

Discussion Problems

Step 4: Describe Movement

National Curriculum Objectives:

Mathematics Year 4: (4P2) [Describe movements between positions as translations of a given unit to the left/right and up/down](#)

Mathematics Year 4: (4P3a) [Describe positions on a 2-D grid as coordinates in the first quadrant](#)

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.

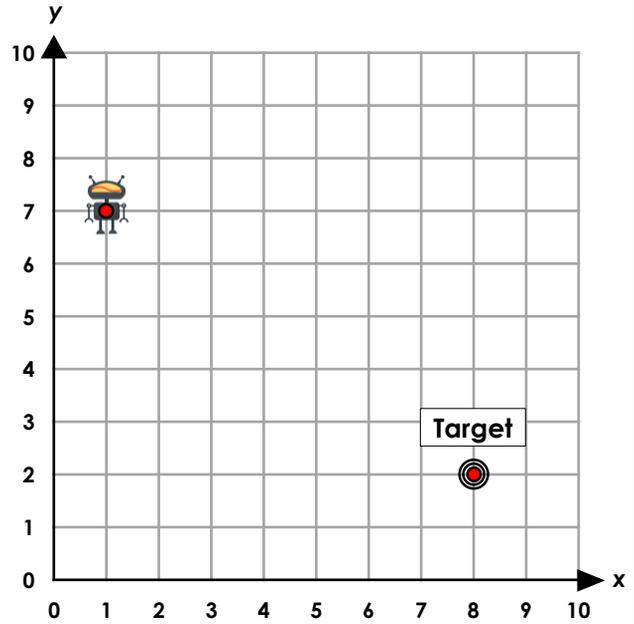
More [Year 4 Position and Direction](#) resources.

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Describe Movement

1. Dr. Walle is trying to program a robot to reach the target in the grid. He has created some command cards to input into the robot. His robot starts on the coordinate (1, 7).

A 2 right, 2 down	B 3 right, 3 down	C 2 right, 3 down	D 3 left, 4 up
E 2 left, 3 up	F 3 right, 2 down	G 5 right, 3 down	H 8 right, 6 down
I 4 right, 3 down	J 4 left, 2 down	K 2 left, 1 up	



The robot can only remember up to 5 cards and they must be placed in order.

Investigate which combination of cards are needed for the robot to reach the target. How many different combinations can you create?

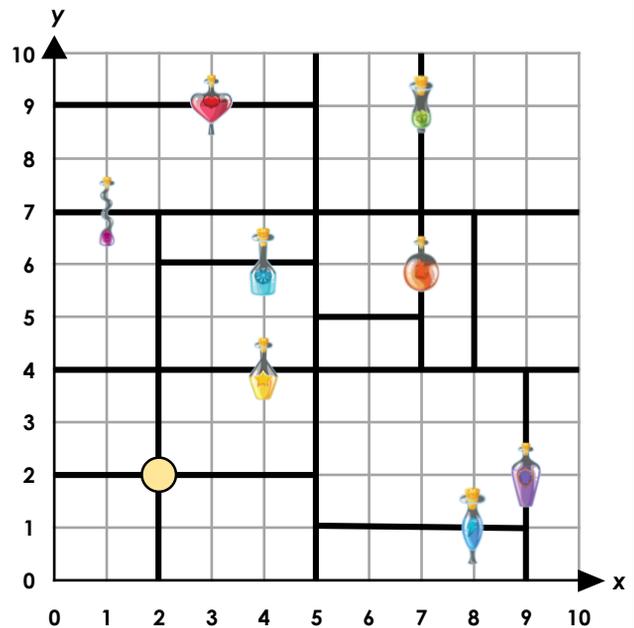
DP

2. Oliver is playing a board game and is trying to collect as many potions as possible. He starts on the coordinate (2, 2). The rules of his game are shown below.

Rules:

1. You can only move horizontally and vertically on the black lines.
2. You cannot retrace your movement along any lines previously moved on.
3. Each movement needs to include a horizontal movement and a vertical movement in that order. For example: 2 right, 3 up.

Explore how many potions Oliver can collect and the different routes he could take.



What were the movements he needed to make?

DP

