







## Activity Card 7

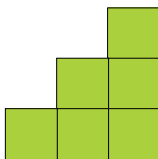
### Build a Staircase (Card 2)

- Now that you can draw a single ascending stair using the **repeat** command, could you program the turtle to draw the descending flight to complete your stair? Could you use the same **repeat** command? Would you need to change the direction that the turtle is facing when it is at the top of the stair before it begins to descend?
- Can you draw what you think it will look like before you start?



#### More stairs

- A. Can you use some plastic building cubes to build a three-layer stair like this?

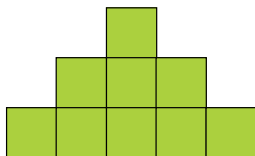


Draw a table and record the **total** number of cubes you needed to construct the stair as you added each layer.

How would the **totals** change as you add another two layers?

- Can you see a pattern in the sequence of totals? Could you calculate how many cubes you will need for a seven-layer stair? What is the tallest stair you could build with 37 cubes? Try to build one to see what happens.

- B. Can you use your cubes to build a double, ascending and descending stair?



Draw another table and record the **total** number of cubes you needed to construct this stair as you added each layer.

How would the **totals** change as you add another two layers?

Use the cubes from any of the double stairs you have built and try to arrange them into another pattern. What do you discover?

- Can you discover the pattern in the **totals** as they change when each new layer is added? Can you calculate how many cubes are needed to create a six-level stair? What is the tallest stair you could build with 60 cubes? Can you build them to test your calculations?