# Programming languages and Algorithms

*Examples for classroom activity*

**Note**: Programming languages are for humans (to tell computers what to do) and algorithms are for computers to tell them how to solve a specific problem.

## Example 1:

This example may be more suitable to show why we cannot use natural languages for computers and need programming languages.

Challenge: Create instructions anyone could use to draw on the whiteboard the arrangement of blocks similar to the one shown at below.



Given: Marker and whiteboard OR pencil and paper

Question: Do you need anything else?

Design the Algorithm: Your instructions may only use words, so you cannot use pictures to help you.

## Example 2:

Challenge: Create instructions a computer could use to find the smallest number card.

Description: 4 cards are laid out face down, labeled as card-1, card-2, etc. Each card has a random integer on its face. The computer can pick 2 cards at a time and compare their values. (It knows the operations >, <, and =.) Finally, it should lay face up the card that is the smallest.

It can use the following commands:

Face up <card number>

Face down <card number>

Write the algorithm. See if you can extend it to any number of cards.