

# Discussion Problems

## Step 4: Translation

### National Curriculum Objectives:

Mathematics Year 5: (5P2) [Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed](#)

### About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

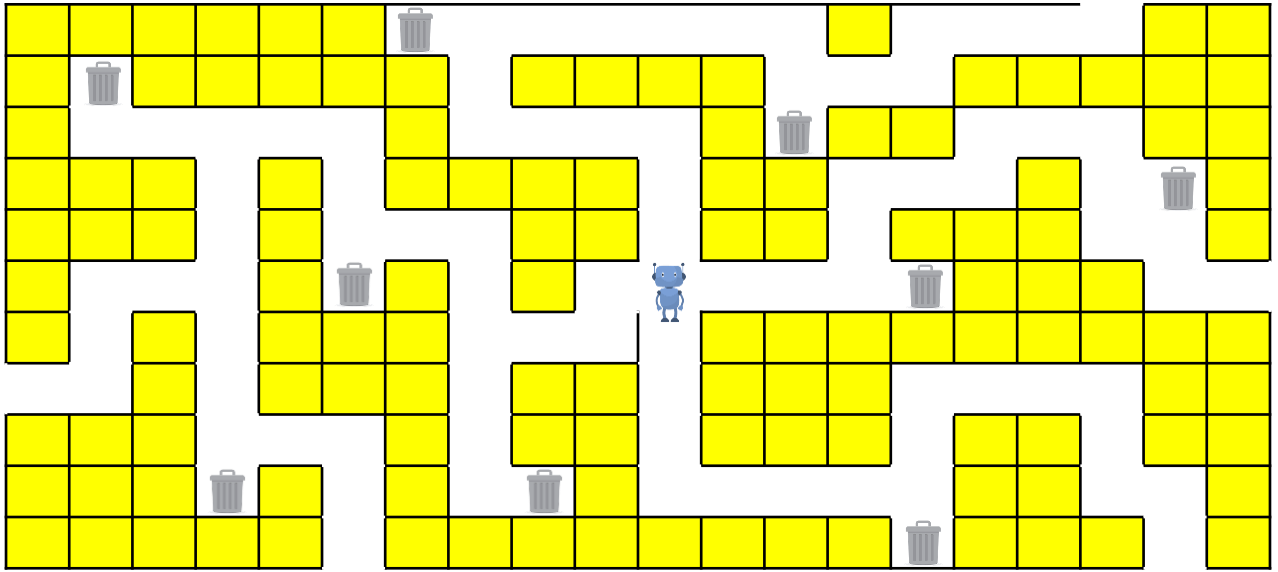
We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 5 Position and Direction](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

## Translation

1. Kyle wants to program his Eco 3000 robot so that it can exit the grid but it is stuck in the centre. Explore the shortest route possible. What would be the longest route?



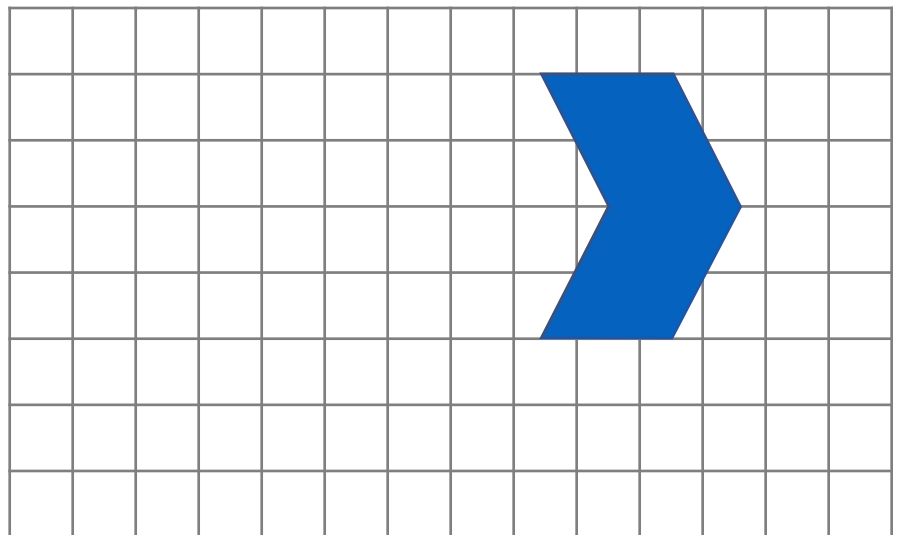
Eco 3000 loves to eat rubbish. What is the greatest amount of rubbish he can collect within 30 moves before he finds the exit?

DP

2. Davina is investigating translations and has translated her shape into the position shown below.

She has moved it 8 squares in total.

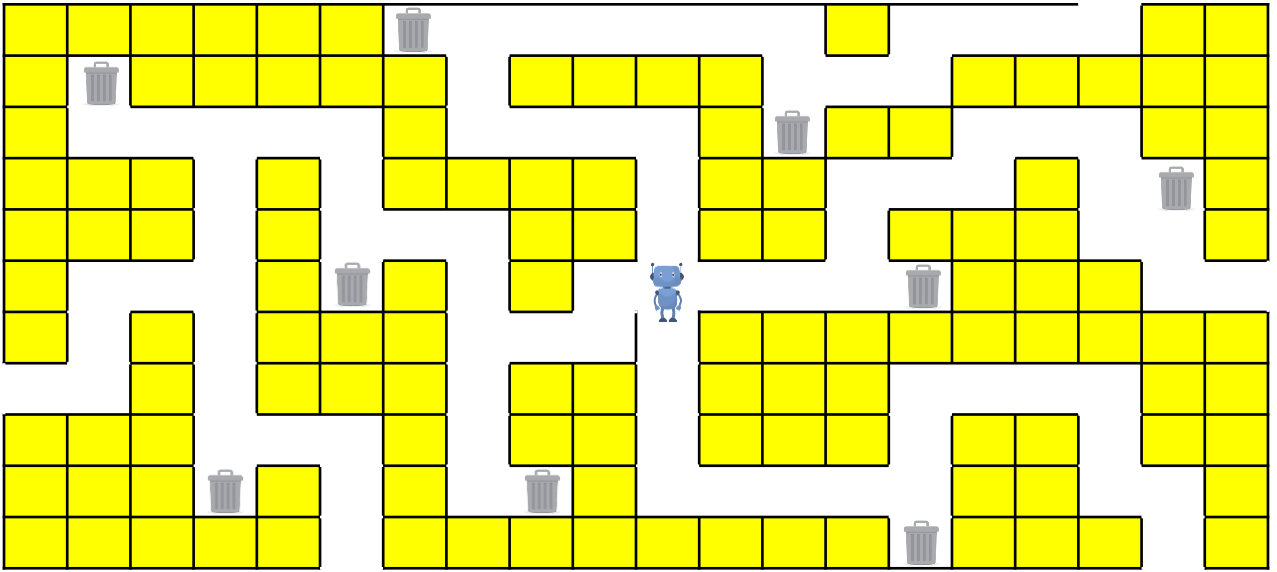
Explore the different positions that the original shape could have been placed, by drawing it on the grid provided.



DP

## Translation

1. Kyle wants to program his Eco 3000 robot so that it can exit the grid but it is stuck in the centre. Explore the shortest route possible. What would be the longest route?



Eco 3000 loves to eat rubbish. What is the greatest amount of rubbish he can collect within 30 moves before he finds the exit?

**Shortest route:** 3 right, 2 up, 2 right, 1 up, 2 right, 2 down, 1 right, 1 down 2 right.

**Longest route:** 1 left, 1 down, 2 left, 2 up, 2 left, 2 up, 2 left, 6 down, 2 right, 3 down.

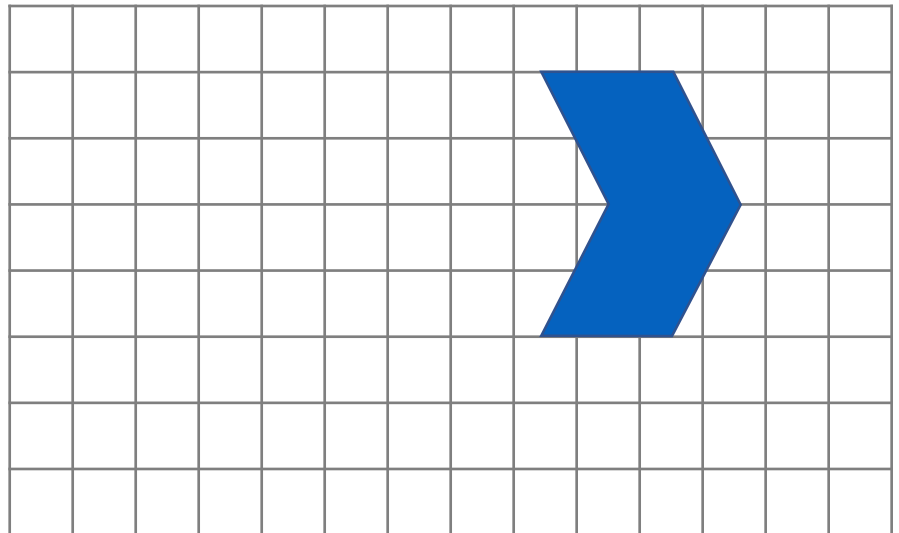
**Eco 3000 can collect a maximum of 3 items of rubbish before he runs out of moves.**

DP

2. Davina is investigating translations and has translated her shape into the position shown below.

She has moved it 8 squares in total.

Explore the different positions that the original shape could have been placed, by drawing it on the grid provided.



**Various possible answers including: 5 right, 3 up (see grid above).**

DP