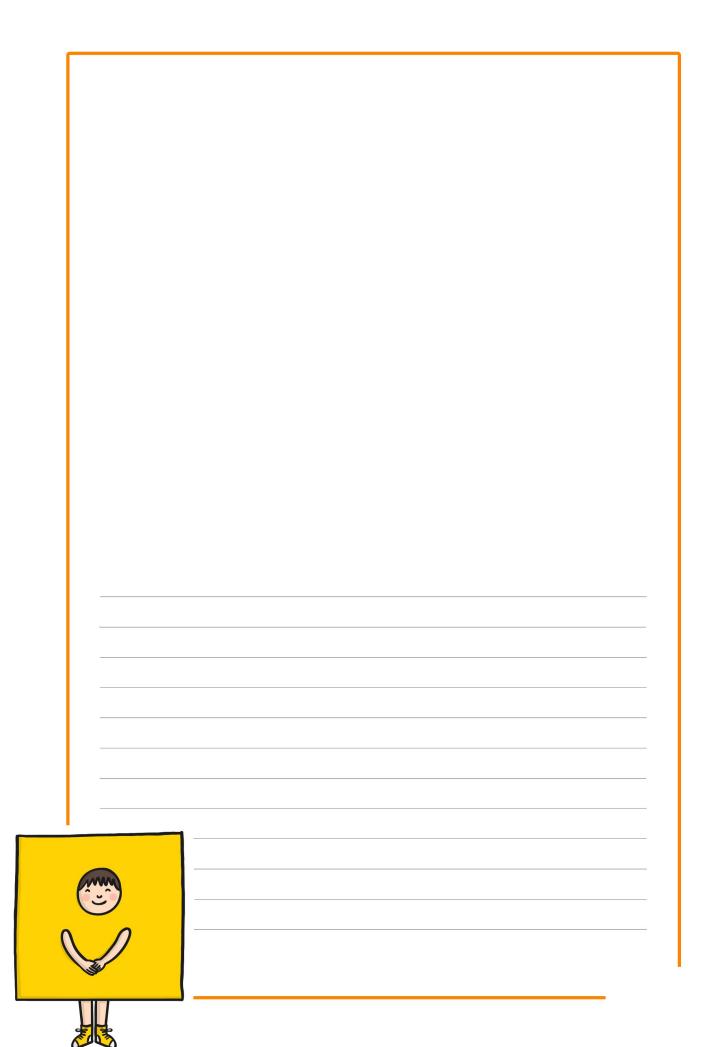
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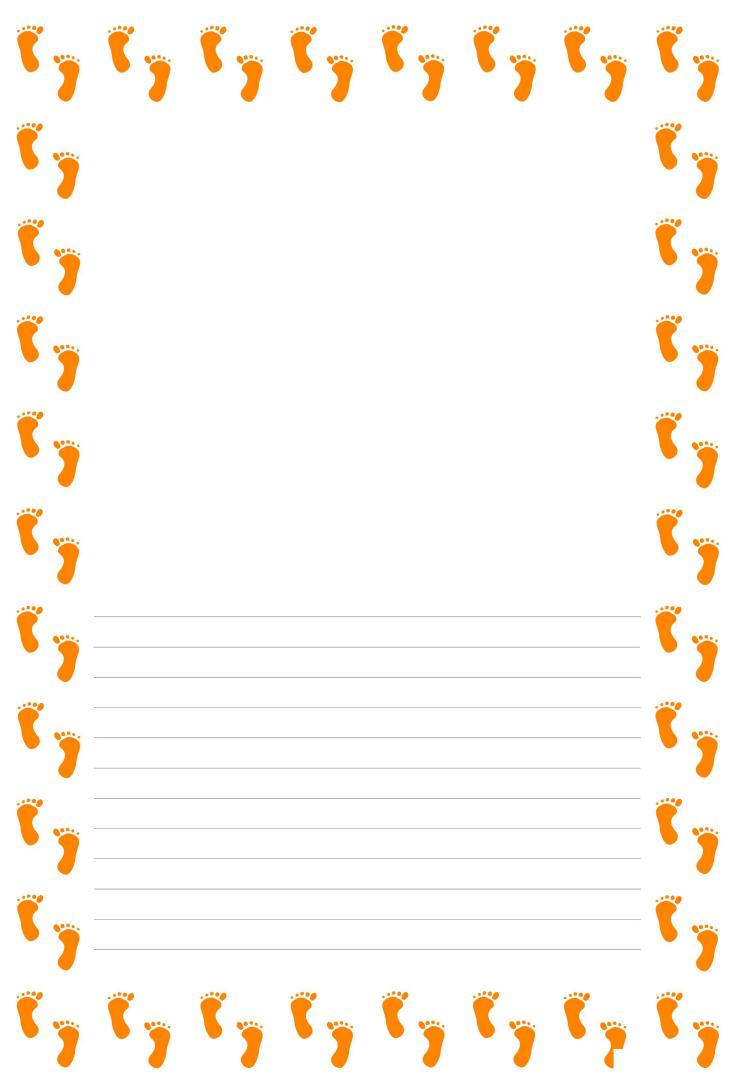












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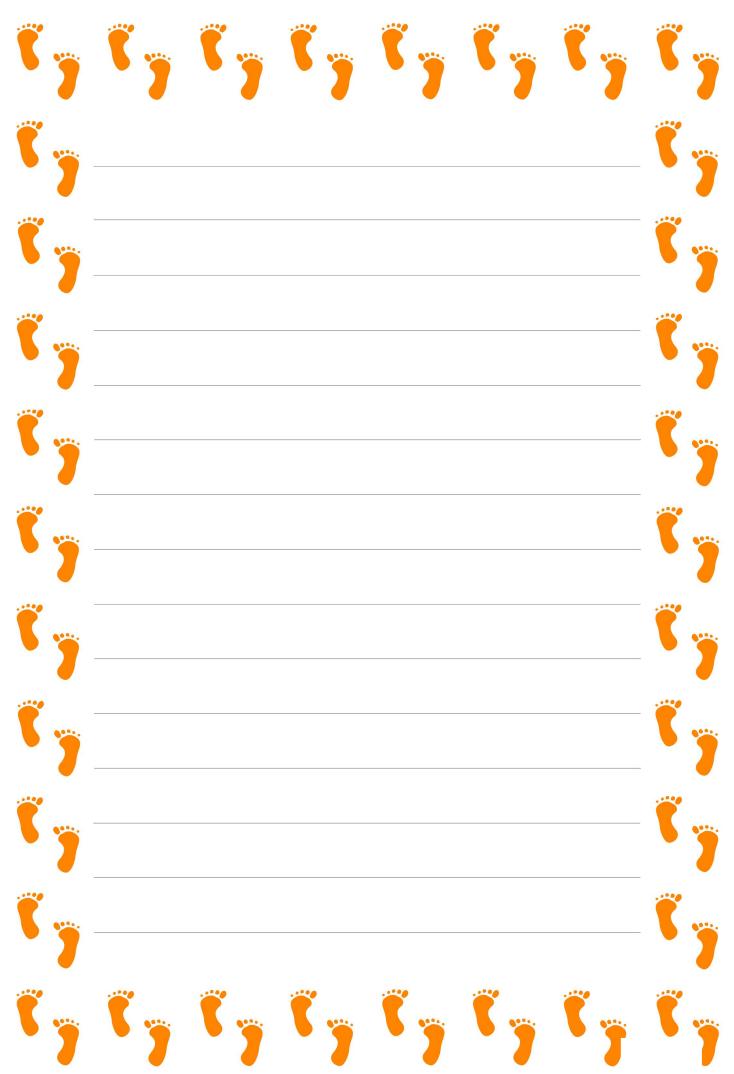
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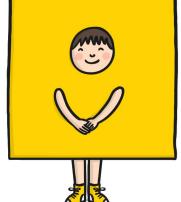
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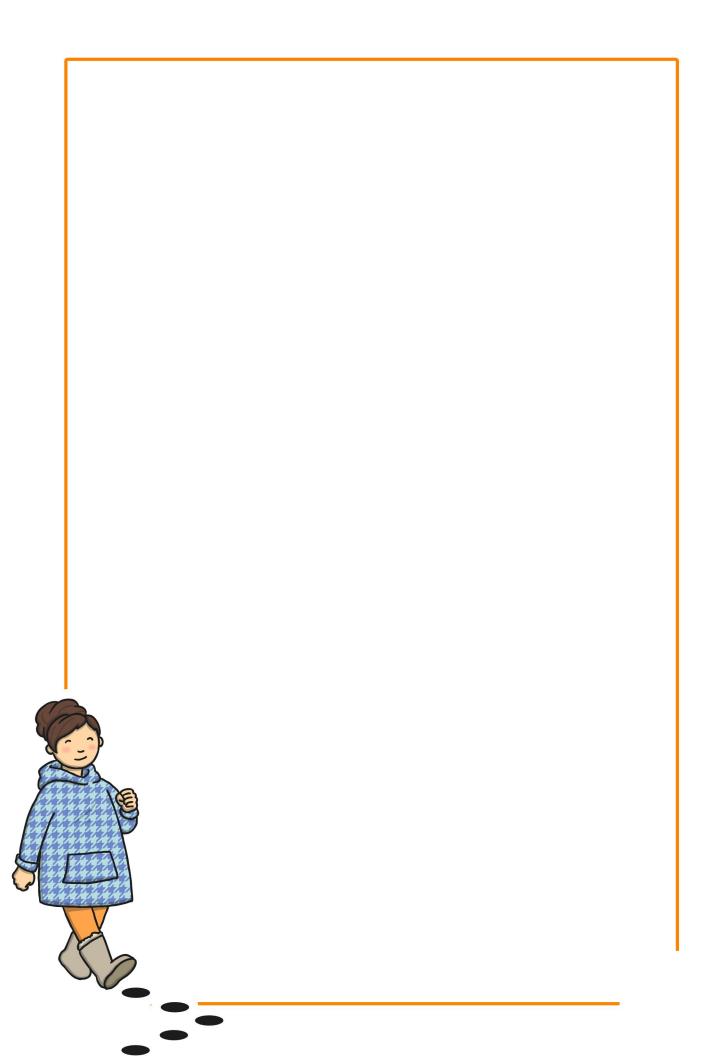
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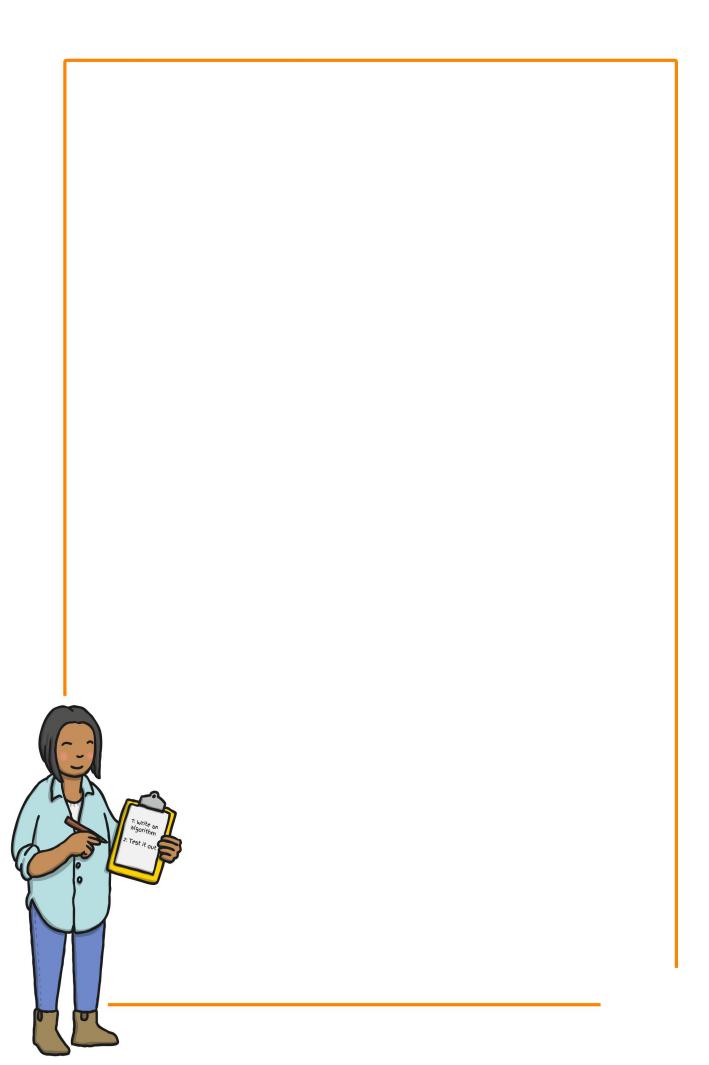
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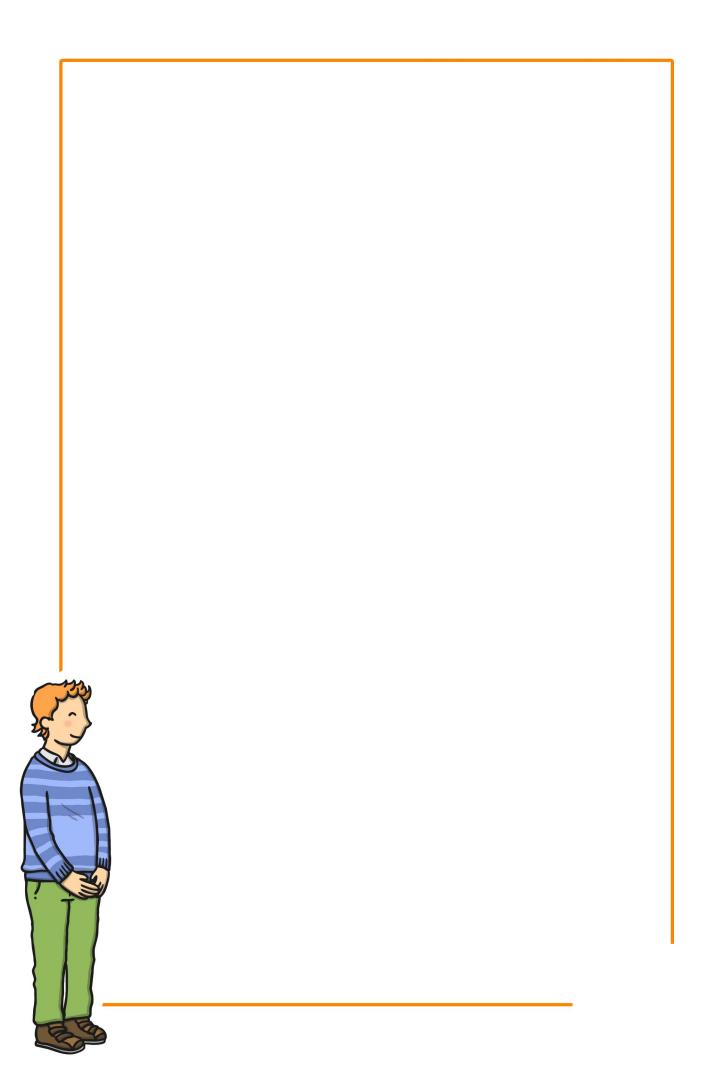


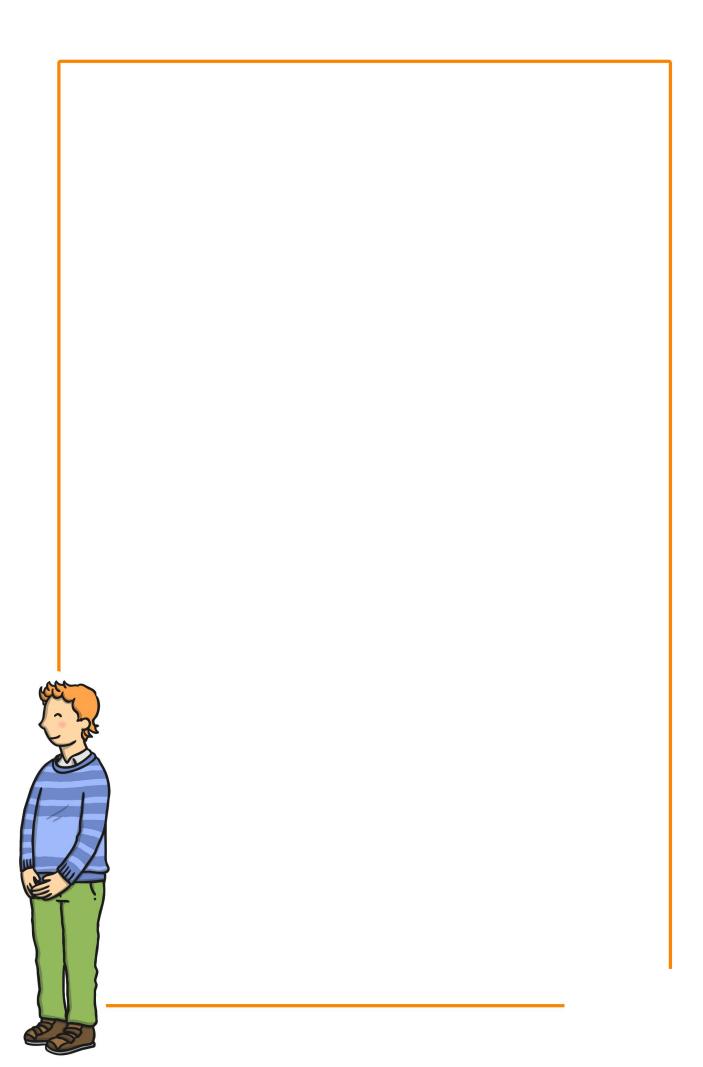
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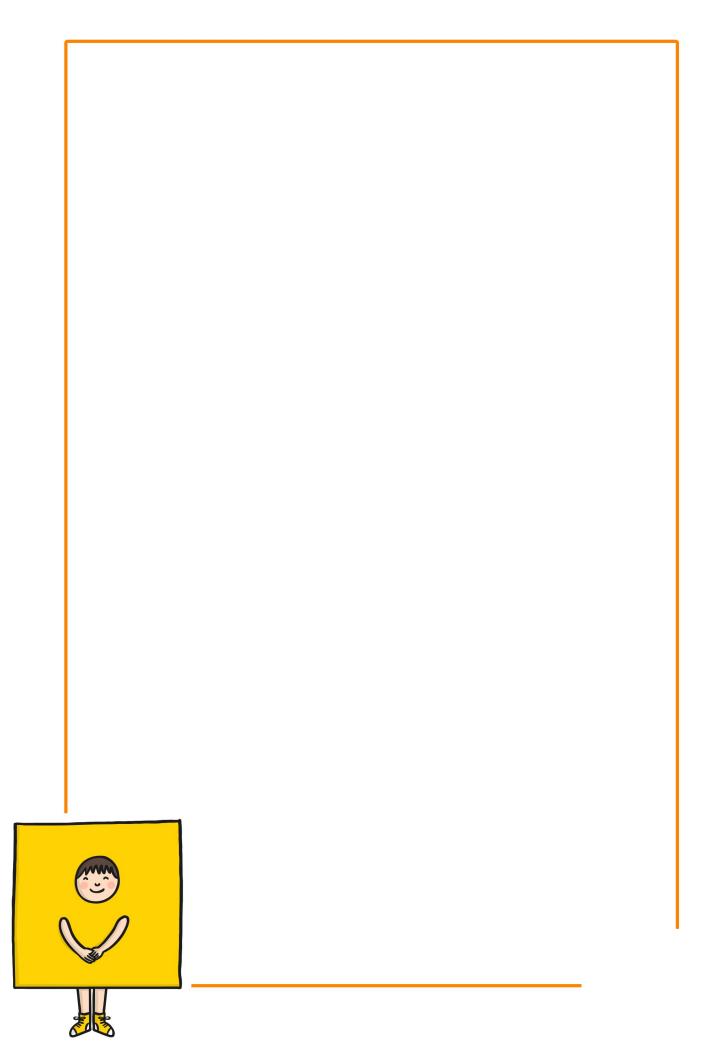


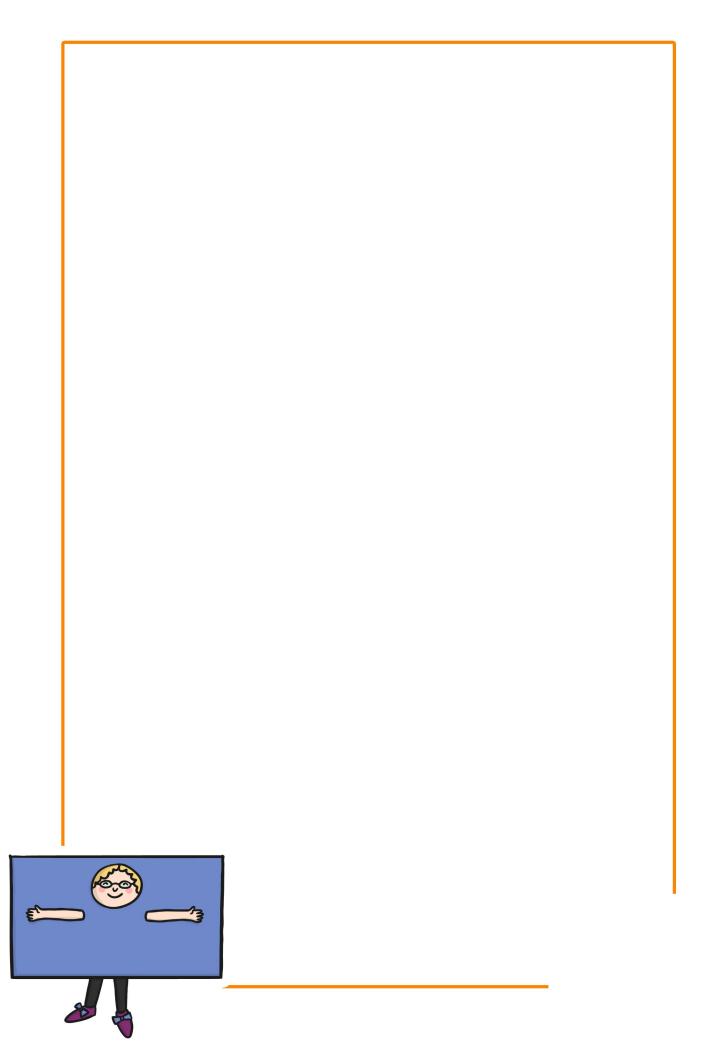


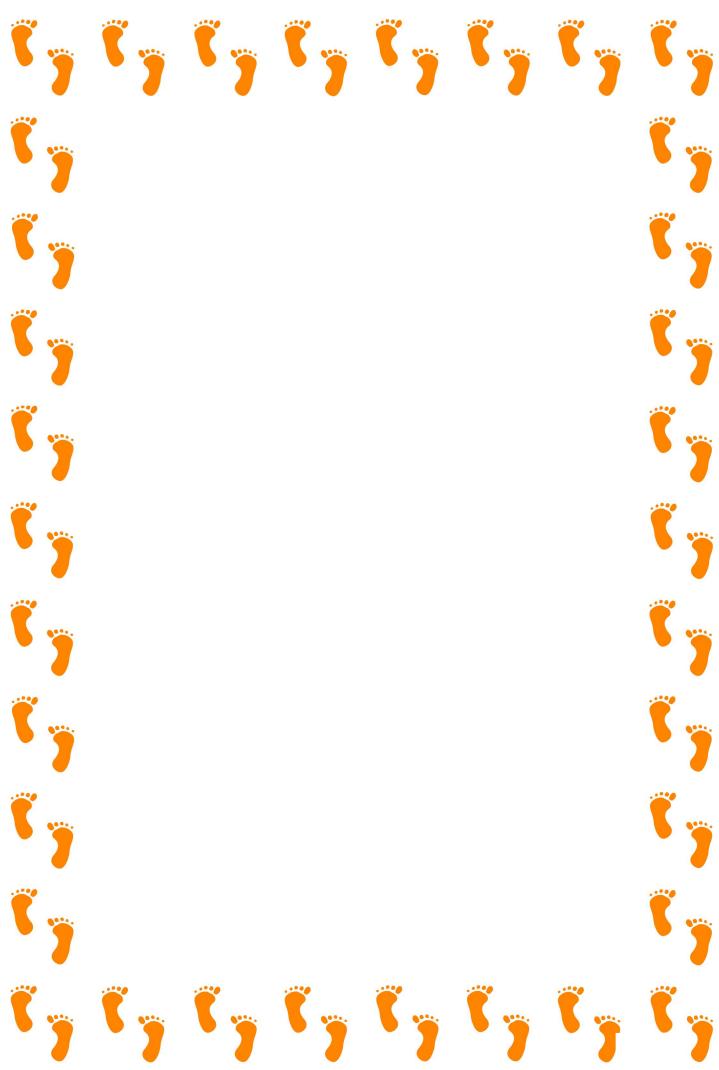




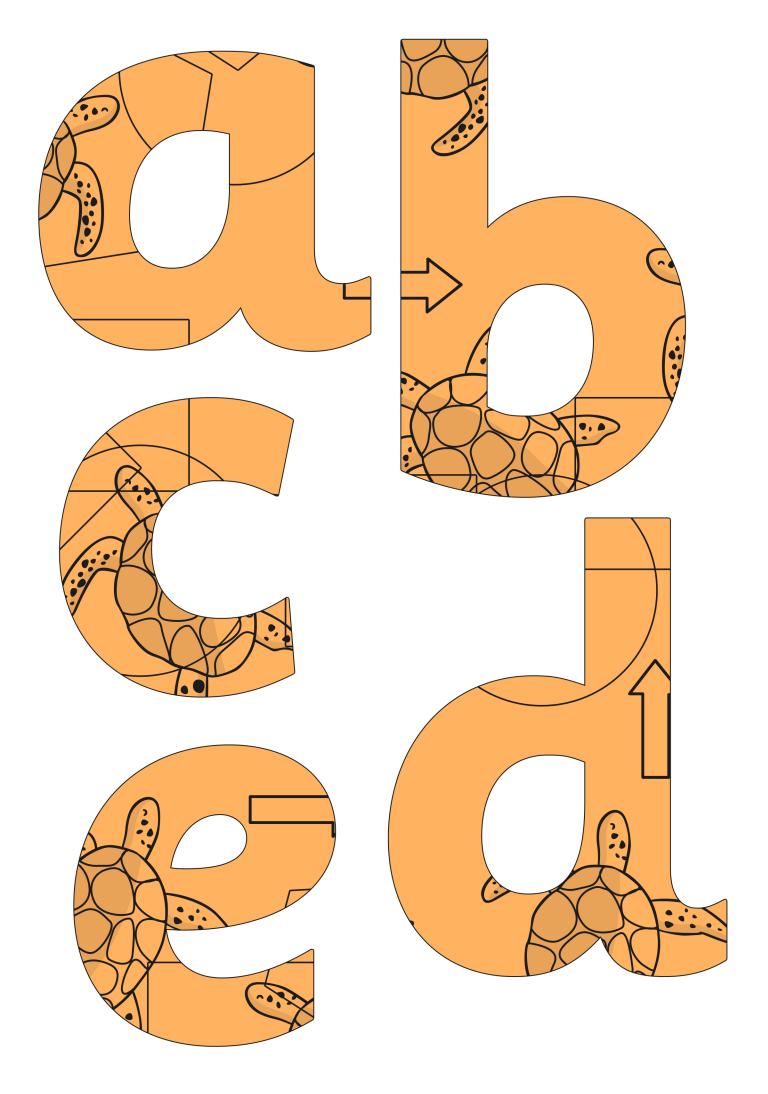




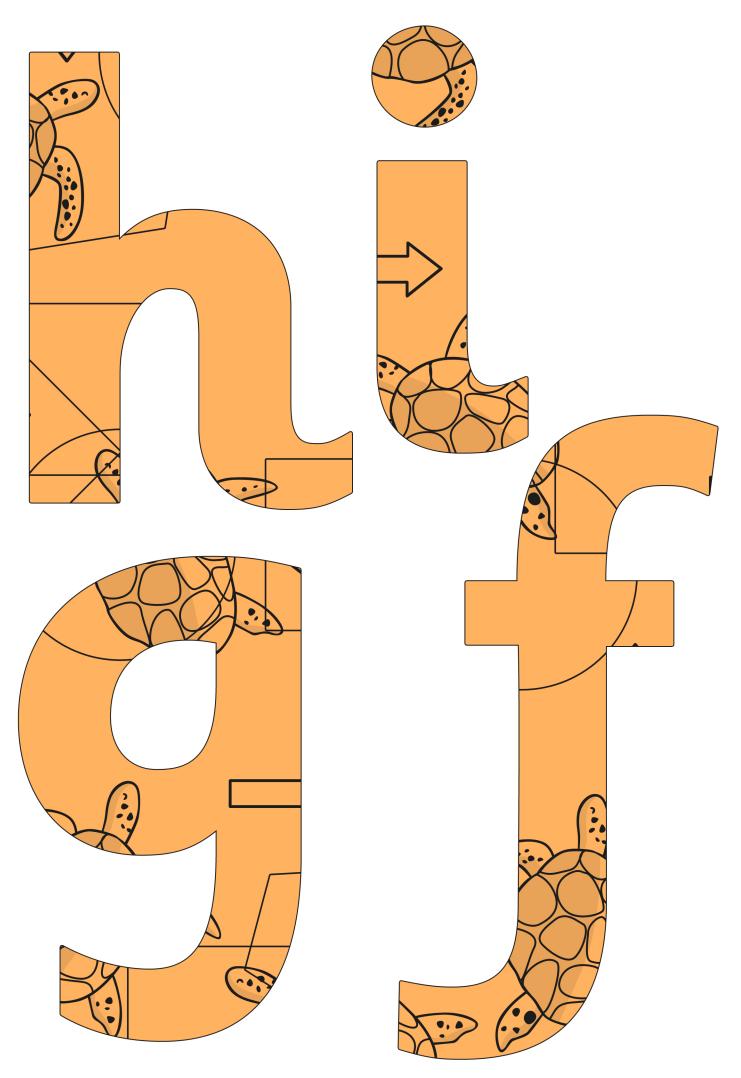




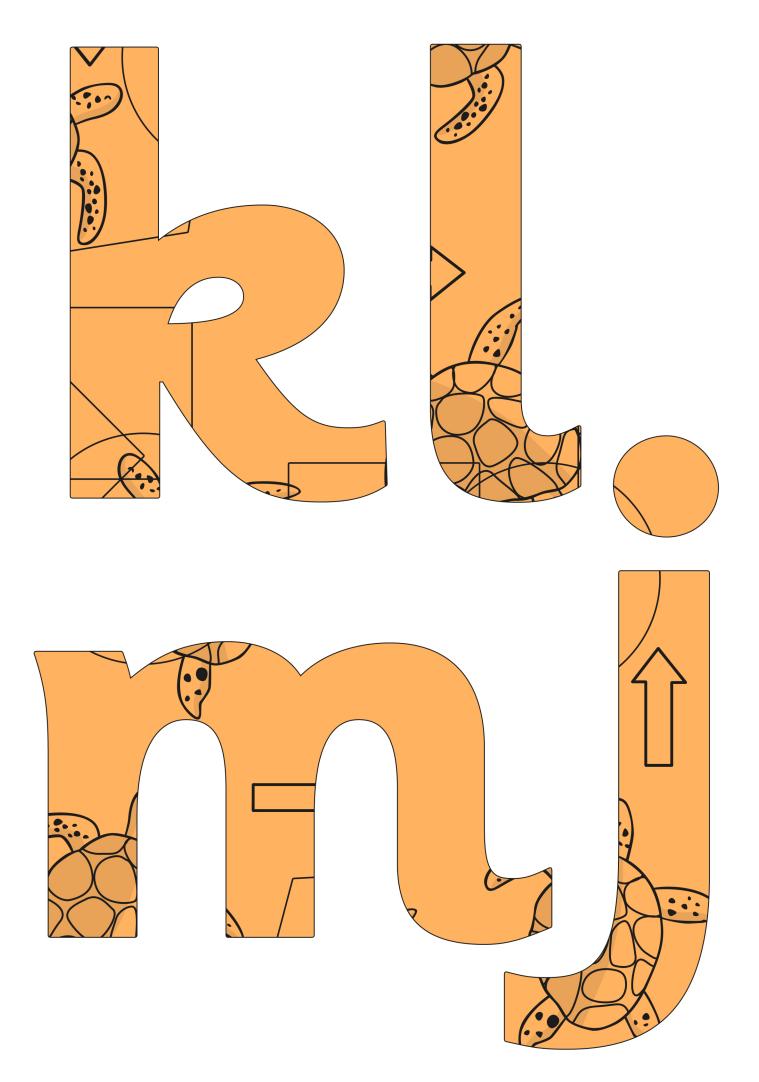
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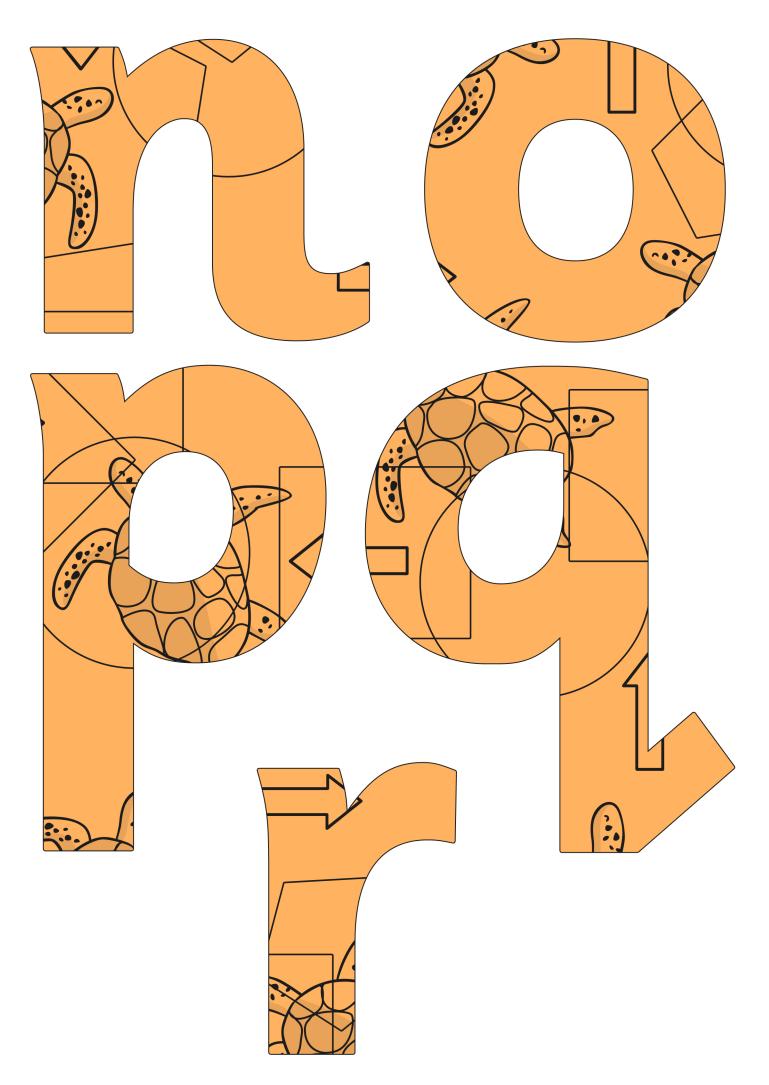
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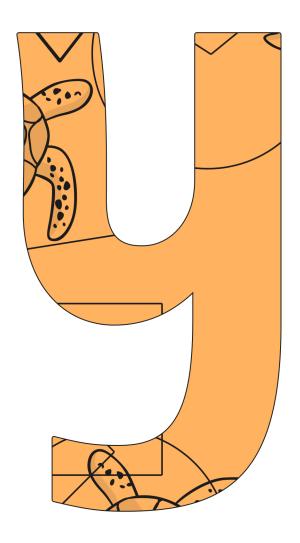
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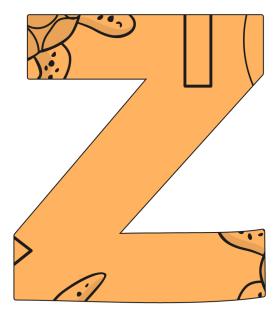


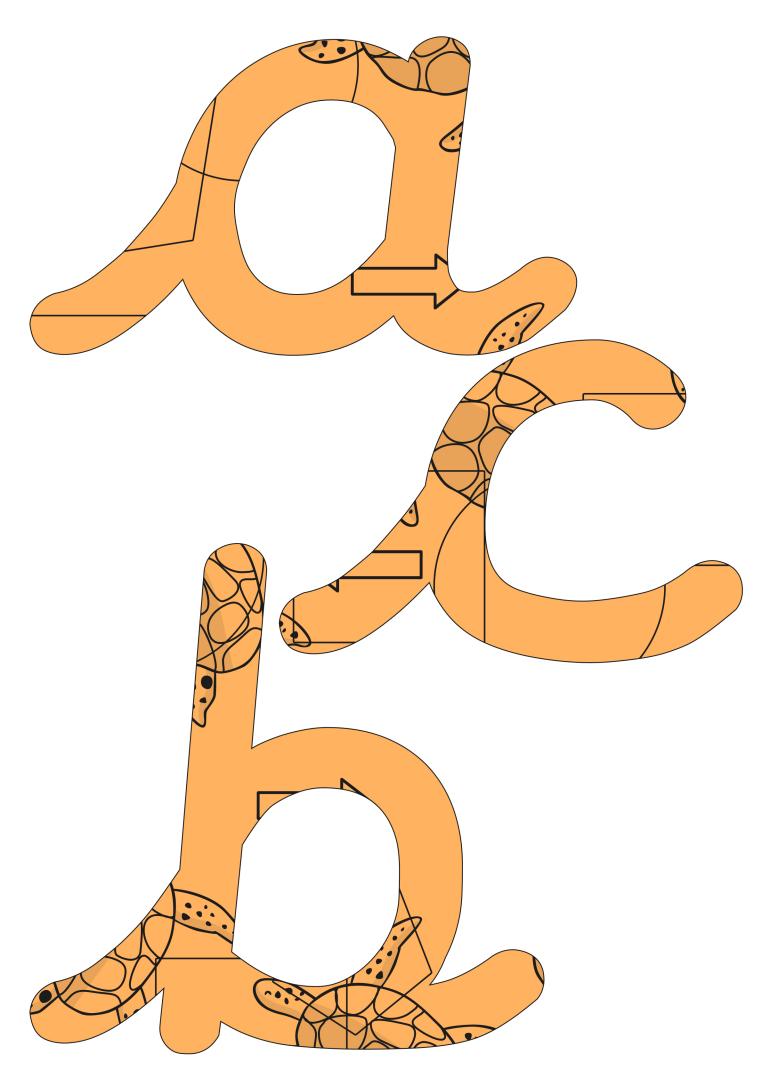
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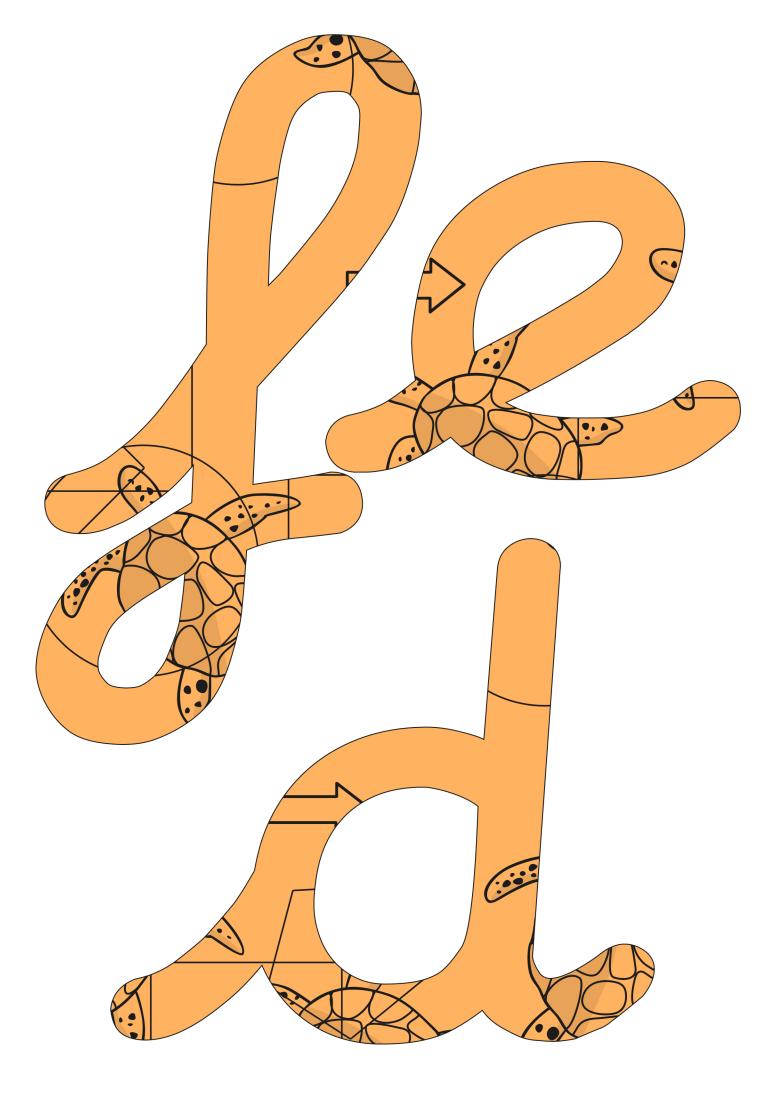
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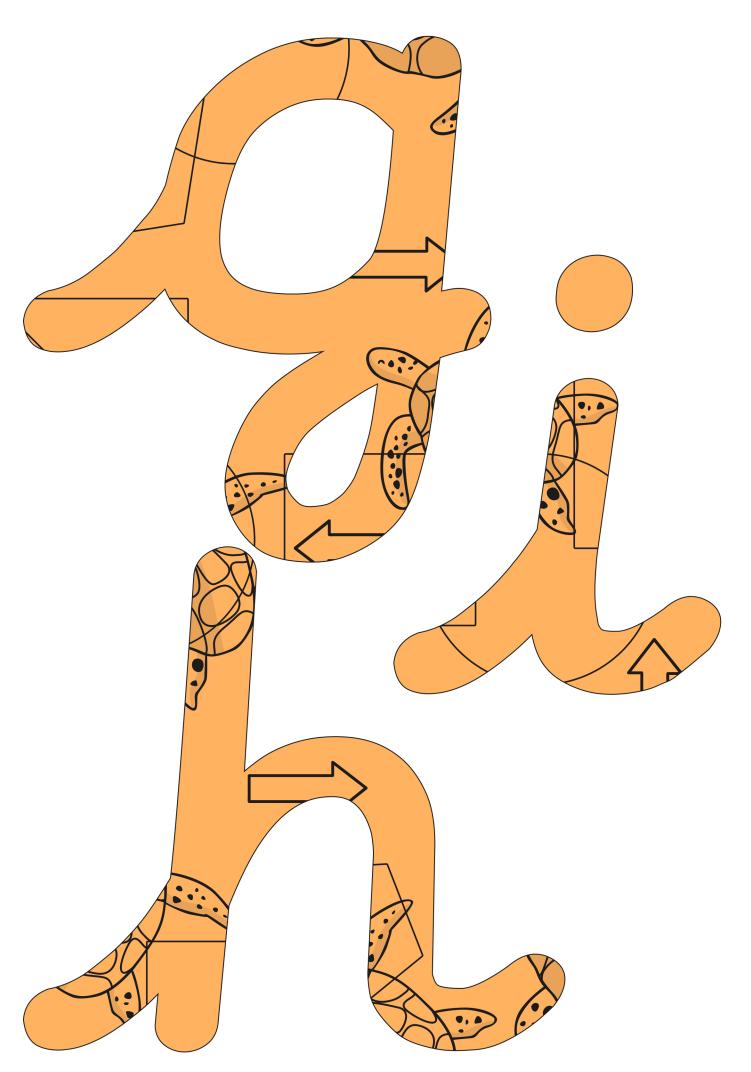




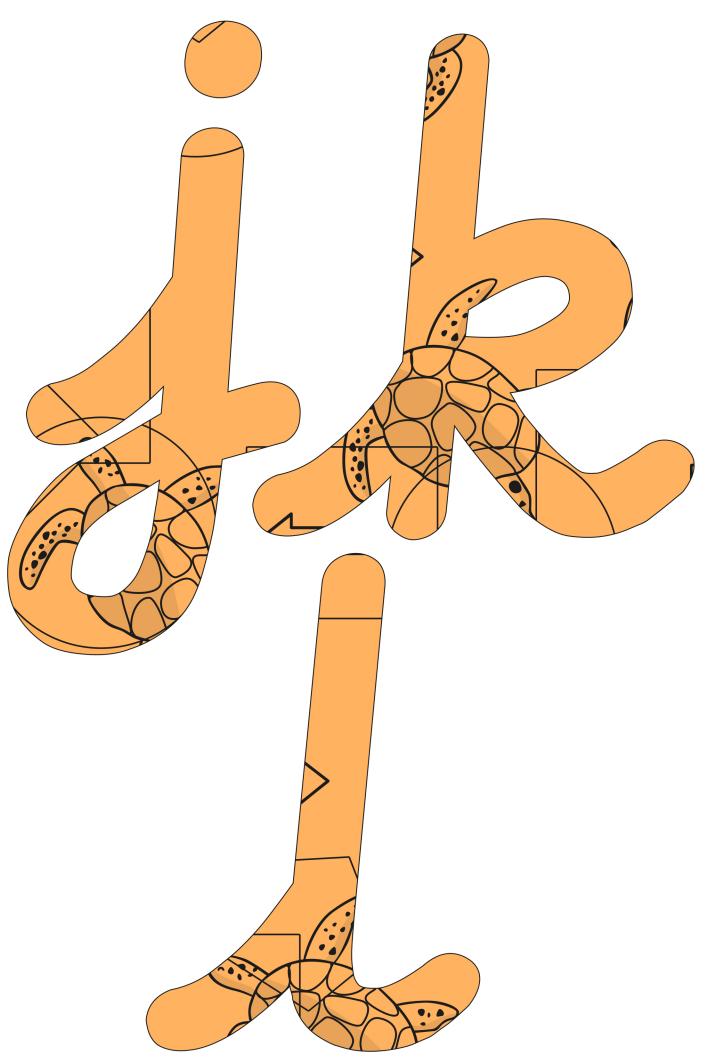
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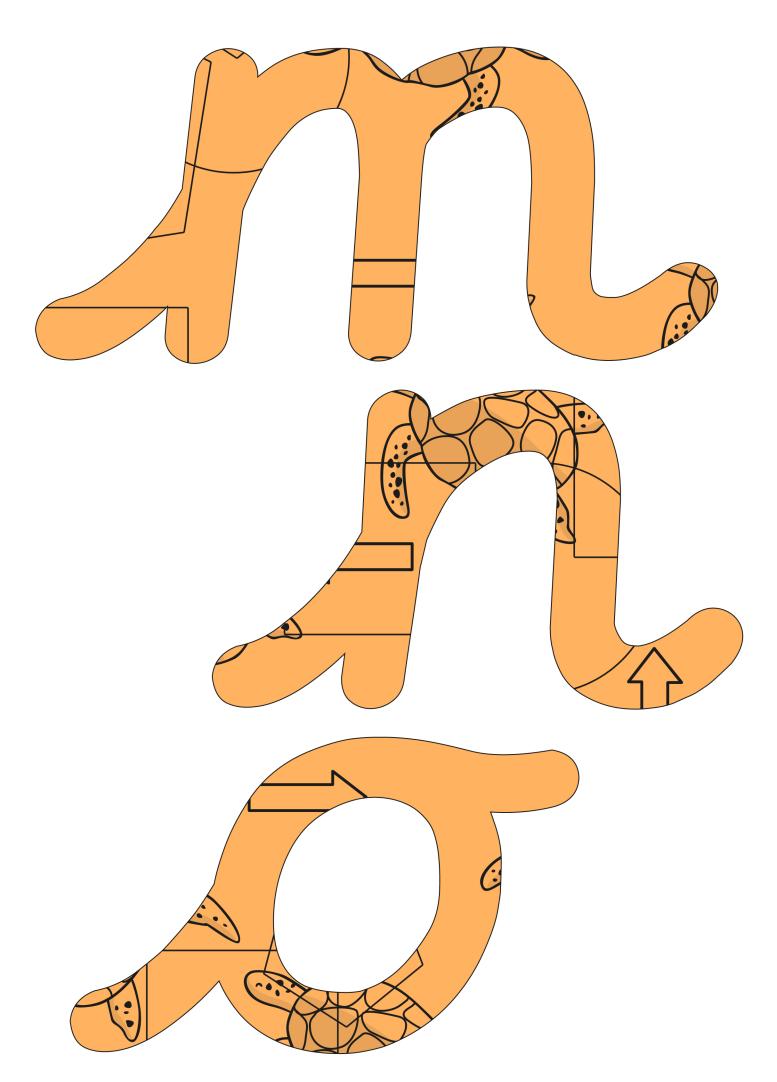
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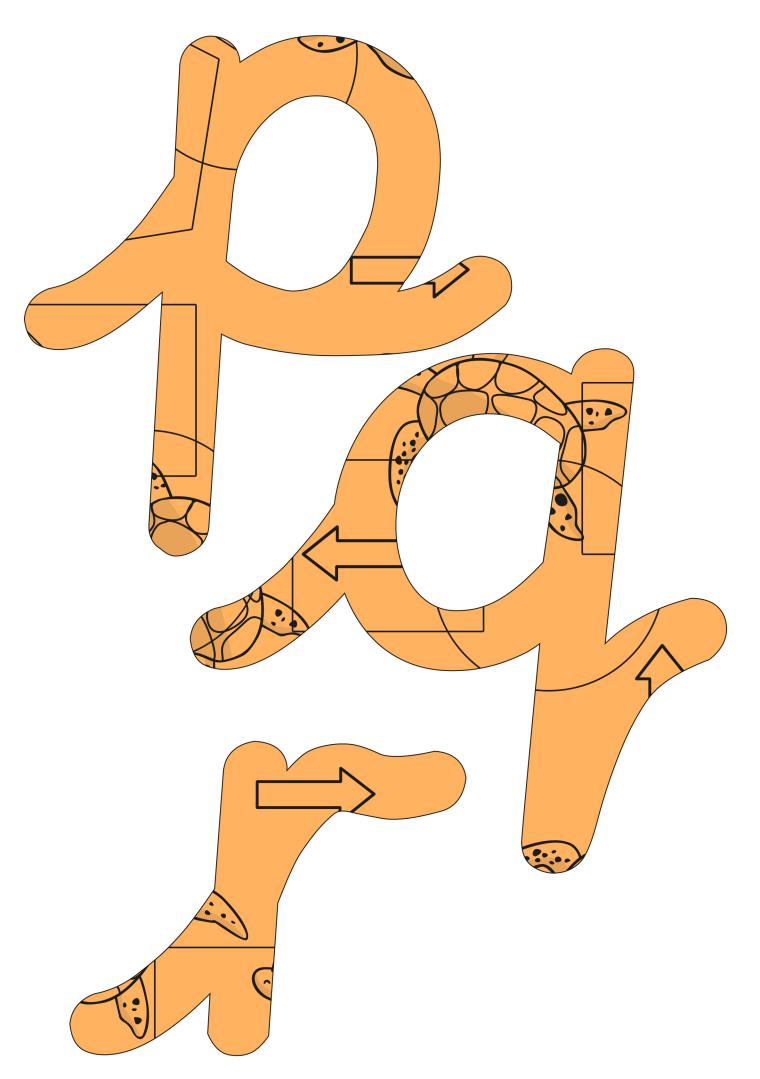
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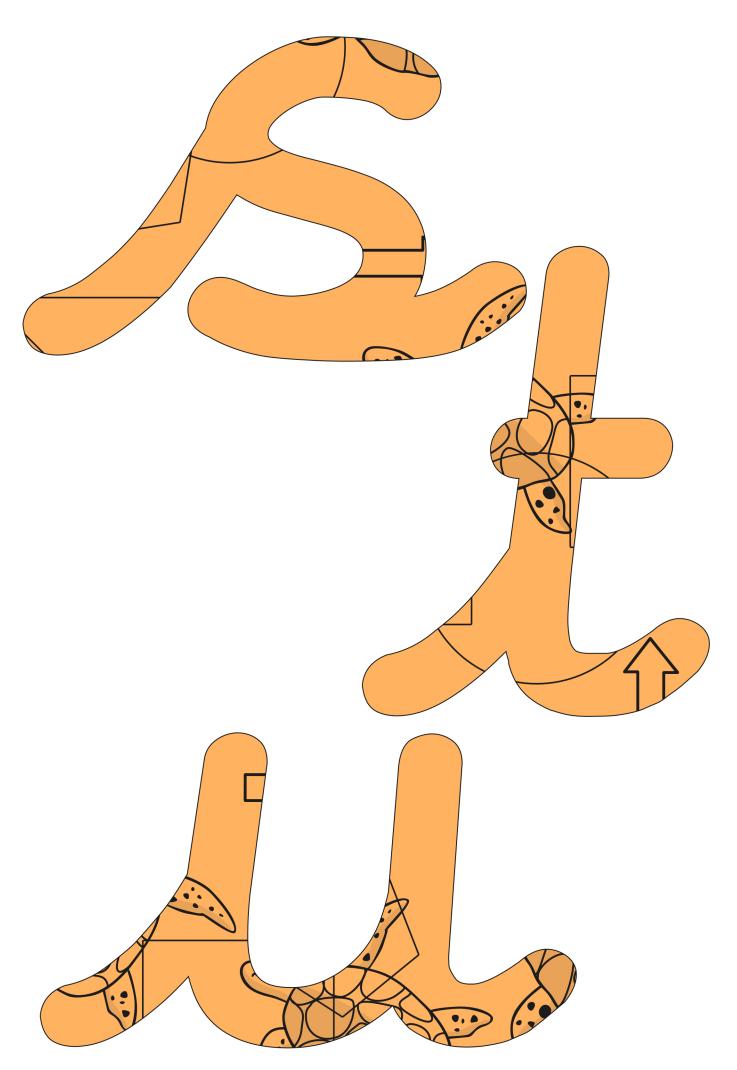
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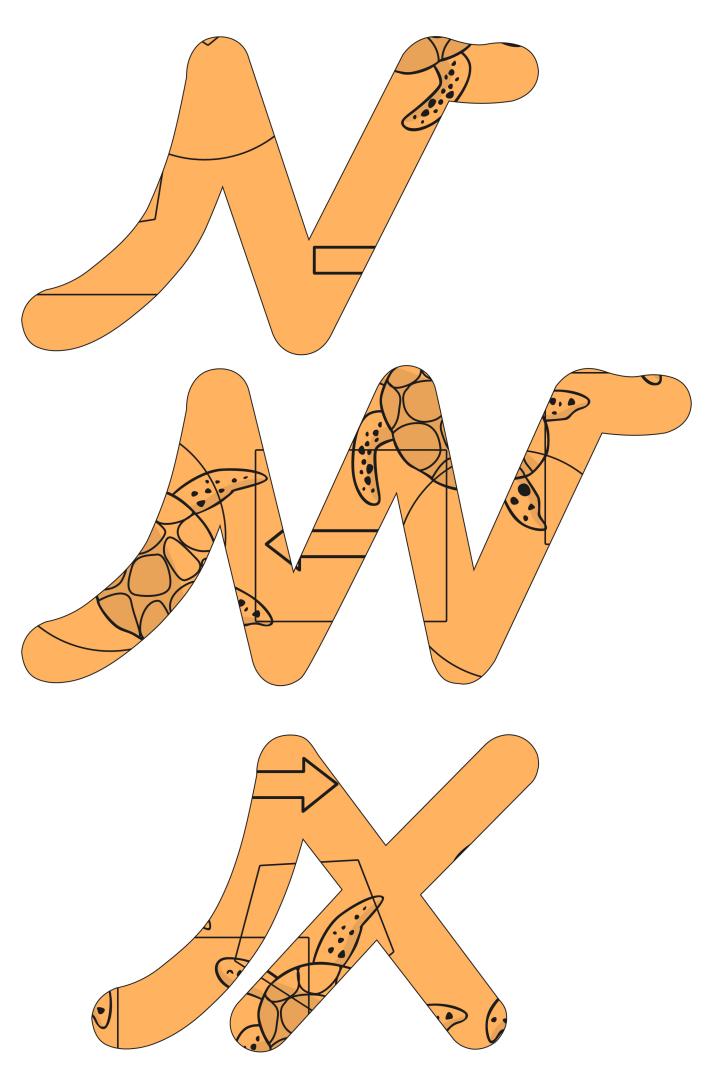
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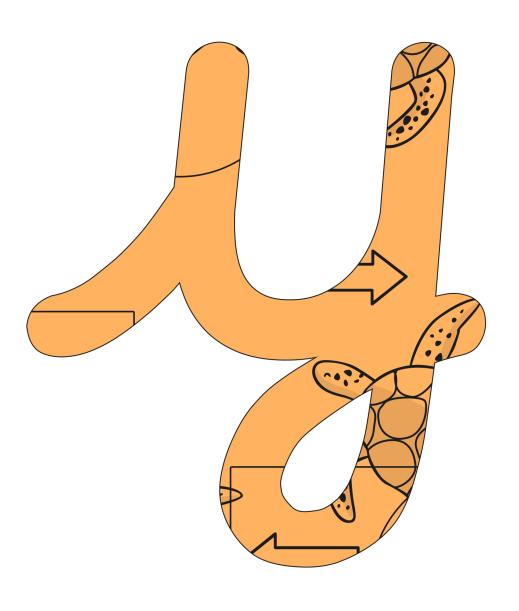
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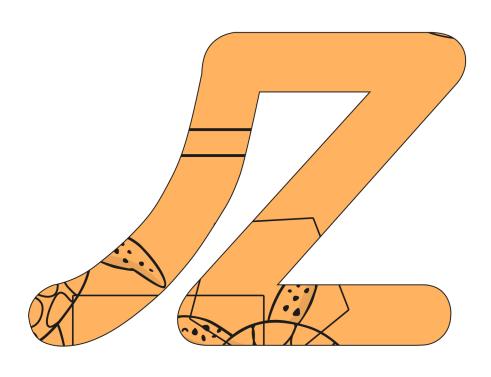


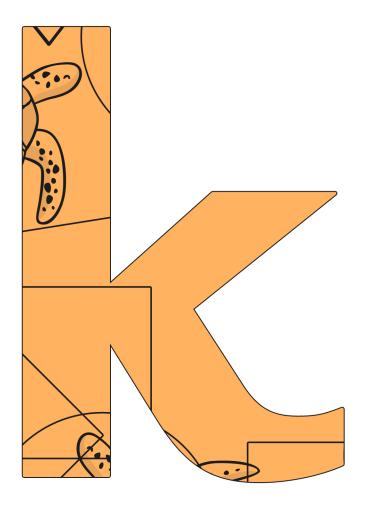
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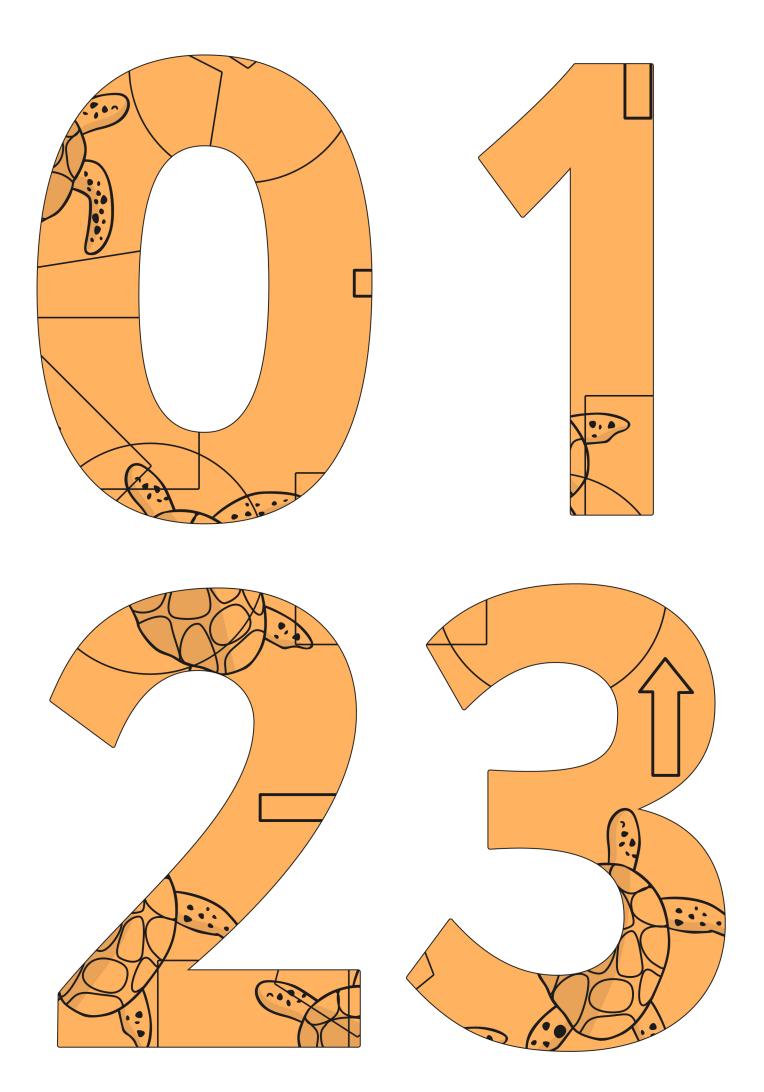


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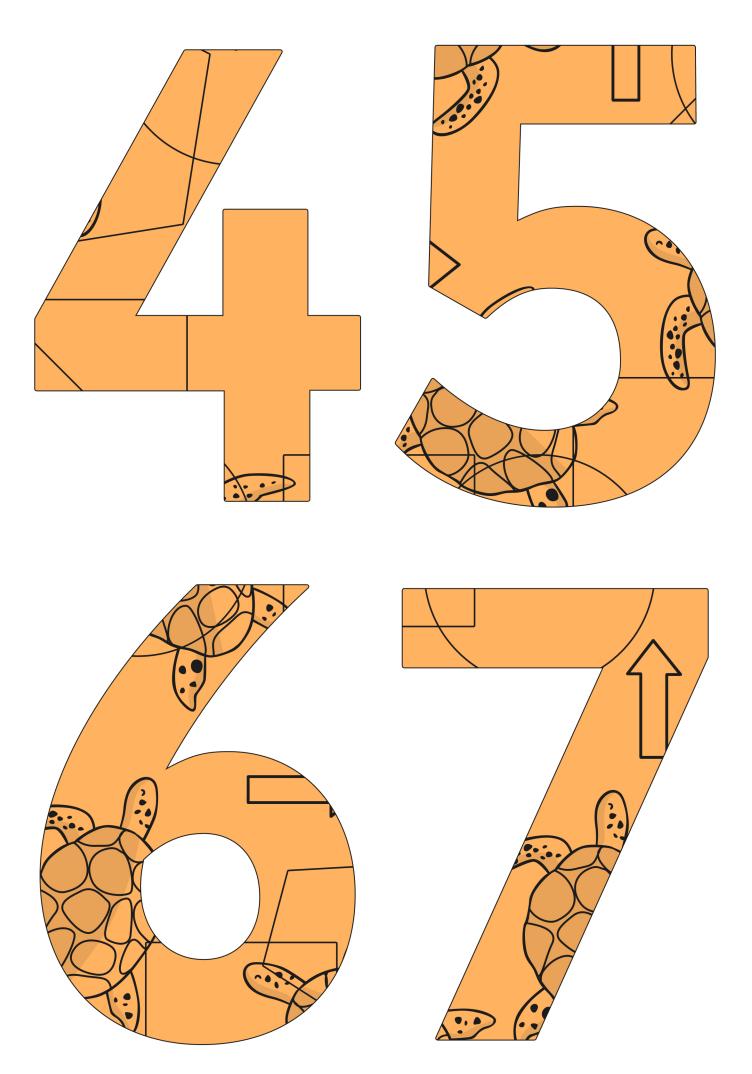








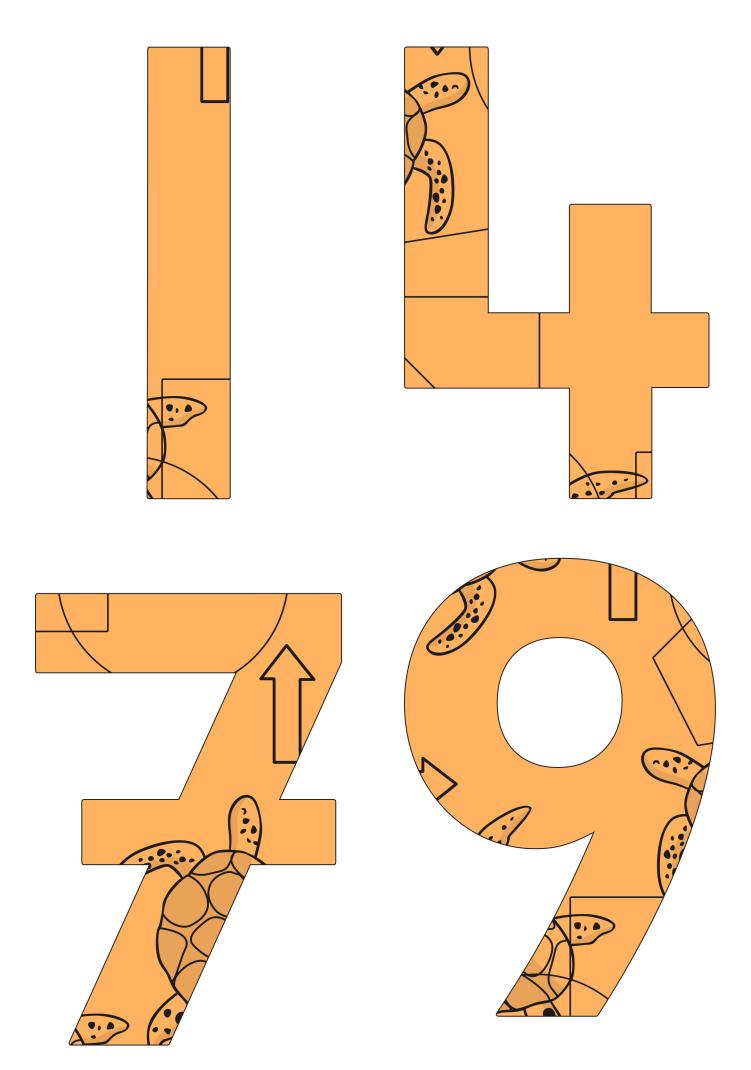
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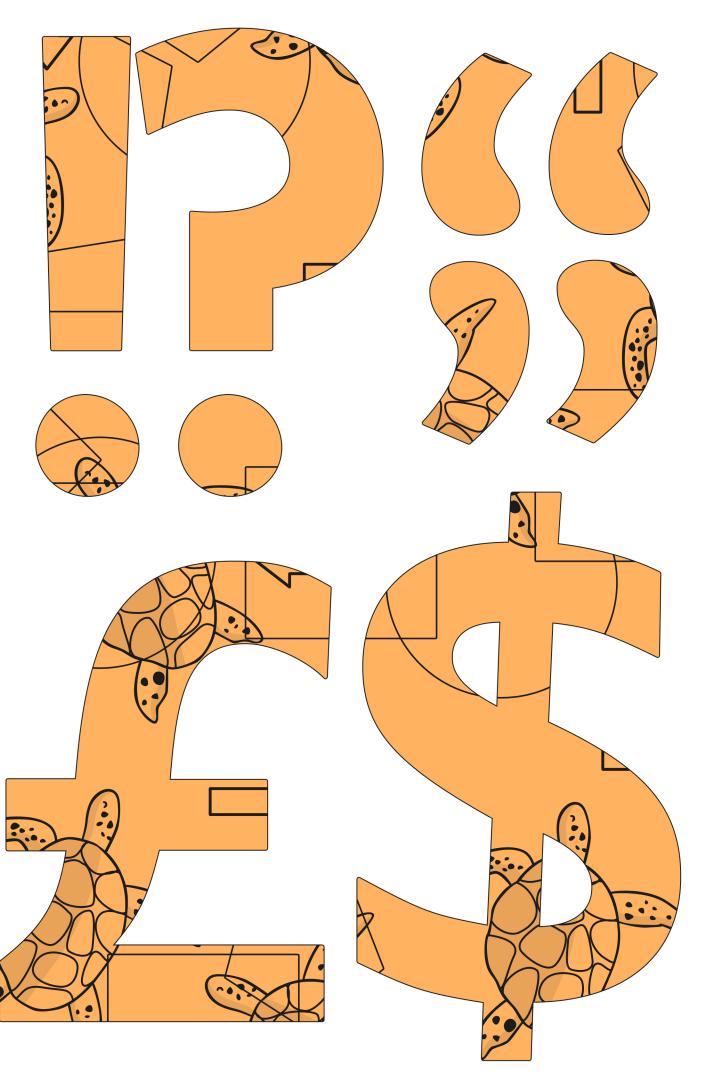
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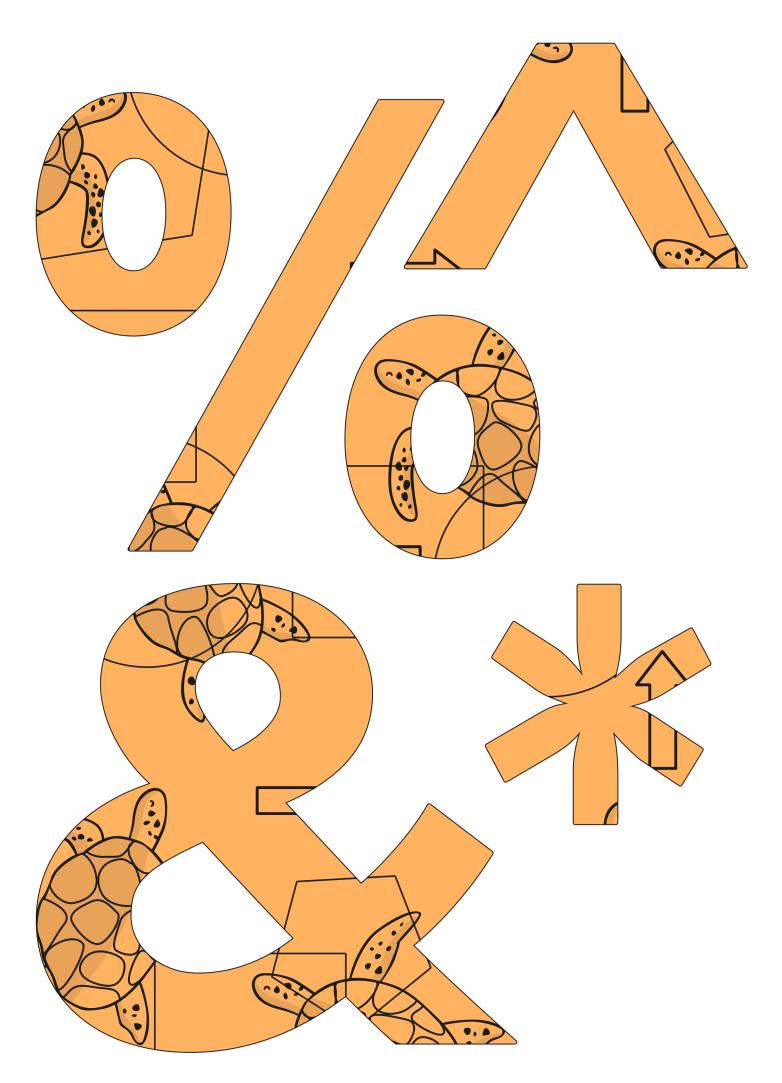
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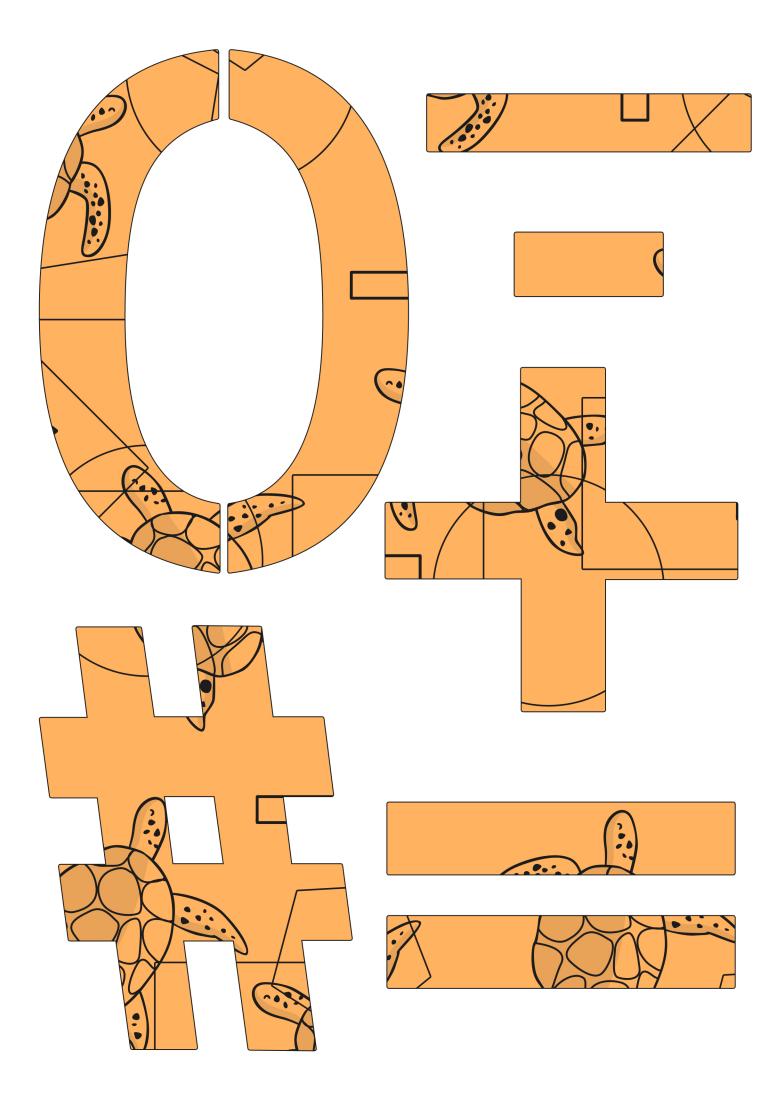
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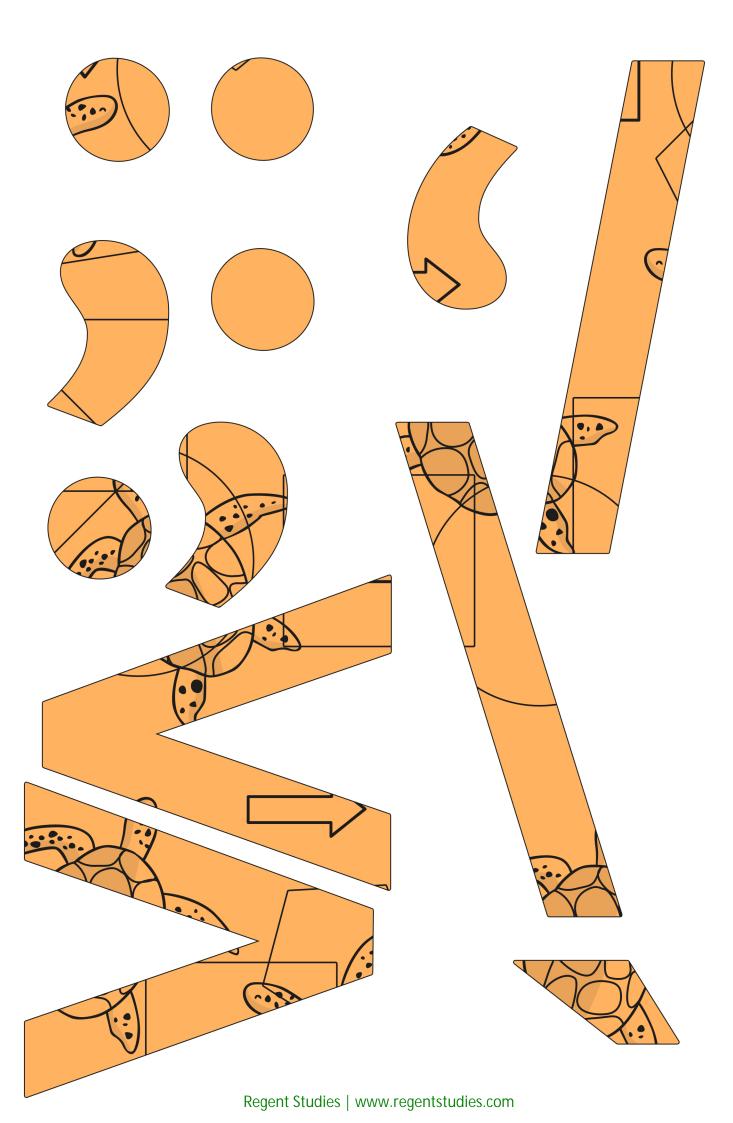
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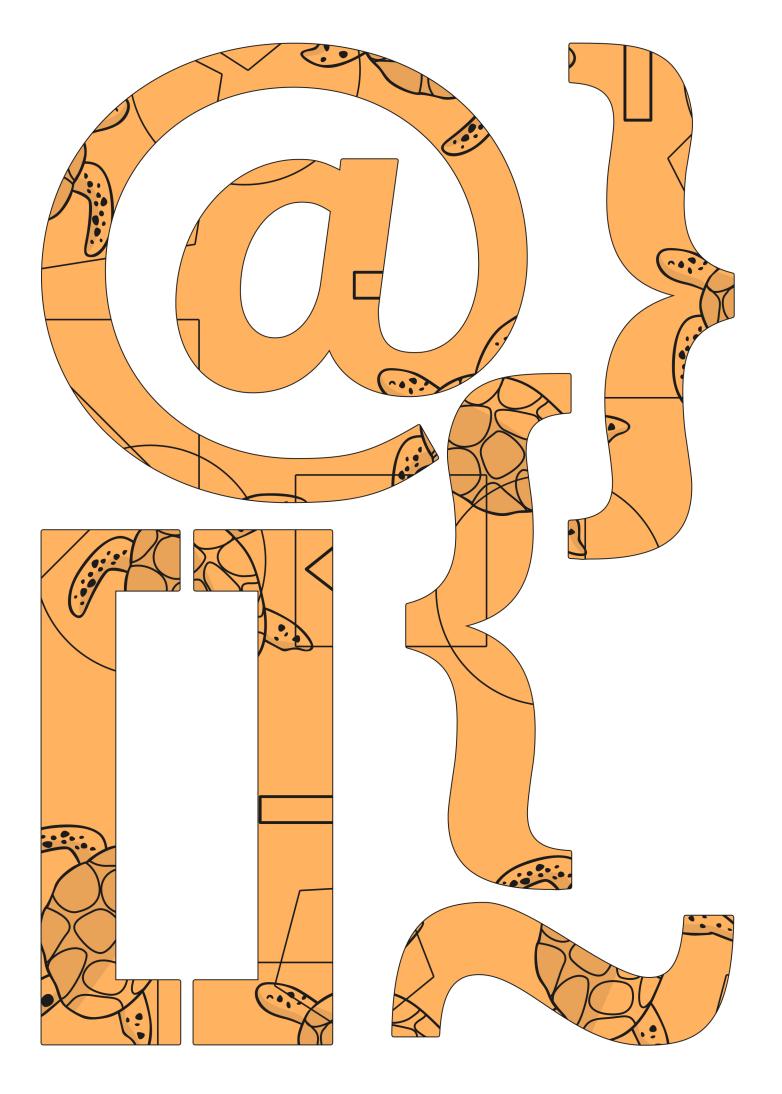


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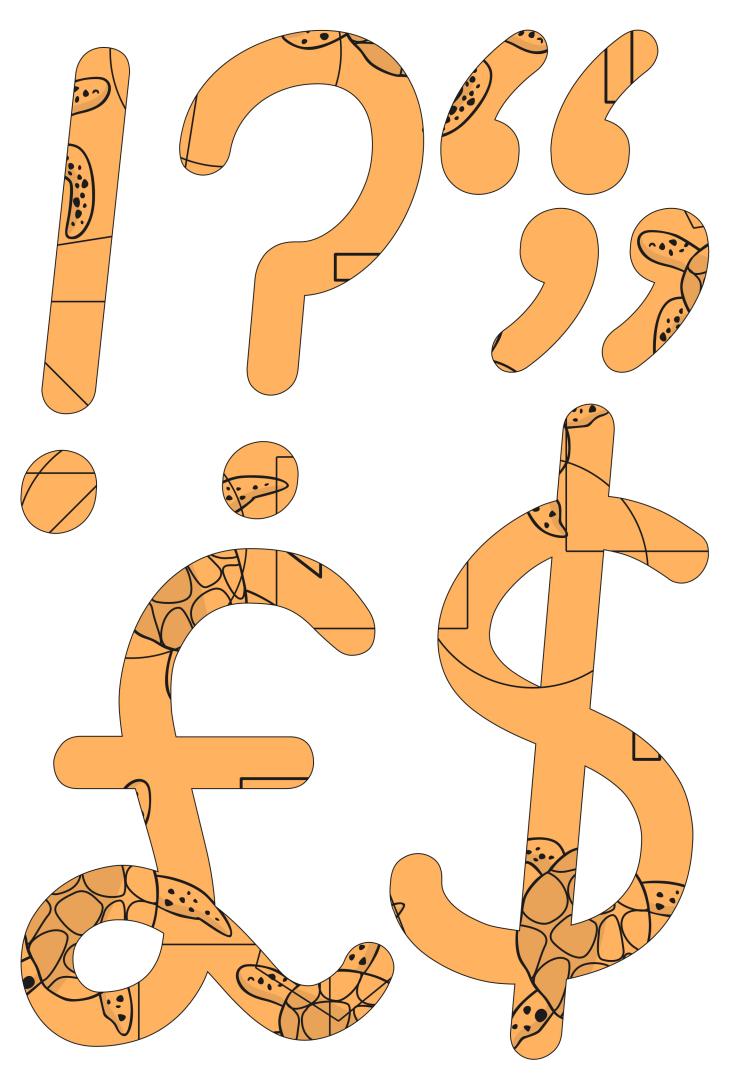


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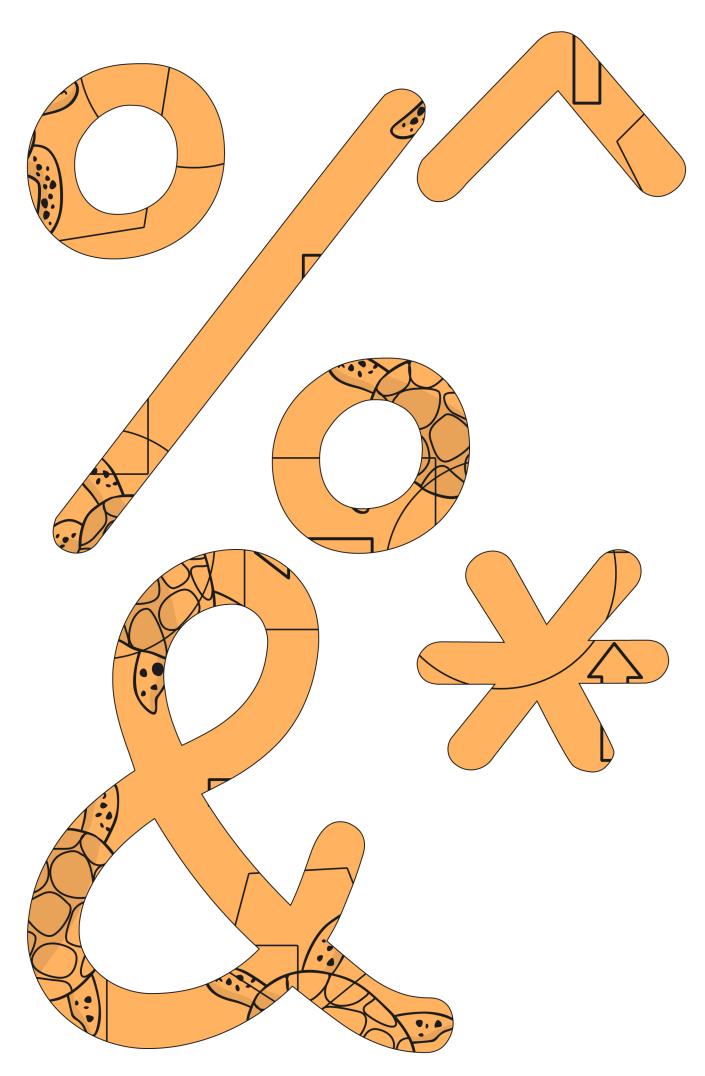




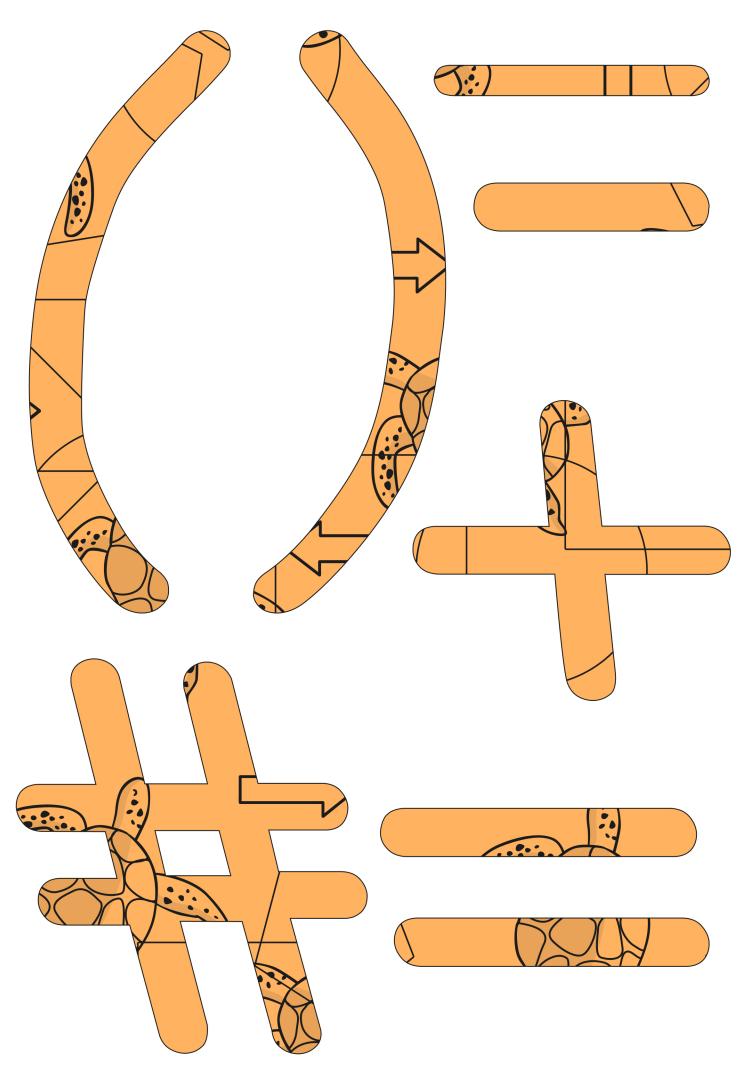
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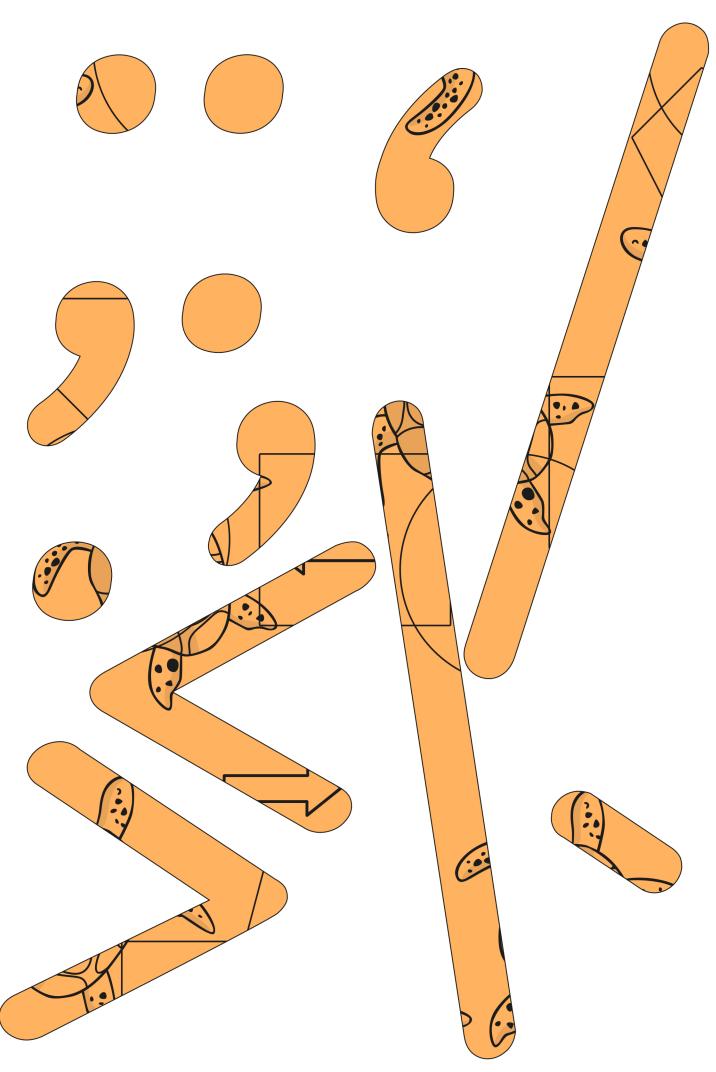
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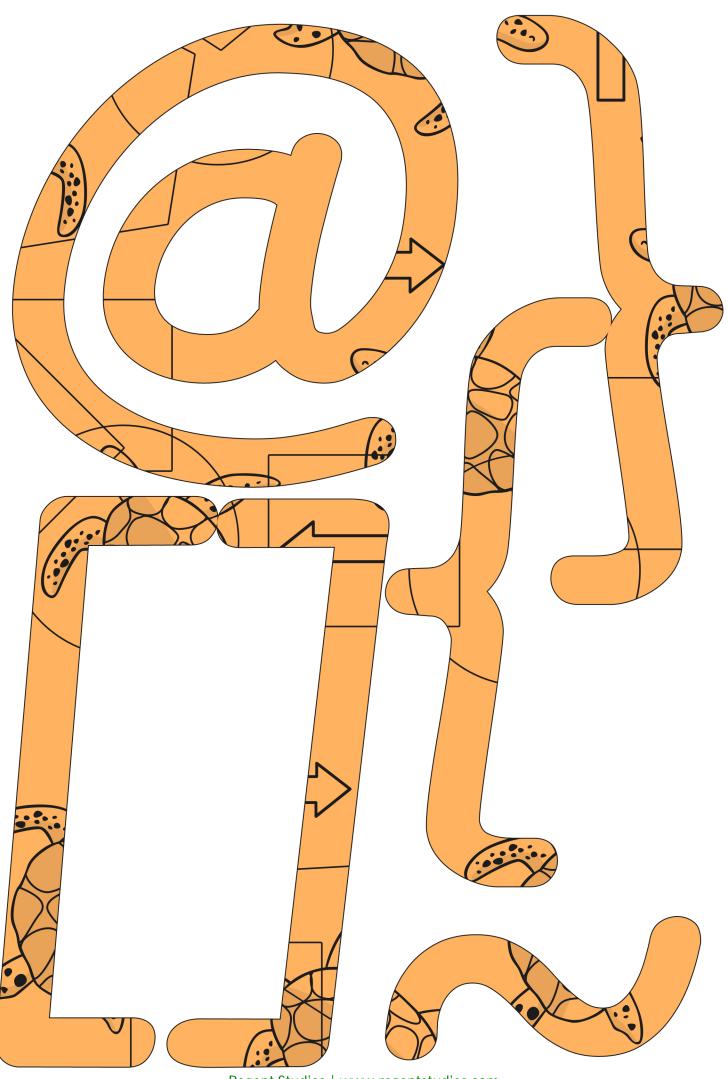
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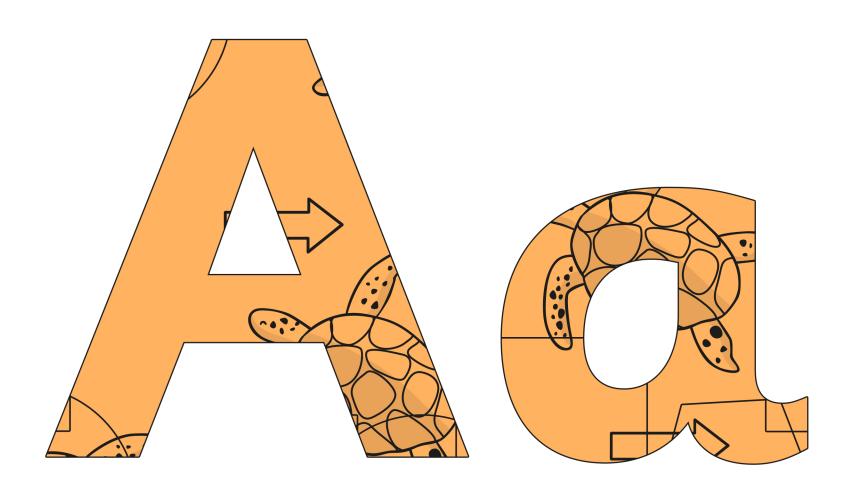
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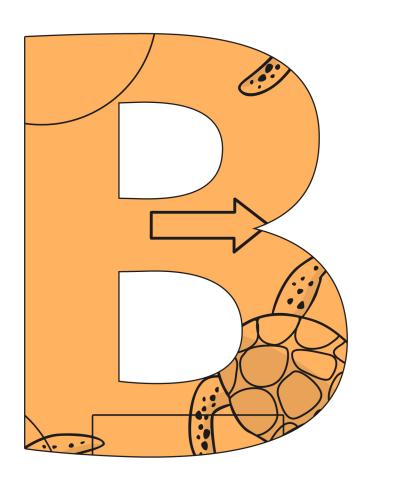


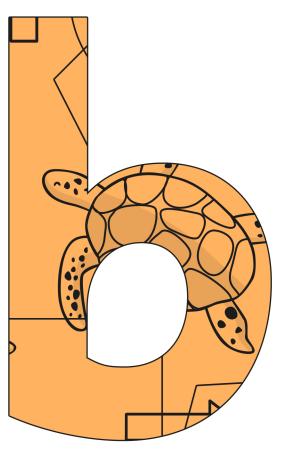
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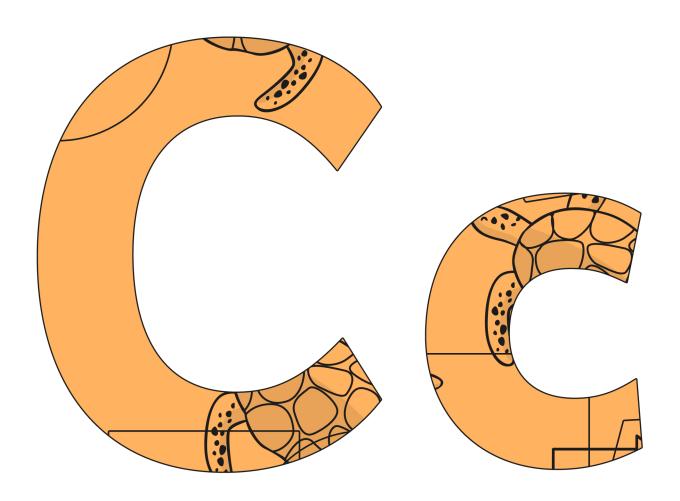


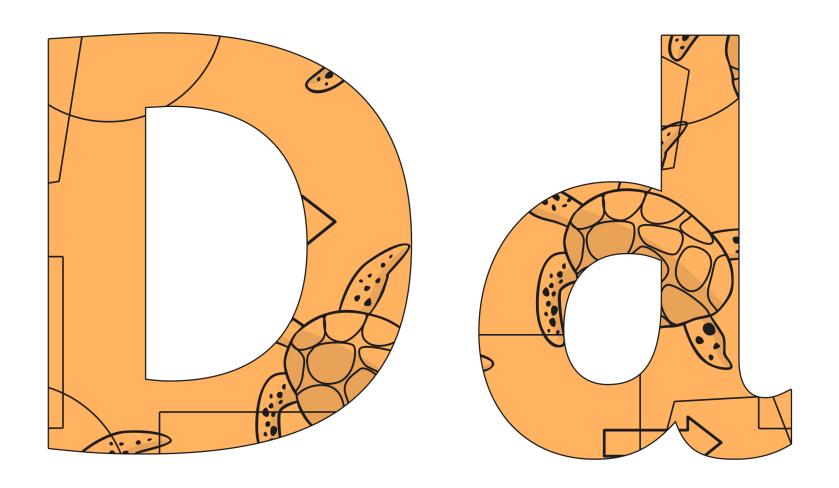
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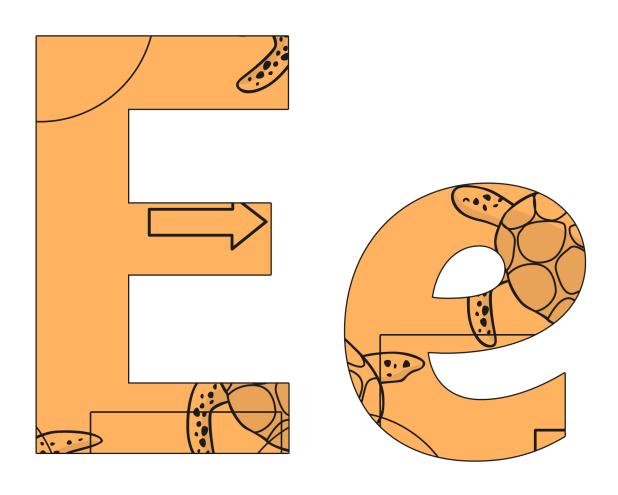


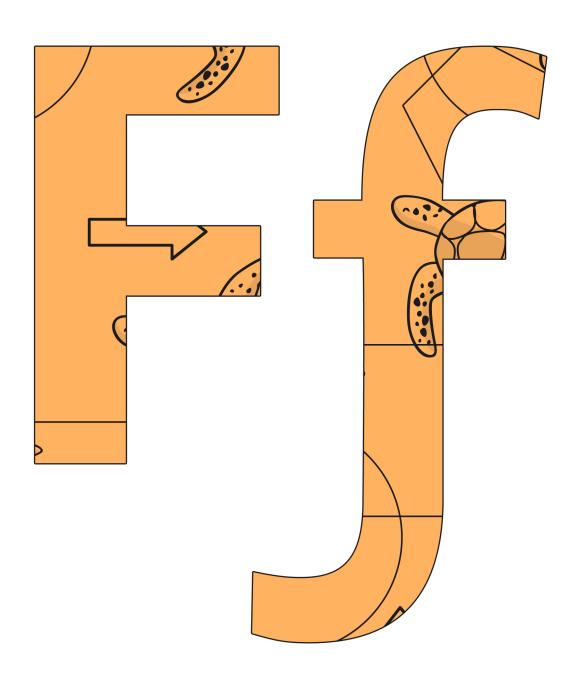


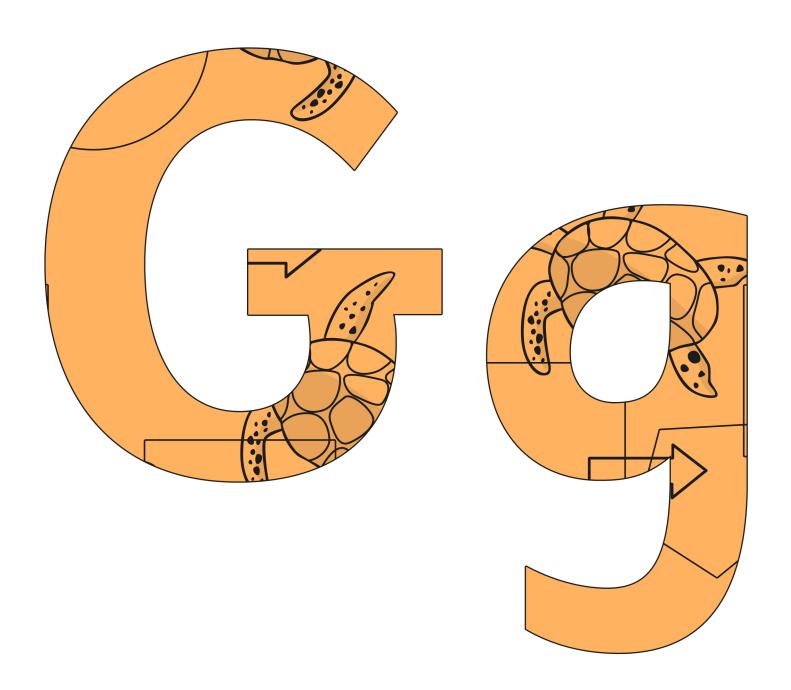


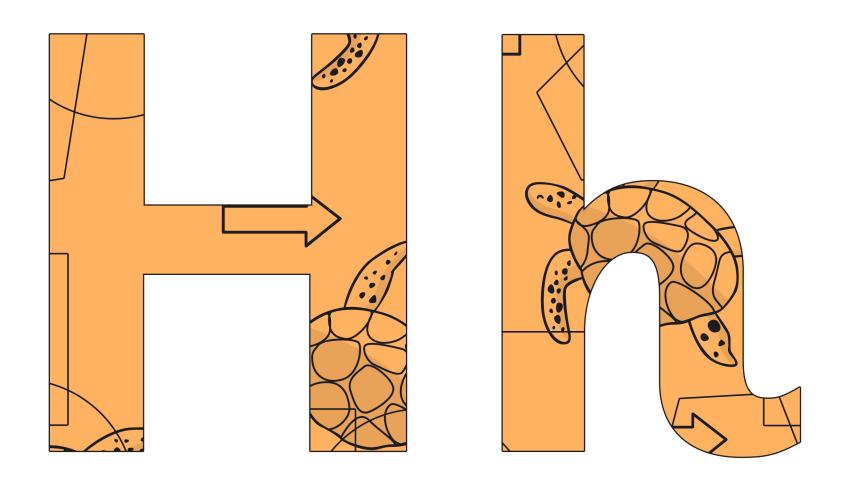


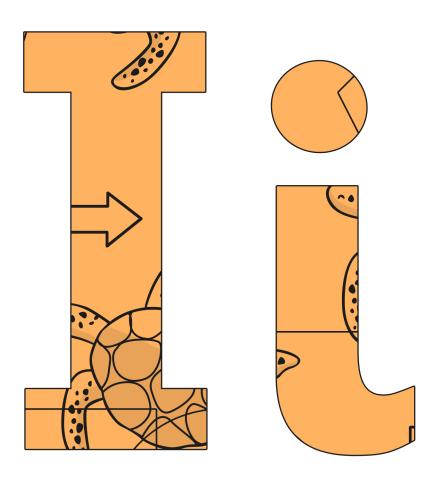


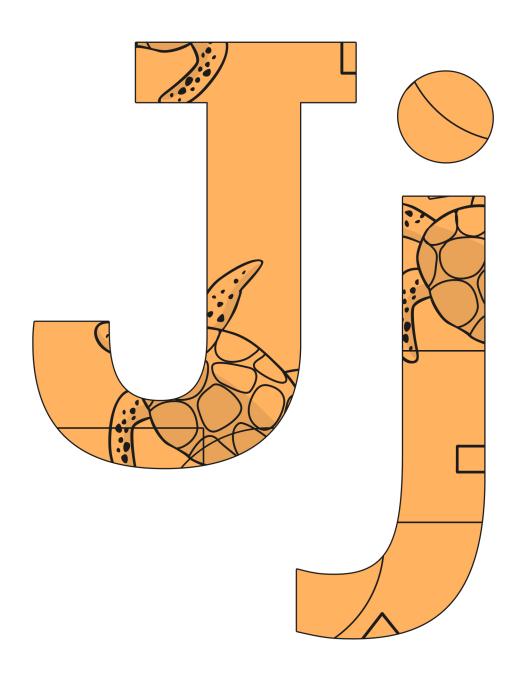


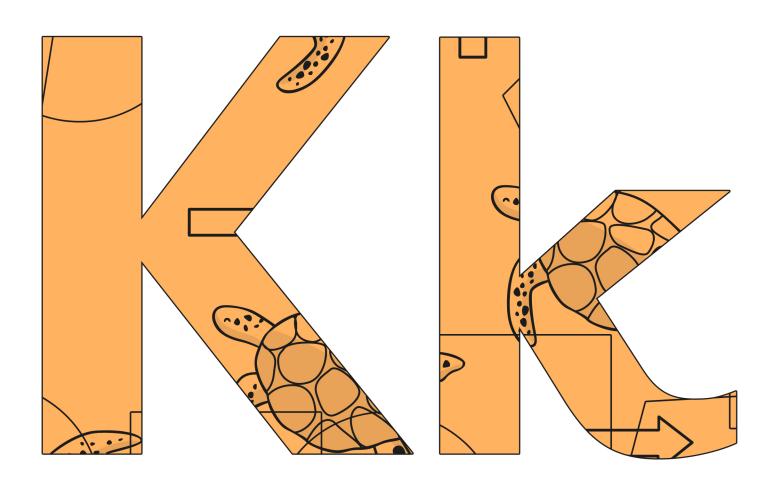


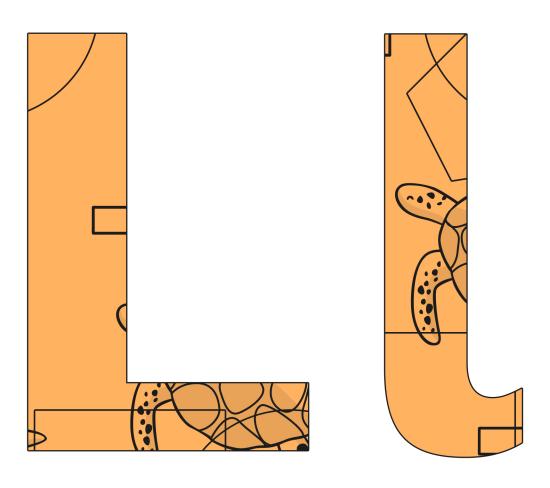


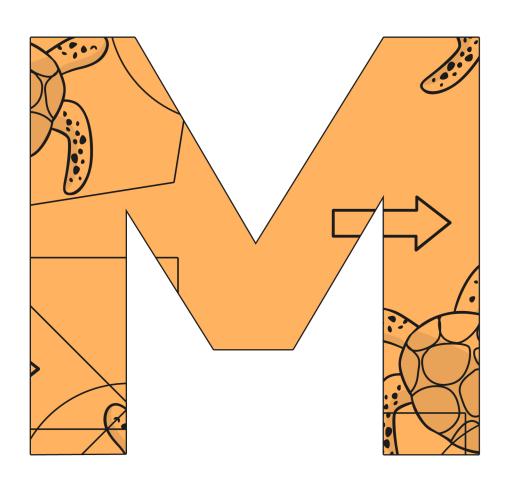


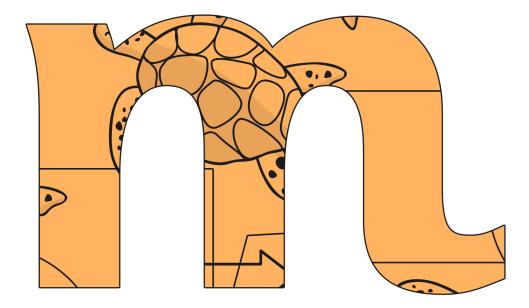


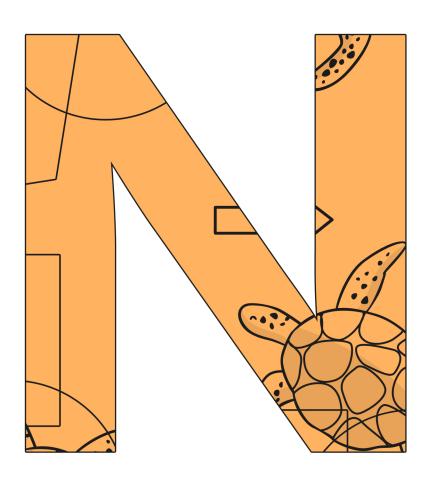


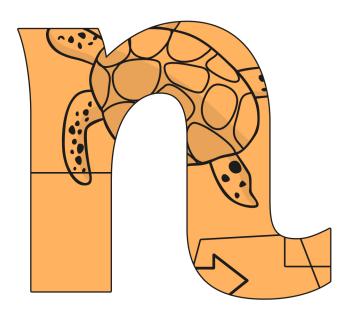


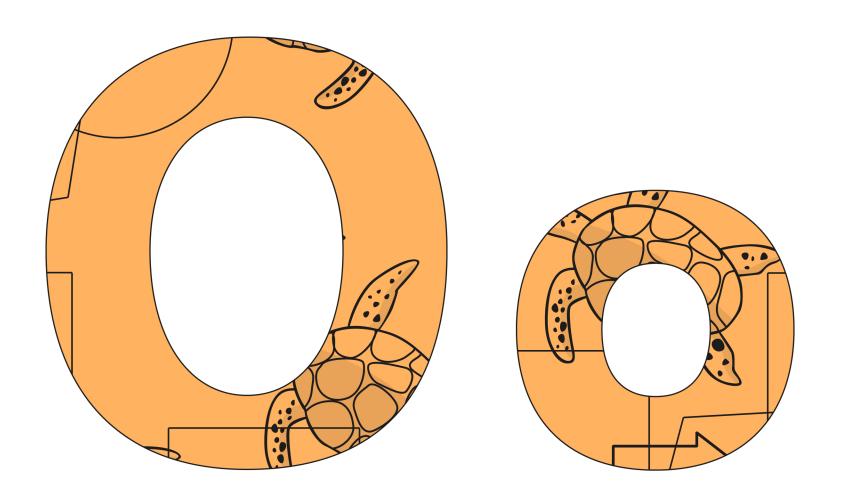


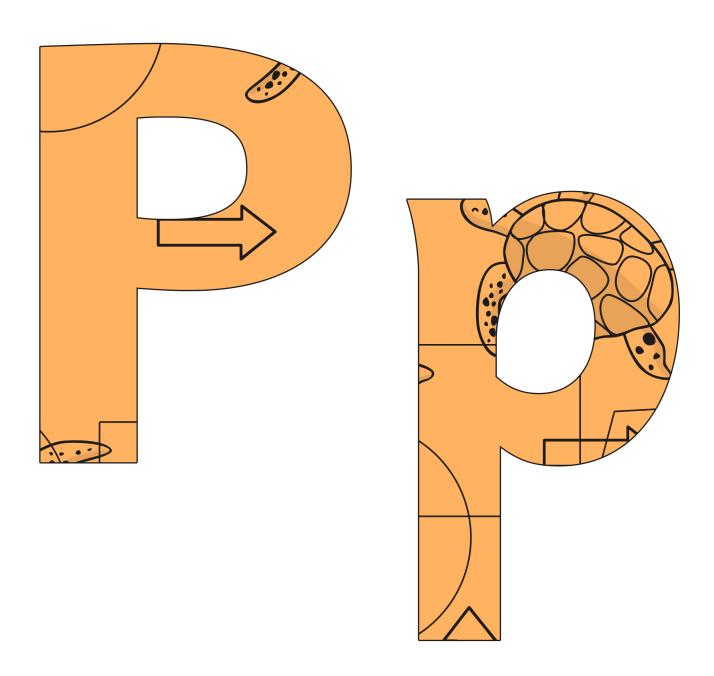


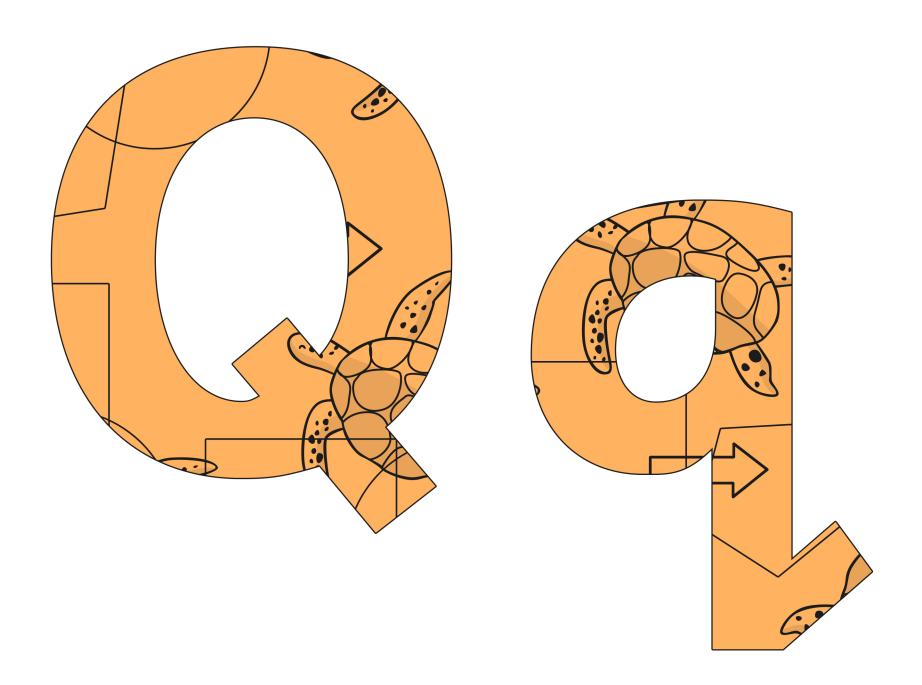


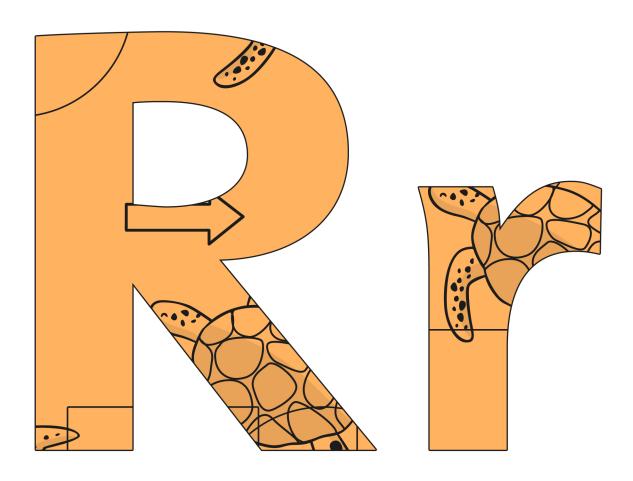


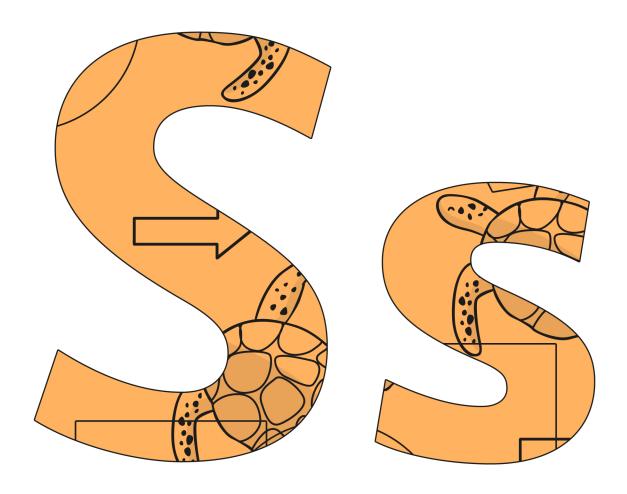


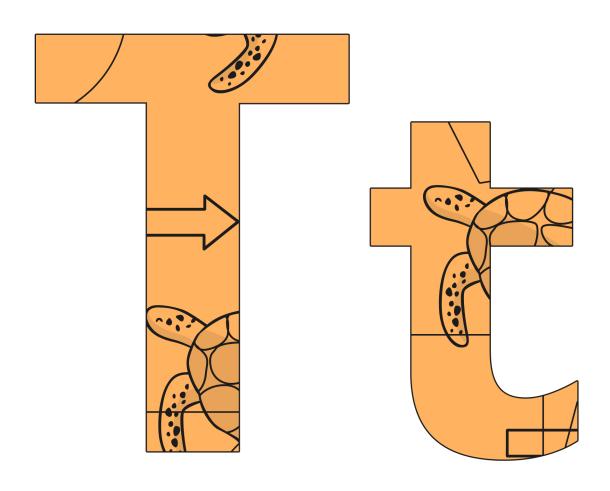


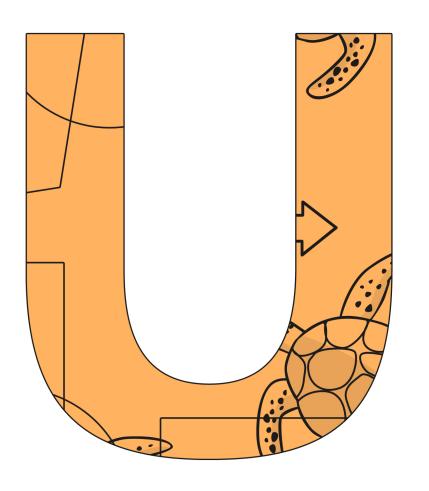


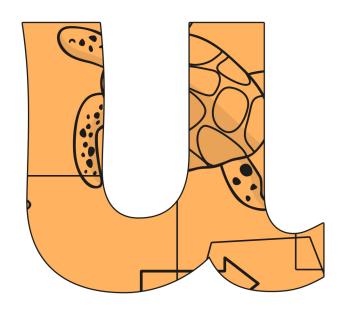


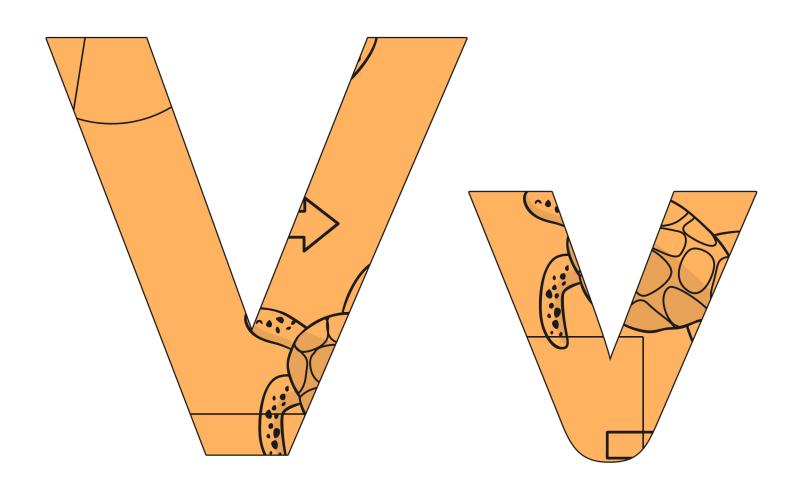


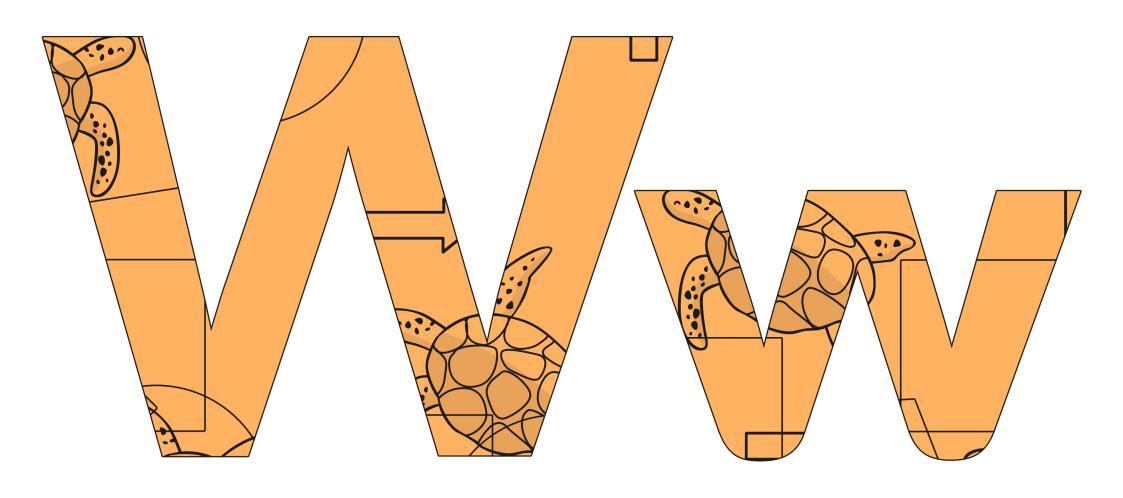


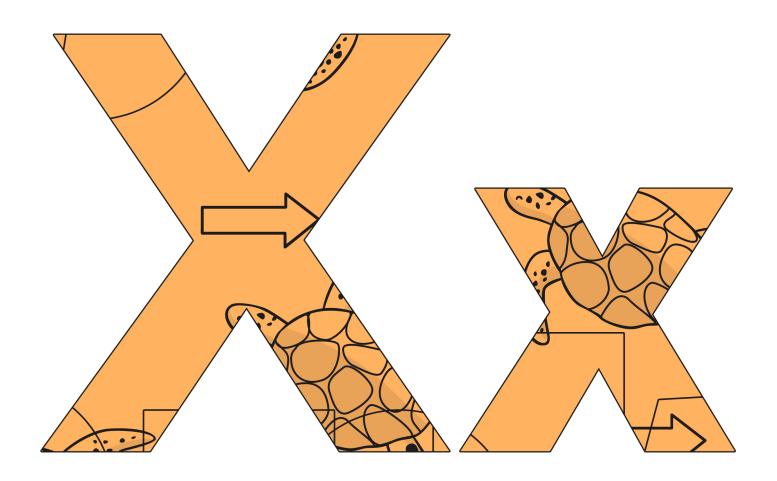


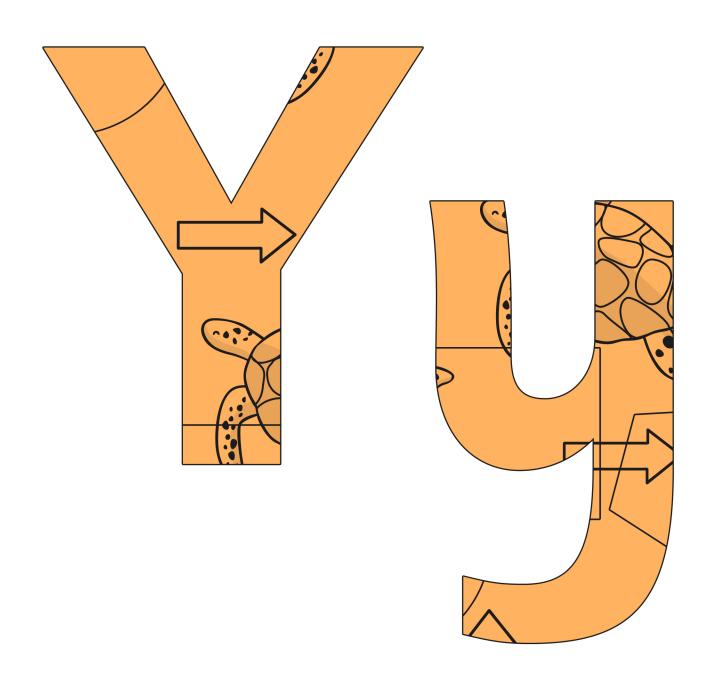


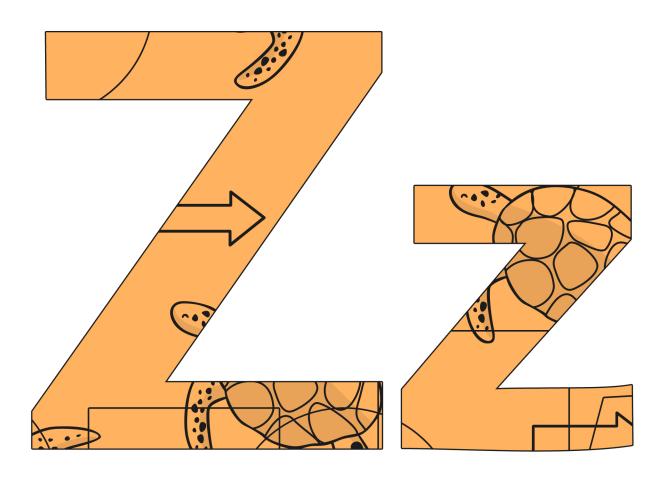


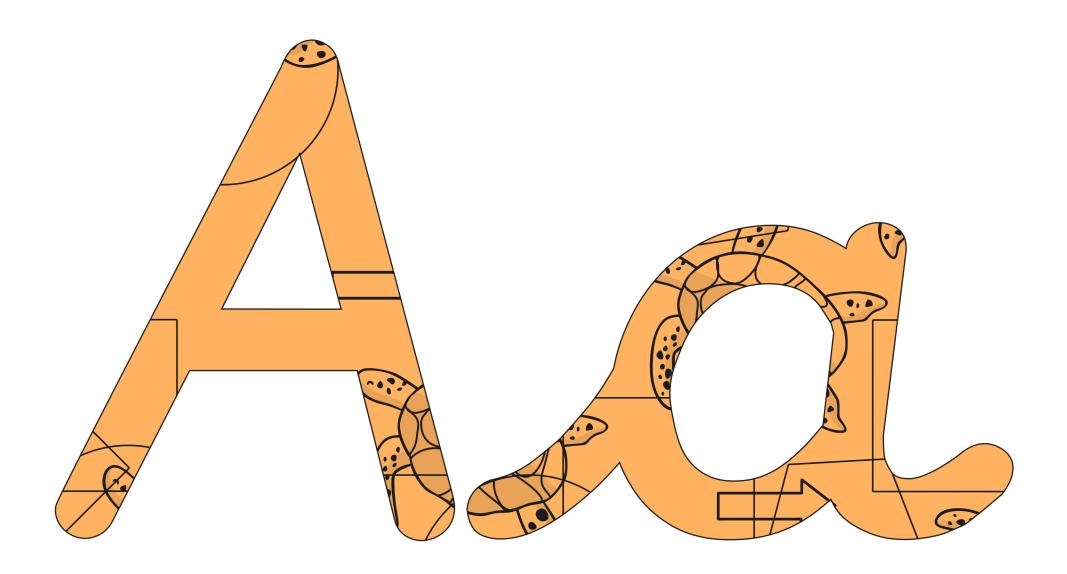




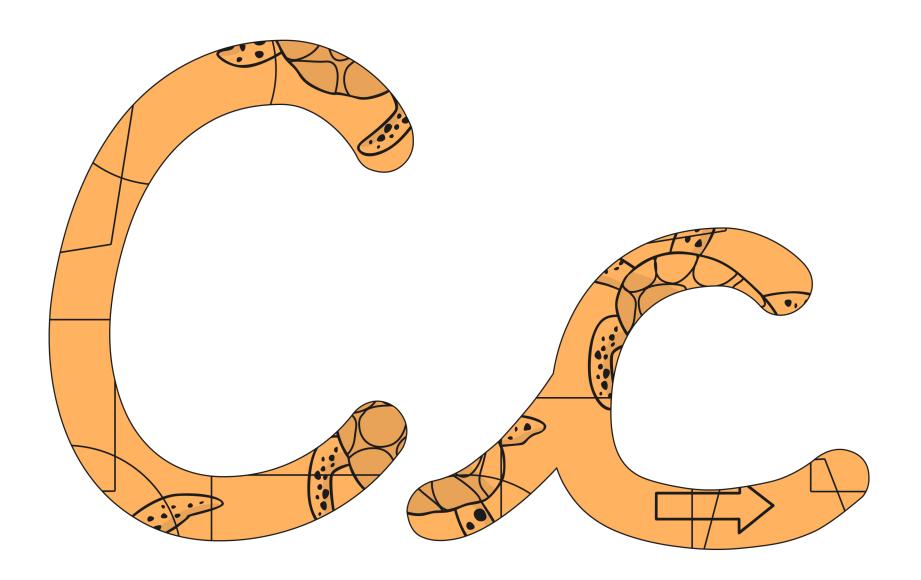


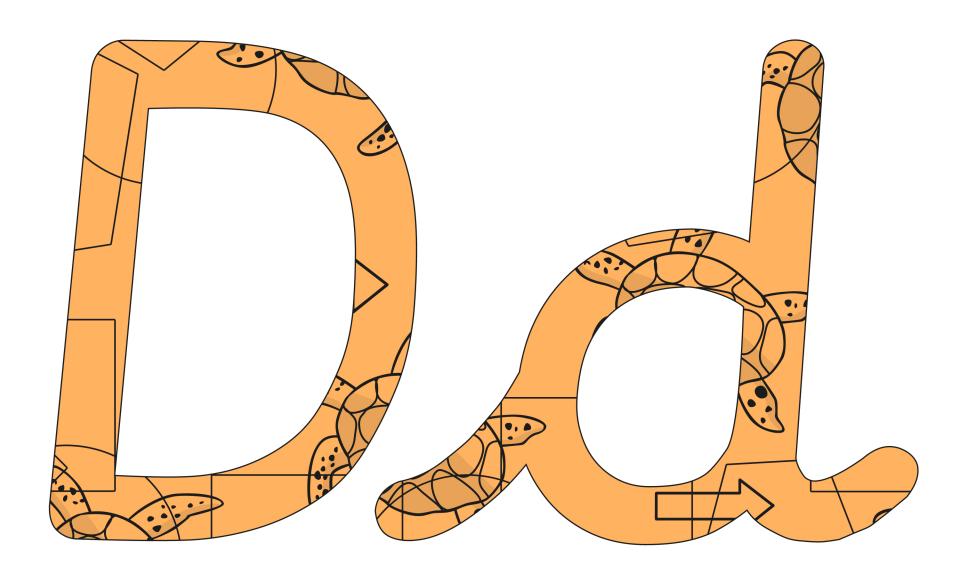


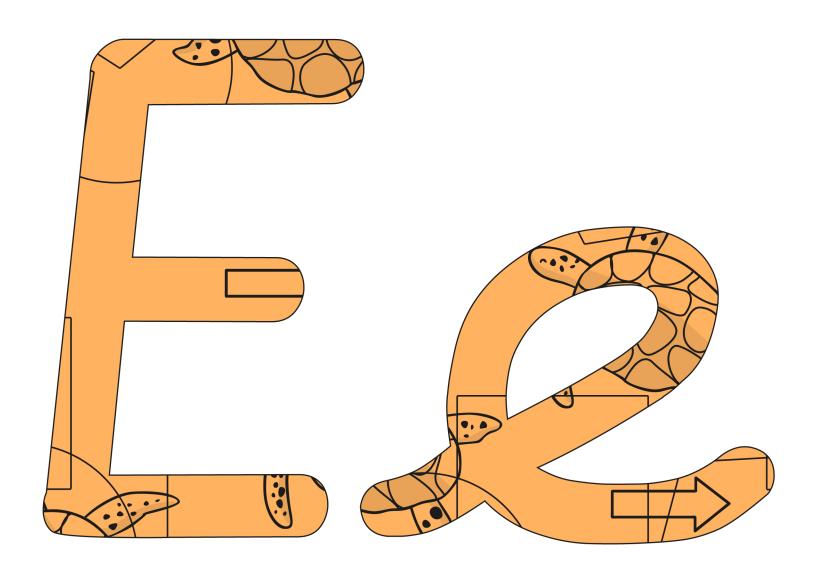


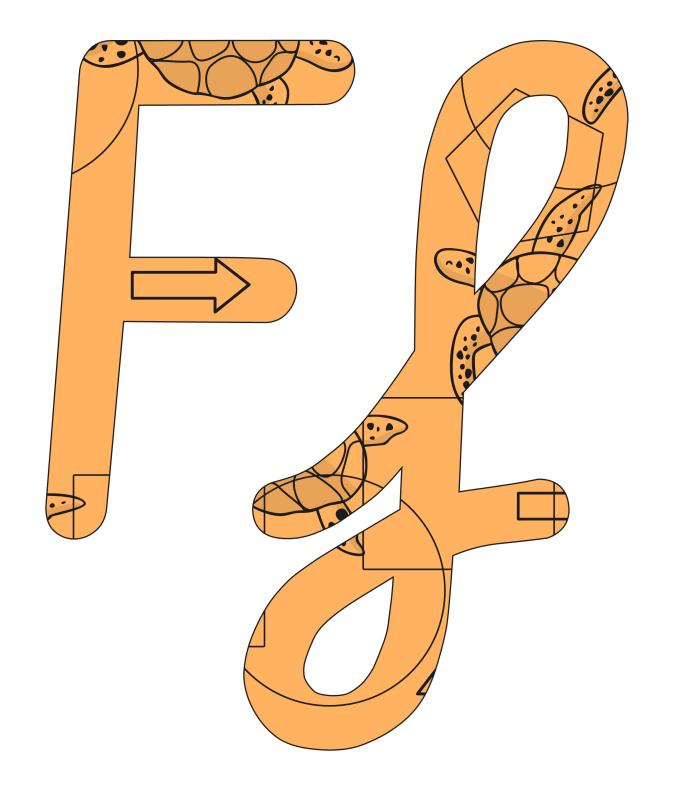




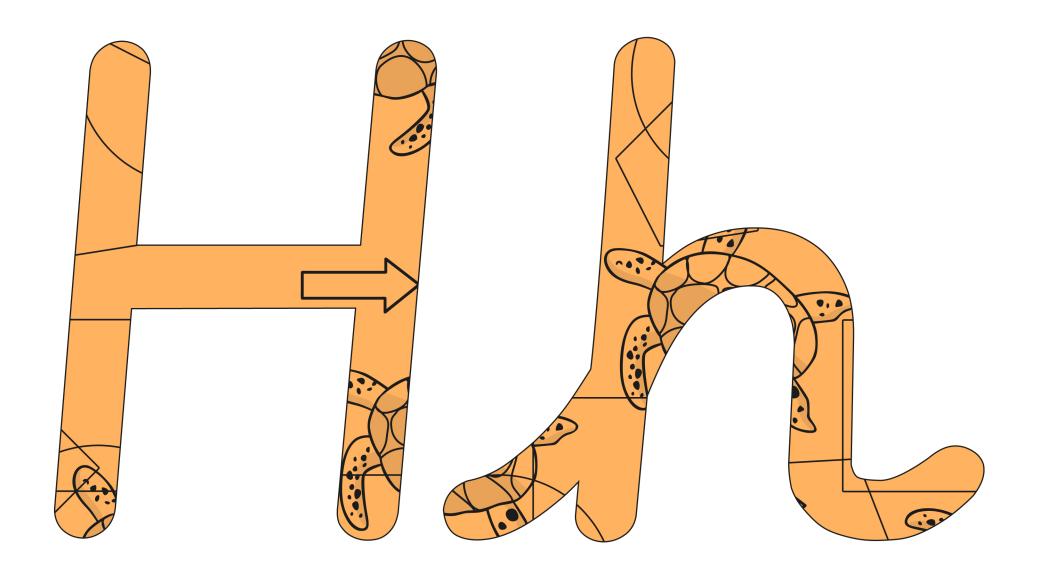


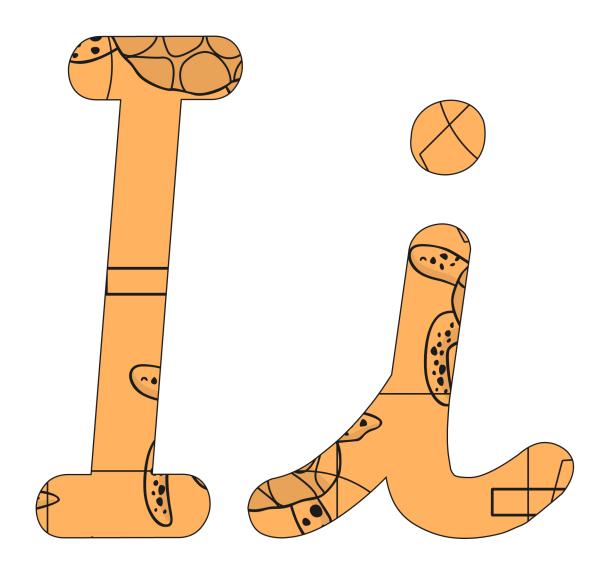


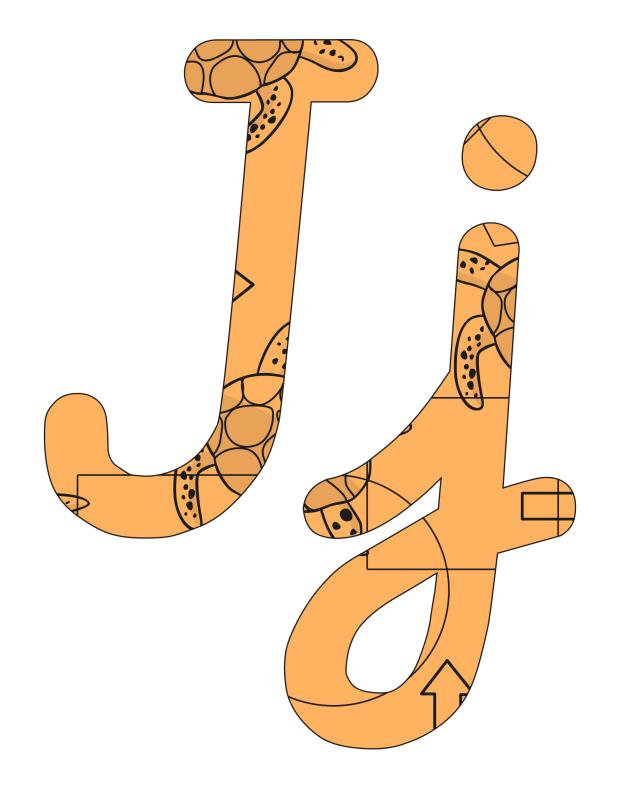


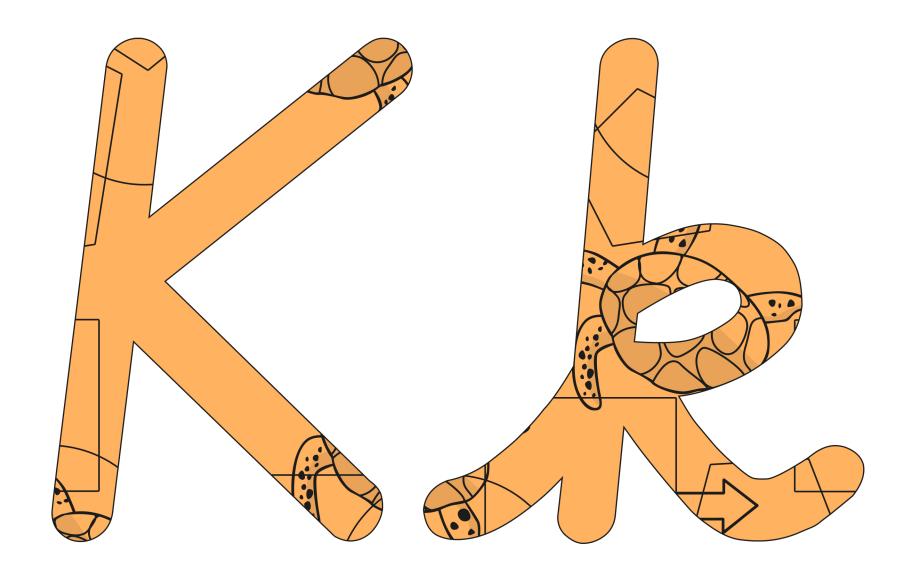


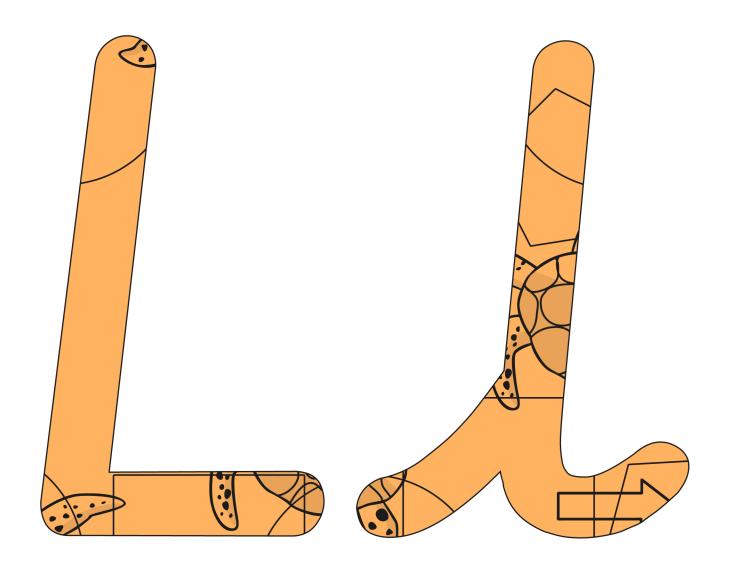


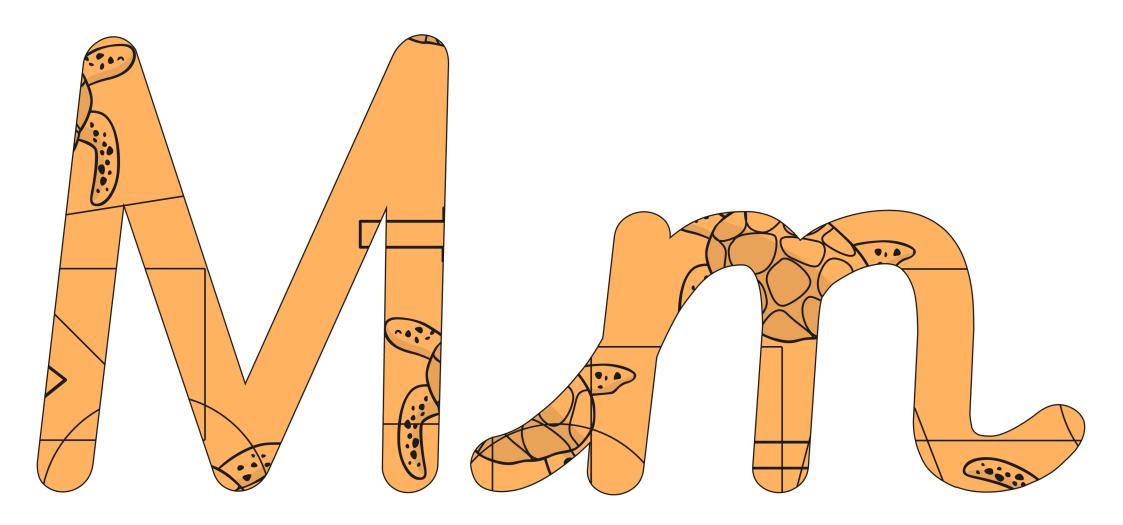


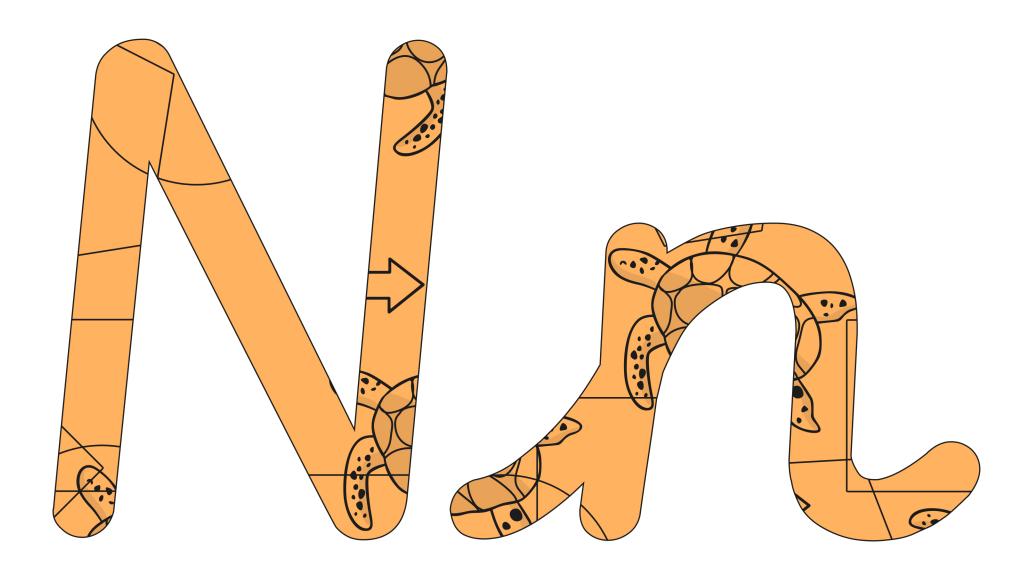


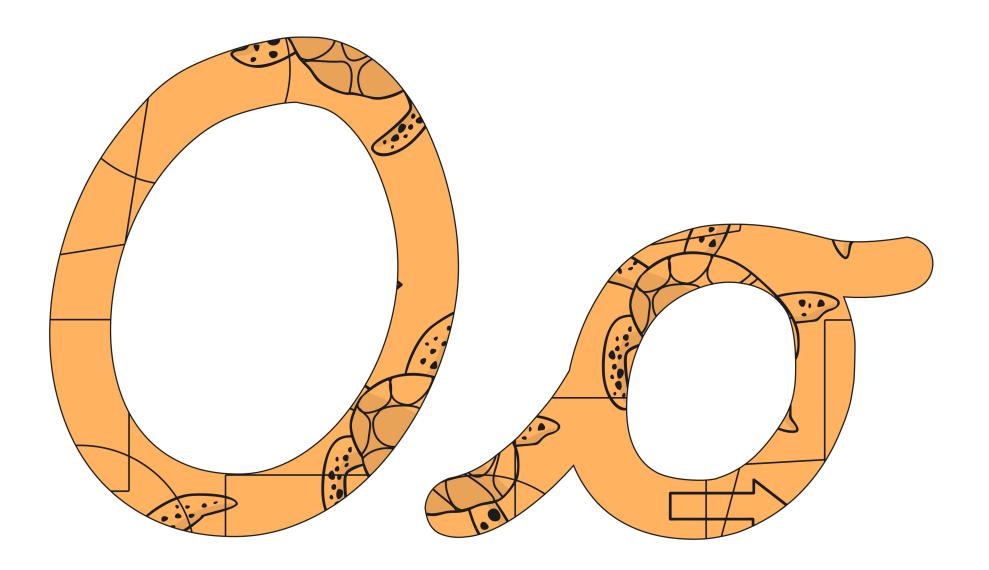


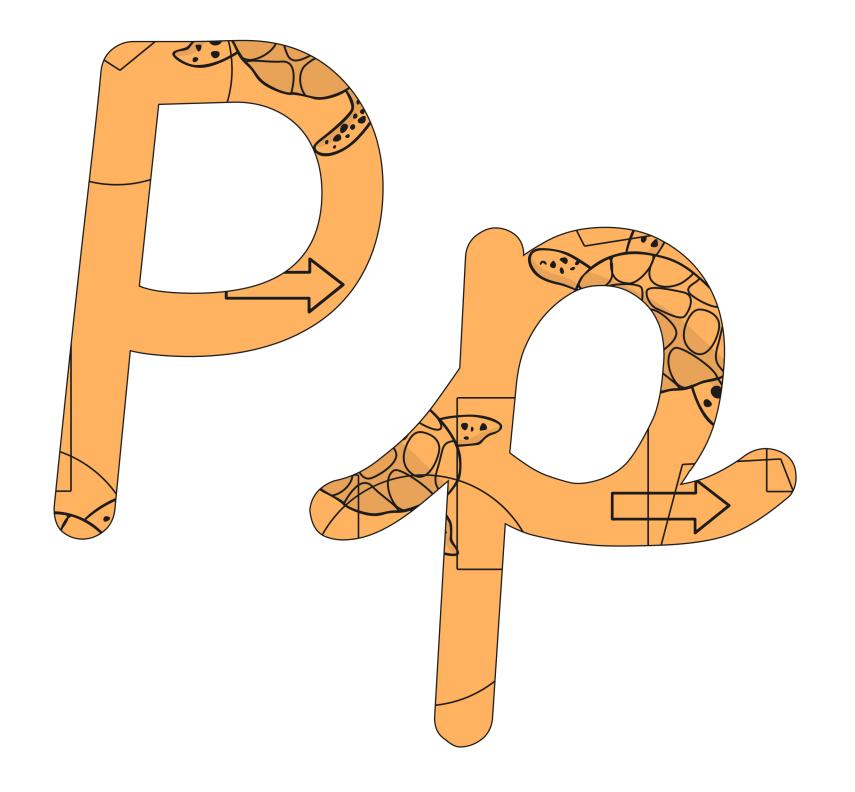


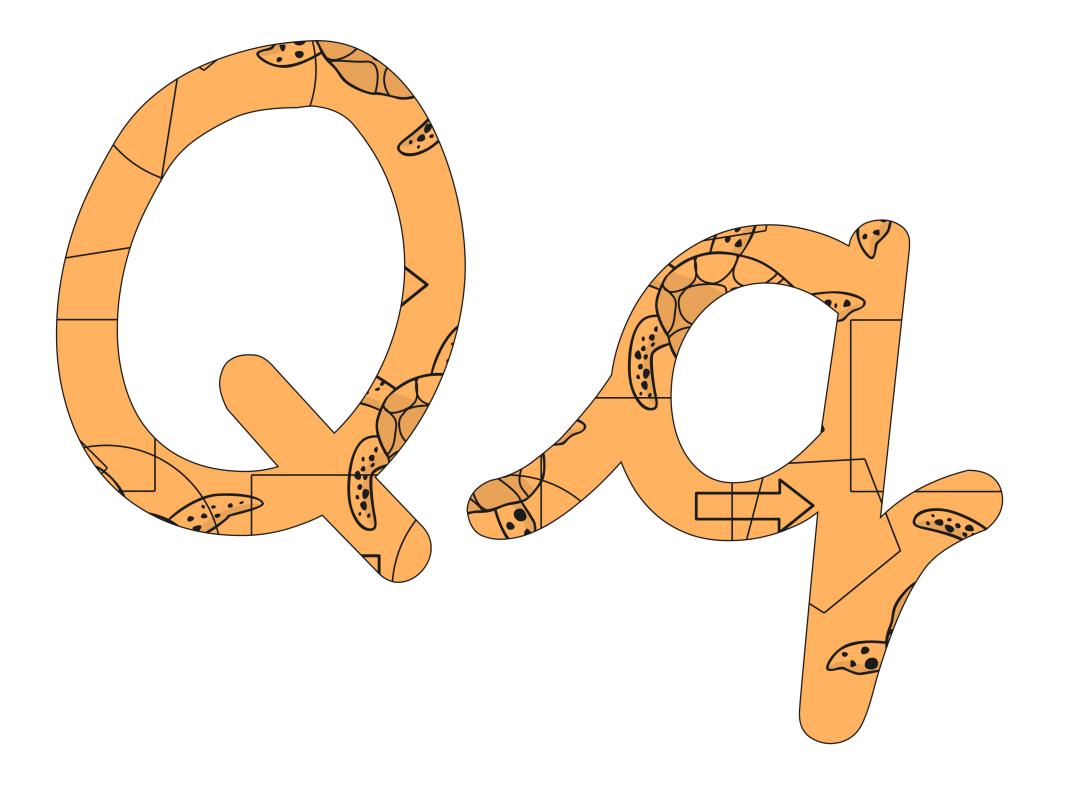


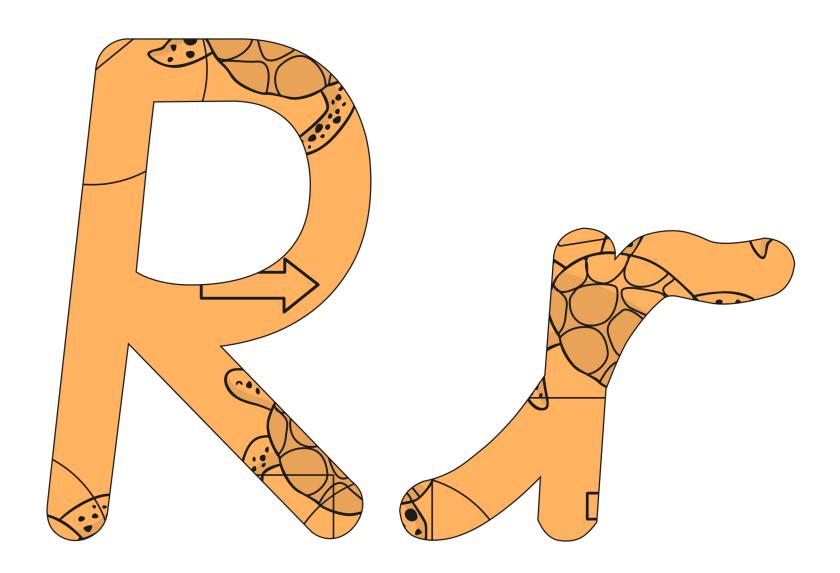


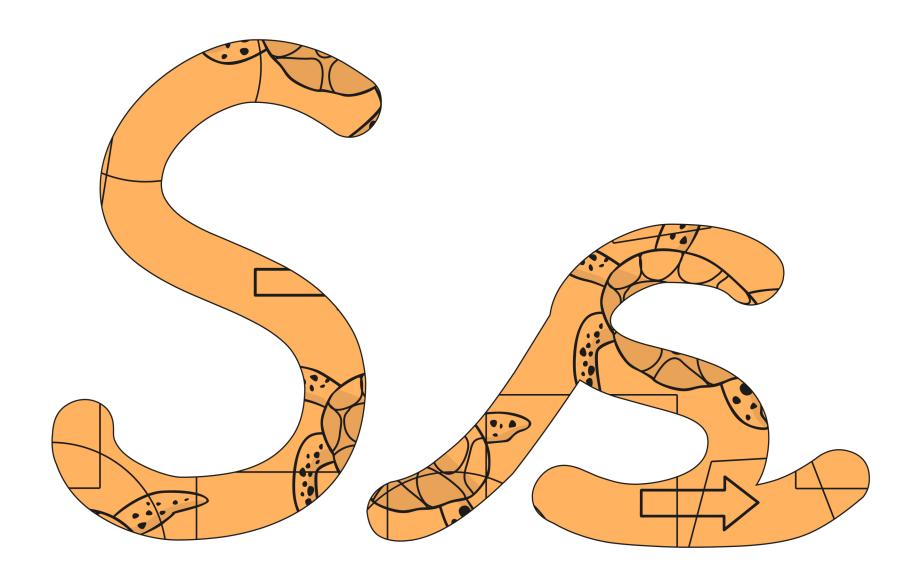


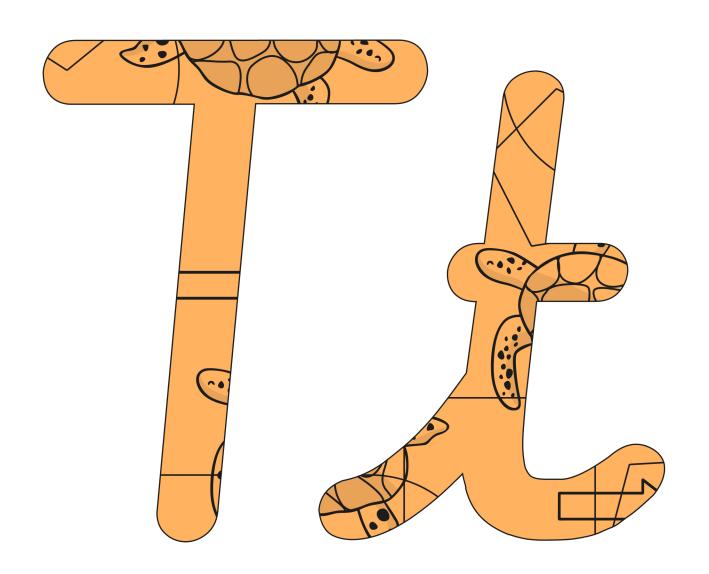


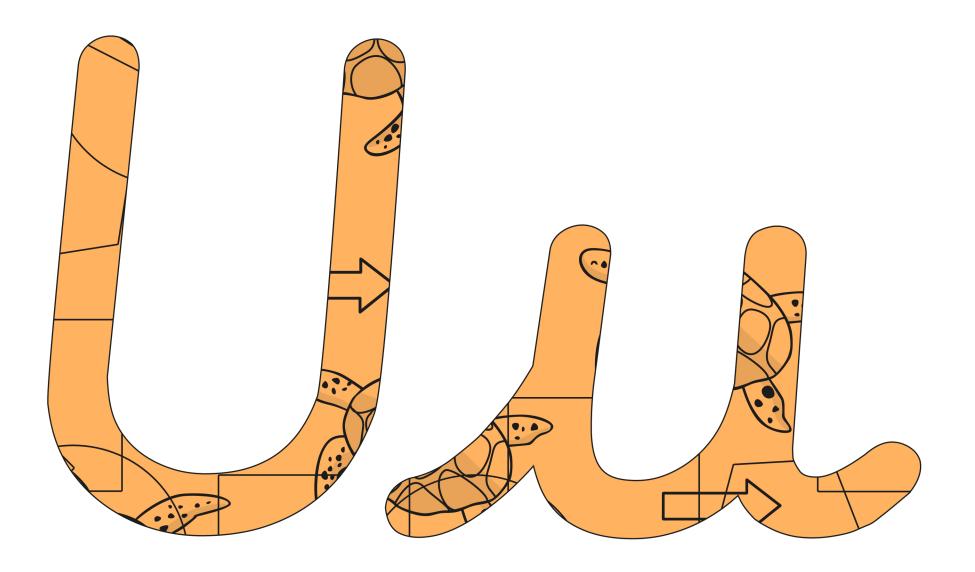


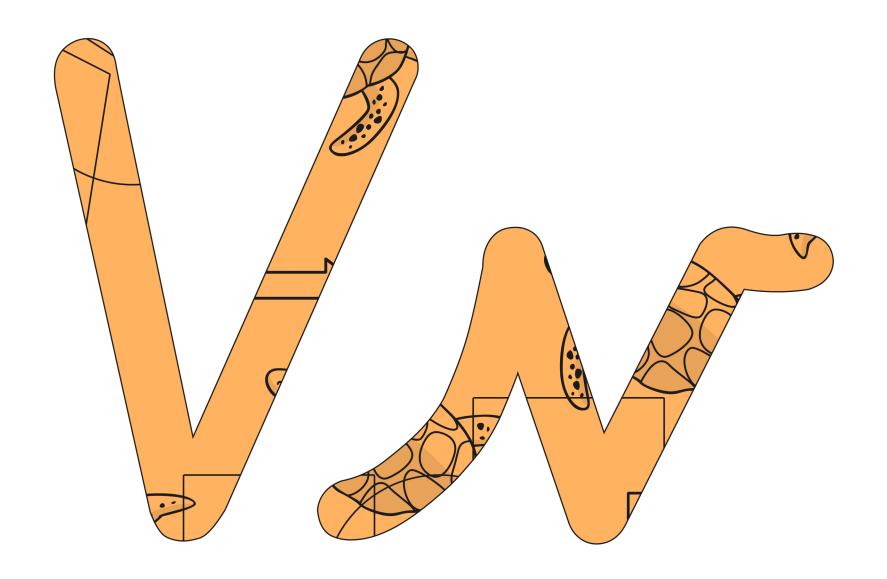




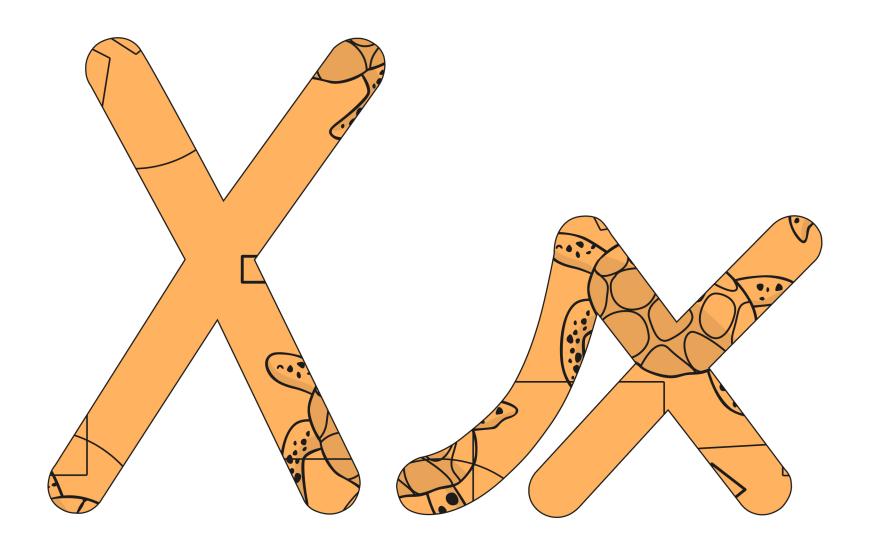


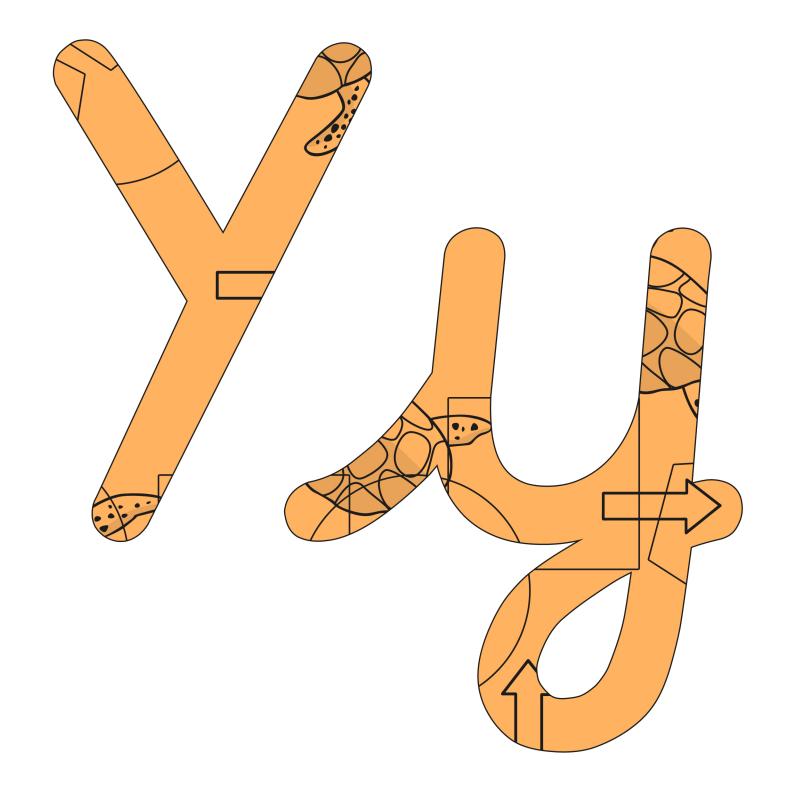


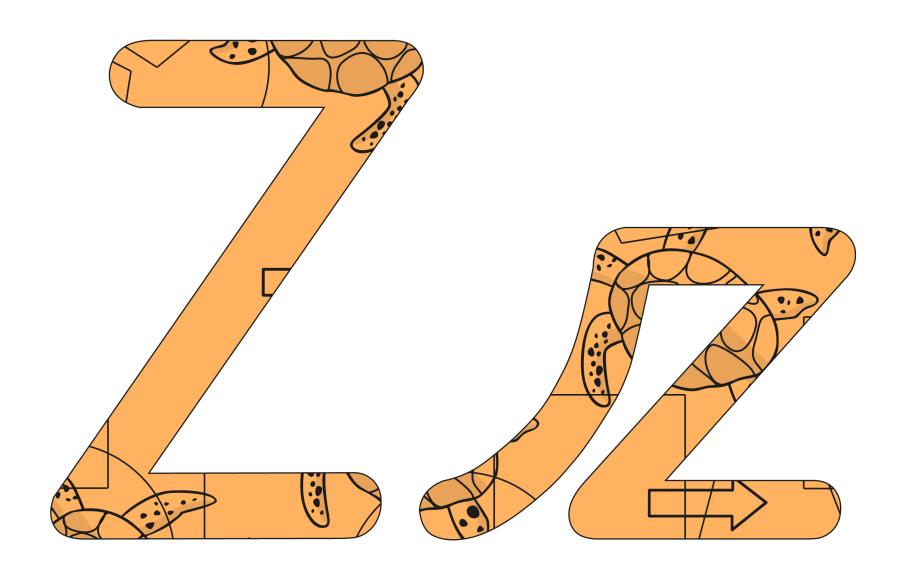


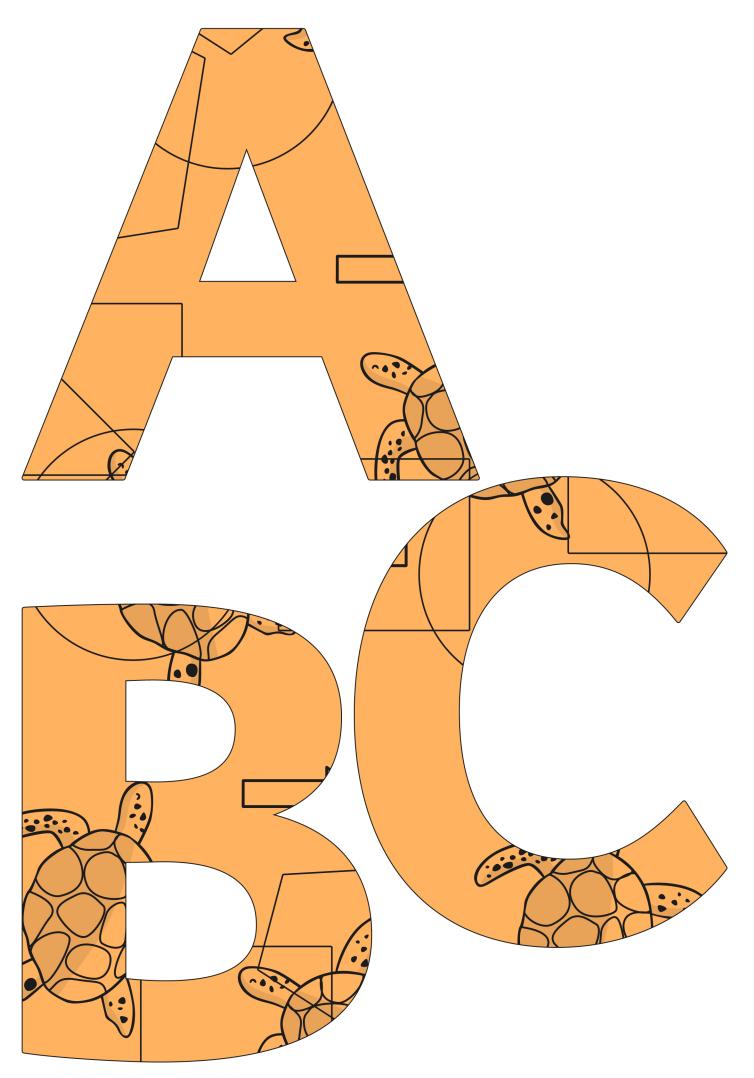




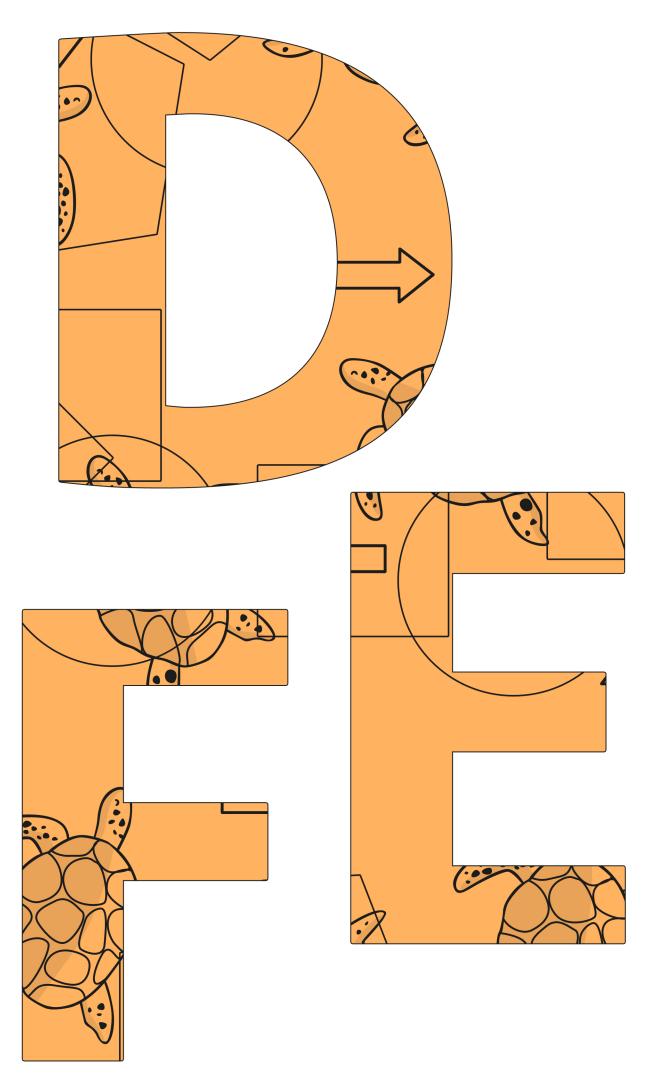








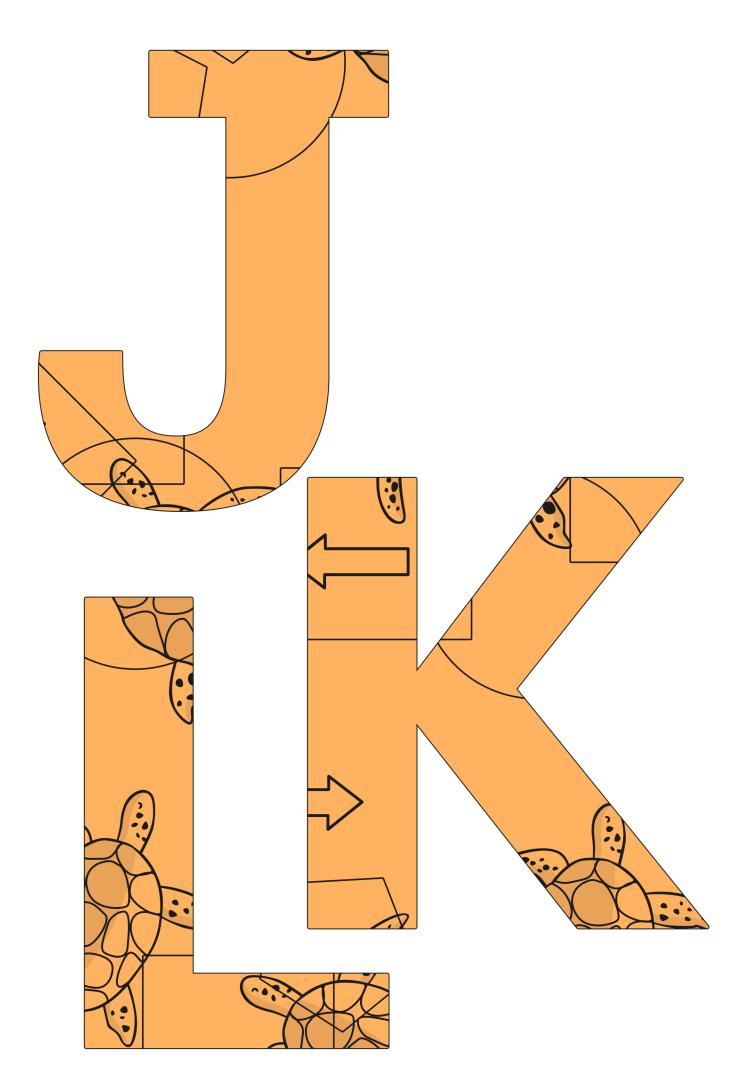
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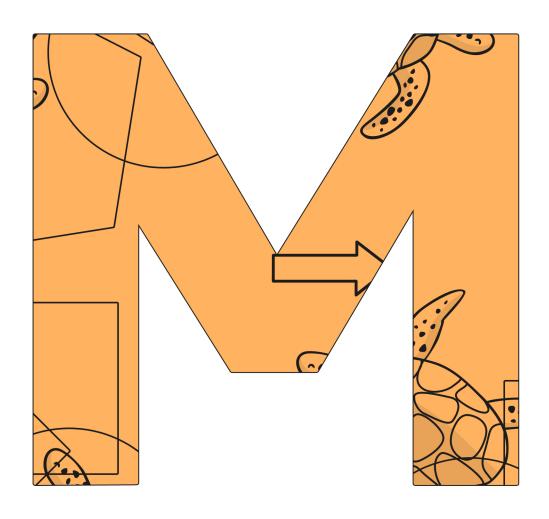
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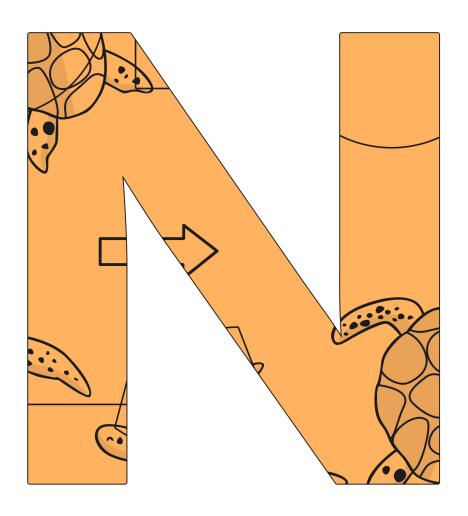


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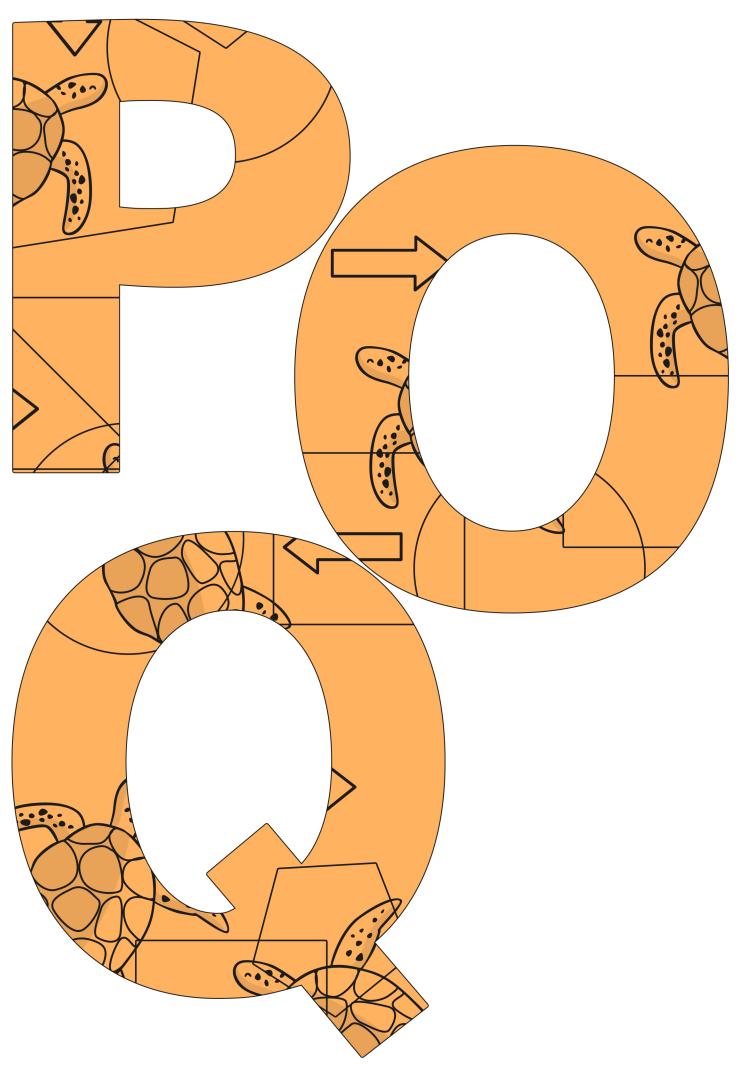


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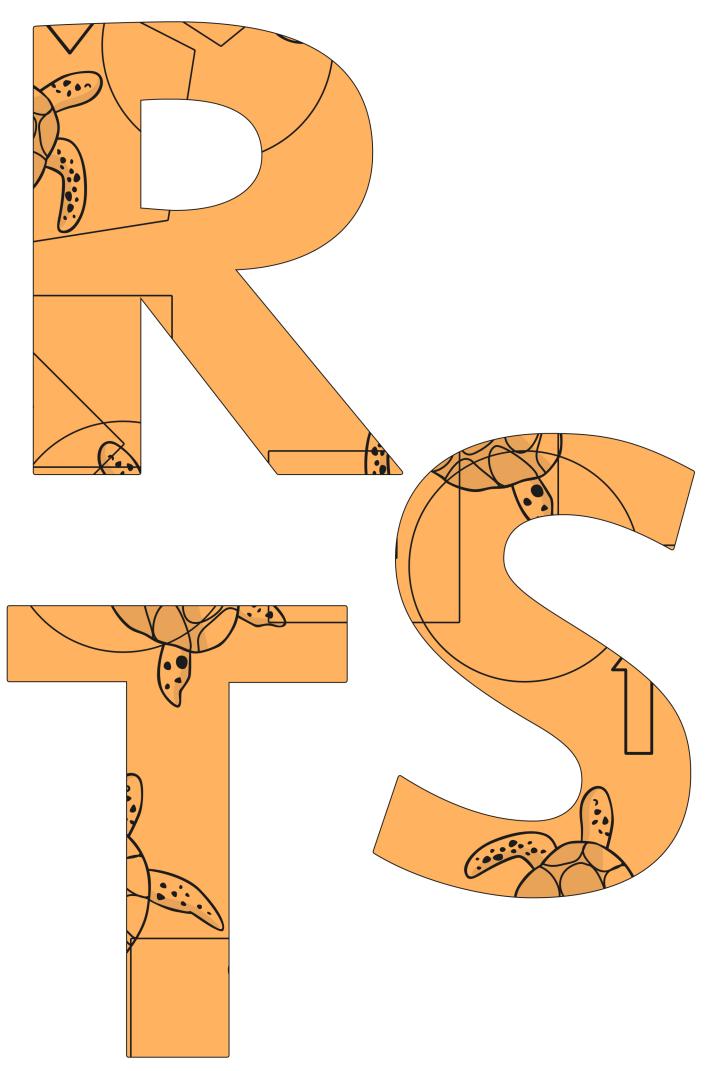




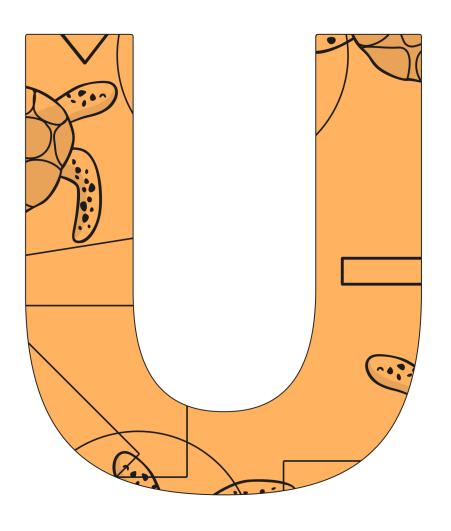
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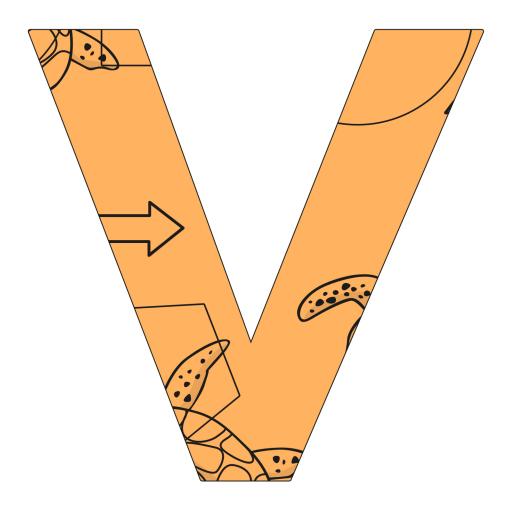


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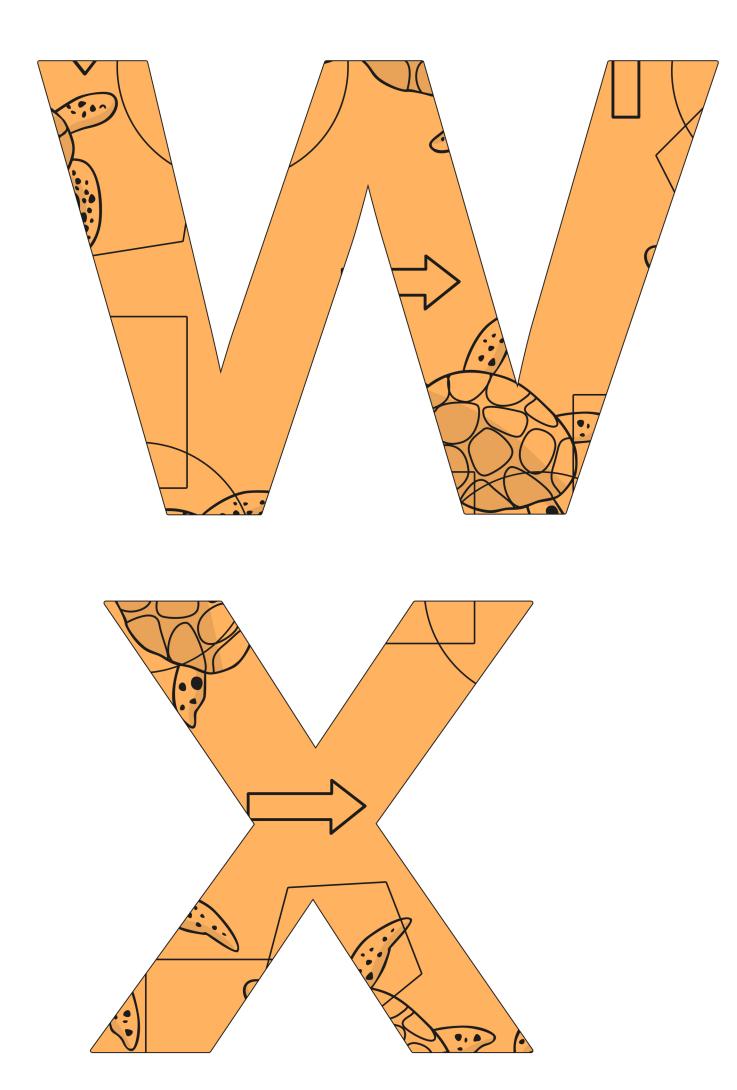


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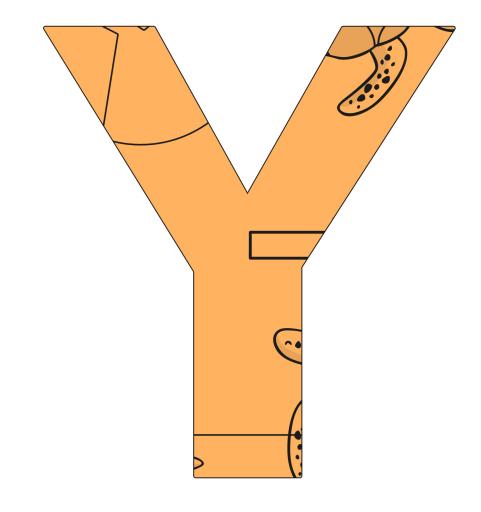


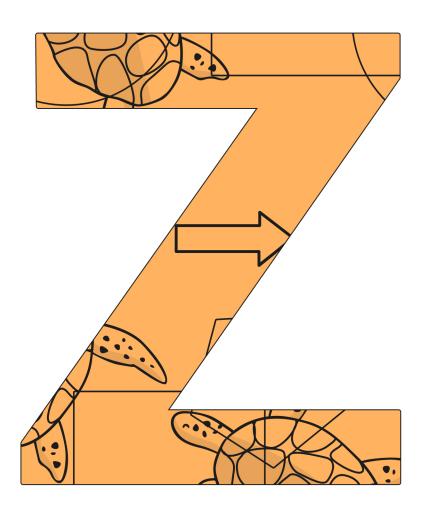


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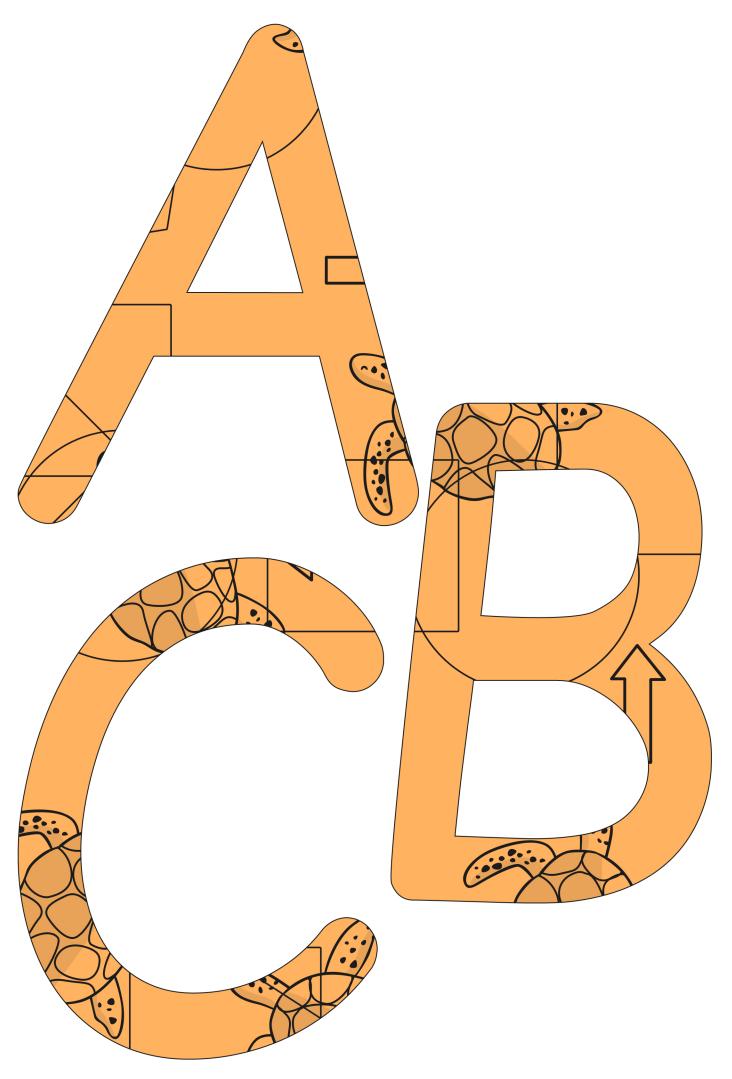


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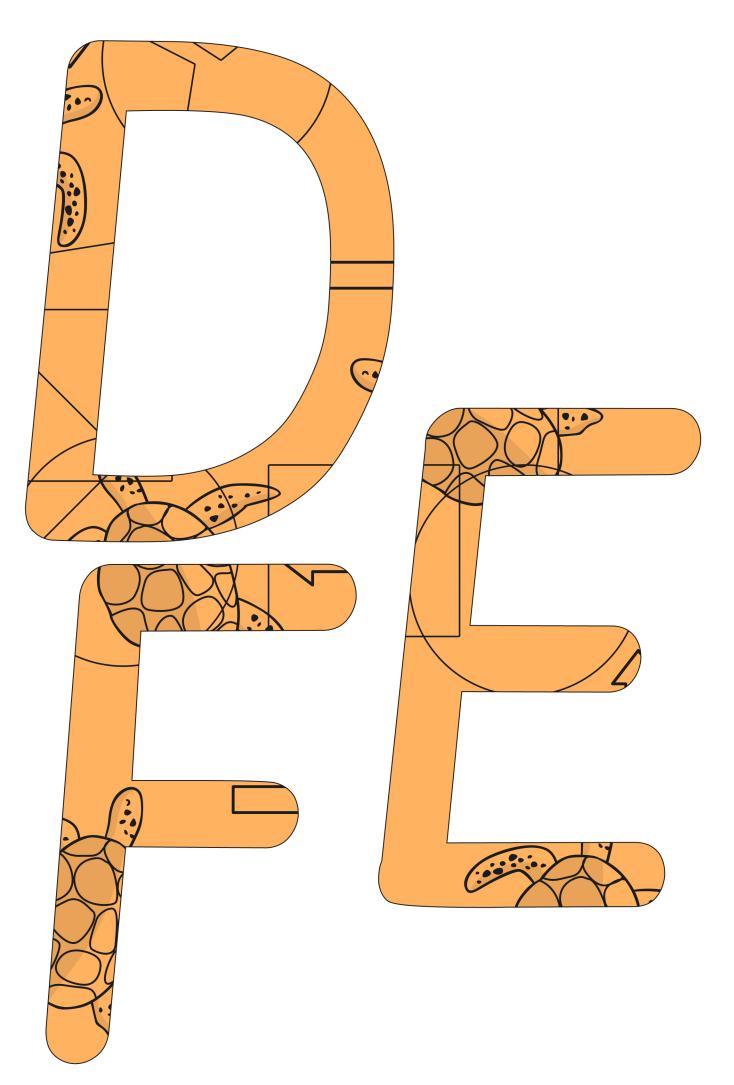




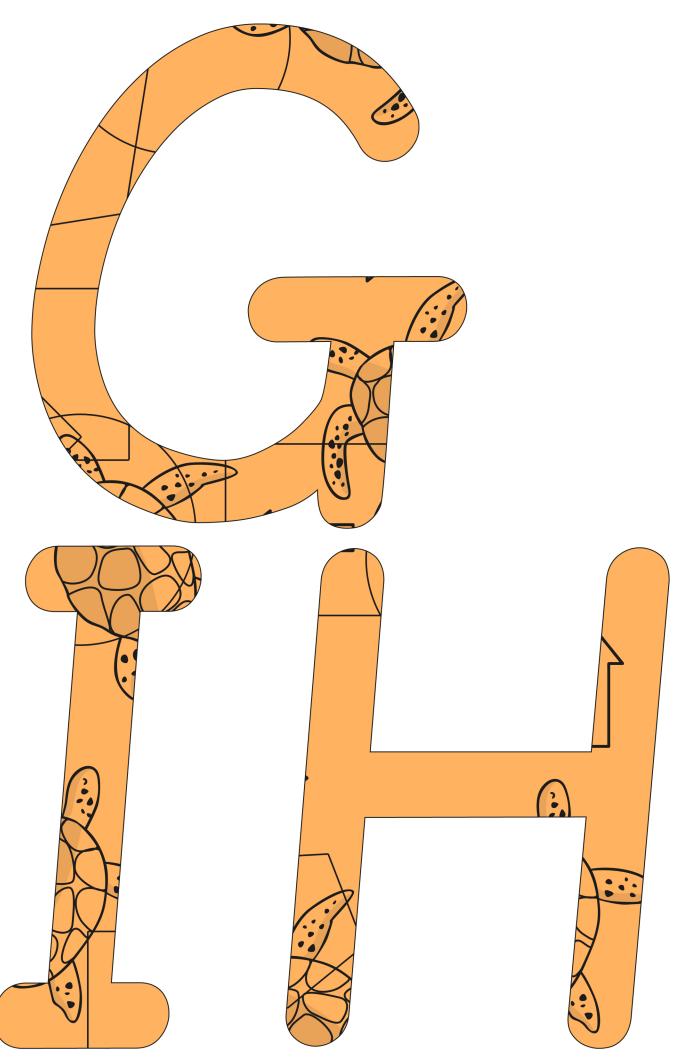
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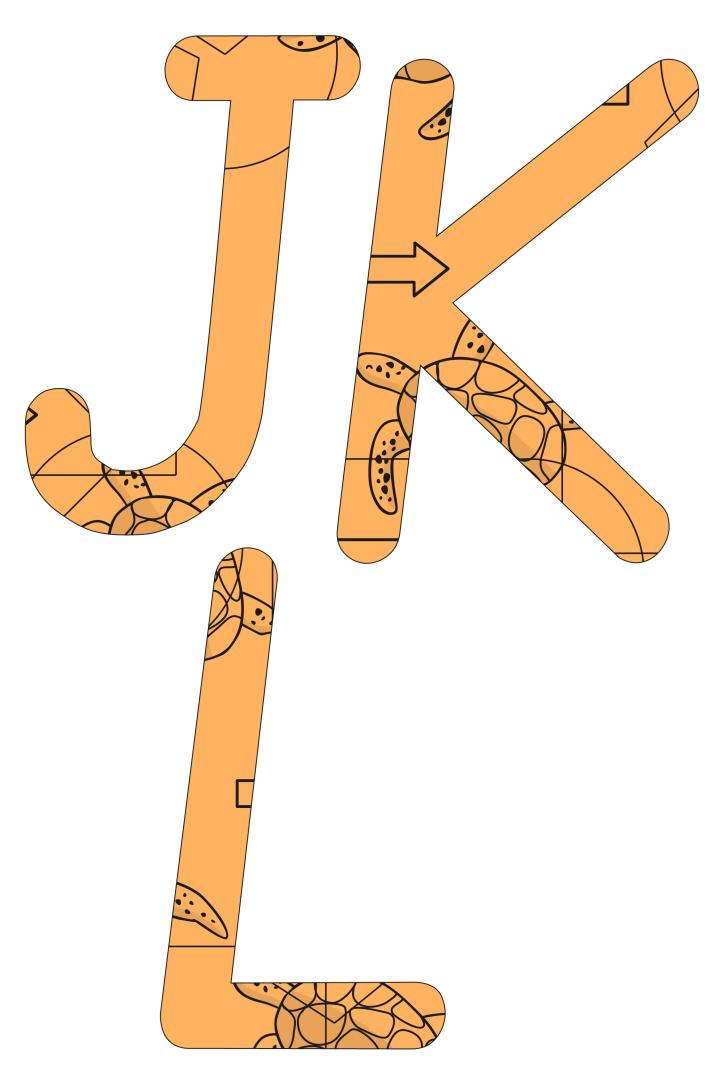
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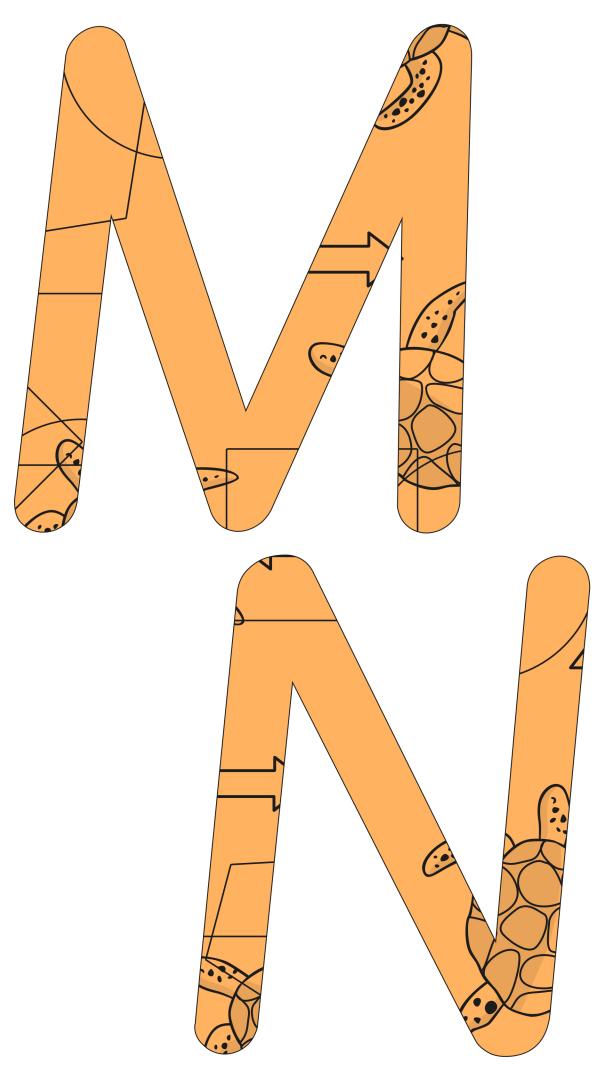
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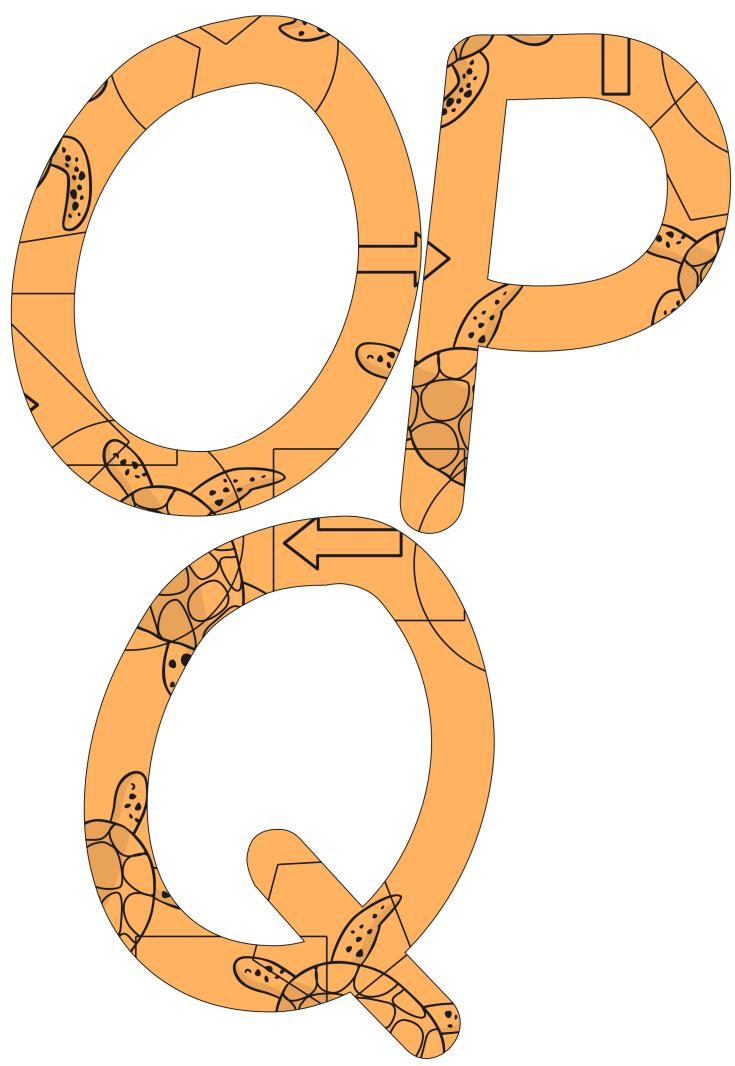
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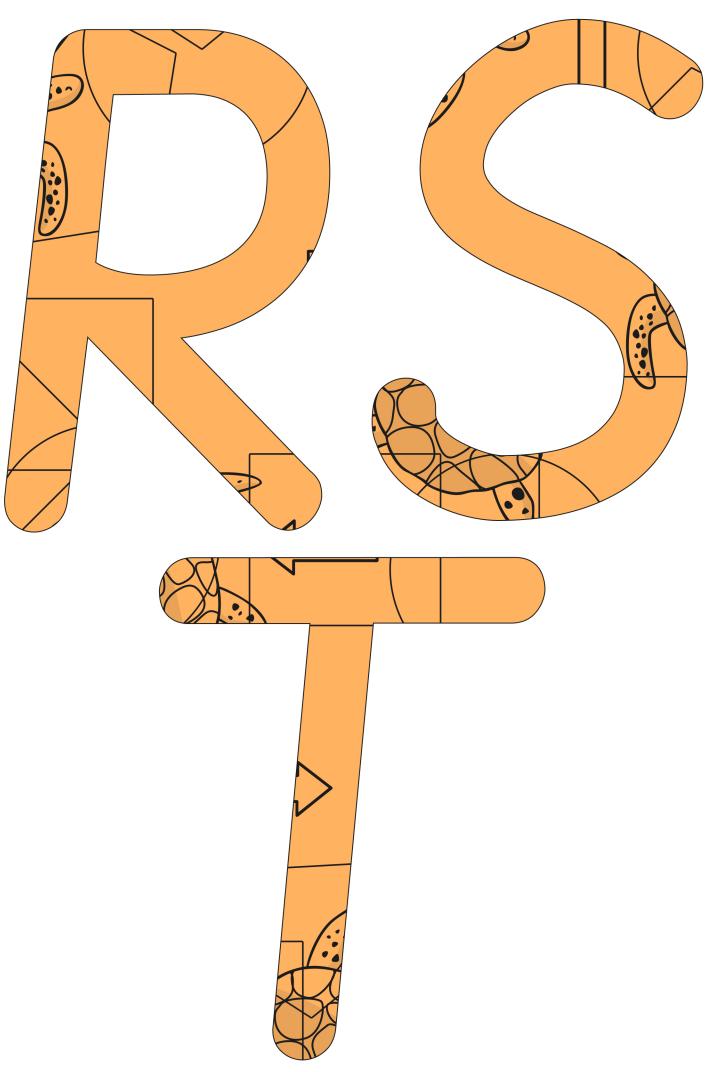
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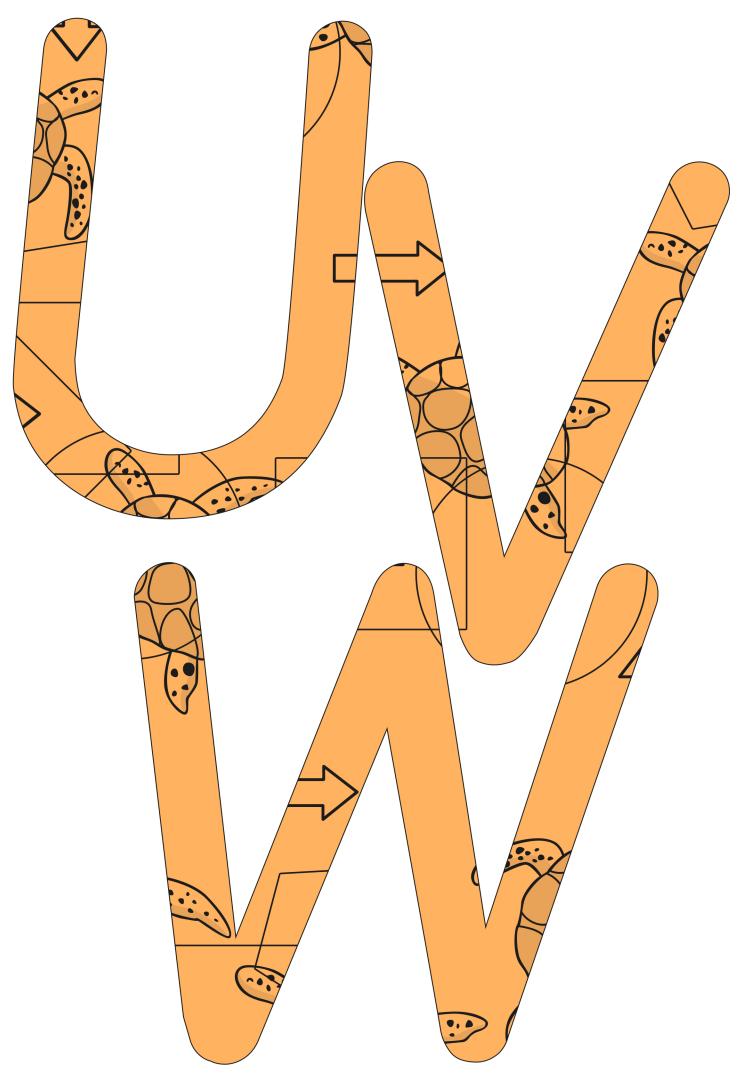
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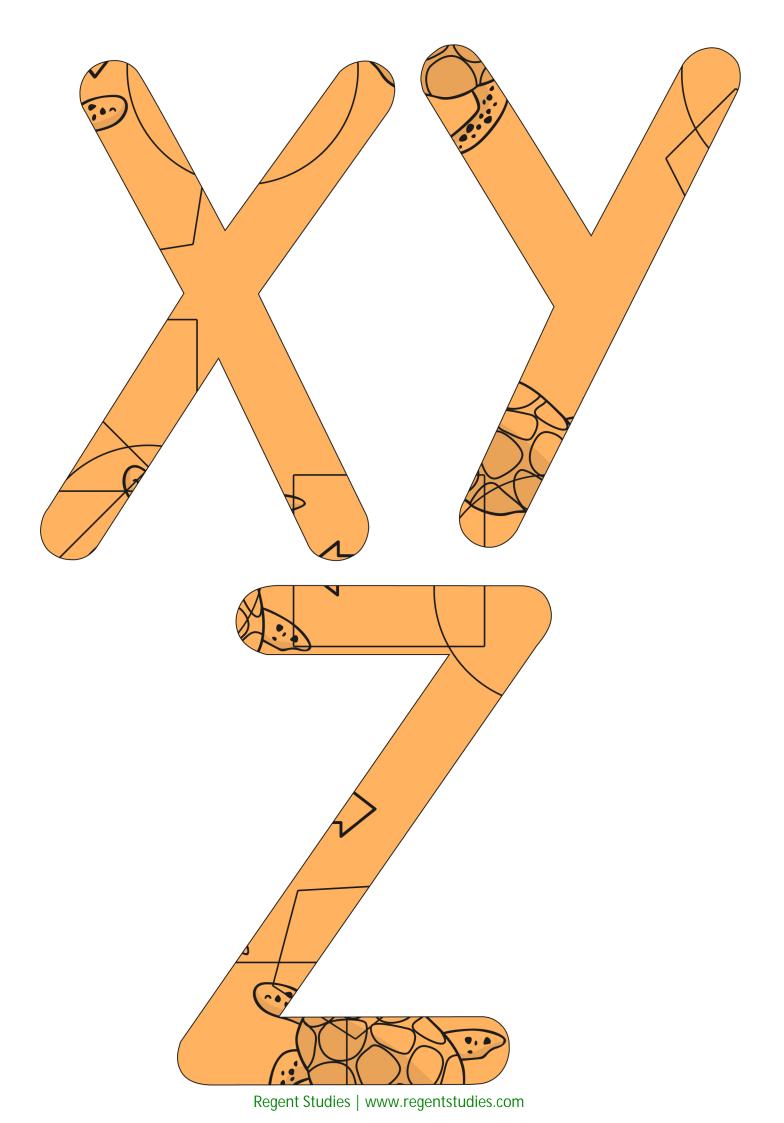
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move



forward



half turn



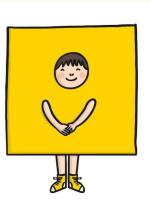
quarter turn



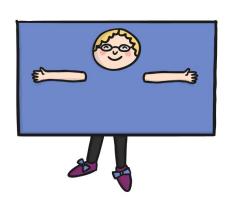
turn



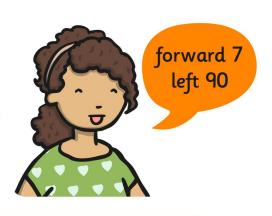
square



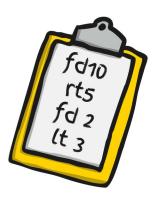
rectangle



commands



algorithm | fd10 | rts | fd2 |



instructions



right 90





move



forward



half turn



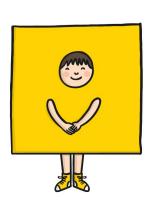
quarter turn_



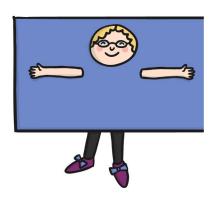
turn



square



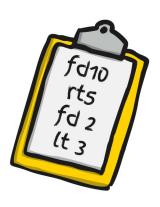
rectangle



commands



algorithm for the state of the



instructions



right 90



Left 90



move



forward



half turn



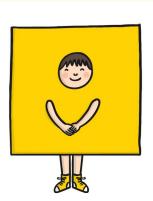
quarter turn



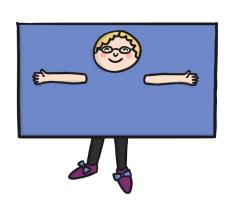
turn



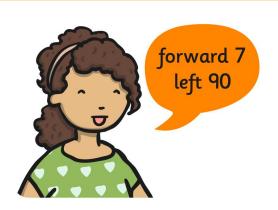
square



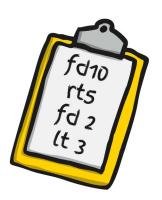
rectangle



commands



algorithm



instructions



right 90



left 90



Preparing for Turtle Logo

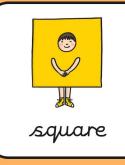






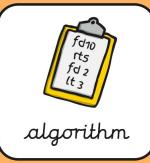










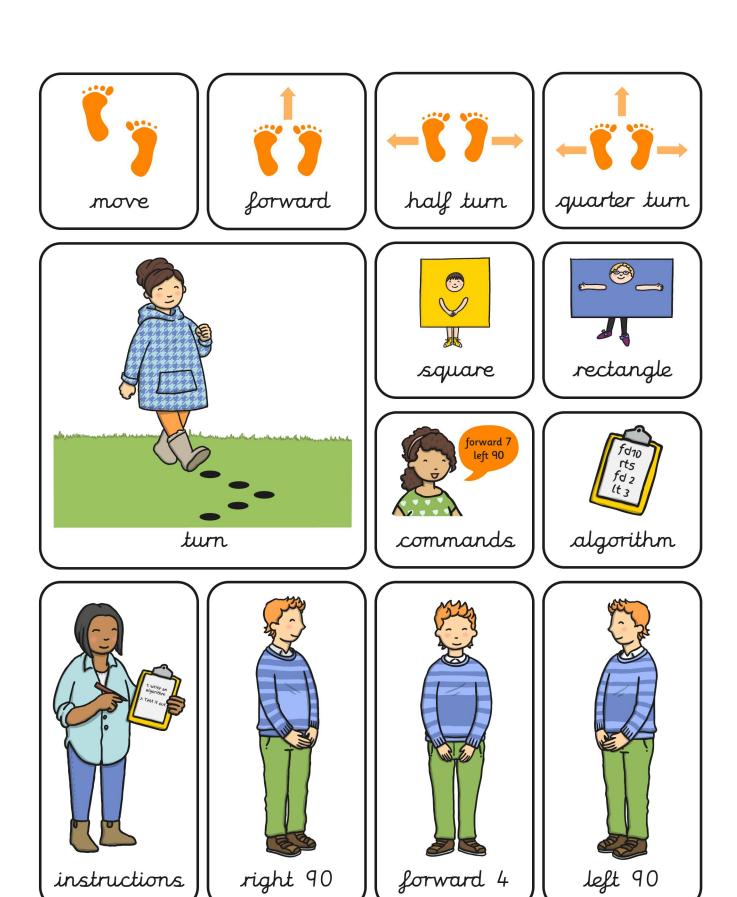












Preparing for Turtle Logo

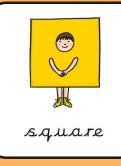




























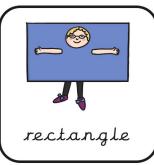










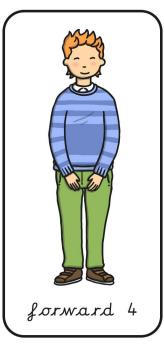












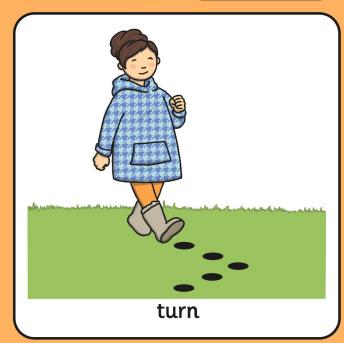


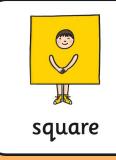


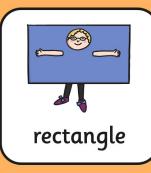




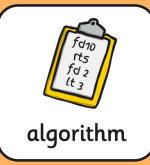










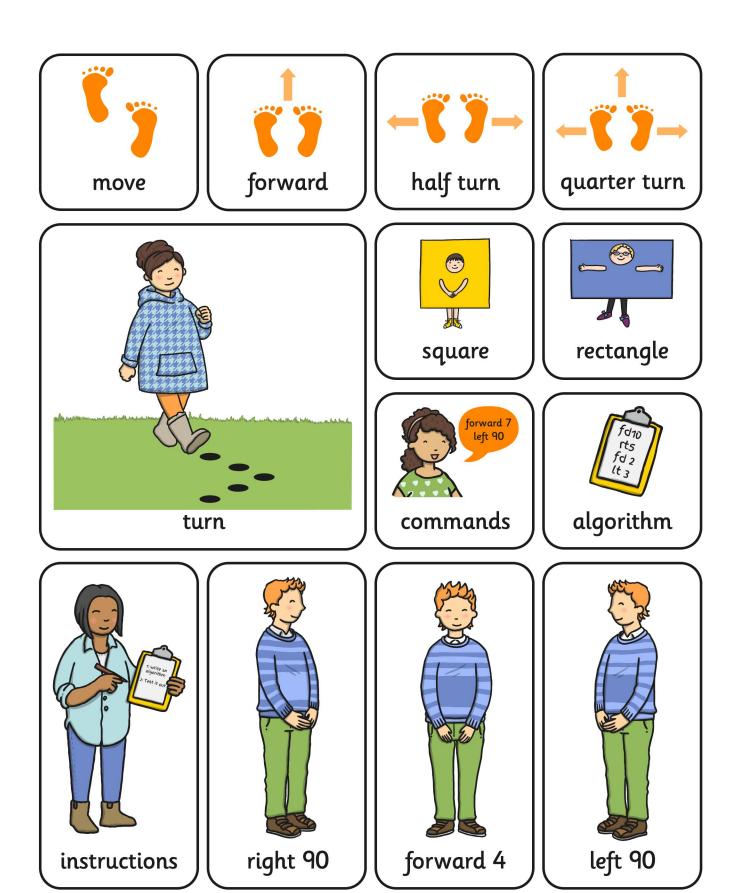




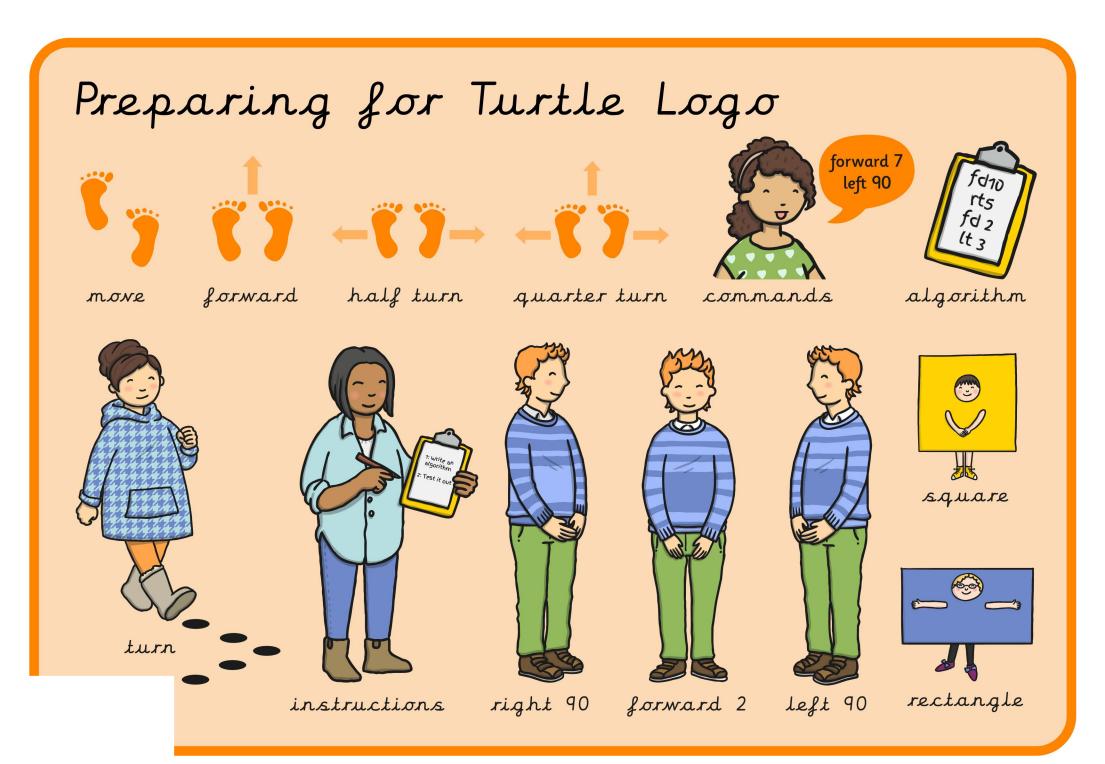








Preparing for Turtle Logo forward 7 left 90 half turn quarter turn commands forward algorithm move square turn instructions right 90 forward 2 left 90 rectangle



Preparing for Turtle Logo forward 7 left 90 half turn algorithm commands forward quarter turn move square turn

right 90

instructions

left 90

rectangle

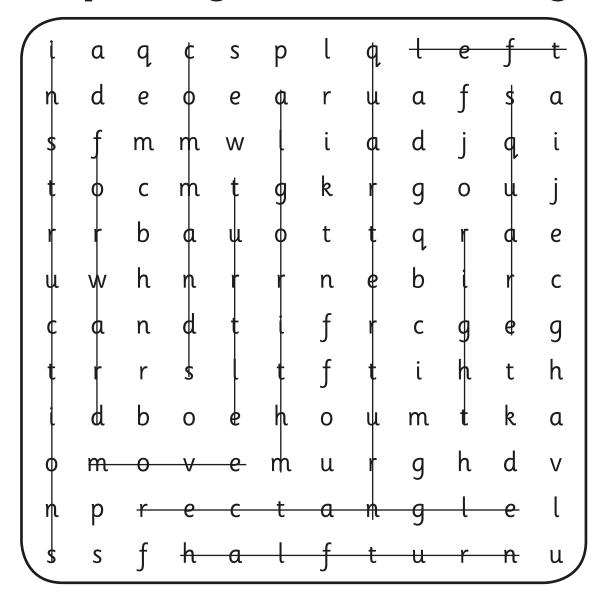
forward 2

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         e
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n
             0
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S
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             m
                  W
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t
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                  t
                       g
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         C
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             a
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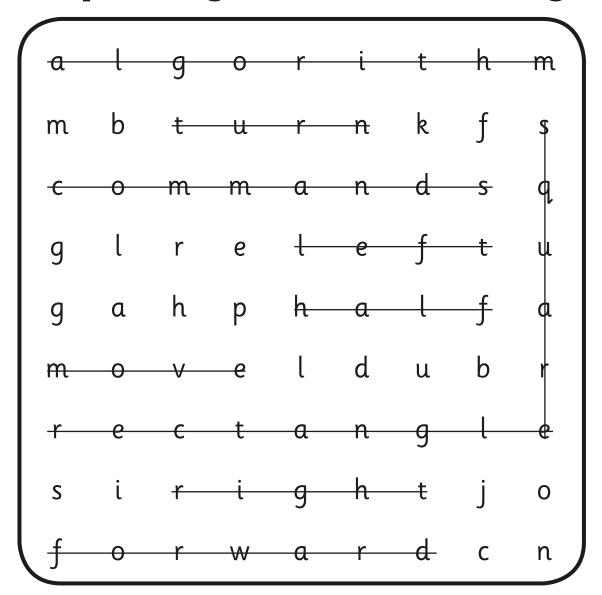
forward algorithm
half turn instructions
quarter turn right
square left
rectangle turtle
commands move

h t g 0 r a m n m u S a n m m C 0 е t g u h g a a a d u m r a n e r e h S 0 d a C 0 W n

move rectangle
right commands
left algorithm
forward half
square turn



forward algorithm
half turn instructions
quarter turn right
square left
rectangle turtle
commands move



move rectangle
right commands
left algorithm
forward half
square turn



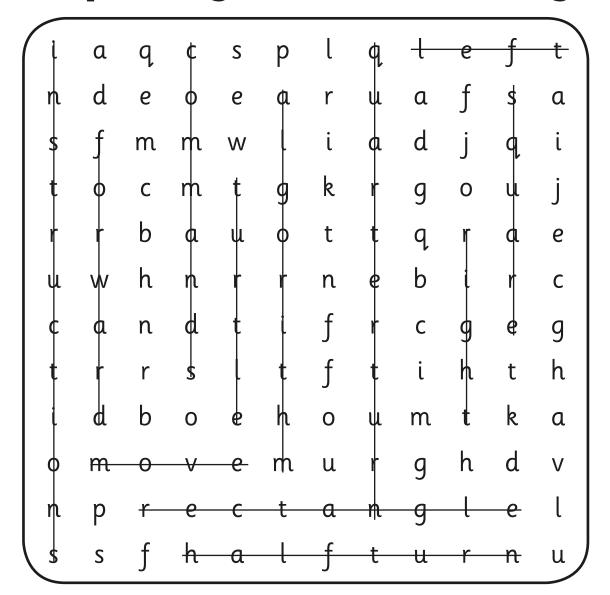
forward
half turn
quarter turn
square
rectangle
commands

algorithm
instructions
right
left
turtle
move

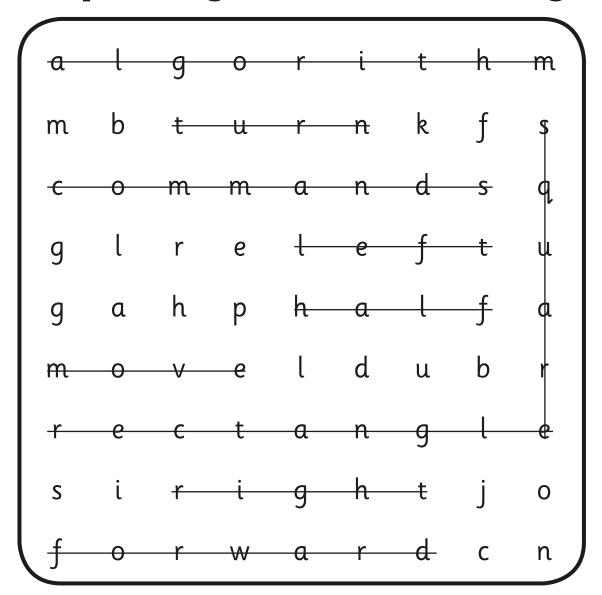
h t g a 0 r m b m u n S S a n C 0 m m q t е g r 9 u h g p a a a d u m r t a r 9 n e h g S 0 d a 0 W n

> move right left forward square

rectangle commands algorithm half turn



forward algorithm
half turn instructions
quarter turn right
square left
rectangle turtle
commands move



move rectangle
right commands
left algorithm
forward half
square turn

End of Unit Assessment | Computing | Year 2 | Preparing for Turtle Logo

All	Most	Some
Walk forward a number of steps.	Turn accurately 90° (a quarter turn), walk squares and rectangles, give and follow instructions.	Write an algorithm for a shape or a route and debug errors in an algorithm.
33%	33%	33%
		Name
Name	Name	Name
Name		Name
Name	Name	Name

E	End of Unit Assessment Computing Year 2 Preparing for Turtle Logo *Insert a character against the criteria the child has met. If they have not met the criteria leave it blank.*																																			
	% met by chil	Name	Name	Name %0	Name	Name	Name	Name	Name	Name	%0 Name	Name %	Name	Name %0	Name	%0 Name	% of class																			
	Has the child met the all and most statements'		n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n		n	0%
	Walk forward a number of steps.																																			0%
	Turn accurately 90° (a quarter turn).																																			0%
	Walk squares and rectangles.																																			0%
	Give and follow instructions.																																			0%
	Write an algorithm for a shape or a route.																																			0%
d	Debug errors in an algorithm.																																			0%

I can move forward and turn right 90 and left 90.

I can...

Computing | Year 2 | Preparing for Turtle Logo

		<u>-</u>	. 	, i 55	
Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
I can give and follow an algorithm to turn right or left.	I can give and follow an algorithm to make half and quarter turns.	I can give and follow an algorithm using the commands right 90 and left 90.	I can give, follow and complete an algorithm.	I can use recognised language in an algorithm.	I can create, test and debug an algorithm.
I can give clear accurate instructions.	I can give clear accurate instructions.	I can give clear accurate instructions.	I can give clear accurate instructions.	I can give clear accurate instructions.	I can give clear accurate instructions.
I can give instructions in order.	I can give instructions in order.	I can give instructions in order.	I can give instructions in order.	I can give instructions in order.	I can give instructions in order.
I can write instructions.	I can write an algorithm.	I can write an algorithm.	I can write an algorithm.	I can write an algorithm.	I can write an algorithm.
I can check instructions.	I can check an algorithm.	I can check an algorithm.	I can check an algorithm.	I can check an algorithm.	I can check an algorithm.
I can move forward a number of steps.	I can move forward a number of steps.	I can turn right 90 and left 90.	I can give and follow instructions accurately.	I can use command abbreviations fd, rt, lt from Turtle Logo.	I can move forward and turn right 90 and left 90.
I can turn to the right or left.	I can make half and quarter turns.]](I can move forward and turn right 90 and left 90.)]	I can use the command abbreviations fd, rt, lt from Turtle Logo.

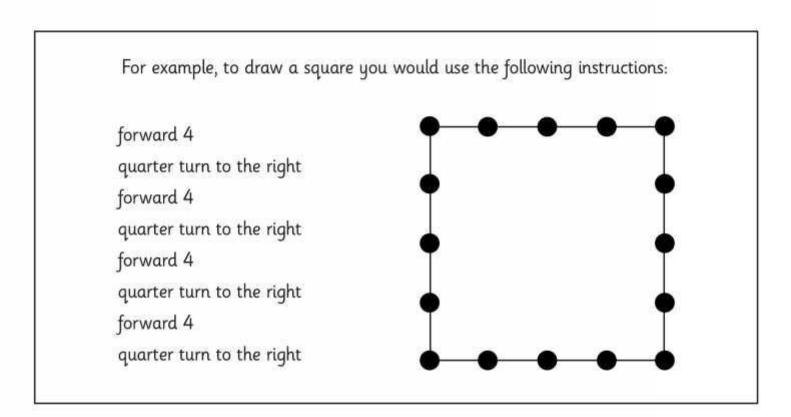
Computing: Preparing for Turtle Logo



Type your aims and success criteria here.

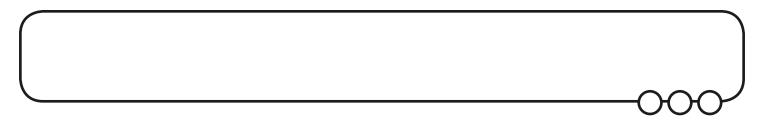


Your child has been creating algorithms for walking shapes and routes by moving forward a number of steps and making quarter turns. (An algorithm is a set of precise instructions.)

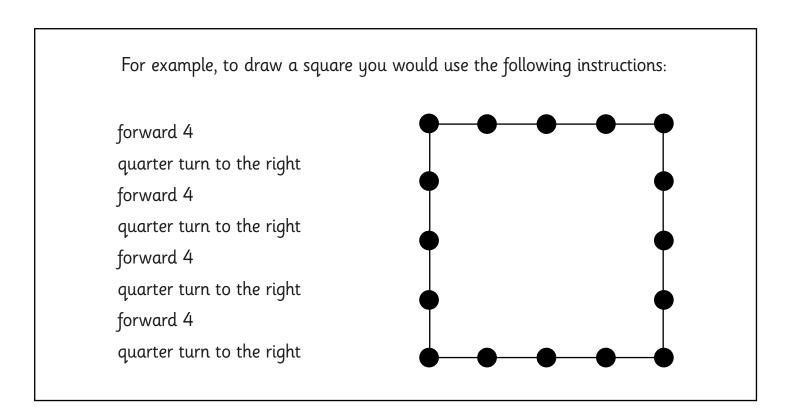


Here is a suggested task that will help reinforce this learning.

- Create algorithms for some routes around the house using the commands: forward (number of steps), quarter turn to the right, quarter turn to the left.
- 2. Have someone else in the family check the algorithms.
- Debug (correct) any mistakes in the algorithms.



Your child has been creating algorithms for walking shapes and routes by moving forward a number of steps and making quarter turns. (An algorithm is a set of precise instructions.)



Here is a suggested task that will help reinforce this learning.

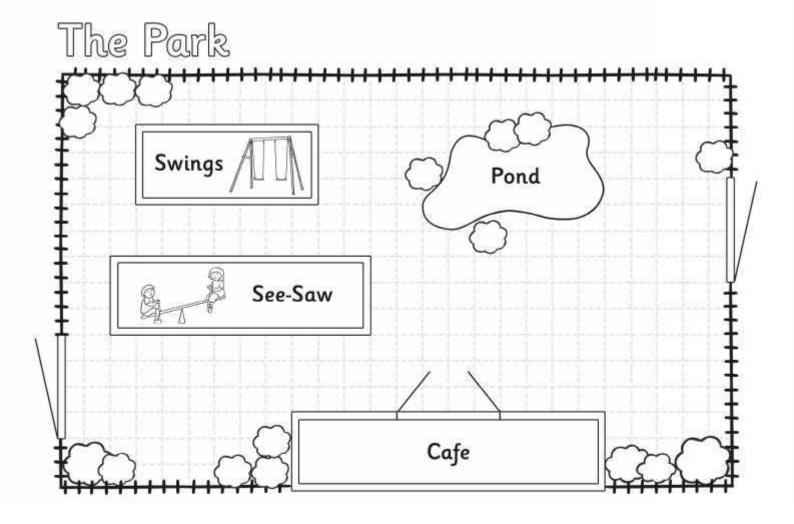
- 1. Create algorithms for some routes around the house using the commands: forward (number of steps), quarter turn to the right, quarter turn to the left.
- 2. Have someone else in the family check the algorithms.
- 3. Debug (correct) any mistakes in the algorithms.



Type your aims and success criteria here.



- 1. Use the plan of a park below to write algorithms for a small figure following a route to different areas of the park.
- 2. Have someone else in the family check the algorithms.
- 3. Debug any mistakes.

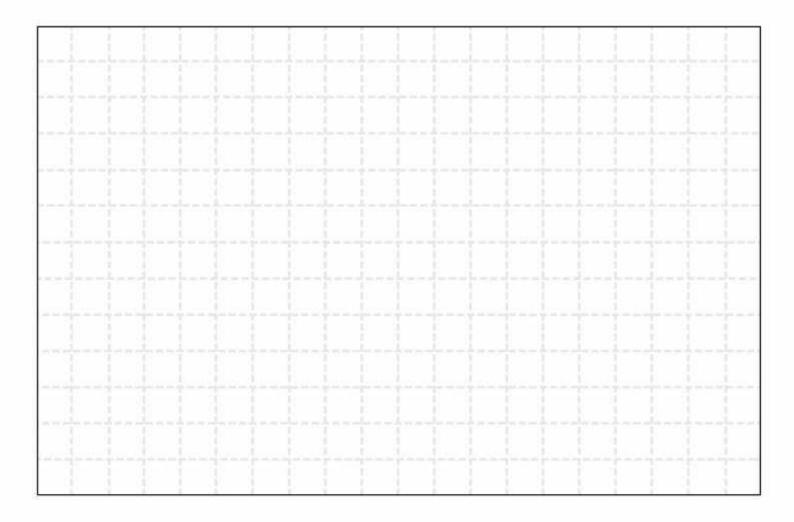




Type your aims and success criteria here.



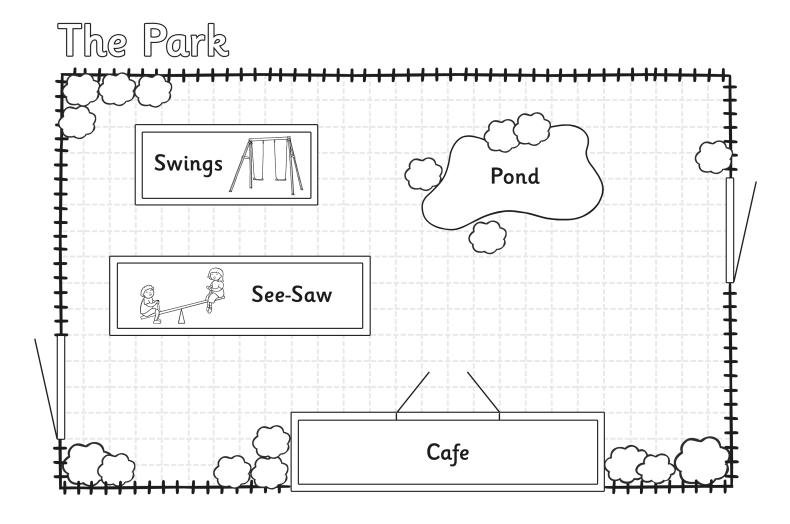
- 1. Draw a plan of a route in, or near your home in the space below.
- 2. Write some different algorithms for a small figure to follow some routes on the plan.
- 3. Have someone else in the family check the algorithms.
- 4. Debug any mistakes.







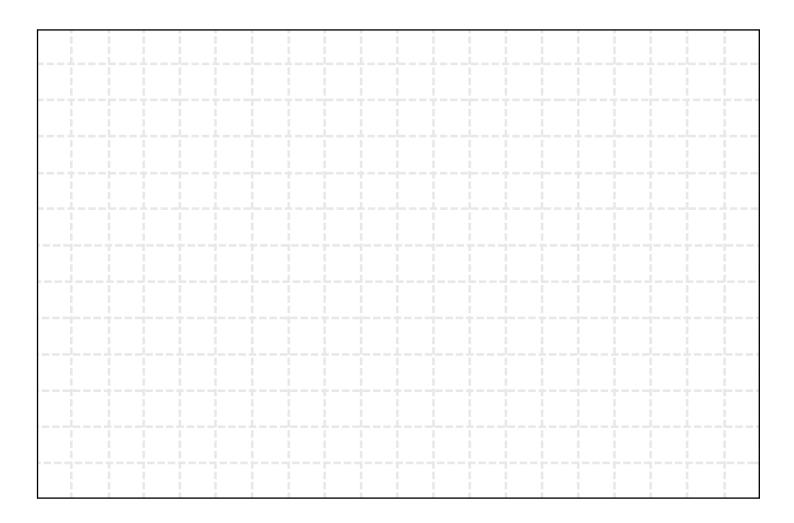
- 1. Use the plan of a park below to write algorithms for a small figure following a route to different areas of the park.
- 2. Have someone else in the family check the algorithms.
- 3. Debug any mistakes.







- 1. Draw a plan of a route in, or near your home in the space below.
- 2. Write some different algorithms for a small figure to follow some routes on the plan.
- 3. Have someone else in the family check the algorithms.
- 4. Debug any mistakes.



Preparing for Turtle Logo: Moving Forward and Making Turns

Aim:

Understand what algorithms are and that programs execute by following precise and ambiguous instructions.

Create and debug simple programs.

Use logical reasoning to predict the behaviour of simple programs.

This unit prepares children for using Turtle Logo on screen, but links well to shape and direction in Maths.

I can give and follow an algorithm to turn right or left.

Success Criteria:

I can give clear accurate instructions.

I can give instructions in order.

I can write instructions.

I can check instructions.

I can move forward a number of steps.

I can turn to the right or left.

Resources:

Lesson Pack.

Hall or space large enough for children to move around freely.

Cones or similar to mark points.

Small whiteboards and pens.

Key/New Words:

Algorithm, Instructions, Commands, Forward, Backward, Left, Right, Move,

Preparation:

None needed.

Prior Learning: It will be helpful if children are familiar with basic shapes and using right and left.

Learning Sequence



Walk and Turn: Spread the children out in the hall and give them instructions to move forwards and backwards, and then to make turns. Ensure children are able to walk forward the number of required steps and make quarter turns to the right or the left.





Tell Your Partner: Children to give their partner instructions to move. Set out some coloured cones and ask the children to move their partner on a route, which goes to different coloured cones. Ask the children to write down the instructions for another pair to try.

Walking Shapes: Children to come up with instructions whereby one partner instructs their partner to walk a square that has 3 steps on each side. Write the instructions down and compare with another pair. Ensure the children walk the same size steps. They could mark the corners of their shapes with cones. **Different Shapes:** How would you make squares of different sizes? How would you make a rectangle with a longer side of 5 steps and a shorter side of 2 steps? Ask another pair to try your instructions. Are





How accurate are our algorithms? Evaluate some of the written instructions children have written down. This could be done by asking some children read out their instructions for either an individual, group or whole class to follow. What improvements could be made? (Answer slides are included at the end of the Lesson Presentation if required)



Taskit

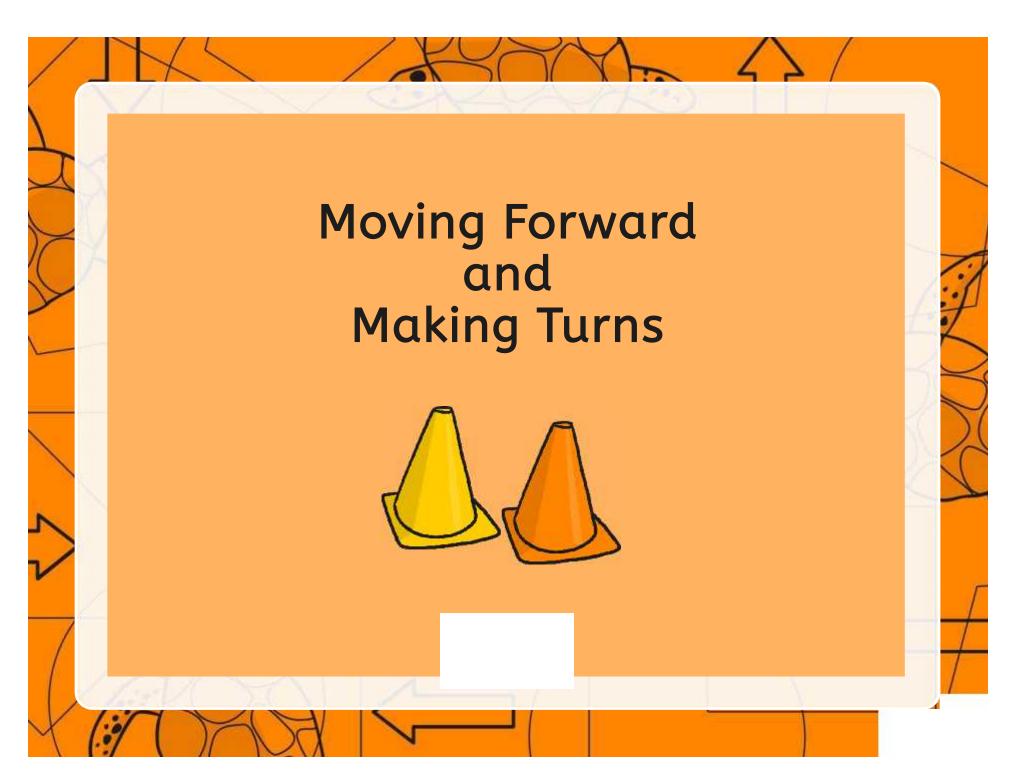
Shapeit: Children could make algorithms for different squares and rectangles.

Challengeit: Use the Challenge Cards for extension activities.

your instructions clear enough?



Computing | Year 2 | Preparing for Turtle Logo | Moving Forward and Making Turns | Lesson 1

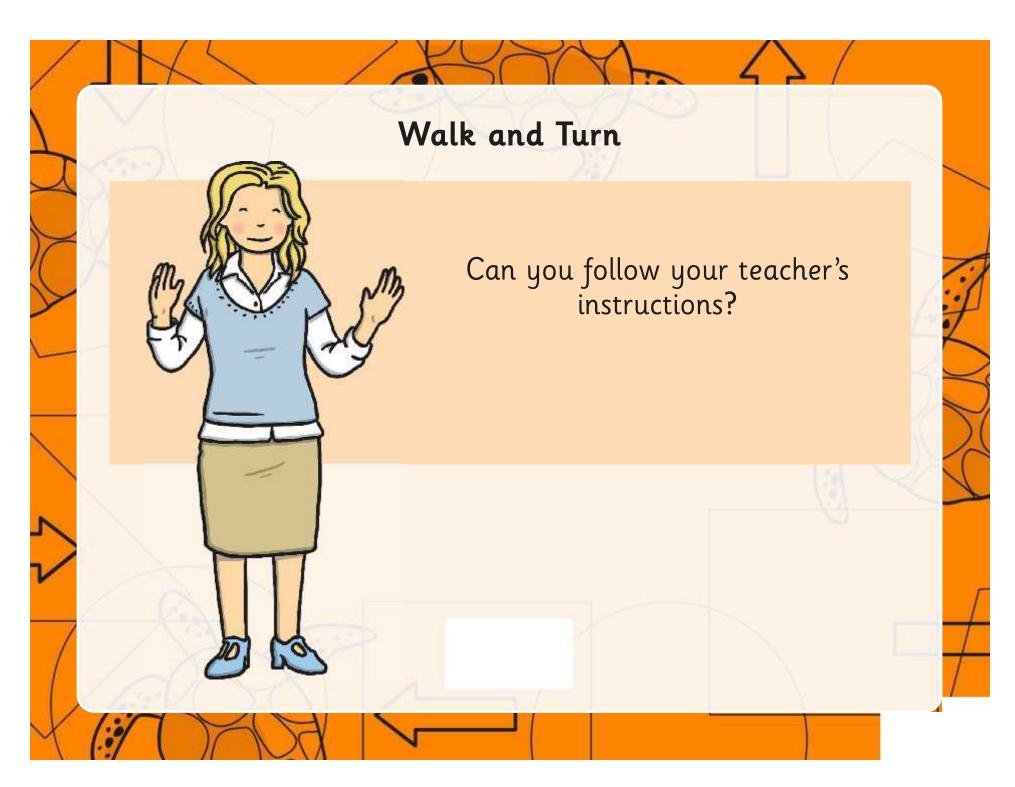


Aim

• I can give and follow an algorithm to turn right or left.

Success Criteria

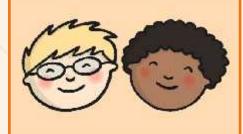
- I can give clear accurate instructions.
- I can give instructions in order.
- I can write an algorithm.
- I can check an algorithm.
- I can move forward a number of steps.
- I can turn right or left.



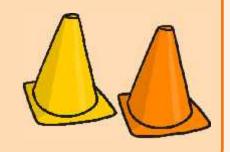
Tell Your Partner



Give your partner instructions to move forward and turn.

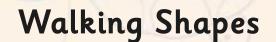


Using coloured cones tell your partner to move on a route which goes to a different coloured cone.



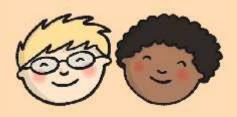
Write down the instructions for another pair to try.





Write instructions that instruct your partner to walk a square. Each side should be 3 steps long.

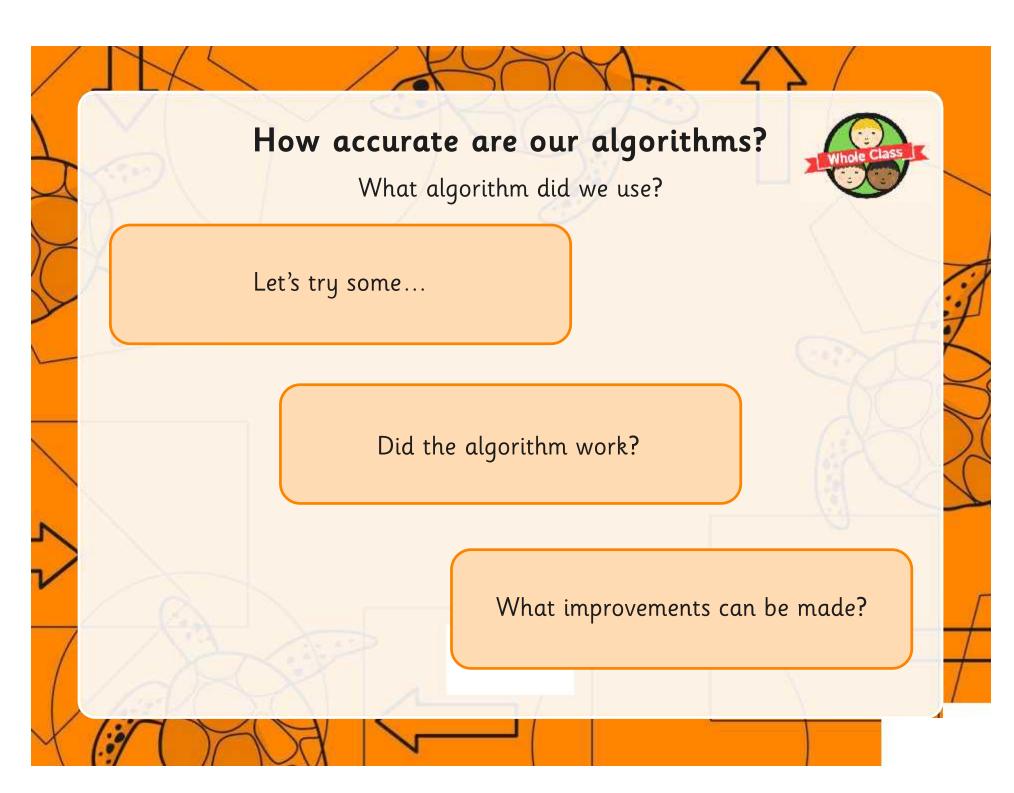
Compare with another pair.



Make sure your steps are the same length.

You could use cones to mark the corners of your shapes.

Different Shapes How could you make a rectangle with a longer side of 5 steps and a shorter side of 2 steps? How could you make squares of different sizes? Ask another pair to try your Are your instructions clear enough? instructions.

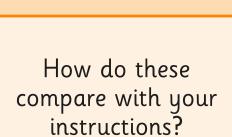


A Square of 3 Step Sides

Here are suggested instructions for a square of 3 step sides.

Instructions

- Forward 3 steps
- Turn to the right
- Forward 3 steps
- Turn to the right
- Forward 3 steps
- Turn to the right
- Forward 3 steps
- Turn to the right

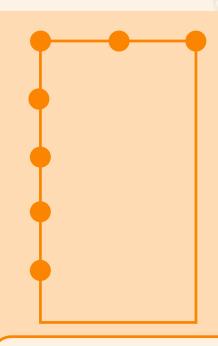


A Rectangle of 5 and 2 Step Sides

Here are suggested instructions for a rectangle of 5 and 2 step sides.

Instructions

- Forward 5 steps
- Turn to the right
- Forward 2 steps
- Turn to the right
- Forward 5 steps
- Turn to the right
- Forward 2 steps
- Turn to the right



How do these compare with your instructions?

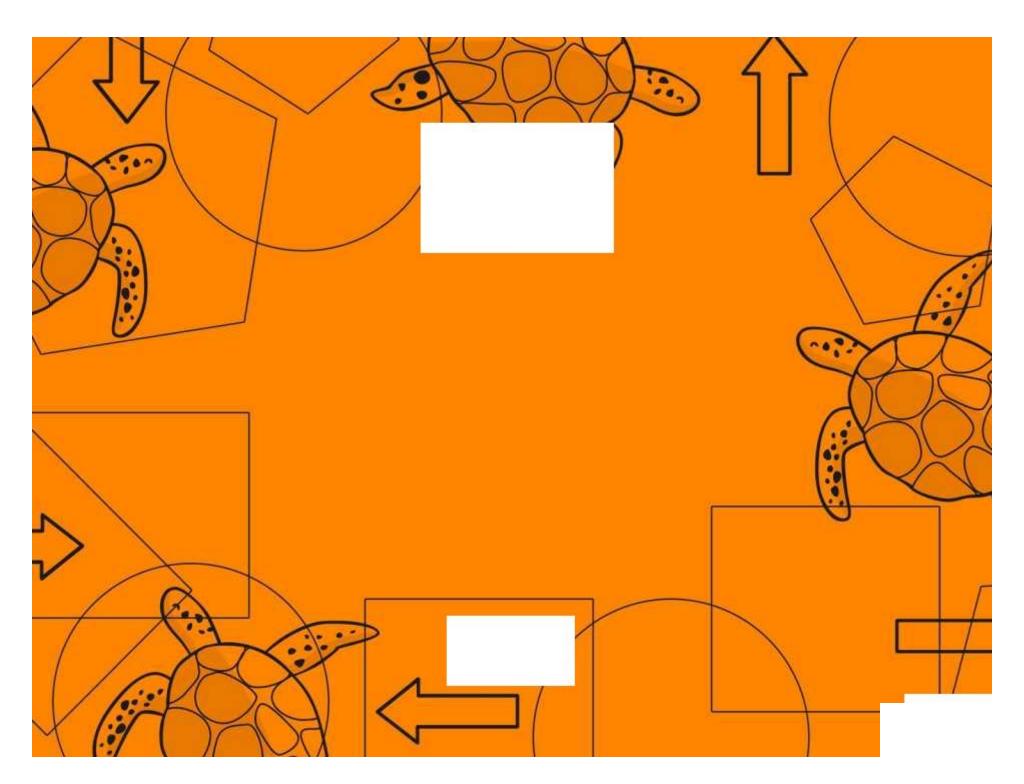
Aim



• I can give and follow an algorithm to turn right or left.

Success Criteria

- I can give clear accurate instructions.
- I can give instructions in order.
- I can write an algorithm.
- I can check an algorithm.
- I can move forward a number of steps.
- I can turn right or left.



Preparing for Turtle Logo | Moving Forward and Making Turns

_ , _ 3 , _ 3 , _ 3	
I can give and follow an algorithm to turn right or left.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write instructions.	
I can check instructions.	
I can move forward a number of steps.	
I can turn to the right or left.	

Preparing for Turtle Logo | Moving Forward and Making Turns

I can give and follow an algorithm to turn right or left.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write instructions.	
I can check instructions.	
I can move forward a number of steps.	
I can turn to the right or left.	

Preparing for Turtle Logo | Moving Forward and Making Turns

I can give and follow an algorithm to turn right or left.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write instructions.	
I can check instructions.	
I can move forward a number of steps.	
I can turn to the right or left.	

Preparing for Turtle Logo | Moving Forward and Making Turns

I can give and follow an algorithm to turn right or left.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write instructions.	
I can check instructions.	
I can move forward a number of steps.	
I can turn to the right or left.	

Preparing for Turtle Logo | Moving Forward and Making Turns

I can give and follow an algorithm to turn right or left.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write instructions.	
I can check instructions.	
I can move forward a number of steps.	
I can turn to the right or left.	

Preparing for Turtle Logo | Moving Forward and Making Turns

Treparing for rance 2090 1 loving forward and 1 lake	·9 · · ·	
I can give and follow an algorithm to turn right or left.		
I can give clear accurate instructions.		
I can give instructions in order.		
I can write instructions.		
I can check instructions.		
I can move forward a number of steps.		
I can turn to the right or left.		

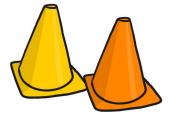
Preparing for Turtle Logo | Moving Forward and Making Turns

I can give and follow an algorithm to turn right or left.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write instructions.	
I can check instructions.	
I can move forward a number of steps.	
I can turn to the right or left.	

Preparing for Turtle Logo | Moving Forward and Making Turns

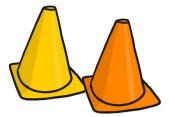
I can give and follow an algorithm to turn right or left.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write instructions.	
I can check instructions.	
I can move forward a number of steps.	
I can turn to the right or left.	

Moving Forward and Making turns



Preparing for Turtle Logo

Moving Forward and Making turns



Preparing for Turtle Logo

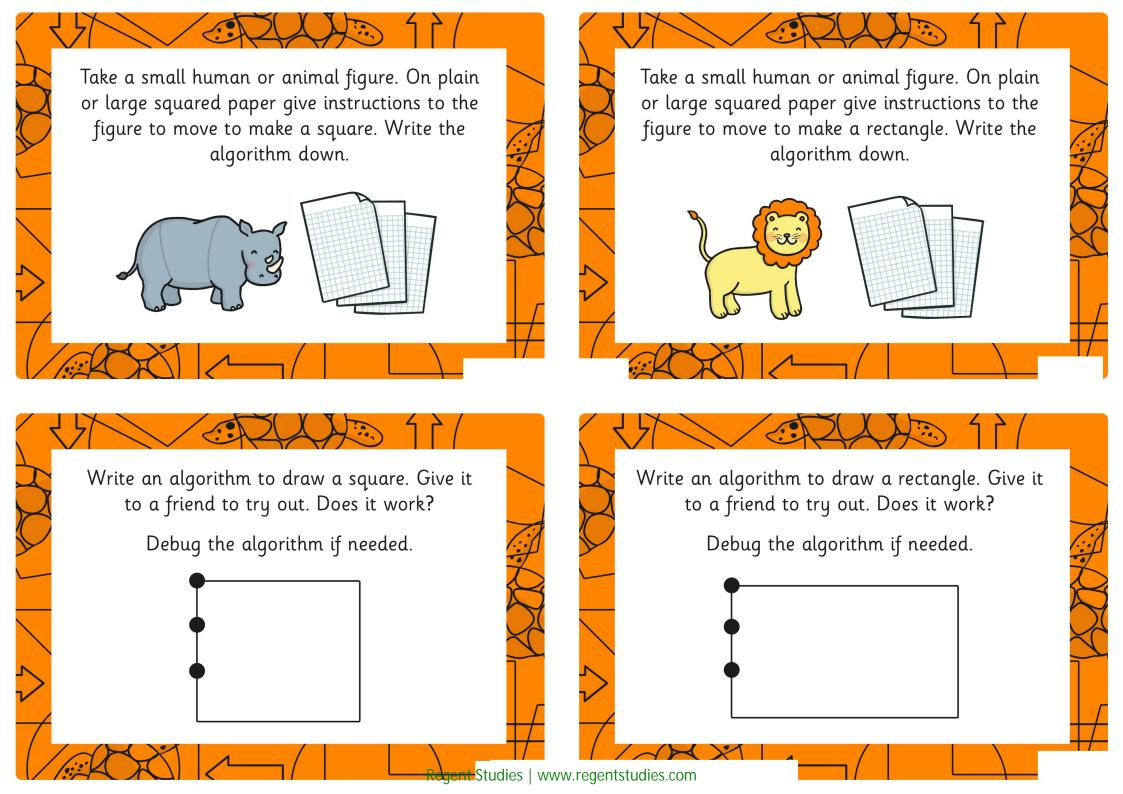
Moving Forward and Making turns



Preparing for Turtle Logo

Moving Forward and Making turns







I can move forward a number of steps.



I can turn to the right or left.



I can move forward a number of steps.



I can turn to the right or left.



I can move forward a number of steps.



I can turn to the right or left.

Preparing for Turtle Logo: Half and Quarter Turns

Aim:

Understand what algorithms are and that programs execute by following precise and ambiguous instructions.

Create and debug simple programs.

Use logical reasoning to predict the behaviour of simple programs.

This unit prepares children for using Turtle Logo on screen, but links well to shape and direction in Maths.

I can give and follow an algorithm to make half and quarter turns.

Success Criteria:

I can give clear accurate instructions.

I can give instructions in order.

I can write an algorithm.

I can check an algorithm.

I can move forward a number of steps.

I can make half and quarter turns.

Key/New Words:

Forward, Left, Right, Move, Turn, Half turn, Quarter turn.

Resources:

Lesson Pack.

Hall or space large enough for children to move around freely.

Cones or similar to mark points.

Small whiteboards and pens.

Preparation:

Activity Sheets (with answer cards if needed).

Prior Learning: Children will have created their own algorithms using right and left in lesson 1.

Learning Sequence



What shape? Give the children instructions to walk squares and rectangles. Check the children are walking the same size steps and what sort of turn they are making. (The first lesson didn't specify half or quarter turns but that is what is intended at this stage. If the children are confident then move on quickly.)



Half Turn/Quarter Turn: Explain to the children how to make a half turn and quarter turn to the right or left. Give the children instructions to move using half and quarter turns. Look for accurate half and quarter turns.



Algorithms: Children work through the **Activity Sheets** which give them algorithms to follow, and they record their answers. Pairs can check answers with other pairs. Remind the children to make the same size steps and to make accurate quarter turns. They could use cones to mark the corners of the shapes. Children use the appropriate **Activity Sheet** to follow the algorithms and record the shape 'drawn'.





Children also write their own algorithms.





Our Algorithms: Ask a few children to read some of their algorithms for other children to try out. **Right 90 and Left 90:** Explain that a quarter turn can be replaced by right 90 or left 90.

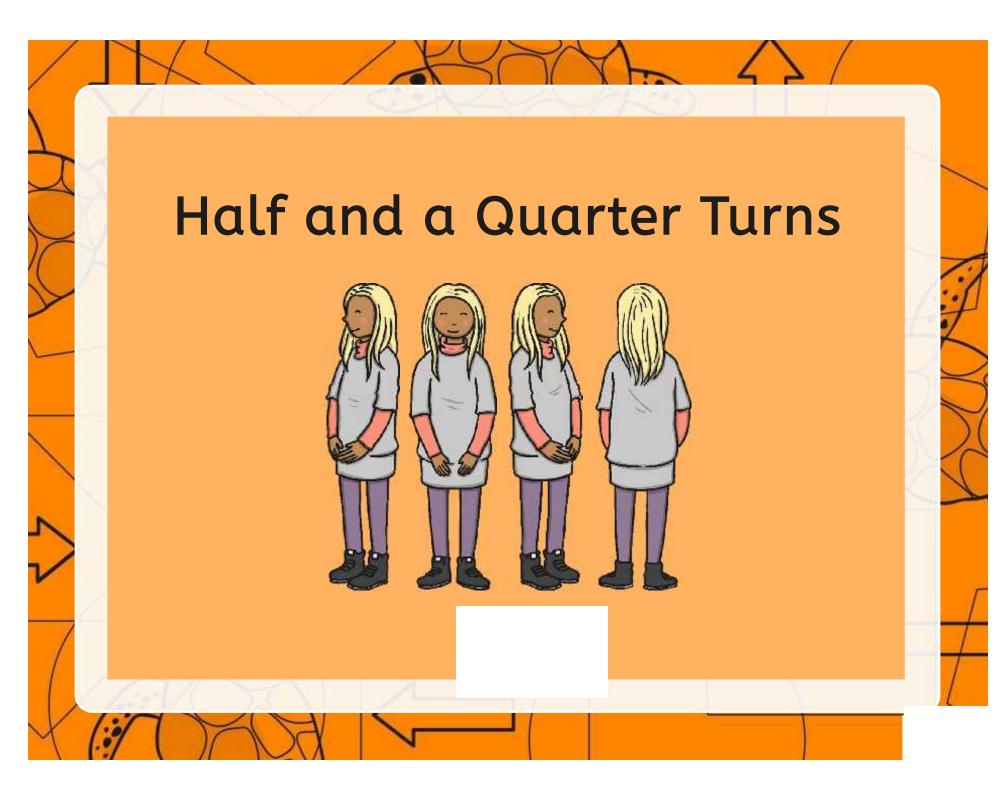
Taskit

Shapeit: Children can make algorithms for different squares and rectangles using "quarter turn".

Challengeit: Use the for extension activities.



Computing | Year 2 | Preparing for Turtle Logo | Half and a Quarter Turns | Lesson 2

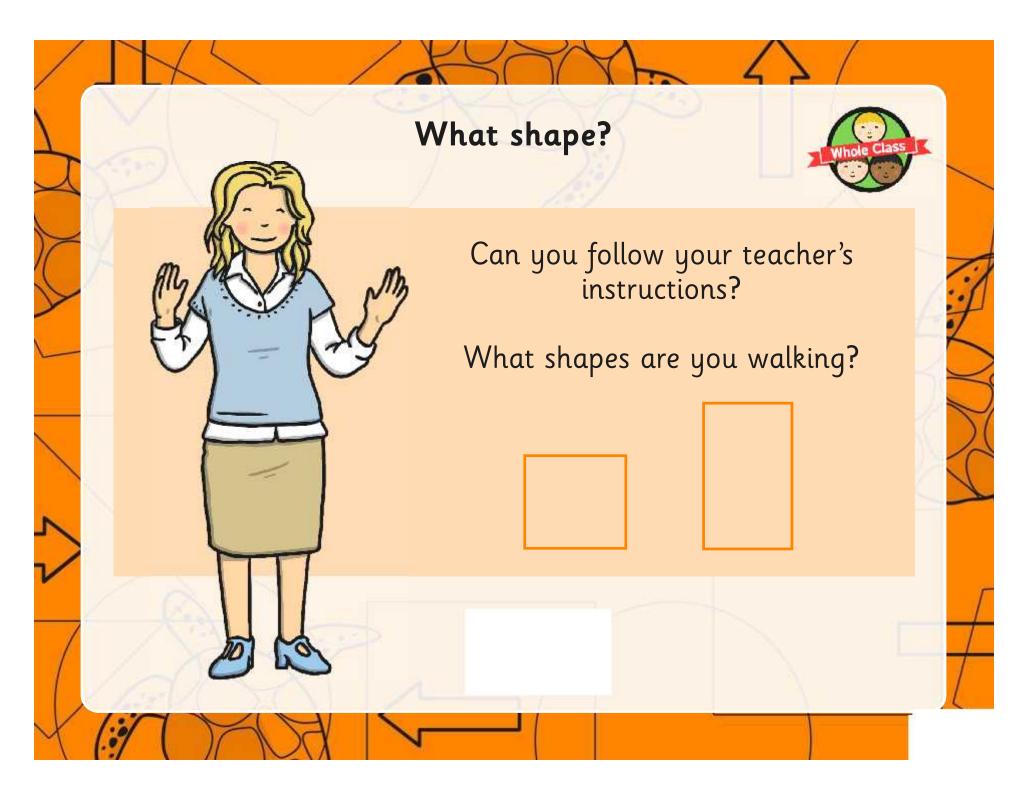


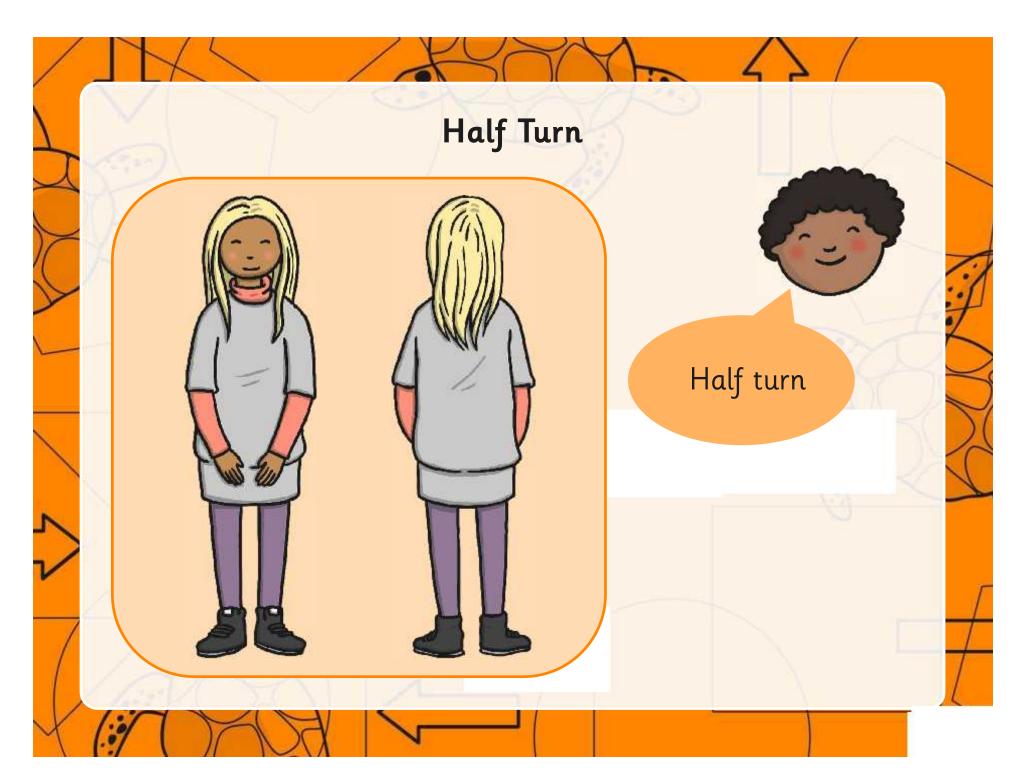
Aim

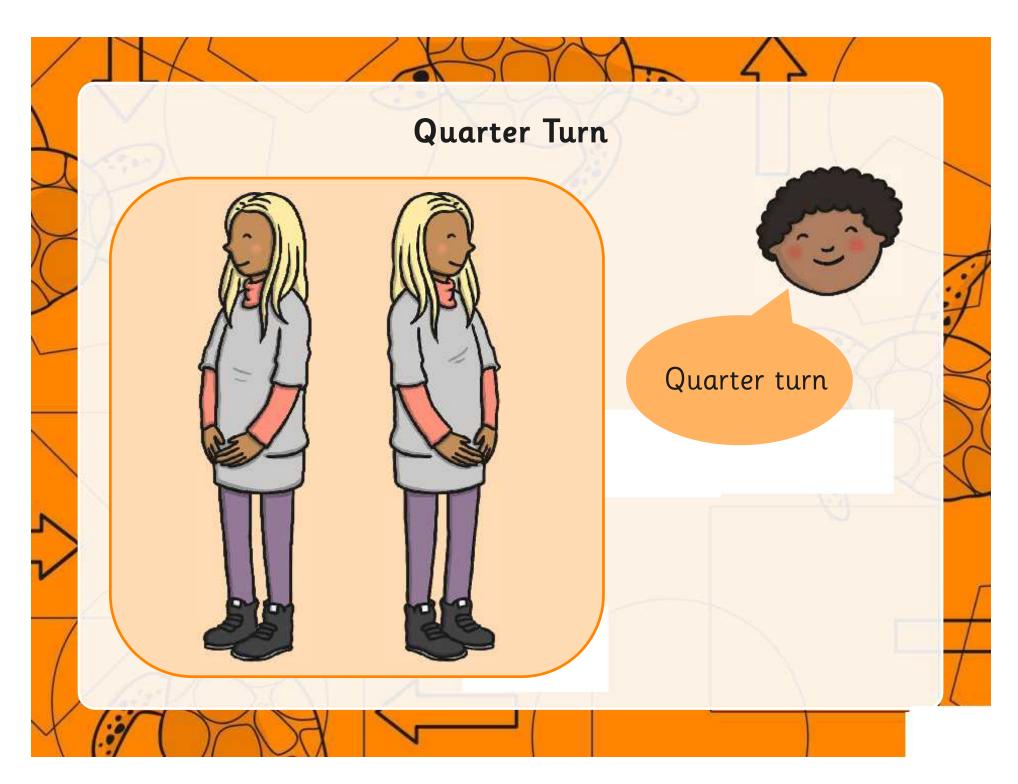
• I can give and follow an algorithm to make half and quarter turns.

Success Criteria

- I can give clear accurate instructions.
- I can give instructions in order.
- I can write an algorithm.
- I can check an algorithm.
- I can move forward a number of steps
- I can make half and quarter turns







Algorithms



Work through the activities on your sheet. Record the answers as you go.

- Follow the instructions for each activity.
- Mark your starting point with a cone.
- Try to make your steps the same each time.
- Try to make your quarter turns accurate.
- You could use cones at the corner of your shapes.



Challenge

Give your partner an algorithm of your own to follow.

Record your algorithm and the shape drawn.

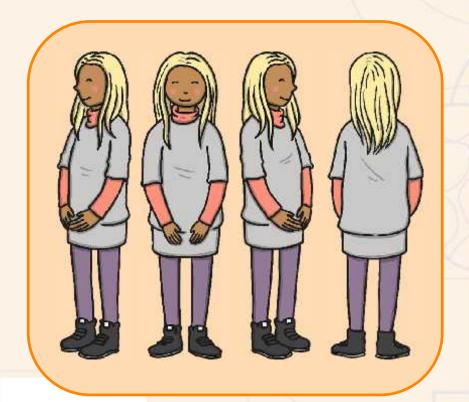
Our Algorithms

Let's try out some of our algorithms.

Does the algorithm achieve what it aims to do?

Can we make any corrections?

(De bug the algorithm)







Instead of saying
"quarter turn to
the right" say
"right 90" (degrees)

or instead of "quarter turn to the left" say "left 90" (degrees)



We don't need to say "degrees", but that's what the unit is for the 90.

Remember 90° is a right angle.

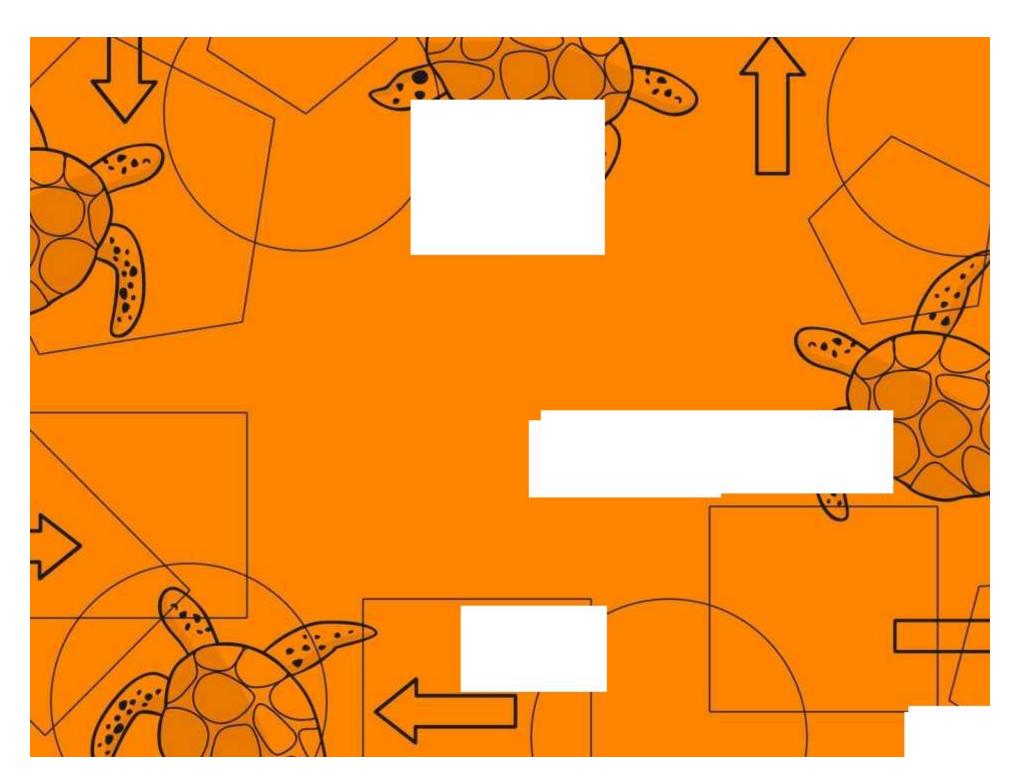
Aim



• I can give and follow an algorithm to make half and quarter turns.

Success Criteria

- I can give clear accurate instructions.
- I can give instructions in order.
- I can write an algorithm.
- I can check an algorithm.
- I can move forward a number of steps
- I can make half and quarter turns



Preparing for Turtle Logo | Half and Quarter Turns

I can give and follow an algorithm to make half and quarter turns.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can move forward a number of steps.	
I can make half and quarter turns.	

Preparing for Turtle Logo | Half and Quarter Turns

I can give and follow an algorithm to make half and quarter turns.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can move forward a number of steps.	
I can make half and quarter turns.	

Preparing for Turtle Logo | Half and Quarter Turns

I can give and follow an algorithm to make half and quarter turns.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can move forward a number of steps.	
I can make half and quarter turns.	

Preparing for Turtle Logo | Half and Quarter Turns

1 33 3 1 3	
I can give and follow an algorithm to make half and quarter turns.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can move forward a number of steps.	
I can make half and quarter turns.	

Preparing for Turtle Logo | Half and Quarter Turns

I can give and follow an algorithm to make half and quarter turns.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can move forward a number of steps.	
I can make half and quarter turns.	

Preparing for Turtle Logo | Half and Quarter Turns

I can give and follow an algorithm to make half and quarter turns.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can move forward a number of steps.	
I can make half and quarter turns.	

Preparing for Turtle Logo | Half and Quarter Turns

Treparing for farite 2090 Flat and Quarter farits	
I can give and follow an algorithm to make half and quarter turns.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can move forward a number of steps.	
I can make half and quarter turns.	

Preparing for Turtle Logo | Half and Quarter Turns

Treparing for furthe Logo [Flat] and Quarter furths	
I can give and follow an algorithm to make half and quarter turns.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can move forward a number of steps.	
I can make half and quarter turns.	

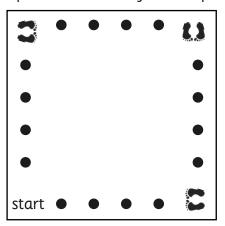
Computing | Year 2 | Preparing for Turtle Logo | Half and Quarter Turns | Lesson 2



Half and Quarter Turns

1: Walk this shape, taking 5 steps on each side of the shape.

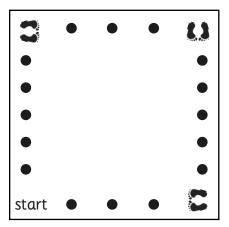
Forward 5 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right
Forward 5 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right



What shape have you drawn? Did you finish at the start?

2: Walk this shape.

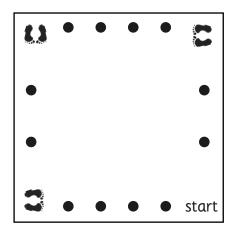
Forward 6 steps
Quarter turn to the right
Foward 4 steps
Quarter turn to the right
Forward 6 steps
Quarter turn to the right
Foward 4 steps
Quarter turn to the right



What shape have you drawn? Did you finish at the start?

3: Walk this shape.

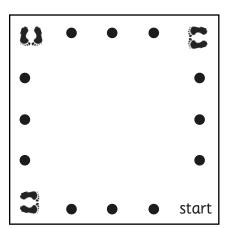
Forward 3 steps
Quarter turn to the left
Foward 5 steps
Quarter turn to the left
Forward 3 steps
Quarter turn to the left
Foward 5 steps
Quarter turn to the left
Foward 5 steps
Quarter turn to the left



What shape have you drawn? Did you finish at the start?

4: Walk this shape.

Forward 4 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left
Forward 4 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left



What shape have you drawn? Did you finish at the start?



Half and Quarter Turns

1: Walk this shape, taking 5 steps on each side of the shape. What shape have you drawn? Did you finish at the start?

Forward 5 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right
Forward 5 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right

2: Walk this shape. What shape have you drawn? Did you finish at the start?

Forward 6 steps
Quarter turn to the right
Foward 4 steps
Quarter turn to the right
Forward 6 steps
Quarter turn to the right
Foward 4 steps
Quarter turn to the right

3: Walk this shape. What shape have you drawn? Did you finish at the start?

Forward 2 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right
Forward 2 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right

4: Walk this shape. What shape have you drawn? Did you finish at the start?

Forward 3 steps
Quarter turn to the left
Foward 5 steps
Quarter turn to the left
Forward 3 steps
Quarter turn to the left
Foward 5 steps
Quarter turn to the left
Foward 5 steps
Quarter turn to the left

5: Walk this shape. What shape have you drawn? Did you finish at the start?

Forward 4 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left
Forward 4 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left

6: Walk this shape. What shape have you drawn? Did you finish at the start?

Forward 3 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left
Forward 3 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left



Half and Quarter Turns

1: Walk this shape, taking 5 steps on each side of the shape. What shape have you drawn? Did you finish at the start?

Forward 5 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right
Forward 5 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right

2: Walk this shape. What shape have you drawn? Did you finish at the start?

Forward 6 steps
Quarter turn to the right
Foward 4 steps
Quarter turn to the right
Forward 6 steps
Quarter turn to the right
Foward 4 steps
Quarter turn to the right

3: Walk this shape. What shape have you drawn? Did you finish at the start?

Forward 2 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right
Forward 2 steps
Quarter turn to the right
Foward 5 steps
Quarter turn to the right

4: Walk this shape. What shape have you drawn? Did you finish at the start?

Forward 3 steps
Quarter turn to the left
Foward 5 steps
Quarter turn to the left
Forward 3 steps
Quarter turn to the left
Foward 5 steps
Quarter turn to the left

5: Walk this shape. What shape have you drawn? Did you finish at the start?

Forward 4 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left
Forward 4 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left
Foward 4 steps
Quarter turn to the left

6: Challenge

Give your partner an algorithm of your own to follow. Record your algorithm and the shape drawn.



Half and Quarter Turns Answers

1: Walk this shape, taking 5 steps on each side of the shape. What shape have you drawn? Did you finish at the start?

Square

Forward 5 steps

Quarter turn to the right

Foward 5 steps

Quarter turn to the right

Forward 5 steps

Quarter turn to the right

Foward 5 steps

Quarter turn to the right

2: Walk this shape. What shape have you drawn? Did you finish at the start?

Rectangle

Forward 6 steps

Quarter turn to the right

Foward 4 steps

Quarter turn to the right

Forward 6 steps

Quarter turn to the right

Foward 4 steps

Quarter turn to the right

3: Walk this shape. What shape have you drawn? Did you finish at the start?

Rectangle

Forward 2 steps

Quarter turn to the right

Foward 5 steps

Quarter turn to the right

Forward 2 steps

Quarter turn to the right

Foward 5 steps

Quarter turn to the right

4: Walk this shape. What shape have you drawn? Did you finish at the start?

Rectangle

Forward 3 steps

Quarter turn to the left

Foward 5 steps

Quarter turn to the left

Forward 3 steps

Quarter turn to the left

Foward 5 steps

Quarter turn to the left

5: Walk this shape. What shape have you drawn? Did you finish at the start?

Square

Forward 4 steps

Quarter turn to the left

Foward 4 steps

Quarter turn to the left

Forward 4 steps

Quarter turn to the left

Foward 4 steps

Quarter turn to the left

6: Walk this shape. What shape have you drawn? Did you finish at the start?

Rectangle

Forward 3 steps

Quarter turn to the left

Foward 4 steps

Quarter turn to the left

Forward 3 steps

Quarter turn to the left

Foward 4 steps

Quarter turn to the left



I can move forward a number of steps.



I can make half turns.



I can make quarter turns.



I can move forward a number of steps.



I can make half turns.



I can make quarter turns.



I can move forward a number of steps.



I can make half turns.



I can make quarter turns.

Preparing for Turtle Logo: Right 90 Left 90

Aim:

Understand what algorithms are how they are implemented as programs on digital devices; and that programs execute by following precise and ambiguous instructions.

Create and debug simple programs.

Use logical reasoning to predict the behaviour of simple programs.

This unit prepares children for using Turtle Logo on screen, but links well to shape and direction in Maths.

I can give and follow an algorithm using the commands right 90 and left 90.

Success Criteria:

I can give clear accurate instructions.

I can give instructions in order.

I can write an algorithm.

I can check an algorithm.

I can turn right 90 and left 90.

Resources:

Lesson Pack.

Hall or space large enough for children to move around freely.

Cones or similar to mark points.

Small whiteboards and pens.

Key/New Words:

Forward, Left, Right, Move, Turn, Right 90, Left 90.

Preparation:

Activity Sheet - 1 per pair.

Prior Learning: It will be helpful if children understand that a right angle is 90°.

Learning Sequence



Squares and Rectangles: By walking forward a number of steps and by making quarter and half turns, can you work in pairs to walk squares and rectangles? Children give each other instructions to walk squares and rectangles using the commands, forward 4 (number of steps) and quarter turn to the right or left. (Move on quickly if children can achieve this task easily)





Right 90 and Left 90: Explain to children that they can use right 90 and left 90 to represent a quarter turn. Give children instructions using forward, right 90 and left 90 to walk squares and rectangles.





Use Turtle Logo Commands: Children give each other instructions to walk squares and rectangles using the commands, forward 4 (number of steps), right 90 or left 90. Look for children making the same size steps and turning 90° accurately. They can use cones to mark the corners of the shapes.

Right 90 and Left 90: Children work through the **Activity Sheet**, which gives them algorithms to follow. Children record their answers and pairs can check answers with other pairs. Remind the children to make the same size steps and make accurate quarter turns. They could use cones to mark the corners of the shapes. Children use the appropriate **Activity Sheet** to follow the algorithms and record the shape 'drawn'.





Children also write their own algorithms.



Whole Class

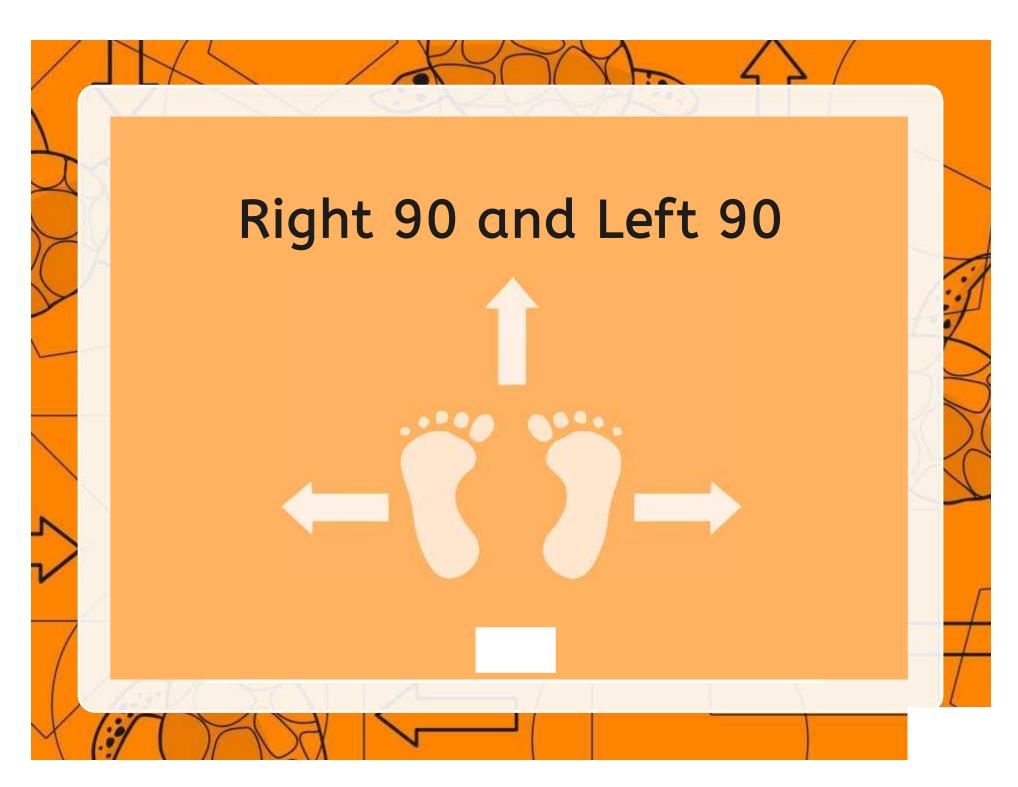
Complete This Shape: Children complete given shape.

Taskit

Turnit: Children can make algorithms for different squares and rectangles using "right 90" or "left 90".



Computing | Year 2 | Preparing for Turtle Logo | Right 90 and Left 90 | Lesson 3

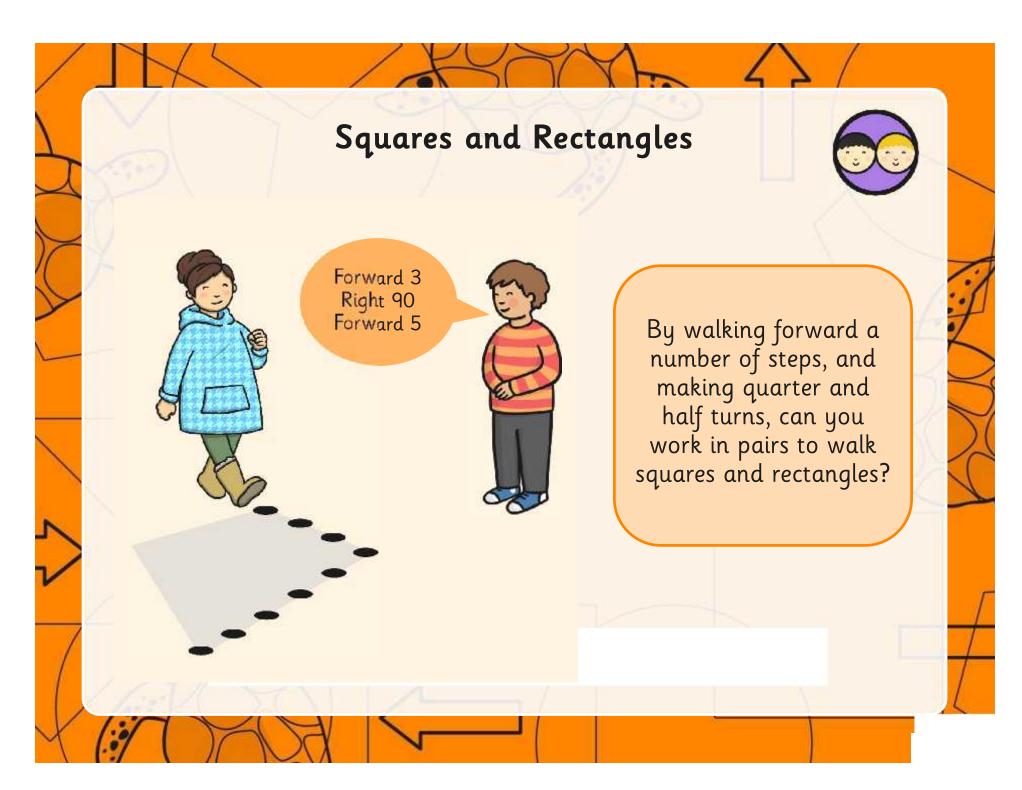


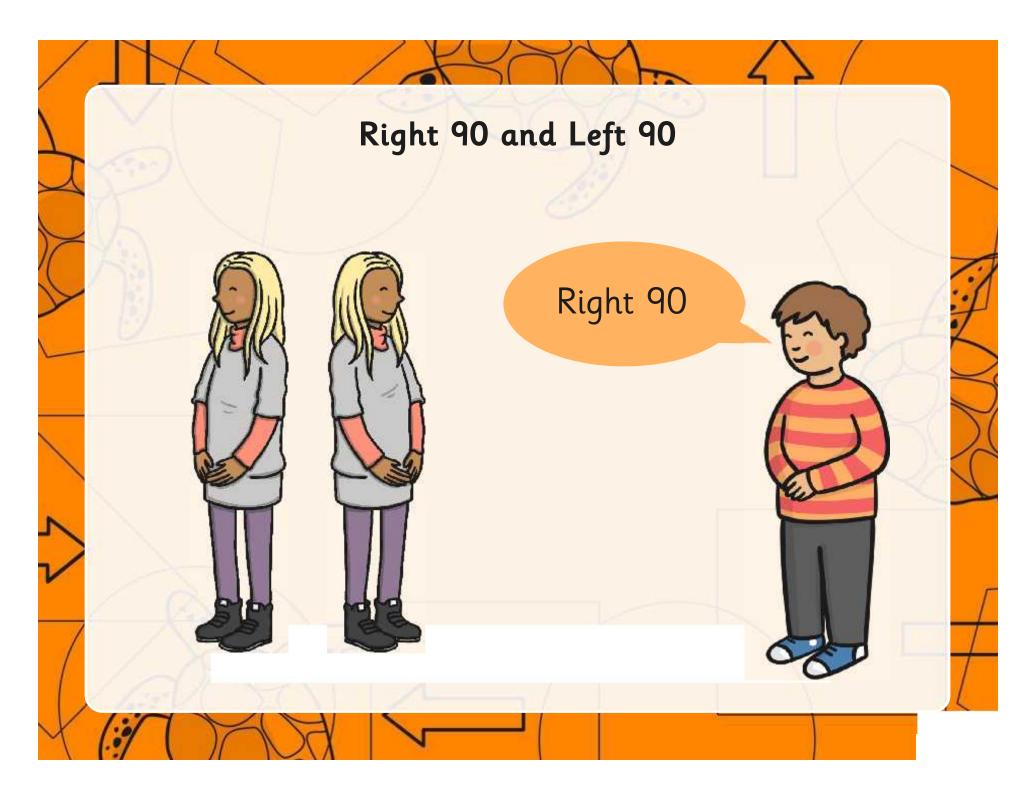
Aim

• I can give and follow an algorithm to turn right 90 and left 90.

Success Criteria

- I can give clear accurate instructions.
- I can give instructions in order.
- I can write an algorithm.
- I can check an algorithm.
- I can move forward a number of steps.
- I can make half and quarter turns.





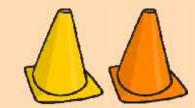
Use Turtle Logo Commands



Give your partner instructions to walk a square using the following Turtle Logo commands:

Forward Right 90 or Left 90 Take care to walk the same size steps and make accurate turns.

Use cones to mark the corners of your shapes if it helps.



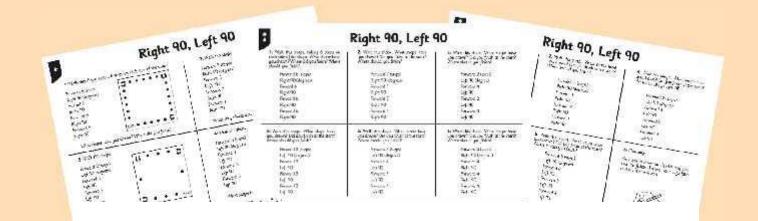
Right 90 and Left 90

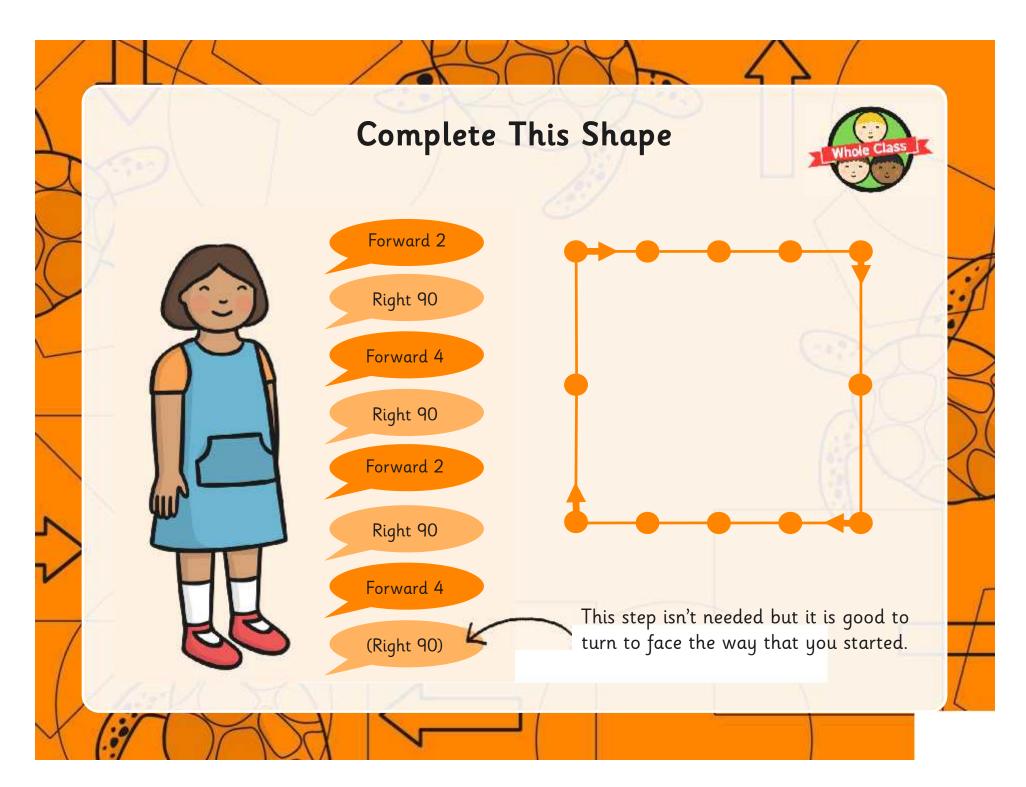


Work through the activities. Record your findings as you go.

Try to make your steps the same each time.

Try to make your 90 degree turns accurate.





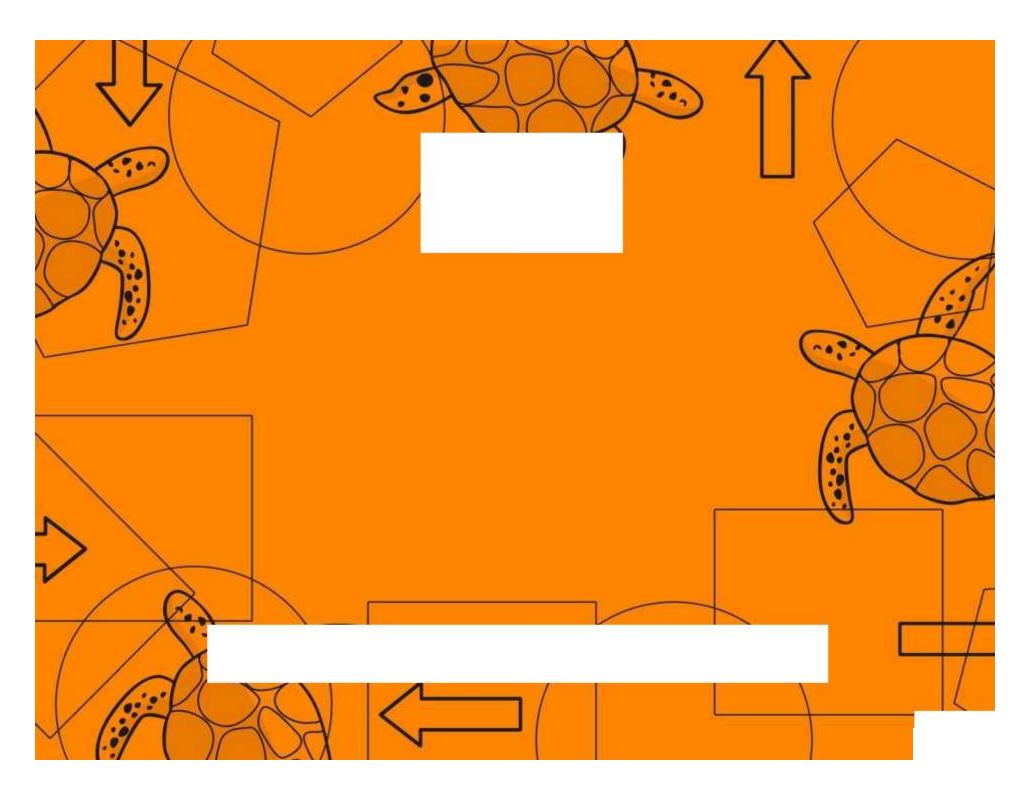
Aim



• I can give and follow an algorithm to turn right 90 and left 90.

Success Criteria

- I can give clear accurate instructions.
- I can give instructions in order.
- I can write an algorithm.
- I can check an algorithm.
- I can move forward a number of steps.
- I can make half and quarter turns.



Preparing for Turtle Logo | Right 90, Left 90

I can give and follow an algorithm using the commands right 90 and left 90.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can turn right 90 and left 90.	

Preparing for Turtle Logo | Right 90, Left 90

I can give and follow an algorithm using the commands right 90 and left 90.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can turn right 90 and left 90.	

Preparing for Turtle Logo | Right 90, Left 90

I can give and follow an algorithm using the commands right 90 and left 90.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can turn right 90 and left 90.	

Preparing for Turtle Logo | Right 90, Left 90

I can give and follow an algorithm using the commands right 90 and left 90.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can turn right 90 and left 90.	

Preparing for Turtle Logo | Right 90, Left 90

I can give and follow an algorithm using the commands right 90 and left 90.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can turn right 90 and left 90.	

Preparing for Turtle Logo | Right 90, Left 90

I can give and follow an algorithm using the commands right 90 and left 90.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can turn right 90 and left 90.	

Preparing for Turtle Logo | Right 90, Left 90

I can give and follow an algorithm using the commands right 90 and left 90.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can turn right 90 and left 90.	

Preparing for Turtle Logo | Right 90, Left 90

Treparing for farite Logo Right 40, Left 40	
I can give and follow an algorithm using the commands right 90 and left 90.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can turn right 90 and left 90.	



Right 90, Left 90

1: Walk this shape, taking 6 steps on each side of the shape.

Forward 6 (steps)

Right 90 (degrees)

Foward 6

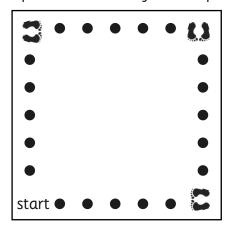
Right 90

Forward 6

Right 90

Forward 6

Right 90



What shape have you drawn? Where did you finish?

3: Walk this shape.

Forward 2 (steps)

Left 90 (degrees)

Forward 4

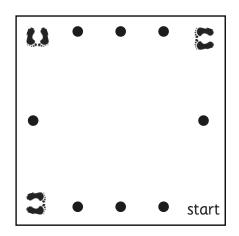
Left 90

Forward 2

Left 90

Forward 4

Left 90



What shape have you drawn? Where did you finish?

2: Walk this shape.

Forward 7 (steps)

Right 90 (degrees)

Forward 1

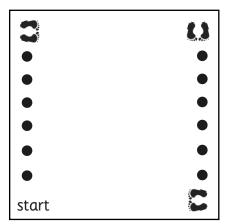
Right 90

Forward 7

Right 90

Forward 1

Right 90



What shape have you drawn? Where did you finish?

4: Walk this shape.

Forward 3 (steps)

Left 90 (degrees)

Forward 3

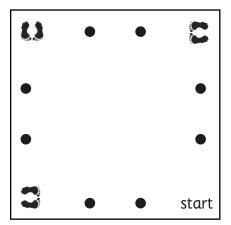
Left 90

Forward 3

Left 90

Forward 3

Left 90



What shape have you drawn? Where did you finish?



Right 90, Left 90

1: Walk this shape, taking 6 steps on each side of the shape. What shape have you drawn? Where did you finish?

Forward 6 (steps)

Right 90 (degrees)

Foward 6

Right 90

Forward 6

Right 90

Forward 6

Right 90

2: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Forward 7 (steps)

Right 90 (degrees)

Forward 1

Right 90

Forward 7

Right 90

Forward 1

Right 90

3: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Forward 2 (steps)

Left 90 (degrees)

Forward 4

Left 90

Forward 2

Left 90

Forward 4

Left 90

4: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Forward 3 (steps)

Left 90 (degrees)

Forward 3

Left 90

Forward 3

Left 90

Forward 3

Left 90

5: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Forward 3 (steps)

Left 90 (degrees)

Forward 4

Left 90

Forward 3

Left 90

Forward 4

Left 90

6: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Forward 4 (steps)

Right 90 (degrees)

Forward 4

Right 90

Forward 4

Right 90

Forward 4

Right 90

¥



Right 90, Left 90

1: Walk this shape, taking 6 steps on each side of the shape. What shape have you drawn? Where did you finish?

Forward 6 (steps)

Right 90 (degrees)

Foward 6

Right 90

Forward 6

Right 90

Forward 6

Right 90

2: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Forward 7 (steps)

Right 90 (degrees)

Forward 1

Right 90

Forward 7

Right 90

Forward 1

Right 90

3: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Forward 2 (steps)

Left 90 (degrees)

Forward 4

Left 90

Forward 2

Left 90

Forward 4

Left 90

4: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Forward 3 (steps)

Left 90 (degrees)

Forward 3

Left 90

Forward 3

Left 90

Forward 3

Left 90

5: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Forward 3 (steps)

Left 90 (degrees)

Forward 4

Left 90

Forward 3

Left 90

Forward 4

Left 90

6: Challenge

Give your partner an algorithm of your own to follow. Record your algorithm and the shape drawn.



Right 90, Left 90 Answers

1: Walk this shape, taking 6 steps on each side of the shape. What shape have you drawn? Where did you finish?

Square

Forward 6 (steps)

Right 90 (degrees)

Foward 6

Right 90

Forward 6

Right 90

Forward 6

Right 90

2: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Rectangle

Forward 7 (steps)

Right 90 (degrees)

Forward 1

Right 90

Forward 7

Right 90

Forward 1

Right 90

3: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Rectangle

Forward 2 (steps)

Left 90 (degrees)

Forward 4

Left 90

Forward 2

Left 90

Forward 4

Left 90

4: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Square

Forward 3 (steps)

Left 90 (degrees)

Forward 3

Left 90

Forward 3

Left 90

Forward 3

Left 90

5: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Rectangle

Forward 3 (steps)

Left 90 (degrees)

Forward 4

Left 90

Forward 3

Left 90

Forward 4

Left 90

6: Walk this shape. What shape have you drawn? Did you finish at the start? Where should you finish?

Square

Forward 4 (steps)

Right 90 (degrees)

Forward 4

Right 90

Forward 4

Right 90

Forward 4

Right 90

Preparing for Turtle Logo



I can turn right 90 and left 90.

Preparing for Turtle Logo



I can turn right 90 and left 90.

Preparing for Turtle Logo



I can turn right 90 and left 90.

Preparing for Turtle Logo: Completing Algorithms

Aim:

Understand what algorithms are and that programs execute by following precise and ambiguous instructions.

Create and debug simple programs.

Use logical reasoning to predict the behaviour of simple programs.

This unit prepares children for using Turtle Logo on screen, but links well to shape and direction in Maths.

I can give, follow and complete an algorithm.

Success Criteria:

I can give clear accurate instructions.

I can give instructions in order.

I can write an algorithm.

I can check an algorithm.

I can give and follow instructions accurately.

I can move forward and turn right 90 and left 90.

Key/New Words:

Forward, Backward, Left, Right, Move, Turn, Right 90, Left 90.

Resources:

Lesson Pack.

Hall or space large enough for children to move around freely.

Cones or similar to mark points.

Small whiteboards and pens.

Preparation:

Activity Sheet - 1 per pair.

Prior Learning: Children will have created algorithms using the commands right 90 and left 90 in lesson 3.

Learning Sequence



Squares, Rectangles and Rectilinear Shapes: Children work in pairs to draw rectangles, squares and other rectilinear shapes, ensuring they use the Turtle Logo language of forward, right 90 and left 90. Ensure the children walk steps the same size and make accurate 90° turns. They could use cones to mark the corners of the shapes.





Complete This Shape: Demonstrate how to give instructions to draw part of a rectilinear shape. Then ask the children what instructions needs to be given to get back to the start.





Completing Algorithms: Children work through the **Activity Sheet** in pairs, which gives them algorithms to follow and complete. Children record their answers. Pairs can check answers with other pairs. Remind the children to make the same size steps and make accurate quarter turns. They could use cones to mark the corners of the shapes. Children use the appropriate activity sheet to follow the algorithms and record the shape 'drawn'.





Children also write their own algorithms for their partner to complete.





Using Turtle Logo Language: Show the children the fd, It and rt shortcuts.





What shape would this be? Ask the children what shapes would be drawn if they followed the different algorithms.





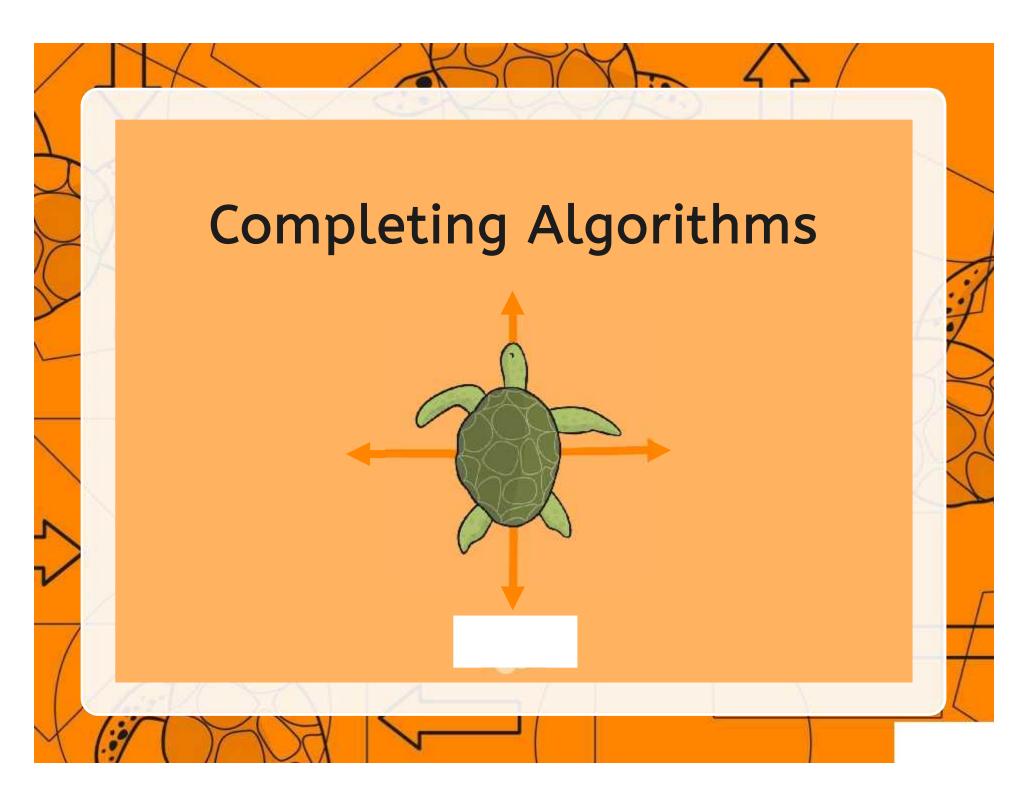
A Square / A Rectangle: Ask children to write an algorithm for a square of 4 steps on each side and a rectangle that has 6 and 3 steps.

Taskit

Completeit: In pairs, one child gives instructions to their partner to start a rectilinear shape. Their partner has to complete the shape.



Computing | Year 2 | Preparing for Turtle Logo | Completing Algorithms | Lesson 4



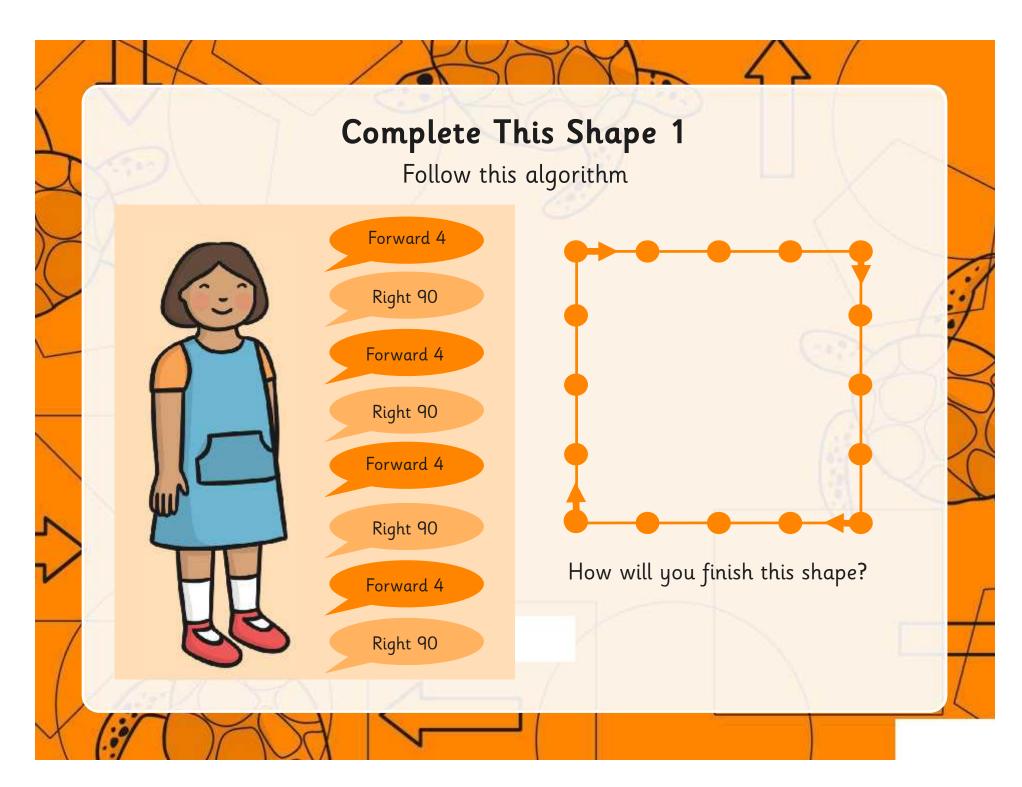
Aim

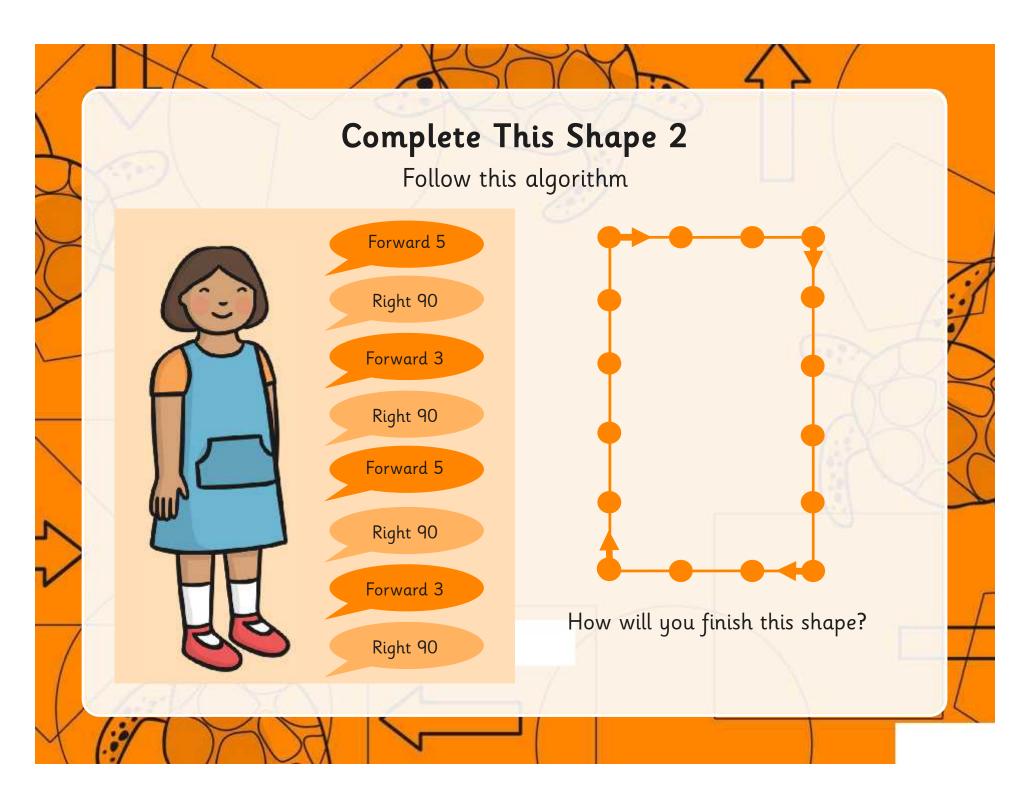
• I can give, follow and complete an algorithm.

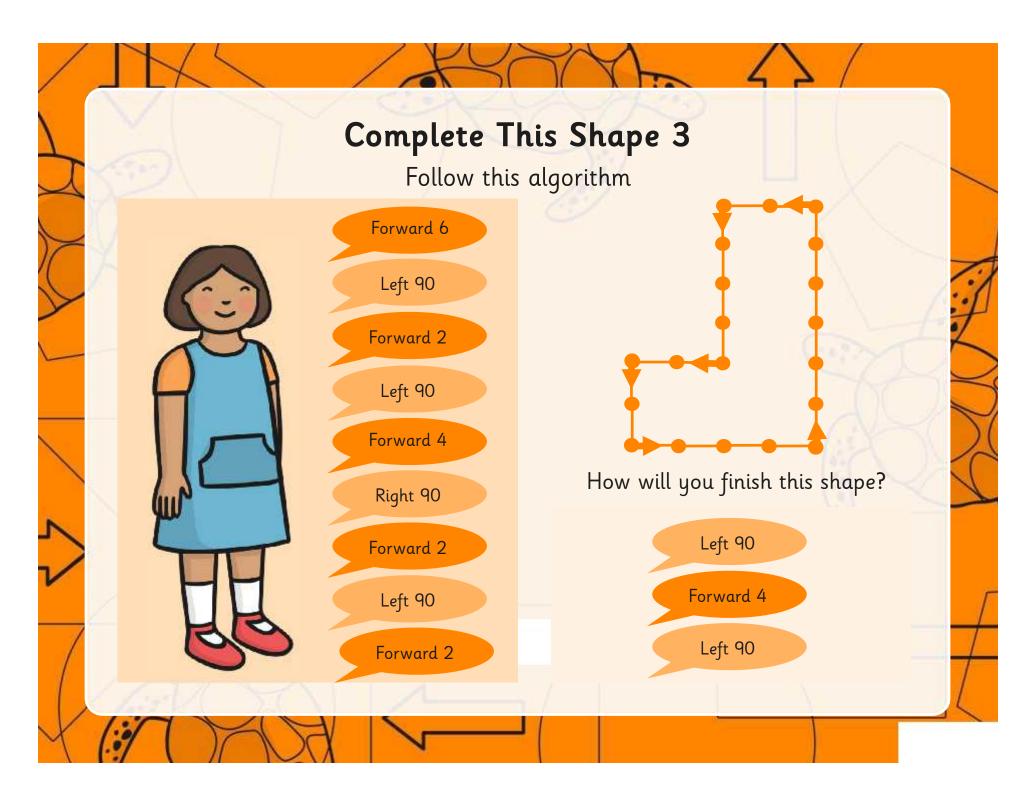
Success Criteria

- I can give clear accurate instructions
- I can give instructions in order
- I can write an algorithm
- I can check an algorithm
- I can give and follow instructions accurately
- I can move forward and turn right 90 and left 90

Squares, Rectangles and Rectilinear Shapes Walk squares, Take care to walk Make sure that you use rectangles and other the same size steps. the commands. rectilinear shapes. Forward Right 90 You could mark the corners with cones. Left 90 A rectilinear shape is a shape of any number of sides, but all the angles are right angles.







Completing Algorithms



Work through the different activities.
Record your findings as you go.



You may wish to mark your starting position in some way.



These instructions are written in "Turtle Logo" format.

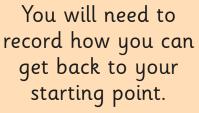
Forward 4

Right 90

Try to make your steps the same size every time.



Try to make your 90 degree turns accurate.





Using Turtle Logo Language



It is important that we use language that is understood by whoever or whatever is following the instructions.



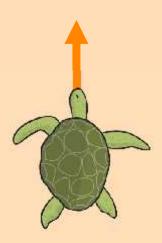


Sometimes commands can be abbreviated.

Moving Forward

We can shorten forward to fd

Forward becomes fd 5



Using Turtle Logo Language



It is important that we use language that is understood by whoever or whatever is following the instructions.



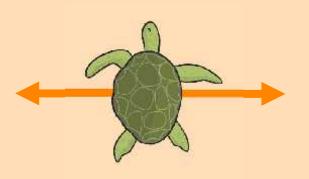


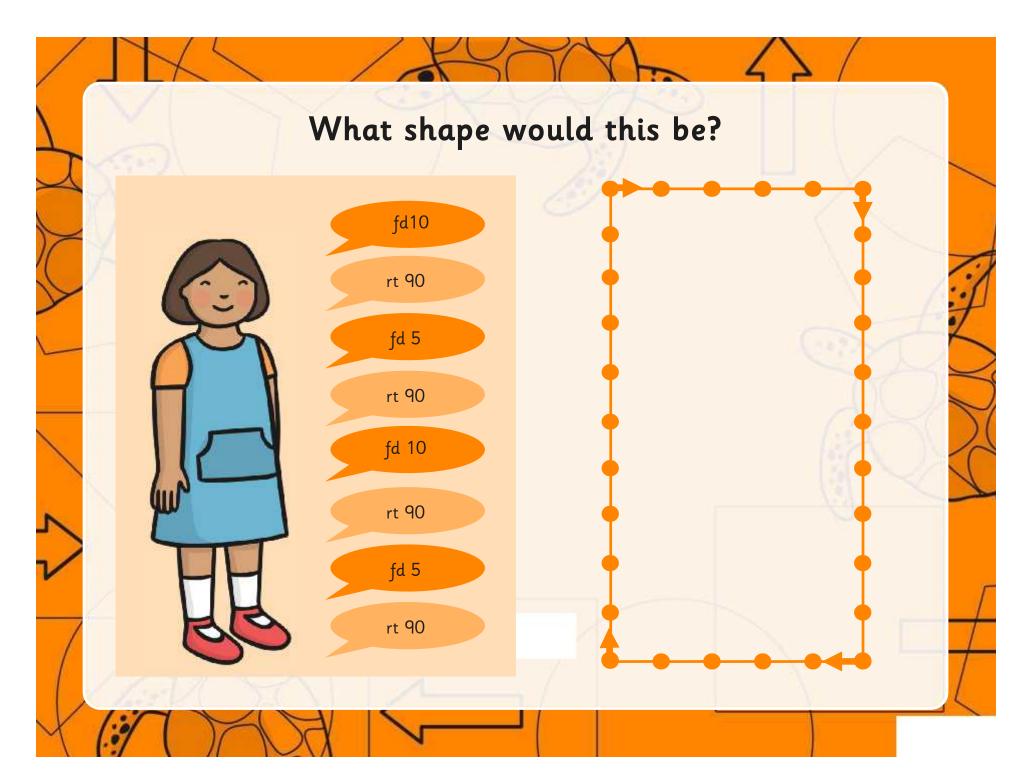
Sometimes commands can be abbreviated.

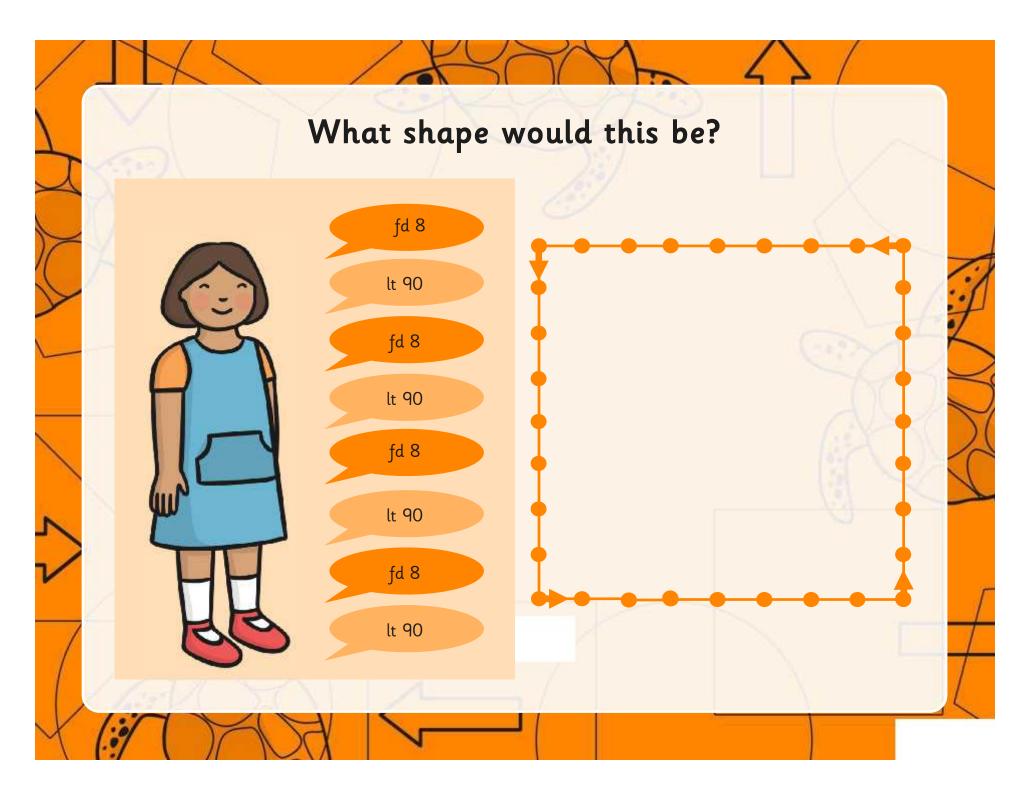
Turning

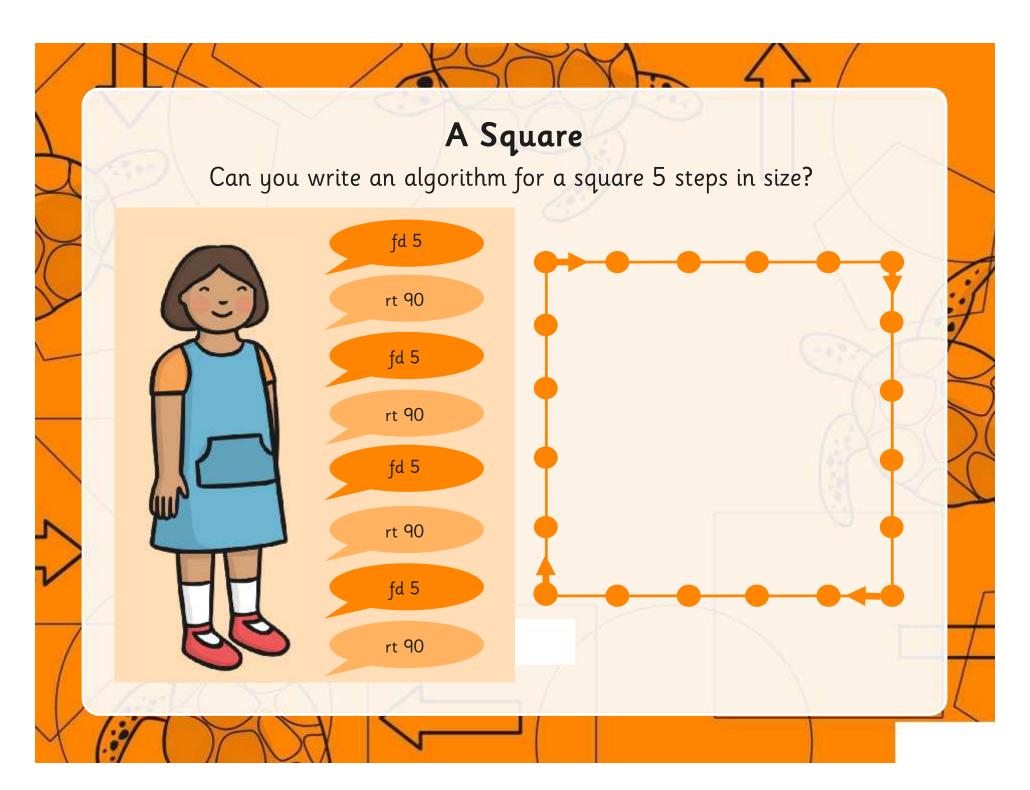
We can shorten left or right to lt or rt

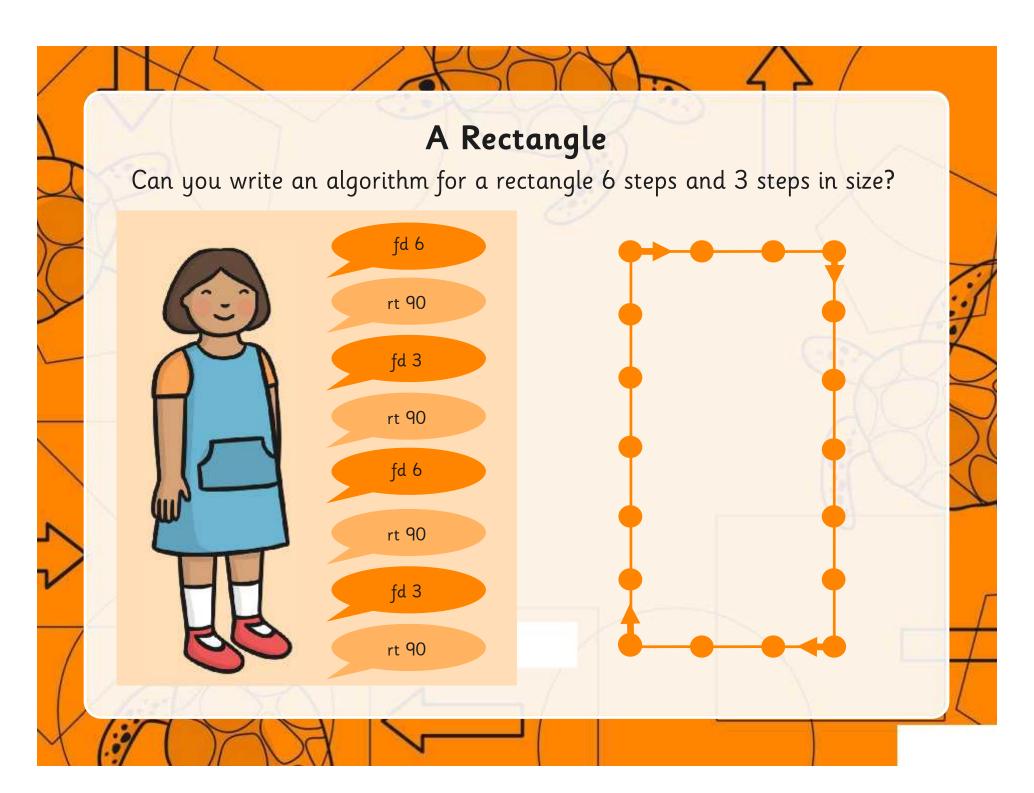
Left can be written as lt 90 Right can be written as rt 90











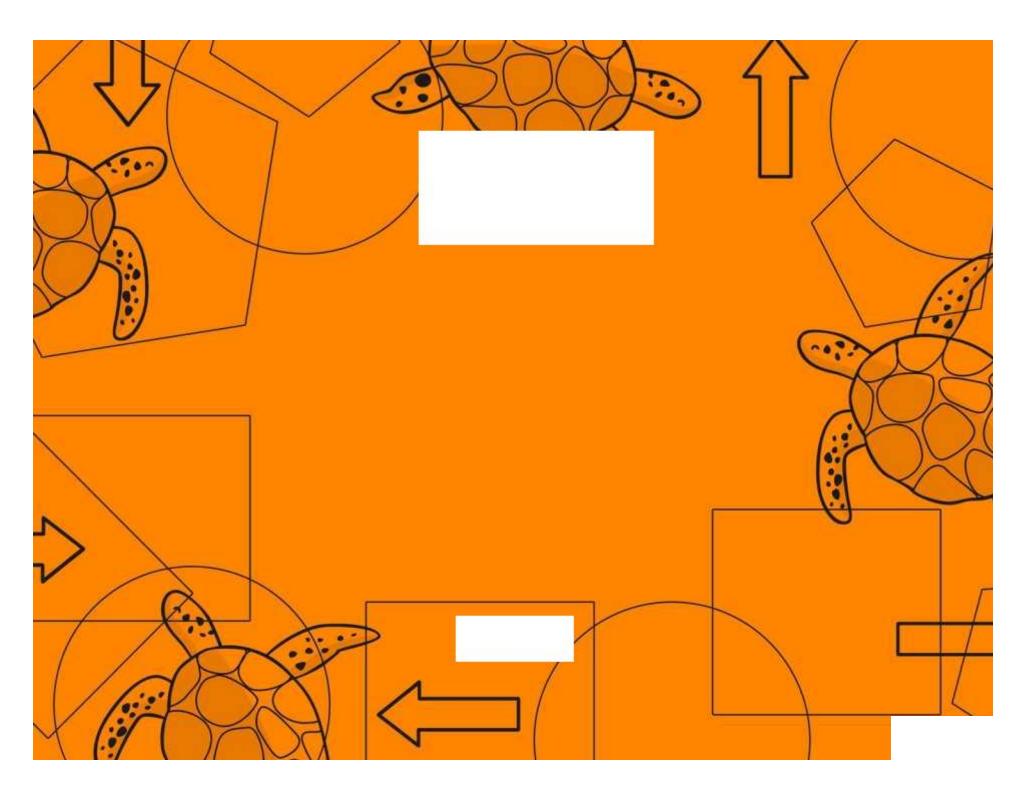
Aim



• I can give, follow and complete an algorithm

Success Criteria

- I can give clear accurate instructions
- I can give instructions in order
- I can write an algorithm
- I can check an algorithm
- I can give and follow instructions accurately
- I can move forward and turn right 90 and left 90



Preparing for Turtle Logo | Completing Algorithms

I can give, follow and complete an algorithm.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can give and follow instructions accurately.	
I can move forward and turn right 90 and left 90.	

Preparing for Turtle Logo | Completing Algorithms

I can give, follow and complete an algorithm.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can give and follow instructions accurately.	
I can move forward and turn right 90 and left 90.	

Preparing for Turtle Logo | Completing Algorithms

I can give, follow and complete an algorithm.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can give and follow instructions accurately.	
I can move forward and turn right 90 and left 90.	

Preparing for Turtle Logo | Completing Algorithms

I can give, follow and complete an algorithm.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can give and follow instructions accurately.	
I can move forward and turn right 90 and left 90.	

Preparing for Turtle Logo | Completing Algorithms

I can give, follow and complete an algorithm.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can give and follow instructions accurately.	
I can move forward and turn right 90 and left 90.	

Preparing for Turtle Logo | Completing Algorithms

I can give, follow and complete an algorithm.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can give and follow instructions accurately.	
I can move forward and turn right 90 and left 90.	

Preparing for Turtle Logo | Completing Algorithms

I can give, follow and complete an algorithm.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can give and follow instructions accurately.	
I can move forward and turn right 90 and left 90.	

Preparing for Turtle Logo | Completing Algorithms

I can give, follow and complete an algorithm.	
I can give clear accurate instructions.	
I can give instructions in order.	
I can write an algorithm.	
I can check an algorithm.	
I can give and follow instructions accurately.	
I can move forward and turn right 90 and left 90.	



Completing Algorithms

1: How would you complete the algorithm?

Forward 1 (steps)

Right 90 (degrees)

Forward 2

Right 90

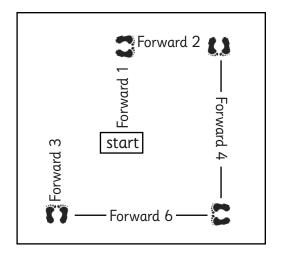
Forward 4

Right 90

Forward 6

Right 90

Forward 3



2: How would you complete the algorithm?

Forward 2 (steps)

Left 90 (degrees)

Forward 2

Left 90

Forward 3

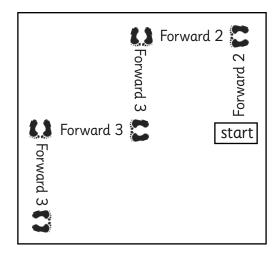
Right 90

Forward 3

Left 90

Forward 3

Left 90



3: How would you complete the algorithm?

Forward 1 (steps)

Right 90 (degrees)

Forward 4

Left 90

Forward 1

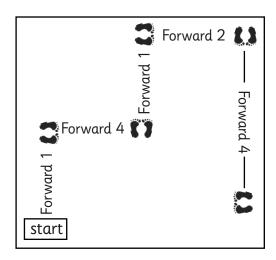
Right 90

Forward 2

Right 90

Forward 4

Right 90



4: How would you complete the algorithm?

Forward 2 (steps)

Right 90 (degrees)

Forward 2

Left 90

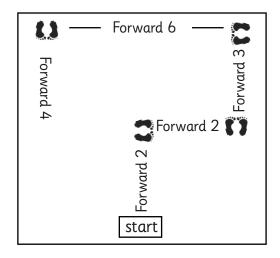
Forward 3

Left 90

Forward 6

Left 90

Forward 5





Completing Algorithms

1: How would you complete the algorithm?

Forward 1 (steps)

Right 90 (degrees)

Forward 2

Right 90

Forward 4

Right 90

Forward 6

Right 90

Forward 3

2: How would you complete the algorithm?

Forward 2 (steps)

Left 90 (degrees)

Forward 2

Left 90

Forward 3

Right 90

Forward 3

Left 90

Forward 3

Left 90

3: How would you complete the algorithm?

Forward 1 (steps)

Right 90 (degrees)

Forward 4

Left 90

Forward 1

Right 90

Forward 2

Right 90

Forward 4

Right 90

4: How would you complete the algorithm?

Forward 2 (steps)

Right 90 (degrees)

Forward 2

Left 90

Forward 3

Left 90

Forward 6

Left 90

Forward 5

5: How would you complete the algorithm?

Forward 6 (steps)

Right 90 (degrees)

Forward 3

Right 90

Forward 3

Right 90

Forward 5

Left 90

Forward 3

6: How would you complete the algorithm?

Forward 3 (steps)

Left 90 (degrees)

Forward 3

Left 90

Forward 1

Left 90

Forward 5

Left 90

Forward 3

Left 90

Forward 2



Completing Algorithms

1: How would you complete the algorithm?

Forward 1 (steps)

Right 90 (degrees)

Forward 2

Right 90

Forward 4

Right 90

Forward 6

Right 90

Forward 3

2: How would you complete the algorithm?

Forward 2 (steps)

Left 90 (degrees)

Forward 2

Left 90

Forward 3

Right 90

Forward 3

Left 90

Forward 3

Left 90

3: How would you complete the algorithm?

Forward 1 (steps)

Right 90 (degrees)

Forward 4

Left 90

Forward 1

Right 90

Forward 2

Right 90

Forward 4

Right 90

4: How would you complete the algorithm?

Forward 2 (steps)

Right 90 (degrees)

Forward 2

Left 90

Forward 3

Left 90

Forward 6

Left 90

Forward 5

5: How would you complete the algorithm?

Forward 6 (steps)

Right 90 (degrees)

Forward 3

Right 90

Forward 3

Right 90

Forward 5

Left 90

Forward 3

6: Challenge

Give your partner an algorithm of your own to follow. Record your algorithm and the shape drawn.



Completing Algorithms Answers

1: How would you comple	ete the algorithm?	2: How would you compl	ete the algorithm?	3: How would you comp	lete the algorithm?	
Forward 1 (steps) Right 90 (degrees) Forward 2 Right 90 Forward 4 Right 90 Forward 6 Right 90 Forward 3	Right 90 Forward 4	Forward 2 (steps) Left 90 (degrees) Forward 2 Left 90 Forward 3 Right 90 Forward 3 Left 90 Forward 3 Left 90	Left 90 Forward 4	Forward 1 (steps) Right 90 (degrees) Forward 4 Left 90 Forward 1 Right 90 Forward 2 Right 90 Forward 4 Right 90	Right 90 Forward 2	
4: How would you complete the algorithm?		5: How would you compl	ete the algorithm?	6: How would you complete the algorithm?		
Forward 2 (steps) Right 90 (degrees) Forward 2 Left 90 Forward 3 Left 90	Left 90 Forward 4	Forward 6 (steps) Right 90 (degrees) Forward 3 Right 90 Forward 3 Right 90	Left 90 Forward 2	Forward 3 (steps) Left 90 (degrees) Forward 3 Left 90 Forward 1 Left 90 Forward 5	Left 90 Forward 5	



I can move forward a number of steps.



I can turn right 90 and left 90.



I can move forward a number of steps.



I can turn right 90 and left 90.



I can turn right 90 and left 90.



I can move forward a number of steps.

Preparing for Turtle Logo: Command Abbreviations

Aim:

Understand what algorithms are and that programs execute by following precise and ambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.

This unit prepares children for using Turtle Logo on screen, but links well to shape and direction in Maths.

I can use recognised language in an algorithm.

Success Criteria:

I can give clear accurate instructions.

I can give instructions in order.

I can write an algorithm.

I can check an algorithm.

I can use command abbreviations fd, rt, lt from Turtle Logo.

Key/New Words:

Forward, Backward, Left, Right, Move, Turn, Right 90, Left 90, fd, rt, lt.

Resources:

Lesson Pack.

Hall or space large enough for children to move around freely.

Cones or similar to mark points.

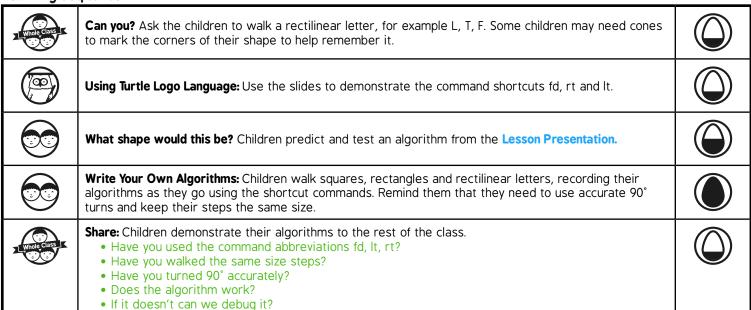
Small whiteboards and pens.

Preparation:

None needed.

Prior Learning:

Learning Sequence



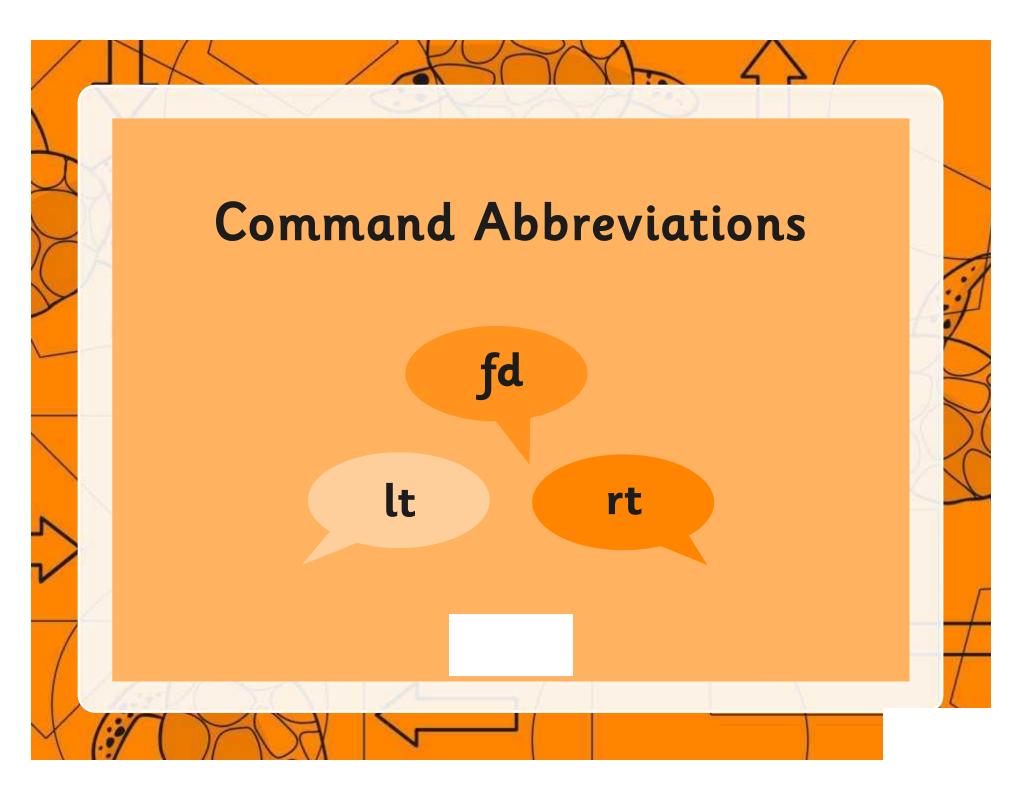
Taskit

Letterit: Children create algorithms for rectilinear letters and ask friends to text them. Debug any mistakes.

Challenge it: Use the Challenge Cards for extension activities.



Computing | Year 2 | Preparing for Turtle Logo | Command Abbreviations | Lesson 5

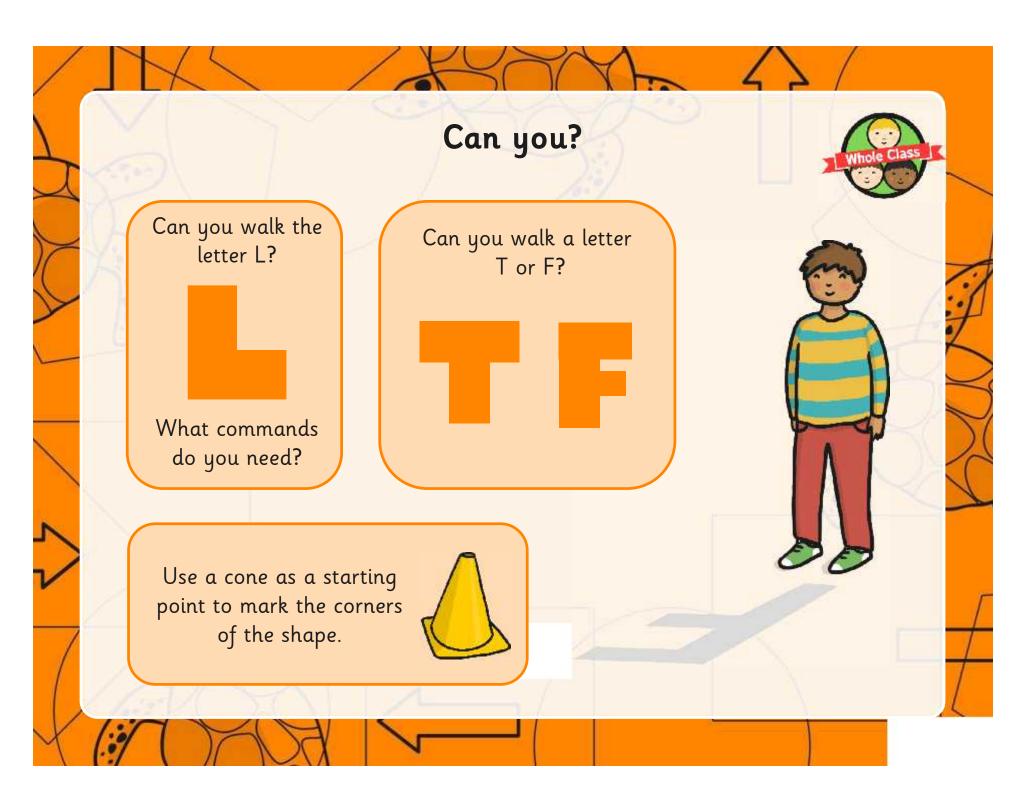


Aim

• I can use recognised language in an algorithm.

Success Criteria

- I can give clear accurate instructions.
- I can give instructions in order.
- I can write an algorithm.
- I can check an algorithm.
- I can use the command abbreviations fd, rt, lt from Turtle Logo.



Using Turtle Logo Language

It is important that we use language that is understood by whoever or whatever is following the instructions.

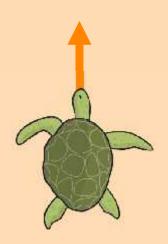




Sometimes commands can be abbreviated.

Moving Forward

We can shorten forward to fd Forward becomes fd 5



Using Turtle Logo Language

It is important that we use language that is understood by whoever or whatever is following the instructions.



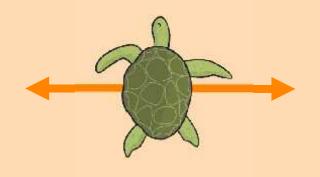


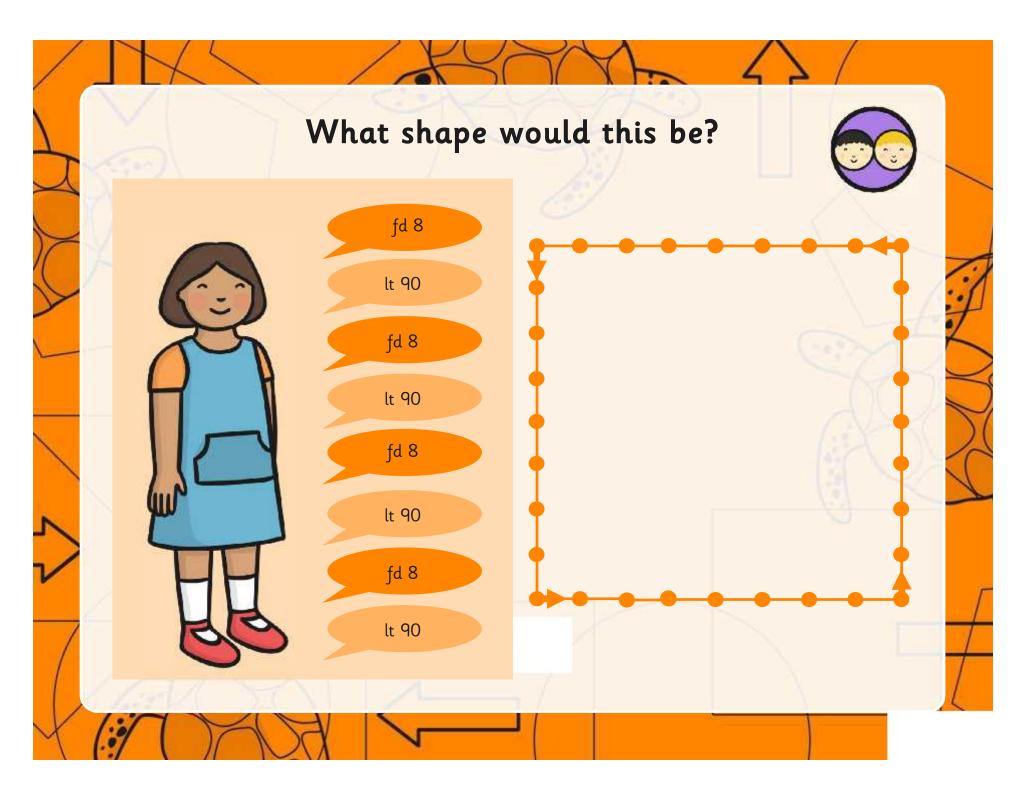
Sometimes commands can be abbreviated.

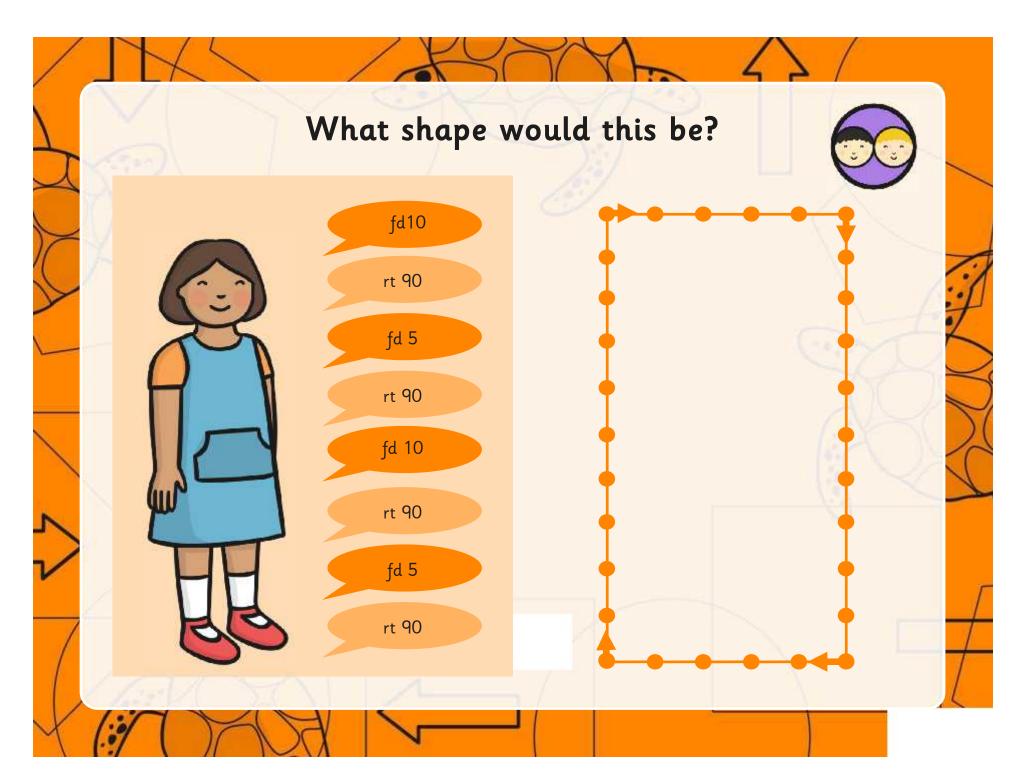
Turning

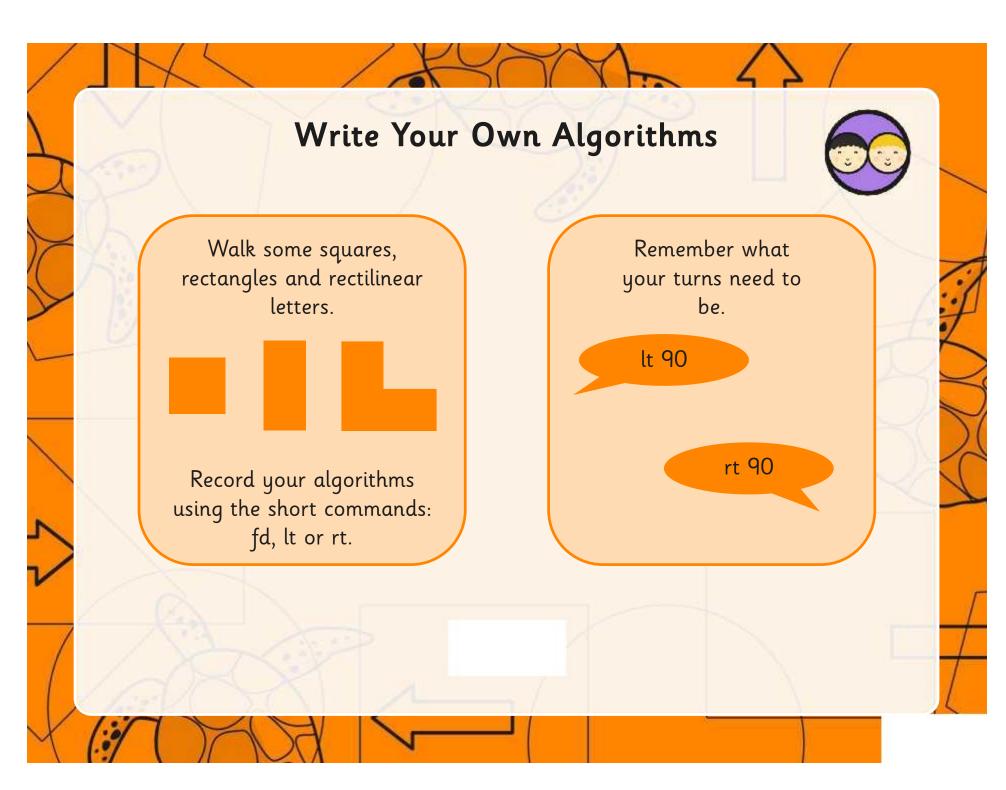
We can shorten left or right to lt or rt

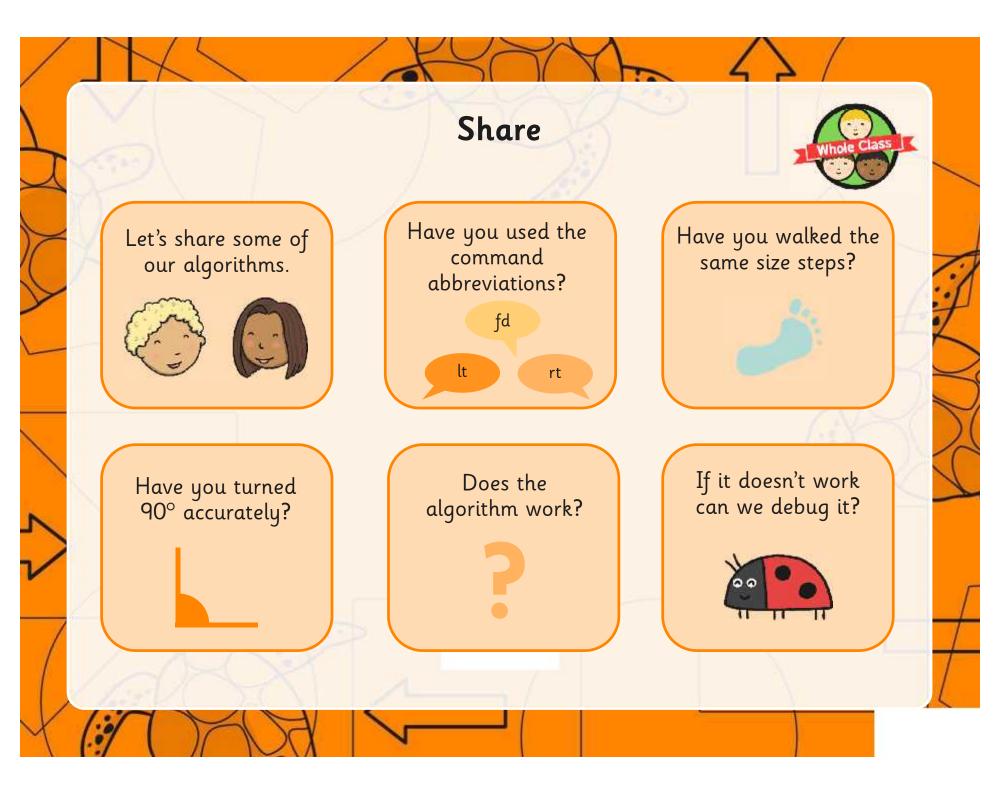
Left can be written as lt 90 Right can be written as rt 90











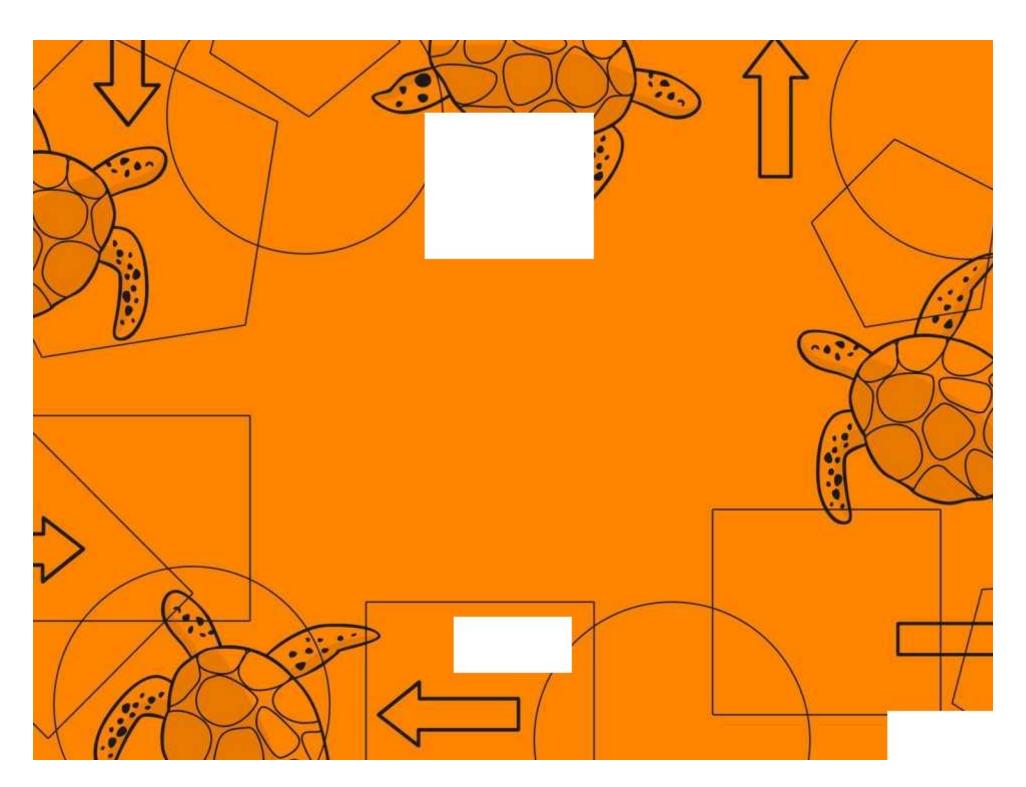
Aim



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Preparing for Turtle Logo | Command Abbreviations

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Preparing for Turtle Logo | Command Abbreviations

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Preparing for Turtle Logo | Command Abbreviations

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Preparing for Turtle Logo | Command Abbreviations

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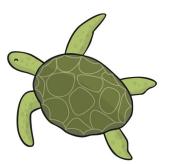
Preparing for Turtle Logo | Command Abbreviations

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Preparing for Turtle Logo | Command Abbreviations

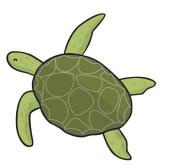
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Command Abbreviations



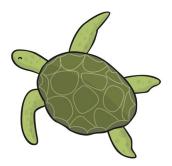
Preparing for Turtle Logo

Command Abbreviations



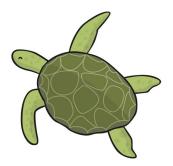
Preparing for Turtle Logo

Command Abbreviations



Preparing for Turtle Logo

Command Abbreviations







I can use the short cut command fd.



I can use the shortcut commands it and lt.



I can use the short cut command fd.



I can use the shortcut commands rt and lt.



I can use the short cut command fd.



I can use the shortcut commands rt and lt.

Preparing for Turtle Logo: From Here to There

Aim:

Understand what algorithms are how they are implemented as programs on digital devices; and that programs execute by following precise and ambiguous instructions.

Create and debug simple programs.

Use logical reasoning to predict the behaviour of simple programs.

This unit prepares children for using Turtle Logo on screen, but links well to shape and direction in Maths. In this lesson, children will use small figures to follow routes on paper. This is an important transition from the real to the screen.

I can create, test and debug an algorithm.

Success Criteria:

I can give clear accurate instructions.

I can give instructions in order.

I can write an algorithm.

I can check an algorithm.

I can move forward and turn right 90 and left 90.

I can use the command abbreviations fd, rt, lt from Turtle Logo.

Key/New Words:

Forward, Backward, Left, Right, Move, Turn, Right 90, Left 90, Debug.

Resources:

Lesson Pack.

Routes that the children can use to walk along.

Small whiteboards and pens.

Small figures or counters.

Preparation:

Edit the first two teaching slides in the **Lesson Presentation** to add a destination suitable for your school.

School plans showing routes.

Chosen route activity sheets.

Prior Learning:

Children will have been introduced to the shortcuts fd, It and rt and have used these commands to walk squares, rectangles and rectilinear letters in lessons 4 and 5.

Learning Sequence



Our Route to the... Children walk a well known route in school, counting and recording their steps and turns. (Some children may need the route drawn on paper which they can then record their steps on to.)





Creating Our Algorithm: Demonstrate how to turn a route into an algorithm.





Create Your Algorithm: Children write their own algorithm for this route, and then write algorithms for other routes in school using the **School Route**. (Decide as a class how stairs are indicated if relevant for your building. This could simply be included in the steps or as a specific command, remember that this command wouldn't be used in Turtle Logo.) Pairs share their algorithms with other children to check, and then debug any errors.





In a Small World: Demonstrate how to move a small figure on a route on a map using the Turtle Logo language.





My Small World: Children create algorithms for routes on paper, using small figures or counters.





The Farm Route has fewer places to travel from and to. Use the large grid option and a small figure or counter to support each movement.



Choose either Farm Route (small grid option), or School Route (large grid option) as appropriate and use a counter to support movement.



The School Route has more places to travel from and to. Use the small grid option and children should use their finger to trace movement



Whole Class

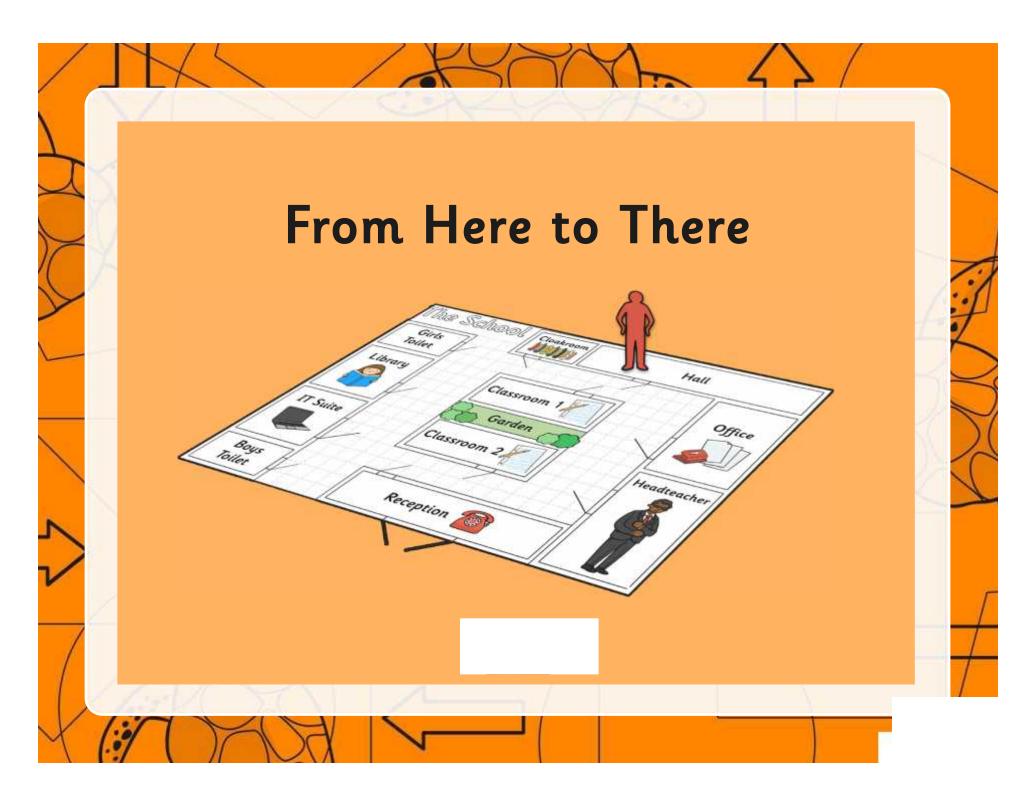
Share Your Algorithms: Share any algorithms as a class, looking at how the algorithms are written. Why might some algorithms for the same route be different? (Different size steps or different route).

Taskit

Routeit: Children create algorithms for other routes in school. Give to children to test and debug any errors.



Computing | Year 2 | Preparing for Turtle Logo | From Here to There | Lesson 6



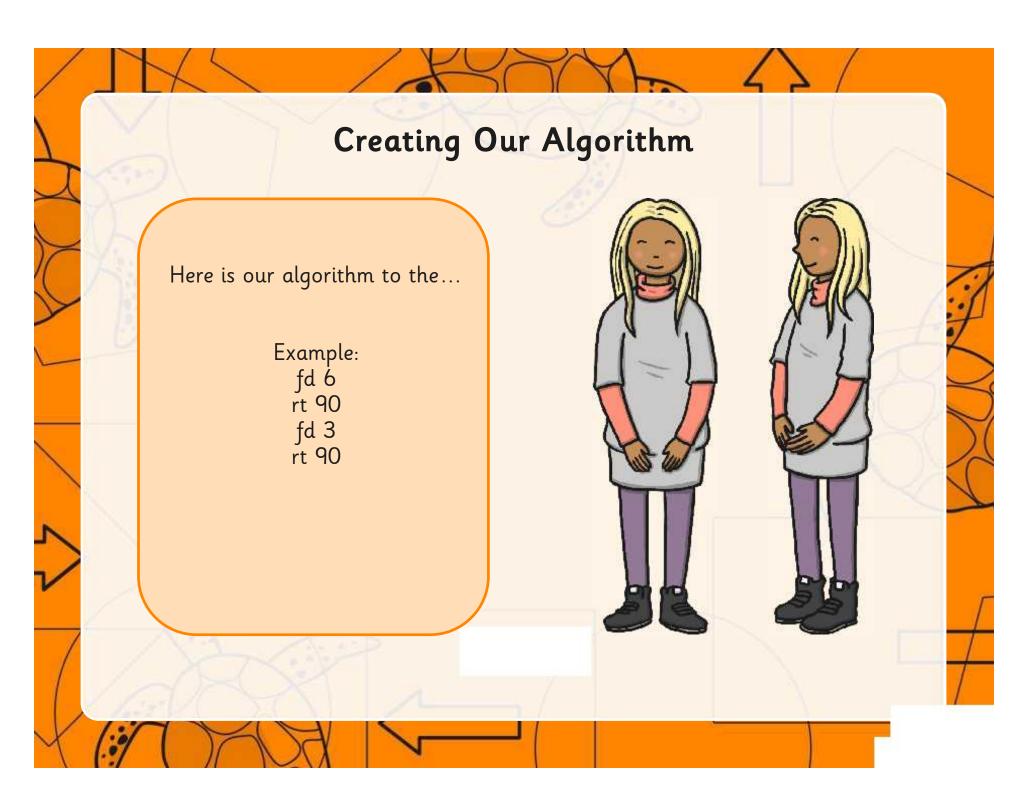
Aim

• I can create, test and debug an algorithm.

Success Criteria

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- I can give instructions in order.
- I can write an algorithm.
- I can check an algorithm.
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Create Your Algorithm



Create your own algorithms for different routes around school.



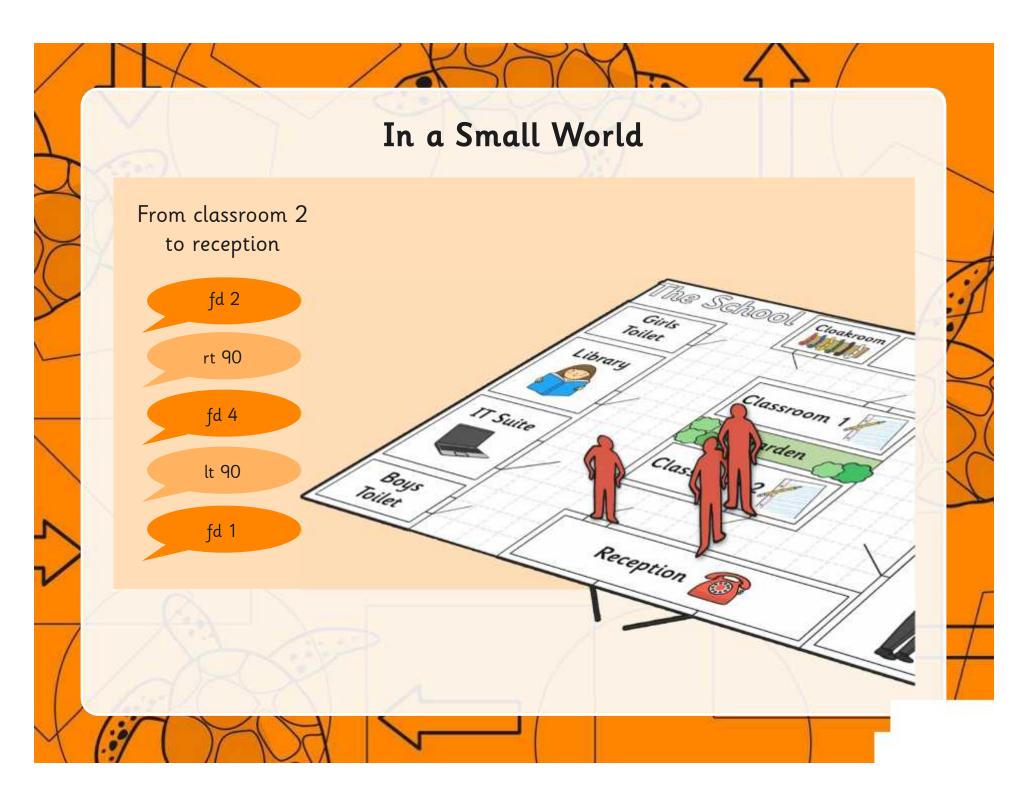
How will you indicate stairs?

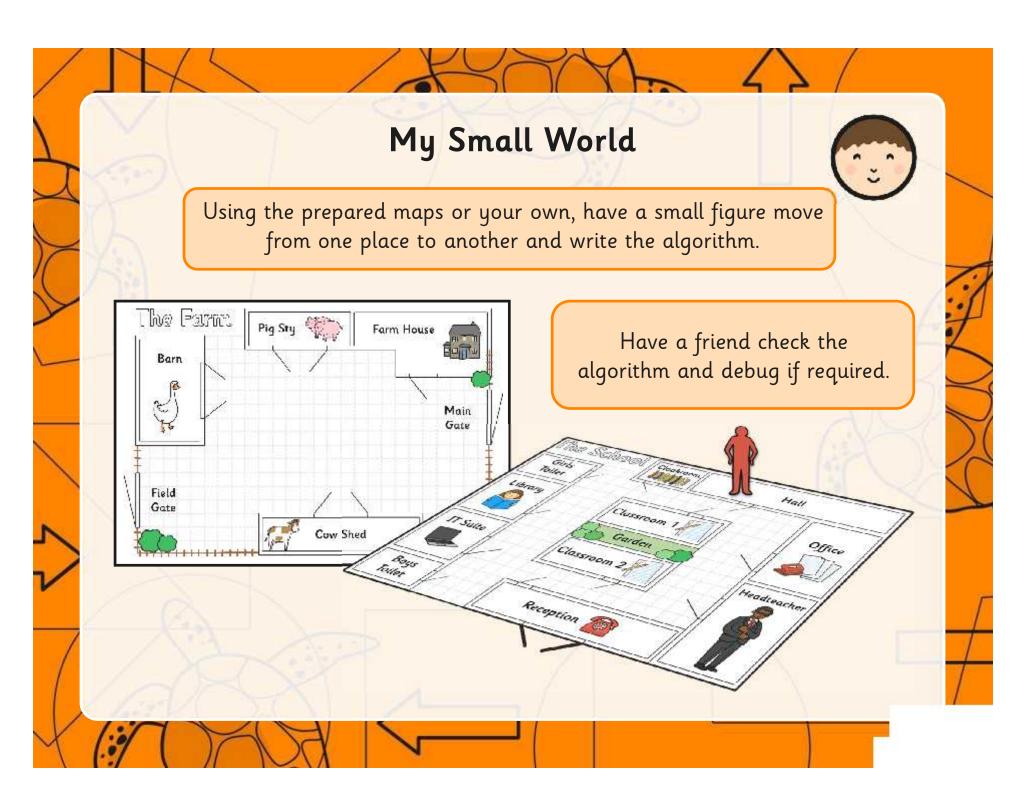


Share your algorithms, check and debug if necessary.





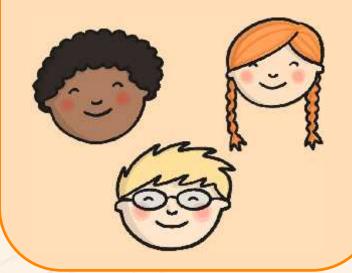




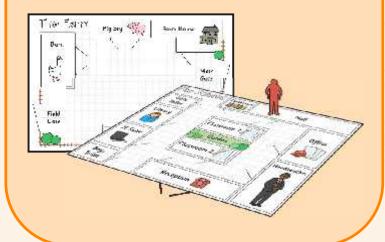




Share some of your algorithms with the rest of the class.



Why might you have different algorithms for the same route?



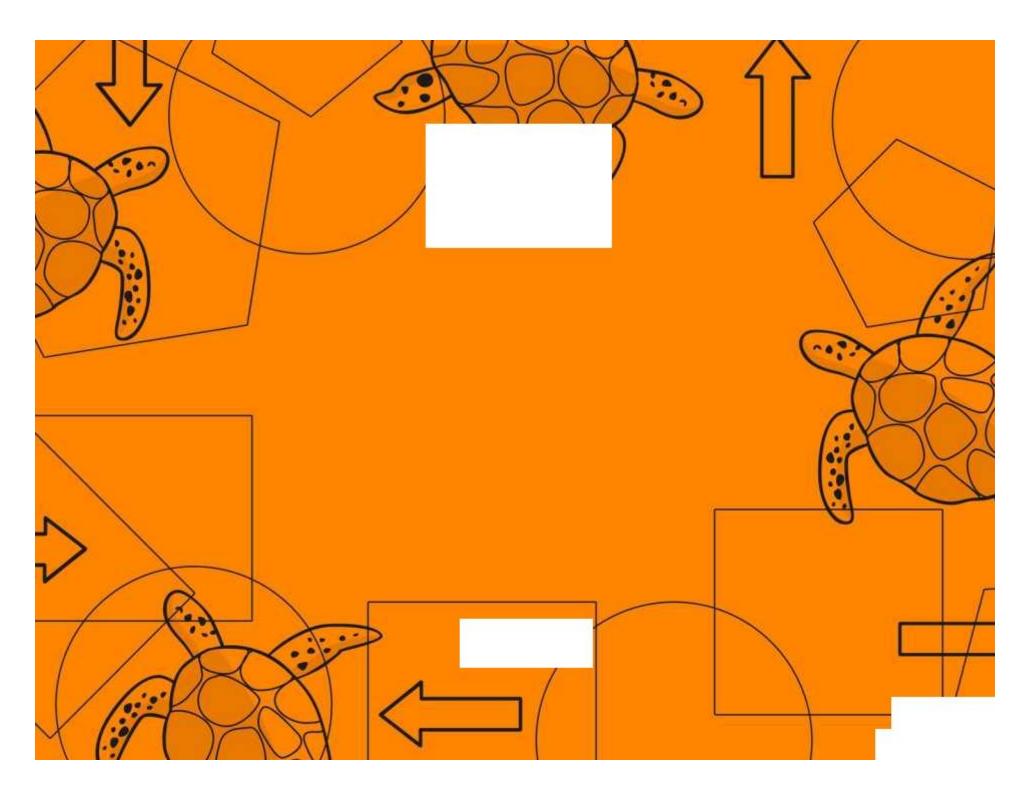
Aim



• I can create, test and debug an algorithm.

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Preparing for Turtle Logo | From Here to There

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Preparing for Turtle Logo | From Here to There

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Preparing for Turtle Logo | From Here to There

_ 1 33 3 1		
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Preparing for Turtle Logo | From Here to There

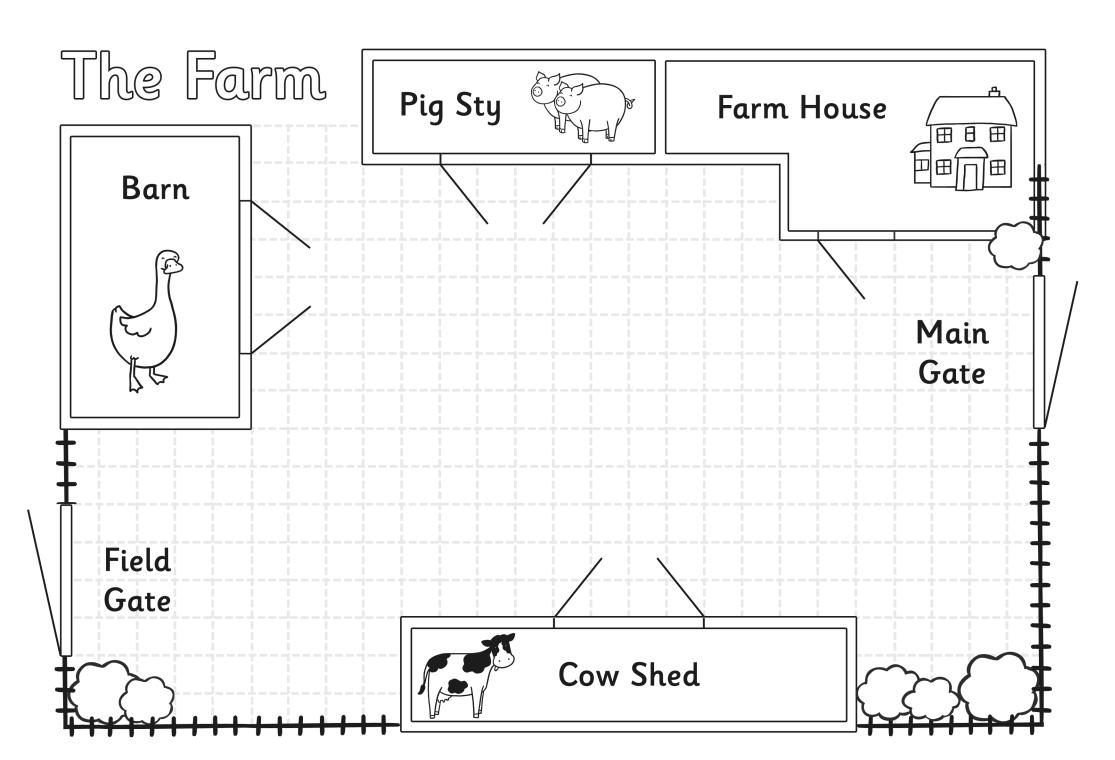
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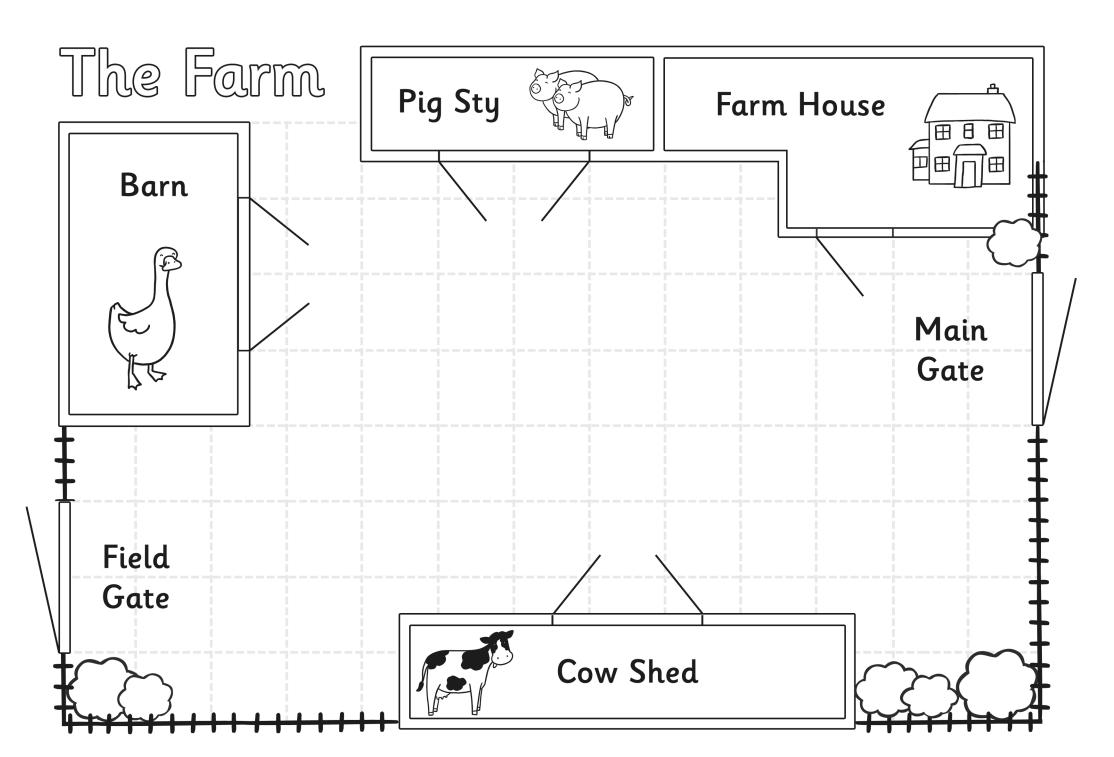
Preparing for Turtle Logo | From Here to There

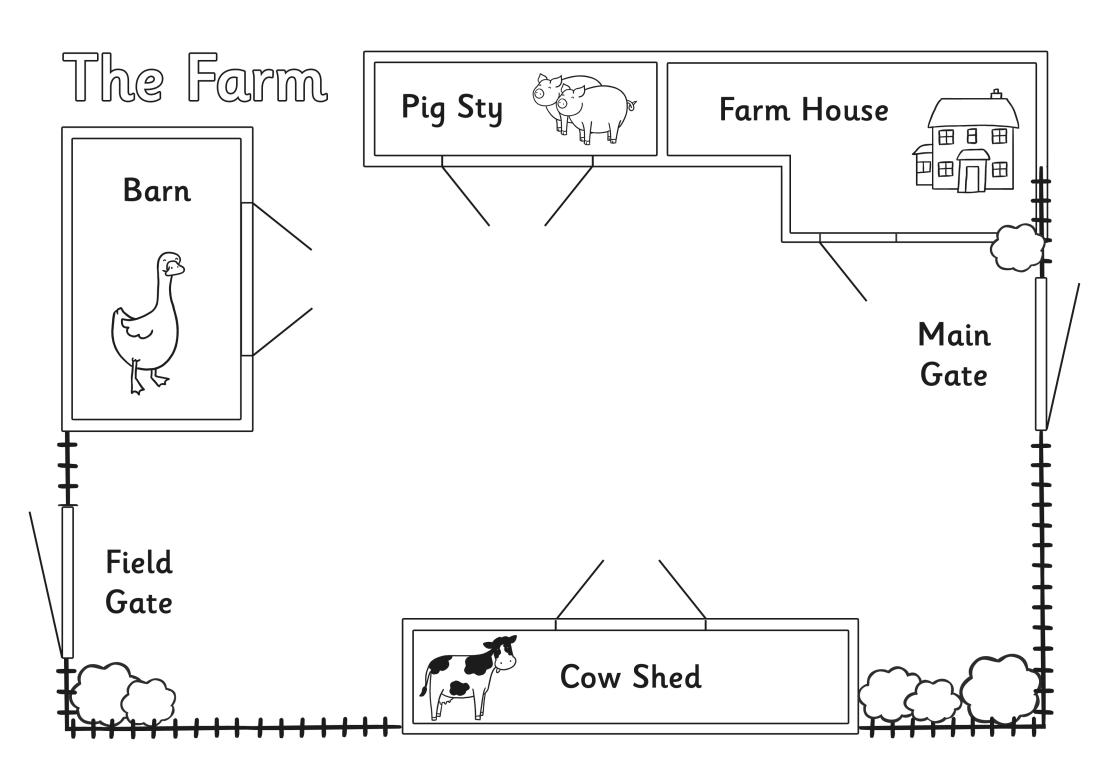
Freparing for furthe Logo From Here to There		
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From Here to There Farm Route

Use one of the farm route grids o	and write an algorithm for the following routes.
Route: Pig sty to Cow shed.	Algorithm:
Route: Main gate to Field gate.	Algorithm:
Route: Barn to Cow shed.	Algorithm:
Route: Farm House to Pig sty.	Algorithm:
Now make up your own routes a	nd write an algorithm for each one:
Route:	Algorithm:
Route:	Algorithm:
Remember to use the con	nmands: fd 10 (forward ten steps) rt 90 (quarter turn to the right) lt 90 (quarter turn to the left)

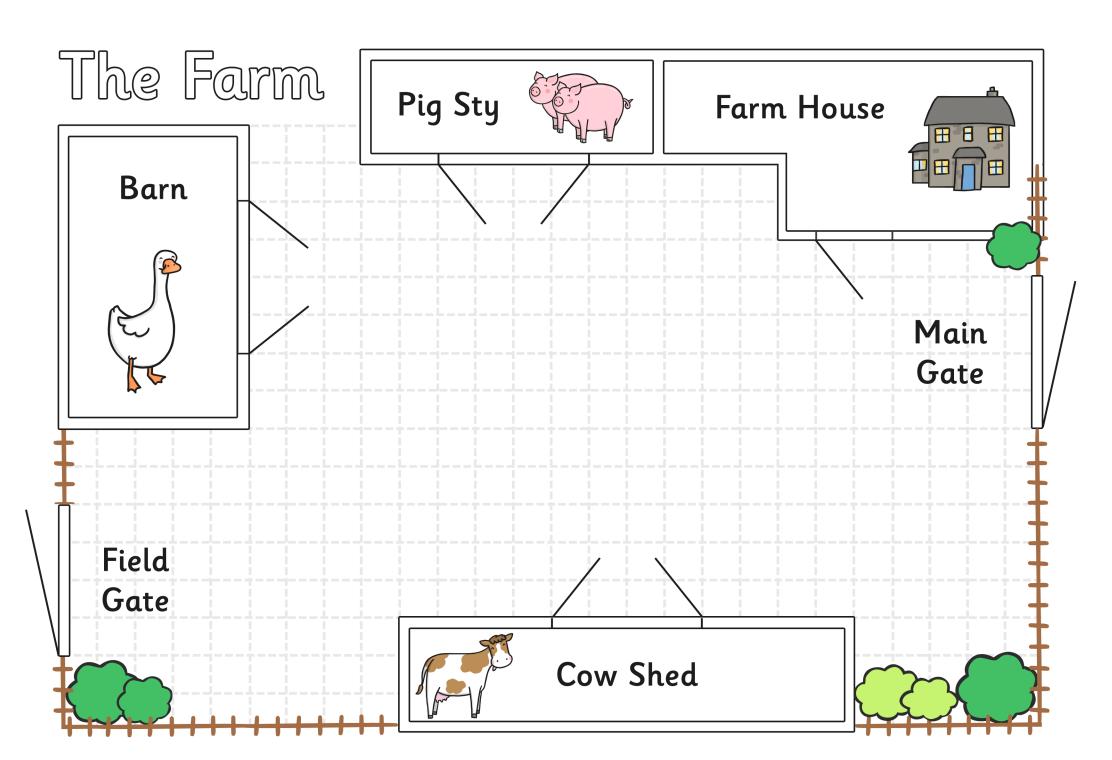


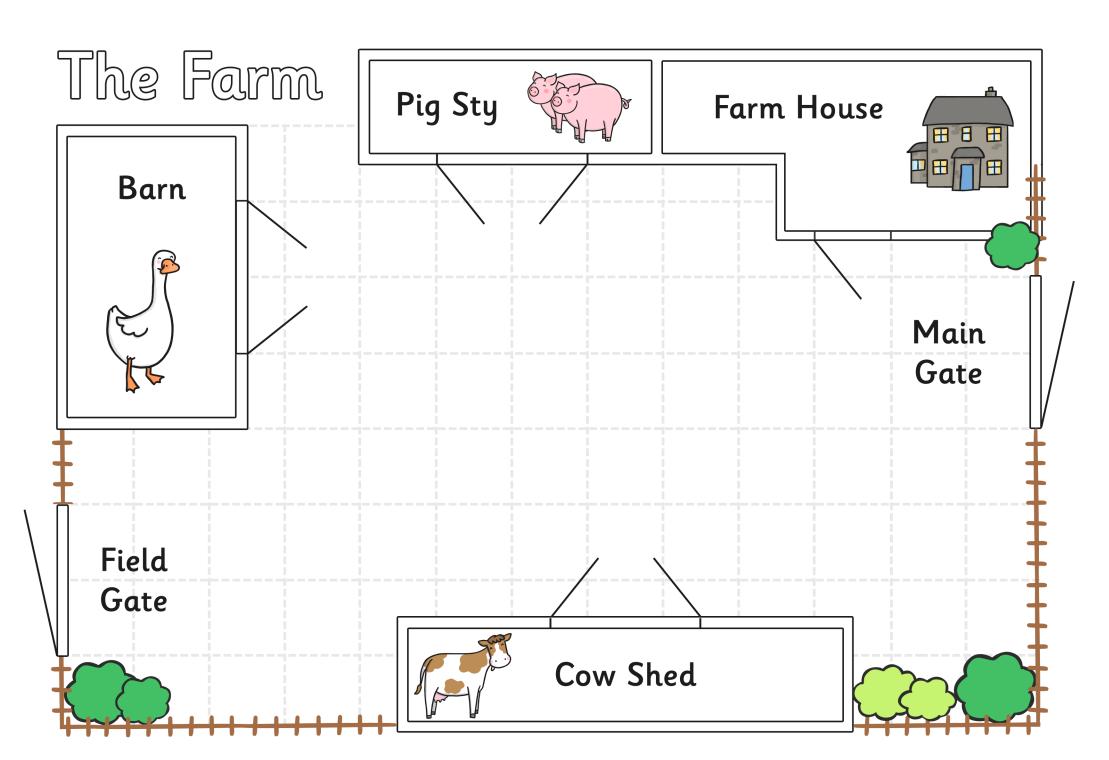


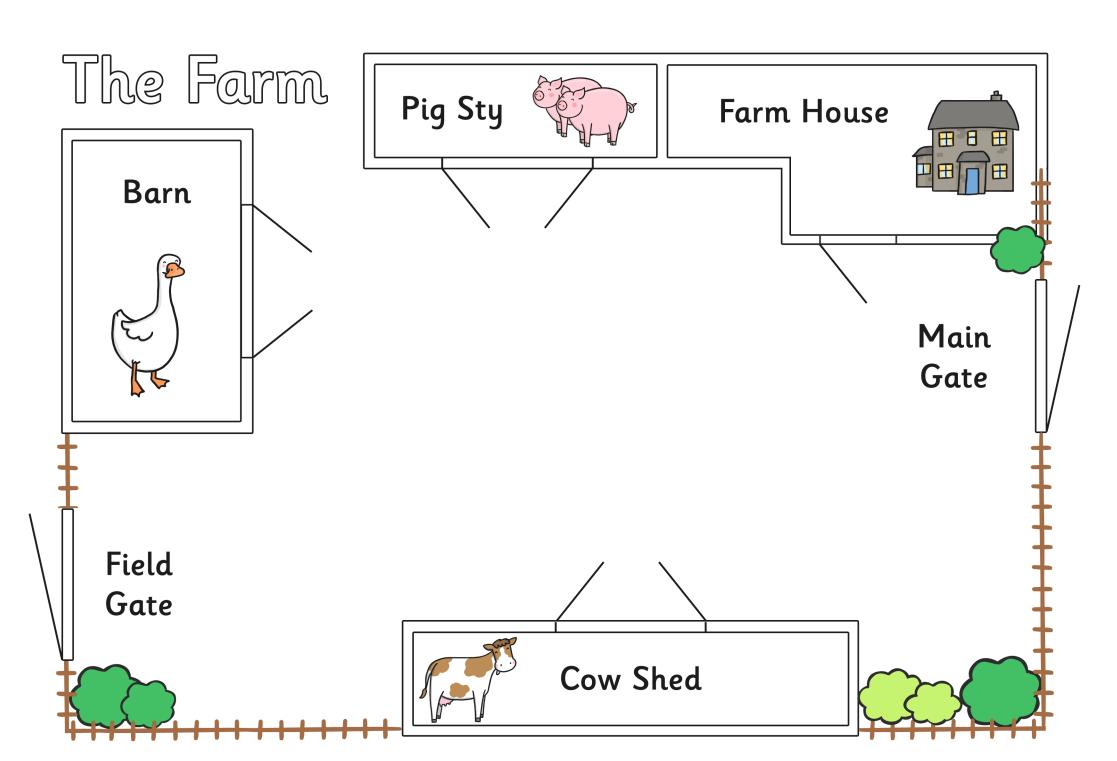


From Here to There Farm Route

Use one of the farm route grids o	and write an algorithm for the following routes.
Route: Pig sty to Cow shed.	Algorithm:
Route: Main gate to Field gate.	Algorithm:
Route: Barn to Cow shed.	Algorithm:
Route: Farm House to Pig sty.	Algorithm:
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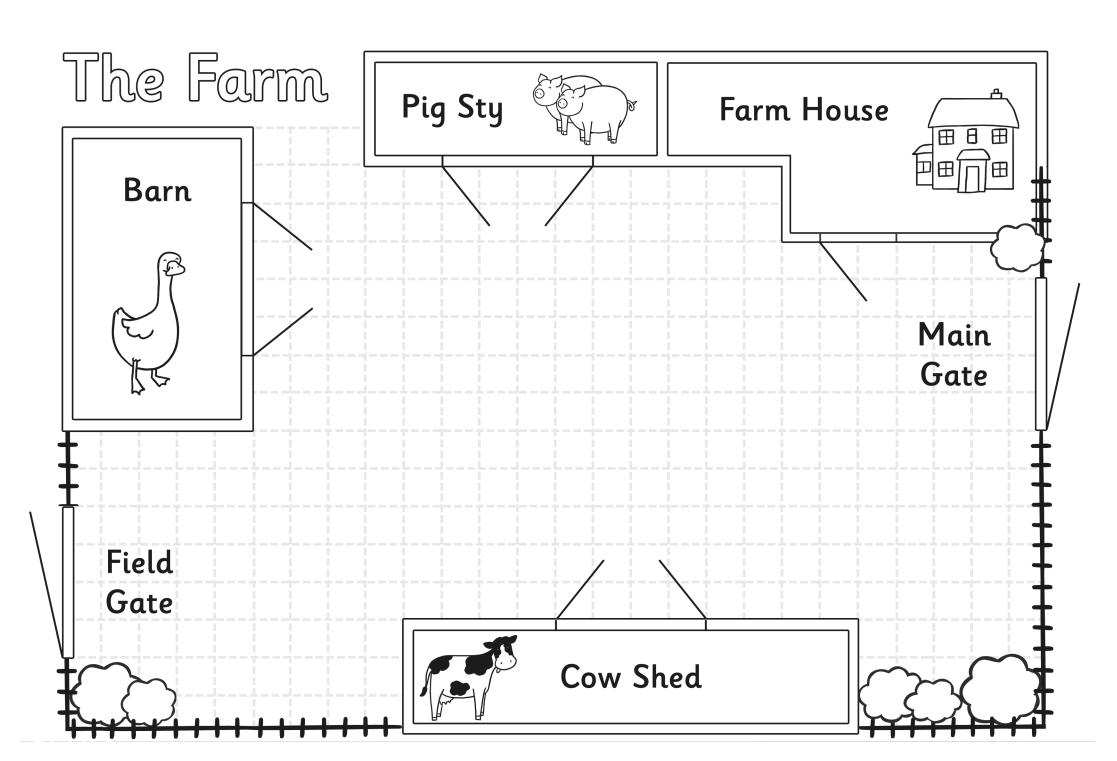


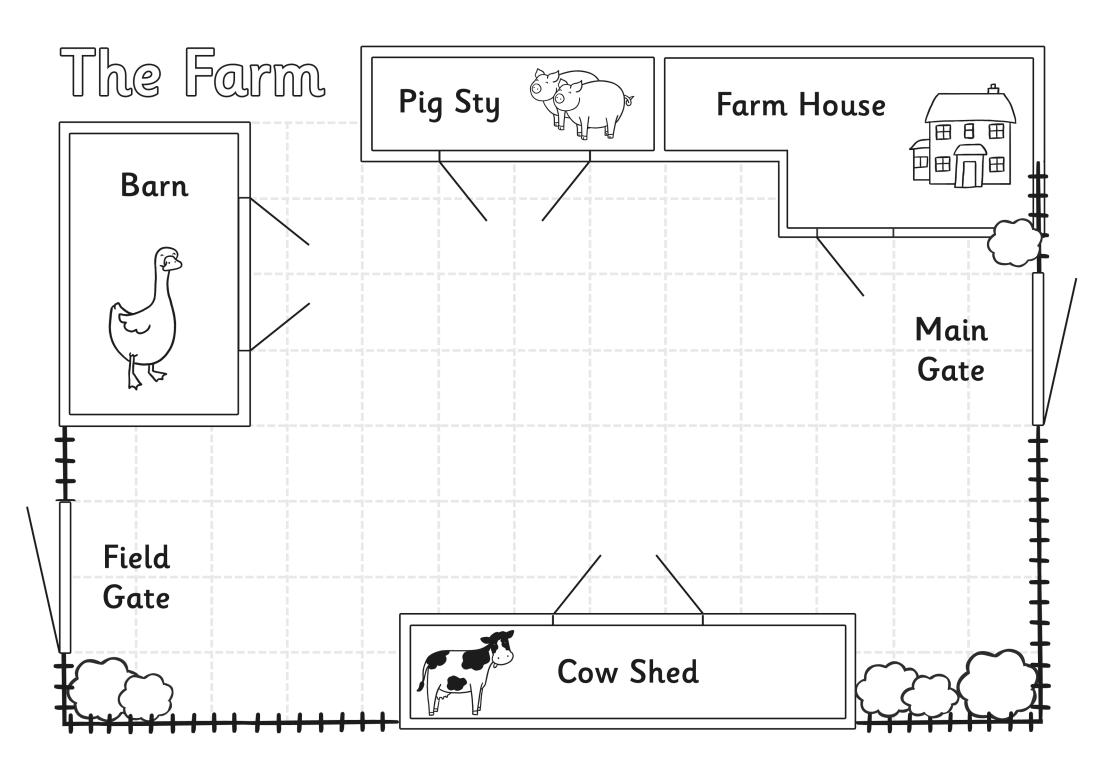


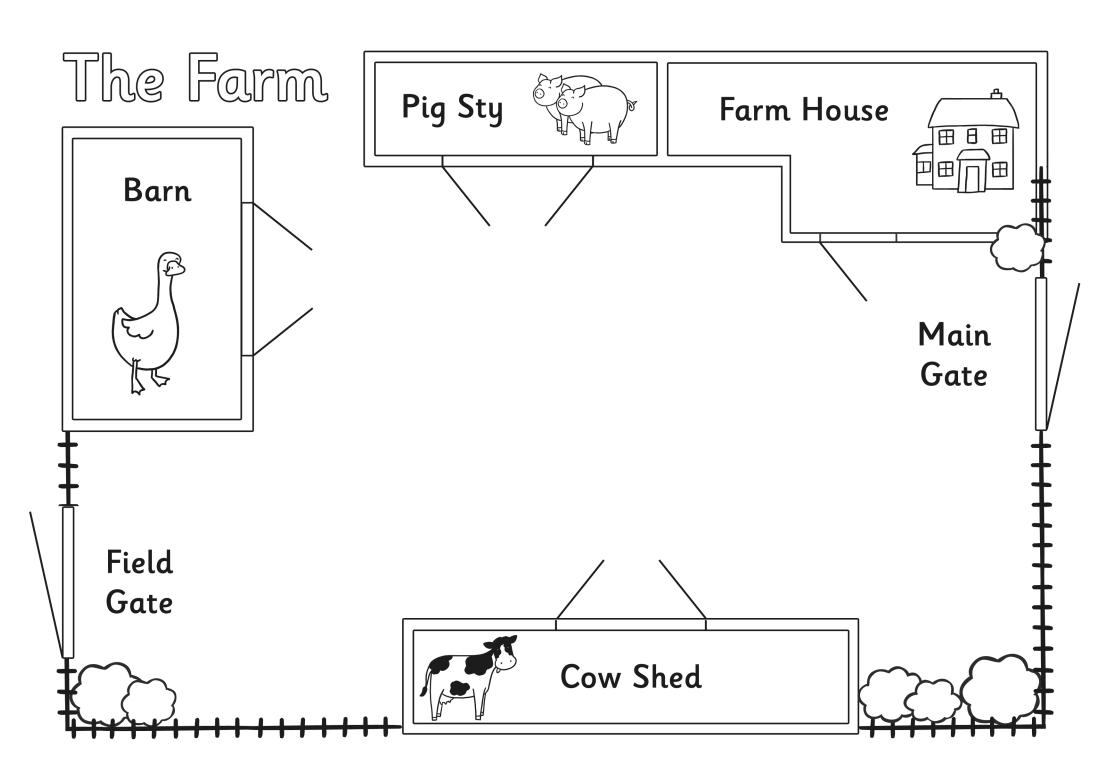


From Here to There School Route

Use one of the school route grids and w	rite an algorithm for the following routes.
Route: Classroom 2 to hall.	Algorithm:
Route: Office to ICT suite.	Algorithm:
Route: Library to Headteacher's office.	Algorithm:
Route: Classroom 1 to Boys toilet.	Algorithm:
Now make up your own routes and writ	te an algorithm for each one:
Route:	Algorithm:
Route:	Algorithm:
Remember to use the command	ls: fd 10 (forward ten steps) rt 90 (quarter turn to the right) lt 90 (quarter turn to the left)



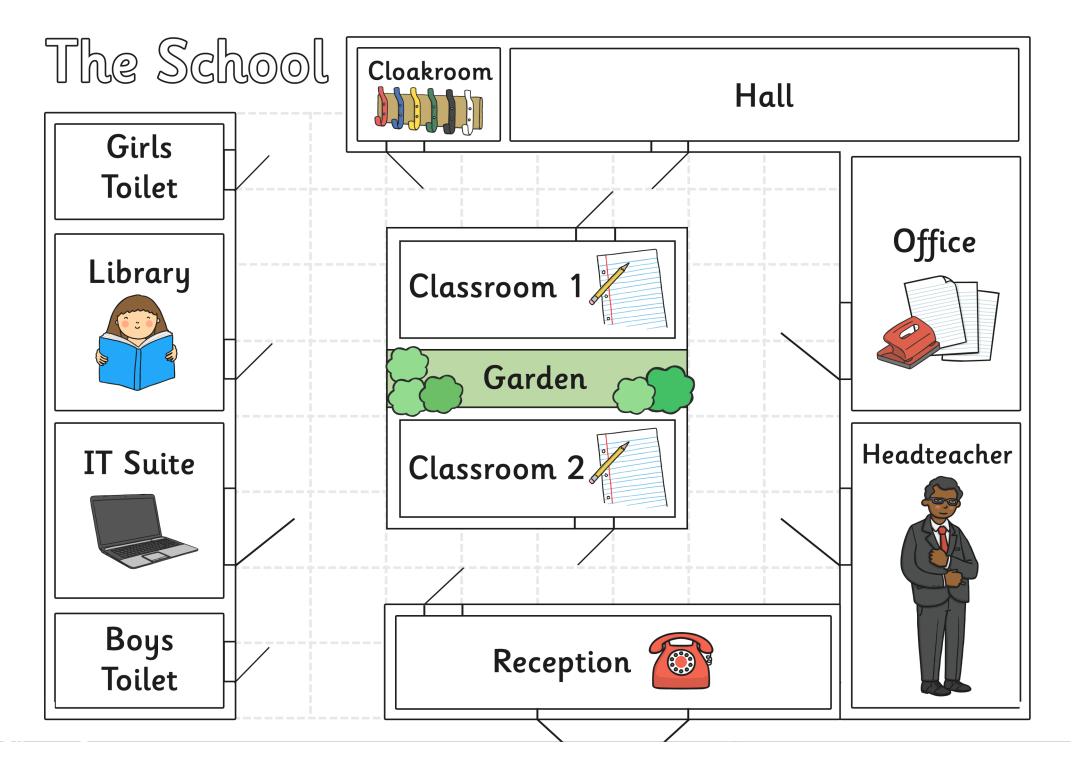




From Here to There School Route

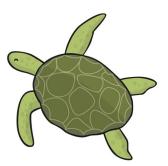
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Remember to use the command	ls: fd 10 (forward ten steps) rt 90 (quarter turn to the right) lt 90 (quarter turn to the left)

The School Cloakroom Hall Girls **Toilet** Office Library Classroom 1 Garden Headteacher IT Suite Classroom 2 Boys Reception 700 **Toilet**



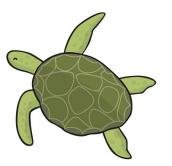
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From Here to There



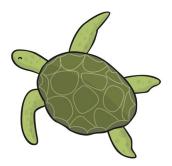
Preparing for Turtle Logo

From Here to There



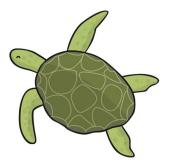
Preparing for Turtle Logo

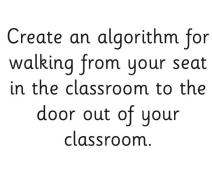
From Here to There



Preparing for Turtle Logo

From Here to There

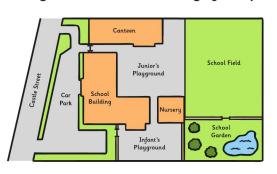




Have a friend check your algorithm and debug if required.



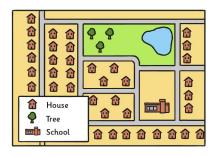
Create an algorithm for walking from the playground back to class. Have a friend check your algorithm and debug if required.



Make a simple map of an island on a piece of paper. Create an algorithm for a toy figure to walk on a route on the map. Have a friend check your algorithm and debug if required.



Make a simple map of some streets on a piece of paper. Create an algorithm for a toy figure to walk on a route on the map. Have a friend check your algorithm and debug if required.





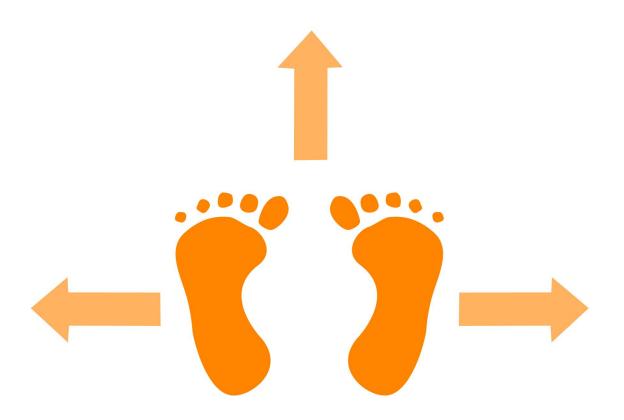
I can move forward a number of steps.



I can turn right 90 and left 90.



I can use the short cut command fd.



I can use the shortcut commands it and lt.



I can move forward a number of steps.



I can turn right 90 and left 90.



I can use the short cut command fd.



I can use the shortcut commands rt and lt.



I can move forward a number of steps.



I can turn right 90 and left 90.



I can use the shortcut commands rt and lt.



I can use the short cut command fd.

Computing | Year 2 | Unit Overview

Introduction

This unit has two main aims, to enable children to create, test and debug algorithms, and preparing children to use the language of Turtle Logo. The children begin by giving and following instructions to move forward and make quarter turns, followed by walking different rectilinear shapes. The language is extended to use the main Turtle Logo commands. Children will create, text and debug algorithms for shapes and routes around school in preparation for using the commands in online programs such as Turtle Logo/Logo Interpreter or MSWLogo.



Health & Safety

Take care with the walking activities, remind children to walk forwards, and watch for cones.



Home Learning

Task 1 Preparing for Turtle Logo 1: Children practice writing algorithms for moving around their home

Task 2 Preparing for Turtle Logo 2: Children practice writing algorithms for moving a small figure on an existing plan or a plan of their home.

Assessment Statements

By the end of this unit...

...all children should be able to:

• Walk forward a number of steps.

...most children will be able to:

- Turn accurately 90° (a quarter turn).
- Walk squares and rectangles.
- Give and follow instructions.

...some children will be able to:

- Write an algorithm for a shape or a route.
- Debug errors in an algorithm.

Lesson Breakdown

1. Moving forward and Making Turns

Understand what algorithms are, and that programs execute by following precise and ambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. This unit prepares children for using Turtle Logo on screen, but links well to shape and direction in Maths.

• I can give and follow an algorithm to turn right or left.

Resources

- Hall or space large enough for children to move around freely.
- Cones or similar to mark points.
- Small whiteboards and pens.

2. Half and Quarter Turns

Understand what algorithms are, and that programs execute by following precise and ambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.

• I can give and follow an algorithm to make half and quarter turns.

- Hall or space large enough for children to move around freely.
- Cones or similar to mark points.
- Small whiteboards and pens.

3. Right 90 and Left 90

Understand what algorithms are, and that programs execute by following precise and ambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.

• I can give and follow an algorithm using the commands right 90 and left 90.

- Hall or space large enough for children to move around freely.
- Cones or similar to mark points.
- Small whiteboards and pens.

4. Completing Algorithms

Understand what algorithms are, and that programs execute by following precise and ambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.

• I can give, follow and complete an algorithm.

- Hall or space large enough for children to move around freely.
- Cones or similar to mark points.
- Small whiteboards and pens.

5. Command Abbreviations

Understand what algorithms are, and that programs execute by following precise and ambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.

• I can use recognised language in an algorithm.

- Hall or space large enough for children to move around freely.
- Cones or similar to mark points.
- Small whiteboards and pens.

6. From Here to There

Understand what algorithms are, and that programs execute by following precise and ambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.

• I can create, test and debug an algorithm.

- Routes that the children can use to walk along.
- Small whiteboards and pens.
- Small figures (human or animal) and counters.