Robot Monsters

You are going to make three Robot Monsters. They are all 5 cm wide.

Here are their heads (on blue backgrounds), bodies (on yellow backgrounds) and their legs (green backgrounds):
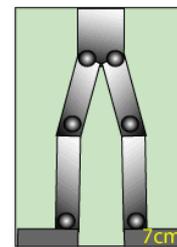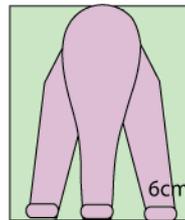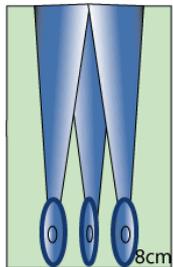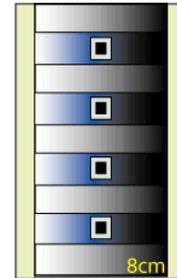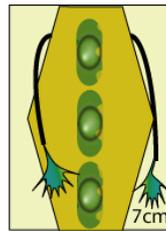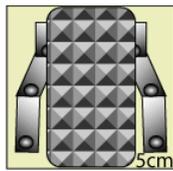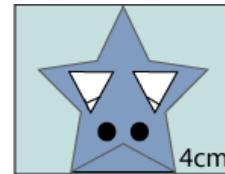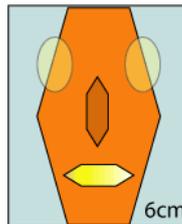
What is the tallest Robot Monster that you can make using one head, one body and one set of legs?

What is the shortest Robot Monster you can make?

How tall would the Robot Monster be that was made from the three bits left over after you had made the tallest and the shortest?

How many Robot Monsters which are all different heights can you make with the nine pieces (all with one head, one body and one set of legs)?

You Will Need:

- Print outs of the robot pieces are available from the site

Why do this problem?

This problem is one on measurement that really focuses on number work - addition, ordering numbers and combinations. Manipulating the pictures can also help pupils to explore the different combinations systematically.

Possible approach

You could start by showing the whole group the pictures in the problem on a computer. Young children will probably want to discuss these. Explain that each Robot Monster needs a head, a body and a pair of legs. You could ask how tall a picture of a robot would be using a certain combination of head, body and legs.

Then you could set the task in the problem. It is helpful if the children can work in pairs so that they are able to talk through their ideas with a partner.

At the end of the lesson the group could discuss the tallest and shortest robots, and all the different combinations they have found. If you have made pieces printed onto card, these could be fixed onto the board so that this discussion can be illustrated.

Key questions

If a Robot Monster is going to be as tall/short as possible, which head will you choose?
If a Robot Monster is going to be as tall/short as possible, which body and set of legs will you choose?
Can you think of a good way to find all the different heights you can make?
Why not start with one head and look at all the different ways you could add body and legs to it?
How are you going to record what you have found out?

Possible extension

Learners could make their own robot monsters in different sizes or try "Find the Difference" or "The Tall Tower".

Possible support

Suggest using the pieces from the sheet online and trying it out practically.