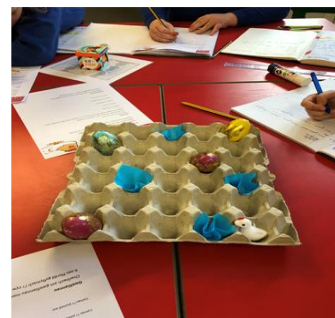# Chicken and Egg Challenge- Algorithms

Algorithms

Algorithms are an important part of computing. But, what are algorithms? Simply, they are sets of instructions used to complete a task. For a computer to understand, the instructions must be very clear and precise, because computers can't make assumptions!

The Challenge – Find the eggs!

The aim of this challenge is to create an algorithm (step by step instructions) that moves the chicken around the box, collecting all the eggs in the smallest number of steps possible and avoiding the puddles!

Step 1 – Using 1 large egg carton (or join 4 small boxes), scatter the eggs and puddles (blue paper/card) around the egg box.

Step 2 – Place the chicken in one of the corners – this will be the starting position.

Step 3 – Write out the instructions (algorithm) to collect all the eggs.

Step 4 – Follow your algorithm to collect the eggs. Did it work?

Step 5 – If it didn't work, change your algorithm (debug)and ask someone to try it out.

What You'll Need

An egg box (or multiples joined together)
Eggs/placeholders (at least 2, number depending on size of carton)
Chicken toy/ placeholder
Blue card/paper
Scissors
Pen/pencil
This worksheet or paper

Extension

- ✓ To reduce the number of steps in your algorithm. We call this 'debugging' your algorithm. This means finding any mistakes and working through it a few times and improving it.
- ✓ Change the theme of your game – try out a jungle theme with different animals; a pirate theme looking for treasure. What others can you think of?

Why are we doing this?

Computers need algorithms to work. This helps you practice using algorithms in a way that lets you see the instructions working! Often computer programs don't work, and the errors need to be found. This is called **debugging**. Debugging is used to fix mistakes and improve programs! Debugging is an important part of programming, as it ensures that everything works properly.
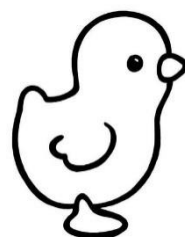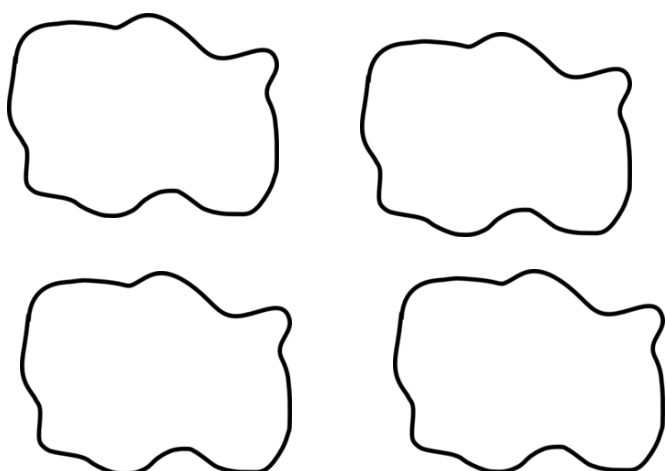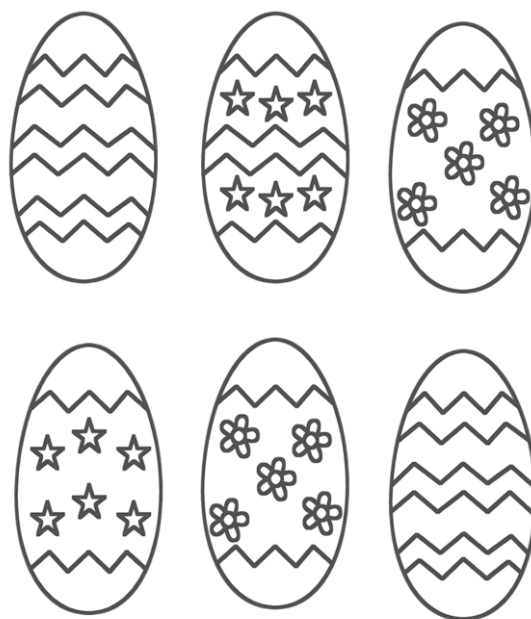
Grid 6 x 6

Grid 8 x 8

Grid 8 x 8

Grid 10 x 10

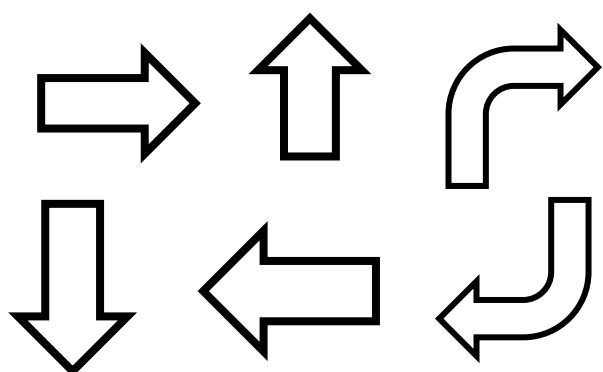|									

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Template Cut Outs

You can colour them in yourself – get creative!

Use the arrows for movement/directions. Make more arrows if you need them!

Use the grids provided as boards – they are different difficulties – the more squares the more difficult!

The Algorithm!

Use arrows to show where the chicken is going! You can group directions together e.g. if the chicken needs to move 4 steps forwards, you could put⇧x4! Use the squares to plot the directions. If you need more space, draw more squares.