We can do all sorts of things with numbers - add, subtract, multiply, divide, ...

Most of us start with counting when we are very little. We usually count things, objects, people, etc. In this activity we are going to count the number of digits that are the same.

There are a couple of rules about the number we start with:
Rule 1 - The starting number has to have just three different digits chosen from 1,2,3,4.
Rule 2 - The starting number must have four digits - thousands, hundreds, tens and ones.
For example, we could choose 2124 or 1124.

When we've got our starting number we'll do some counting. Here is an example.

Starting Number:

4	1	3	4

We will count in order the number of 1s, then the number of 2s, then 3s and lastly 4s, and write it down as shown here.

4	1	3	4				
1	1	1	3	2	4		
3	1	1	2	1	3	1	4
4	1	1	2	2	3	1	4
3	1	2	2	1	3	2	4

The first count gave one 1, one 3 and two 4s.
We have continued this underneath, so the third line shows that the line above had three 1s, one 2, one 3 and one 4.
The fourth line counts the digits in the line above it, giving four 1s, one 2, two 3s and one 4.

And so it goes on until... until when?

Your challenge is to start with other four-digit numbers which satisfy the two rules and count the digits the way we did in the picture above.
What do you notice?

What happens if you have five digits in the starting number instead?