



## Human Crane

**Aims:** To create and test crane algorithms that move blocks from one bowl to another.

### KS1 National Curriculum Coverage

That programs execute by following precise and unambiguous instructions

create and debug simple programs (algorithms)

use logical reasoning to predict the behaviour of simple programs (algorithms)

### Resources

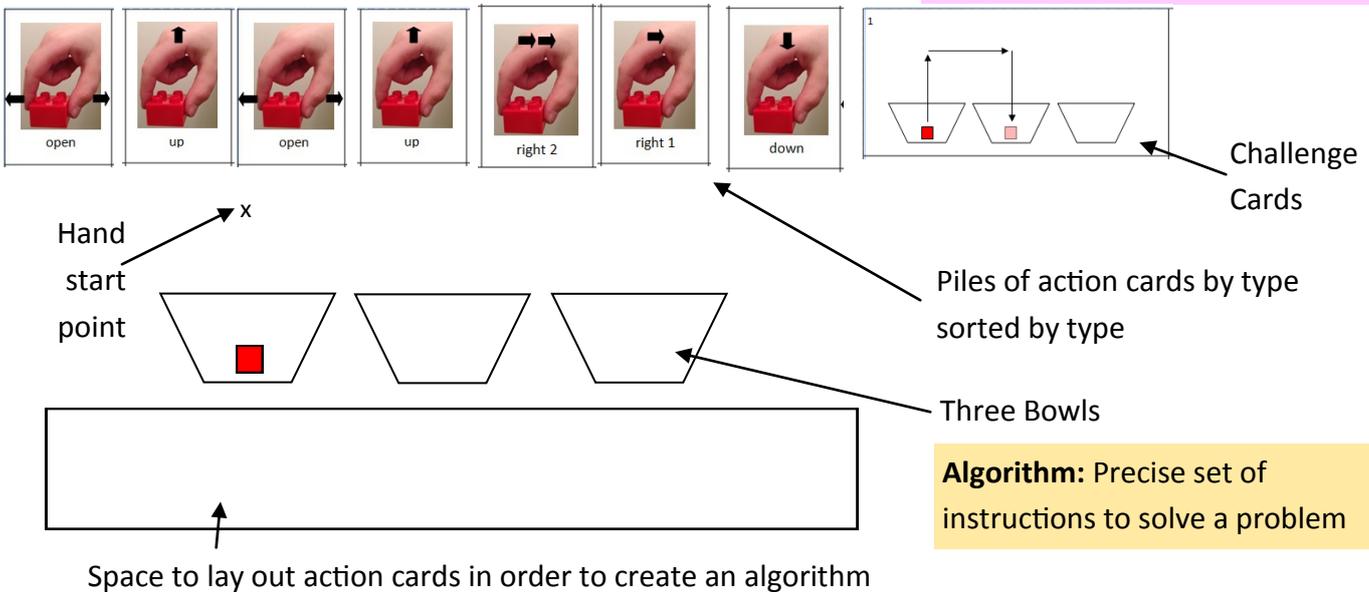
Action Cards (Print 3 lots of sheet and cut them out)

Three coloured blocks of any type

Three bowls

Challenge cards (Print and cut out)

iPod touch or camera to record their work



**Algorithm:** Precise set of instructions to solve a problem

### Instructions

Pupils work in pairs or with an adult helper. Teacher explains that the automatic crane has broken down and that the children need to program it to move building blocks as shown on the challenge cards. They program it by arranging the action cards in order. The crane hand always starts above the left hand bowl. Challenge cards are ranked in order of complexity 1-12.

Pupils sets up the bowls and block(s) as shown on the challenge card.

One pupil creates algorithm of instructions to solve the challenge by arranging the cards in the order that will complete the challenge card task.

Other pupil then checks to see if their instructions are correct by being the robot arm.

Pupils then take a picture of their algorithm to record their work or ask teacher to view it before moving on to the next challenge and swapping roles.

Pupils are allowed to use the block(s) to help them create their algorithms.



# Primary omputer



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## Human Crane P2

### Extension

Pupils can be challenged to create the algorithm using the least amount of cards.

You could also introduce the idea of loops by using string and pegs. The string would go around the cards that you wished to repeat and the number of pegs would indicate how many times to loop. Pupils could then go back over the challenges to see when they could use loops.

Pupils could also make challenges for each other involving more blocks and or more bowls.



### Hints

In the first few minutes pupils will often not realise that they need to use cards to open and close their fingers or that they need to use a card to go up out of the bowl. Once these are corrected they can work independently.