










# Preparing for Turtle Logo: Half and Quarter Turns

<p><b>Aim:</b> 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.</p>	<p><b>Success Criteria:</b> 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.</p>	<p><b>Resources:</b> <b>Lesson Pack.</b> Hall or space large enough for children to move around freely. Cones or similar to mark points. Small whiteboards and pens.</p>
<p>I can give and follow an algorithm to make half and quarter turns.</p>	<p><b>Key/New Words:</b> Forward, Left, Right, Move, Turn, Half turn, Quarter turn.</p>	<p><b>Preparation:</b> <b>Activity Sheets</b> (with answer cards if needed).</p>

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

## Learning Sequence

	<p><b>What shape?</b> 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.)</p>	
	<p><b>Half Turn/Quarter Turn:</b> 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.</p>	
	<p><b>Algorithms:</b> Children work through the <b>Activity Sheets</b> 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 <b>Activity Sheet</b> to follow the algorithms and record the shape 'drawn'.</p> <p> Children also write their own algorithms.</p>	
	<p><b>Our Algorithms:</b> Ask a few children to read some of their algorithms for other children to try out. <b>Right 90 and Left 90:</b> Explain that a quarter turn can be replaced by right 90 or left 90.</p>	

## Taskit

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

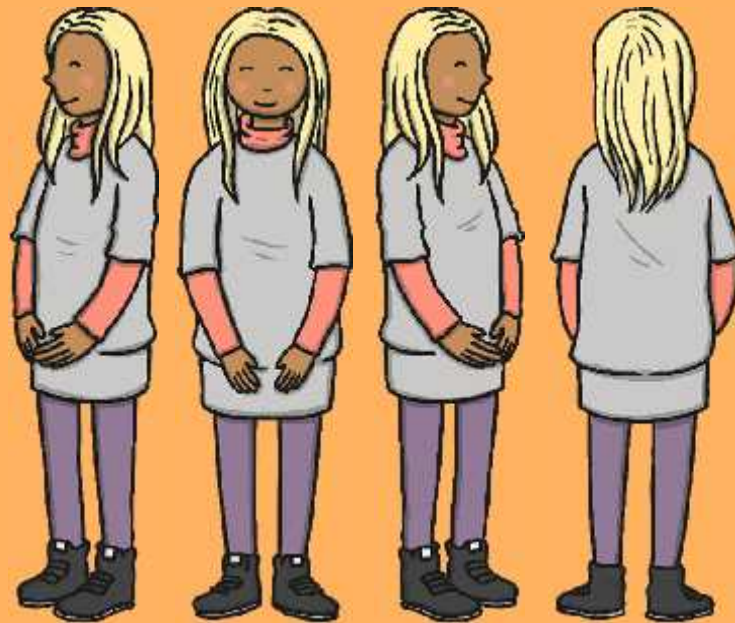
**Challengeit:** Use the \_\_\_\_\_ for extension activities.



# Computing

Preparing for Turtle Logo

# Half and a Quarter Turns



# Aim

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

# Success Criteria

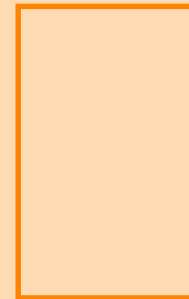
- I can give clear accurate instructions.
- I can give instructions in order.
- I can write an algorithm.
- I can check an algorithm.
- I can move forward a number of steps
- I can make half and quarter turns

## What shape?



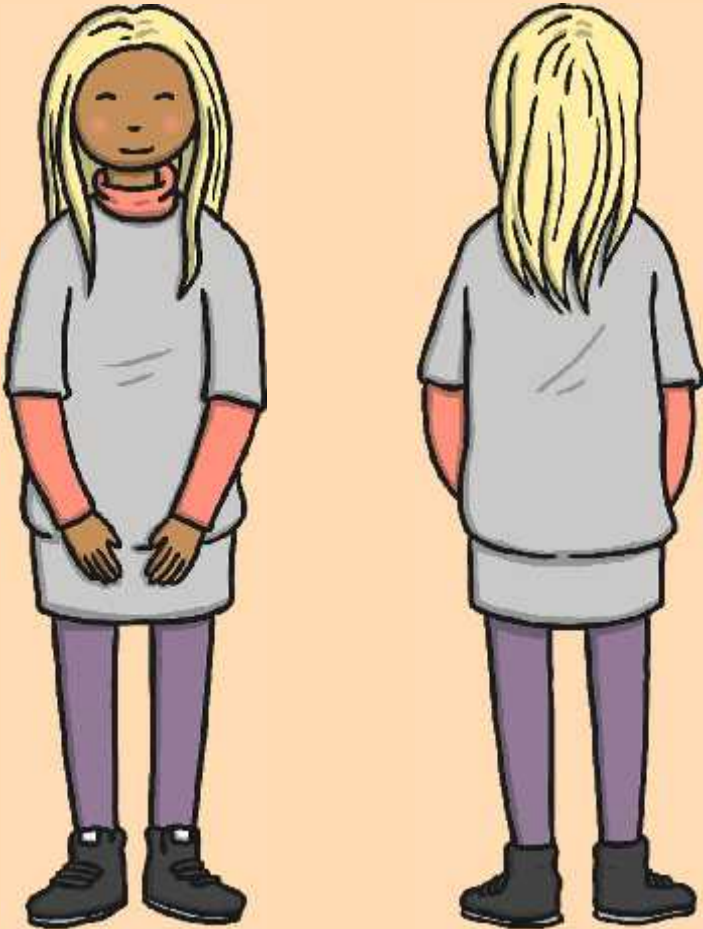
Can you follow your teacher's instructions?

What shapes are you walking?



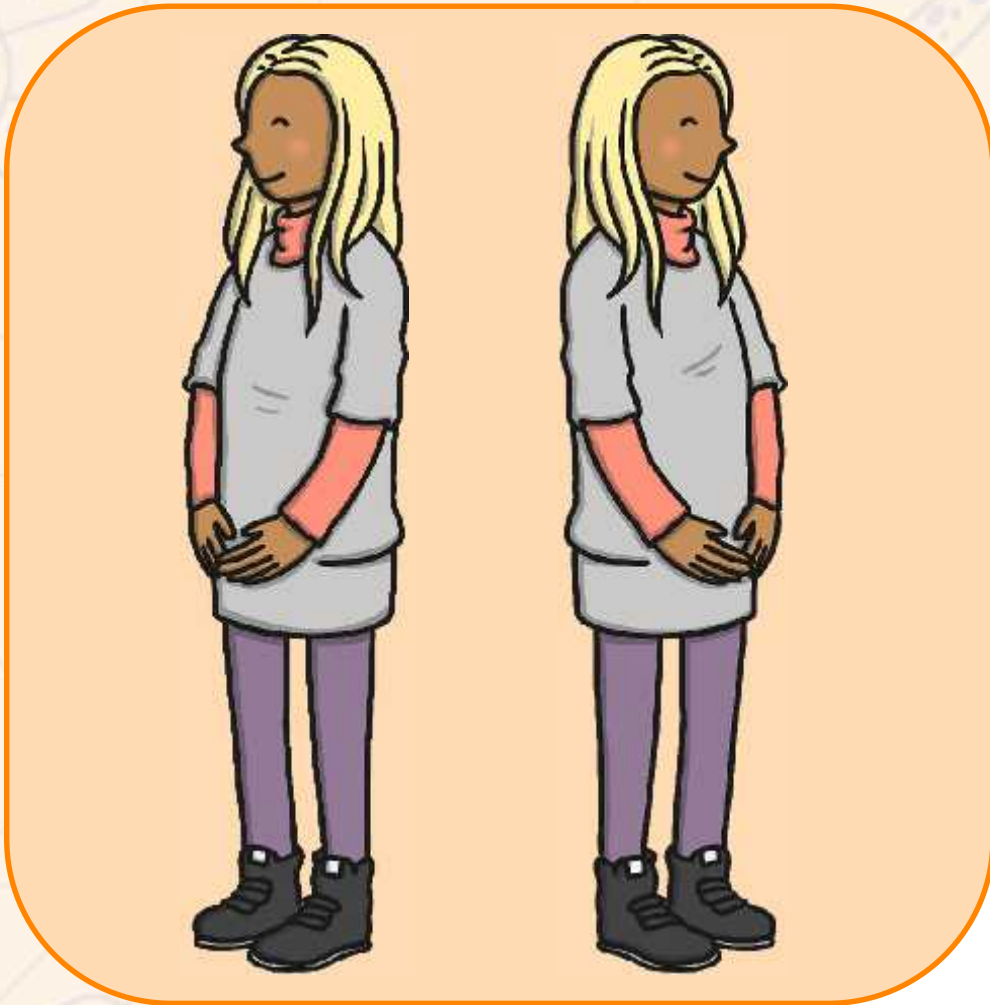


# Half Turn



Half turn

## Quarter Turn



Quarter turn

# 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.

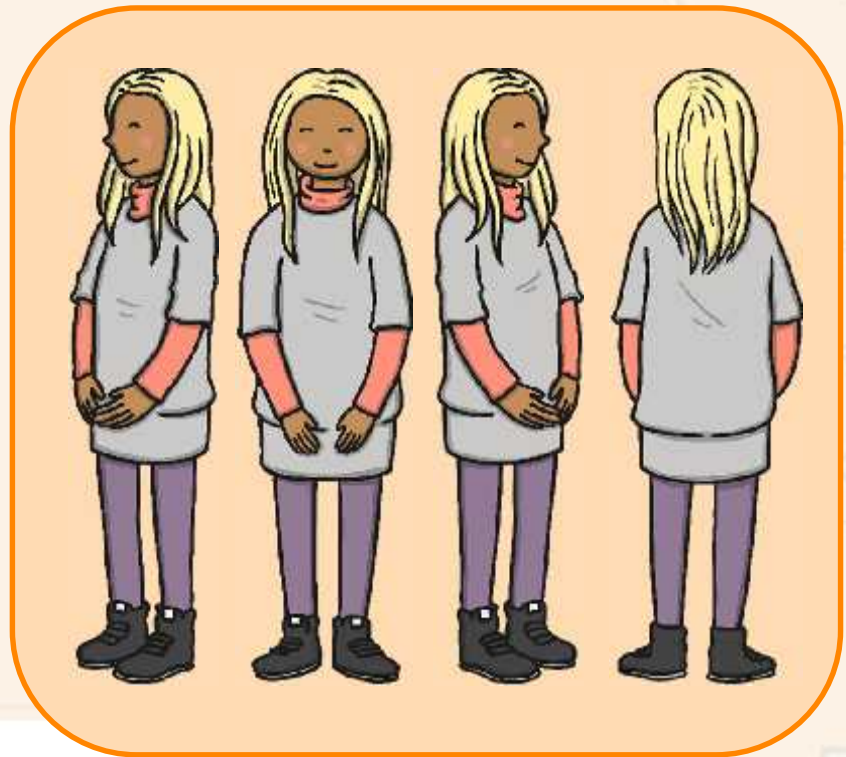


# Our Algorithms

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)



## Right 90 and Left 90



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  $90^\circ$  is a right angle.



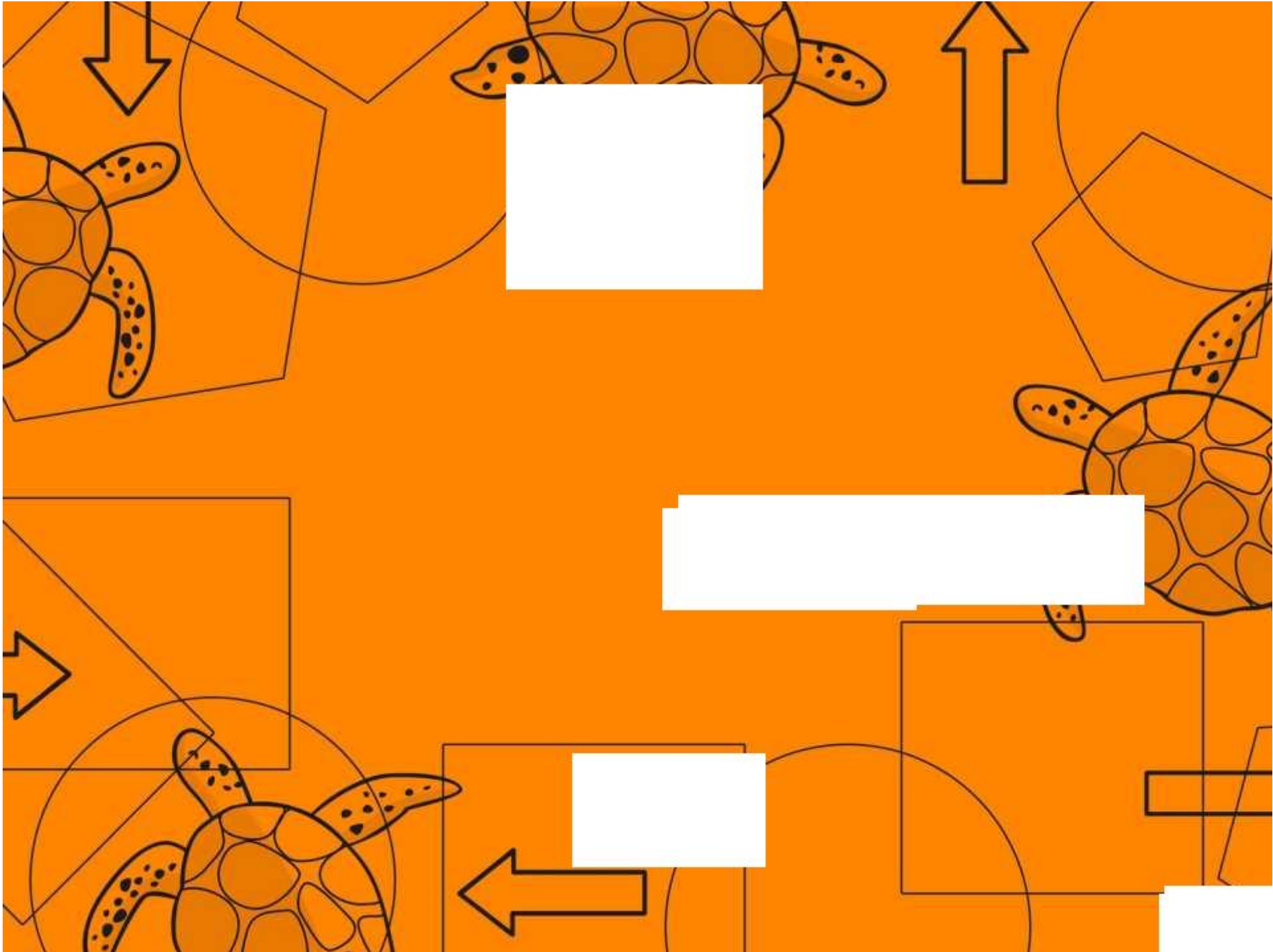
# Aim



- 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

<b>I can give and follow an algorithm to make half and quarter turns.</b>		
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.		

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Preparing for Turtle Logo | Half and Quarter Turns

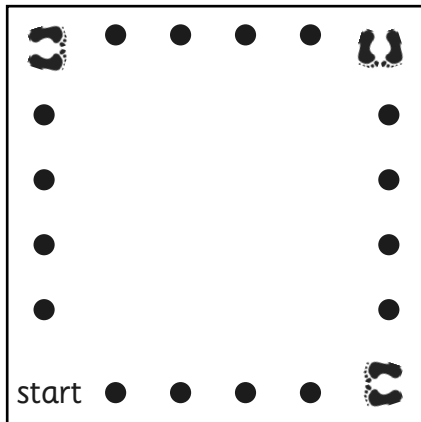
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I can give clear accurate instructions.		
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I can write an algorithm.		
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I can move forward a number of steps.		
I can make half and quarter turns.		



# Half and Quarter Turns

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

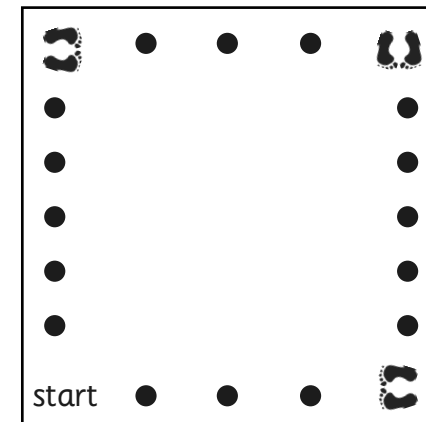
- Forward 5 steps
- Quarter turn to the right
- Foward 5 steps
- Quarter turn to the right
- Forward 5 steps
- Quarter turn to the right
- Foward 5 steps
- Quarter turn to the right



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

2: Walk this shape.

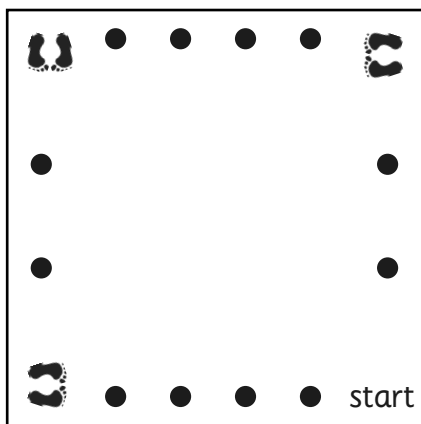
- Forward 6 steps
- Quarter turn to the right
- Foward 4 steps
- Quarter turn to the right
- Forward 6 steps
- Quarter turn to the right
- Foward 4 steps
- Quarter turn to the right



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

3: Walk this shape.

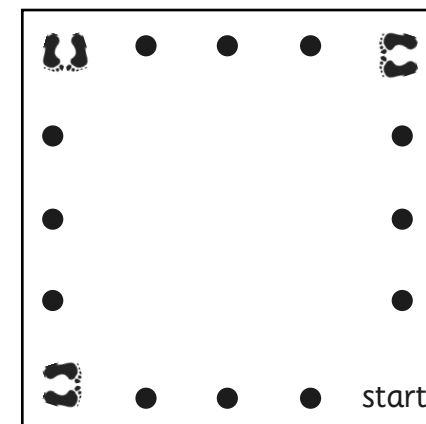
- Forward 3 steps
- Quarter turn to the left
- Foward 5 steps
- Quarter turn to the left
- Forward 3 steps
- Quarter turn to the left
- Foward 5 steps
- Quarter turn to the left



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



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  
Forward 5 steps  
Quarter turn to the right  
Forward 5 steps  
Quarter turn to the right  
Forward 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  
Forward 4 steps  
Quarter turn to the right  
Forward 6 steps  
Quarter turn to the right  
Forward 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  
Forward 5 steps  
Quarter turn to the right  
Forward 2 steps  
Quarter turn to the right  
Forward 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  
Forward 5 steps  
Quarter turn to the left  
Forward 3 steps  
Quarter turn to the left  
Forward 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  
Forward 4 steps  
Quarter turn to the left  
Forward 4 steps  
Quarter turn to the left  
Forward 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  
Forward 4 steps  
Quarter turn to the left  
Forward 3 steps  
Quarter turn to the left  
Forward 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  
Forward 5 steps  
Quarter turn to the right  
Forward 5 steps  
Quarter turn to the right  
Forward 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  
Forward 4 steps  
Quarter turn to the right  
Forward 6 steps  
Quarter turn to the right  
Forward 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  
Forward 5 steps  
Quarter turn to the right  
Forward 2 steps  
Quarter turn to the right  
Forward 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  
Forward 5 steps  
Quarter turn to the left  
Forward 3 steps  
Quarter turn to the left  
Forward 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  
Forward 4 steps  
Quarter turn to the left  
Forward 4 steps  
Quarter turn to the left  
Forward 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  
Forward 5 steps  
Quarter turn to the right  
Forward 5 steps  
Quarter turn to the right  
Forward 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  
Forward 4 steps  
Quarter turn to the right  
Forward 6 steps  
Quarter turn to the right  
Forward 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  
Forward 5 steps  
Quarter turn to the right  
Forward 2 steps  
Quarter turn to the right  
Forward 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  
Forward 5 steps  
Quarter turn to the left  
Forward 3 steps  
Quarter turn to the left  
Forward 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  
Forward 4 steps  
Quarter turn to the left  
Forward 4 steps  
Quarter turn to the left  
Forward 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  
Forward 4 steps  
Quarter turn to the left  
Forward 3 steps  
Quarter turn to the left  
Forward 4 steps  
Quarter turn to the left

# Preparing for Turtle Logo



I can move forward  
a number of steps.

# Preparing for Turtle Logo



I can make half  
turns.

# Preparing for Turtle Logo



I can make quarter  
turns.



# Preparing for Turtle Logo



I can move forward  
a number of steps.

# Preparing for Turtle Logo



I can make half  
turns.

# Preparing for Turtle Logo



I can make quarter  
turns.

# Preparing for Turtle Logo



**I can move forward a  
number of steps.**

# Preparing for Turtle Logo



**I can make half turns.**



# Preparing for Turtle Logo



**I can make quarter turns.**