

Summer Week 11 Lesson 1 – 06.07.20

For the final two weeks of the summer term we will be setting you problem solving activities that require you to use a range of your maths skills.

Because the activities may be quite varied, there will be no models on these sheets. However, there will be further explanations on the daily videos. As in previous weeks, the activities will get progressively more challenging.

At the end of each of these activities is a link to where you can read example answers submitted by other children.

Today the focus is ADDITION.

DIGIT ADDITION

Part 1:

Here's a maths trick to try:

1. Think of one of the numbers from 1 to 9.
2. Add 9 to your number.
3. Add the digits of your answer together. What is your new number?

What do you notice?

Try the trick again with a new starting number. What do you notice now?

Part 2:

Jonas tried the trick with a few different numbers. He said:

"I think you will always get back to your original number, because adding 9 is the same as adding 10 and subtracting 1."

Do you agree with Jonas? Can you help him explain what's happening?

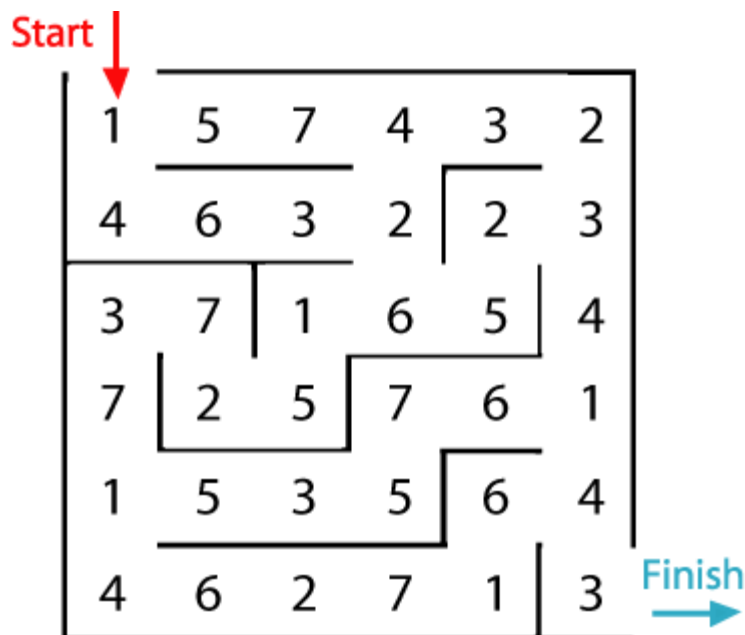
Can you explain the trick in a different way?

You can find example answers at <https://nrich.maths.org/14312/solution>

MAZE 100

In this maze there are numbers in each of the cells. You go through adding all the numbers that you pass. You may not go through any cell more than once.

Can you find a way through in which the numbers add to exactly 100?

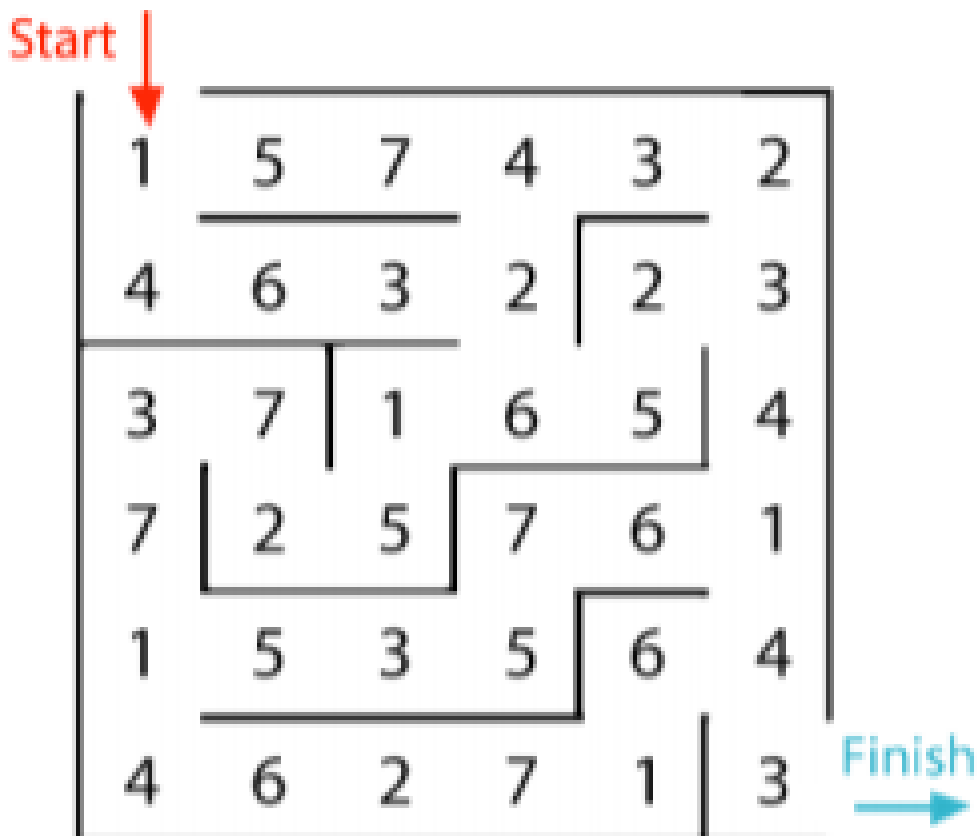
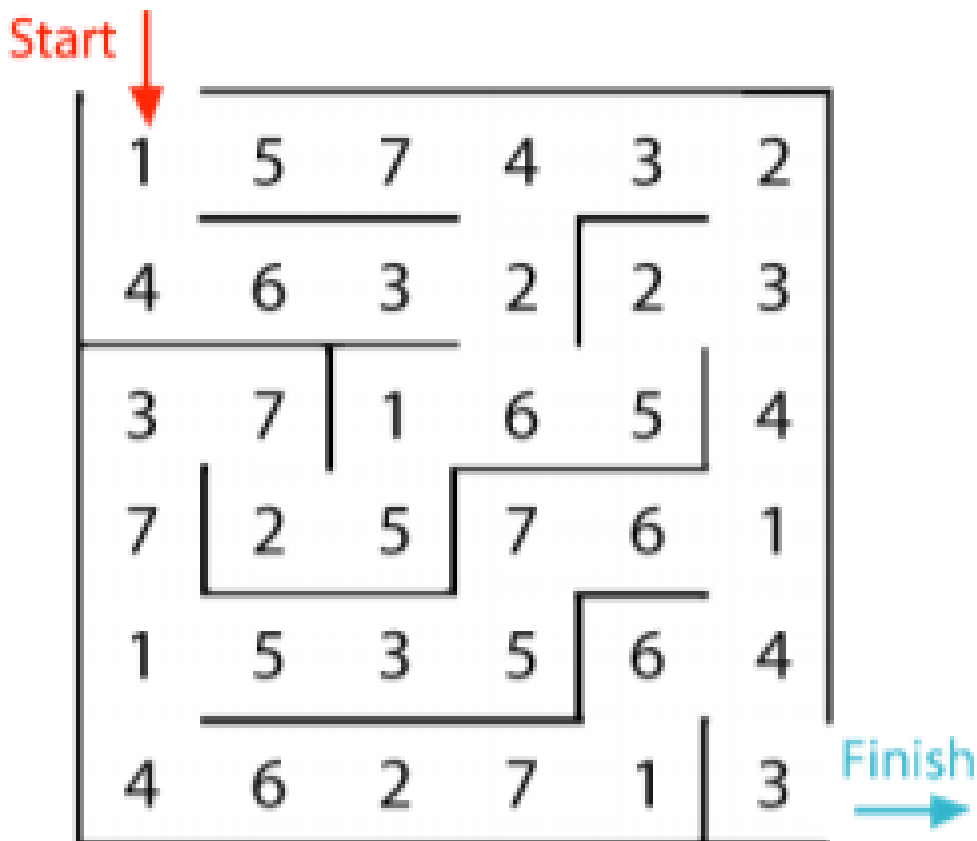


What is the lowest number you can make going through the maze?

What is the highest number you can make going through the maze?
(Remember you may not go through any cell more than once.)

You can find example answers at <https://nrich.maths.org/91/solution>

There are two extra mazes on the following sheet in case you want to print them.



DICE IN A CORNER



Three dice are sitting in the corner with the simple rule that where two faces touch they must be the same numbers.

So, in the first picture above there are 3s at the bottom of the red dice and on the top of the middle green and there are 4s on the bottom of the green dice and the top of the white dice. The numbers on the seven faces that can be seen are then added and make 21.

In the second picture above there are 4s at the left of the red dice and on the right of the green dice and there are 3s on the left of the green dice and the right of the white dice. The numbers on the seven faces that can be seen are then added and make 23.

Use your own dice (you could use two or three or more...)

What total have you made?

Can you make a different one?

How many different ones can you make?

Now for a challenge (on next page):

Arrange dice (using at least 2 and up to as many as you like) in a line in the corner, so that the faces you can see add up to 18 **in as many ways as possible**.

Each line of dice must be along or up a wall (or two walls). A line going up is counted the same as a line going along. Remember the dice must touch face to face and have the same numbers touching. The dice must be all in one line, so this arrangement below is not allowed;



You can find example answers at <https://nrich.maths.org/8586/solution>