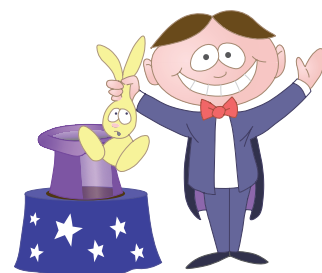


# Magic boy: cat and dog



## Learning objectives

- **Using and applying:** Refine ways of recording using images and symbols
- **Counting and understanding number:** Relate numbers to their position on a number line

## Problem-solving strategies

Trial and improvement  
Act it out

## Setting the scene

This activity is aimed at groups or paired workers. Magic boy will perform a hat trick if the children are able to solve a puzzle from his bag at three levels.

Fido the dog and Tiddles the cat are sitting on some steps. The problem is that you are not told which steps they are sitting on, or how many there are. Ask the children to use the clues to work out which step each animal is sitting on and, ultimately, how many steps there are altogether. The activity allows the children to move the cat and dog around the screen, and to add or remove steps.

## Solving the problem

The children can solve this problem using a trial-and-improvement strategy, adding steps and moving the cat and dog up and down until they are happy with the answer. You might also encourage them to act out the scene in class, with one group member taking the part of the dog and the other playing the cat.

It is important that the children read each section carefully and understand that they are trying to find two pieces of information:

1. Working out where the animals sit.
2. Calculating how many steps there are.

Once they have worked out the position of the animals, it should be relatively simple to work out how many steps there are.

## Key questions

**Representing:** How will you record the number of steps in the problem? How will you represent the cat and dog?

**Enquiring:** What key pieces of information are you being asked? Do you need to make all the steps to find the answer?

**Reasoning:** What clues are you given? How do you know the position of Tiddles or Fido?

**Communicating:** Have you recorded the problem accurately?

## Differentiation

**Less confident:** There are three levels in this activity with A being the least difficult. Ensure the children start with level A before moving on to levels B and C. Make a list of each stage of the activity on the whiteboard to ensure that each child is clear about the stages required to solve the problem.

**More confident:** Before starting the activity, challenge the children to estimate the total number of steps just from reading the question. Ask them to use their strategies to see if their estimates were good or needed refining. The more times they play the activity, the better their estimates will become.

## Follow up

The follow-up activity on page 31 shows a similar problem. Let the children cut out the cat and dog characters and use them on their own drawings of a set of steps to help them solve the problem.

## Problems bank

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1. Drag out Fido, Tiddles and any steps you need to act out the problem.

2. Move the animals and the steps around as required.

3. Type answer in blank box.