ICT Innovators

Activity 1 and 2: Algorithmic Thinking

An algorithm is a set of instructions. We use algorithms to solve problems and complete calculations in computing.

The ability to give clear, and well ordered instructions is important when learning to program a computer.

The good news is that you probably already know how to think algorithmically.

Activity 1

On the grid below, draw a sequence that includes the following:

1. A connected path of arrows with at least 5 arrows going only left or right or up or down

2. At least two shaded squares

Don't show anyone your grid. With a partner, you are to give them instructions to replicate what you have drawn on your page on their own page with a different coloured pen. When finished, swap roles and compare your grids.

Activity 2

On the grid, draw a sequence that includes the following:

1. A connected path of arrows with at least 5 arrows going only left or right or up or down

2. At least two different shapes

Don't show anyone your grid. With a partner, you are to give them instructions to replicate what you have drawn on your page on their own page with a different coloured pen. When finished, swap roles and compare your grids.

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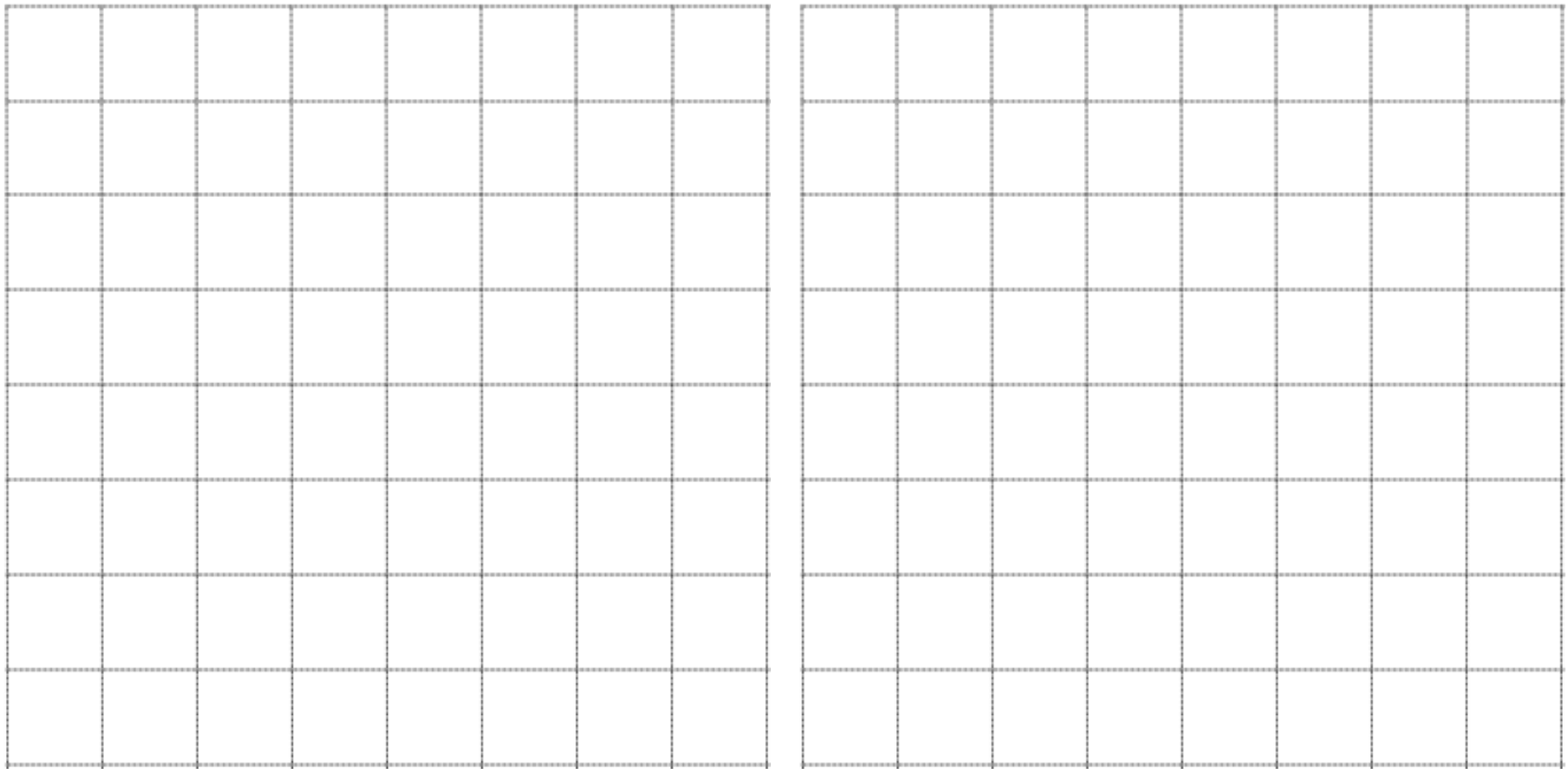
ICT Innovators
Teacher Instructions: Algorithmic Thinking

This activity was designed to encourage students to think more precisely when giving instructions. The required elements on the grid can easily be altered to include more options.

Example answers for activity 1 and 2 are also given.

An additional, non-drawing option is given below. The following questions are useful when concluding the activity:

• Were the drawings identical?

• Why weren't they identical?

• What would you need to do to make them identical?

• What would happen if you gave a robot/autonomous car/google maps/a cook unclear instructions?

Activity 3 – Building Programming

• Provide each student with a range of building bricks, such as Lego

• They should be different sizes and shapes

• Students should each retrieve at least 5 different pieces of Lego to use

• Instruct students to build whatever they would like out of their material

• Students should then write a set of instructions for replicating their model

Alternative 1

• Disassemble and share instructions and brick with a partner

• Students disassemble their build and switch bricks and instructions with the person next to them

• They both build as per the instructions and assess their builds at the end

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