

Year 4 – Programming A: Repetition in Shapes

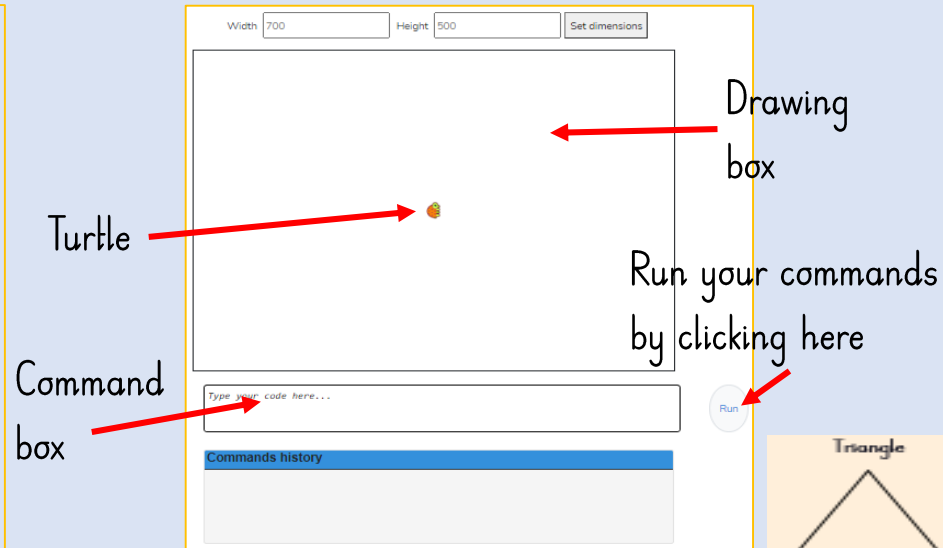
LOGO written code commands:

- FD – forwards.
- BK – backwards
- LT – left
- RT – right

All of the above are followed by a space and then a number of steps. E.g. FD 50

- CS – clear screen
- PU – pen up
- PD – pen down
- Home – returns the turtle to the centre of the screen, pointing forwards.

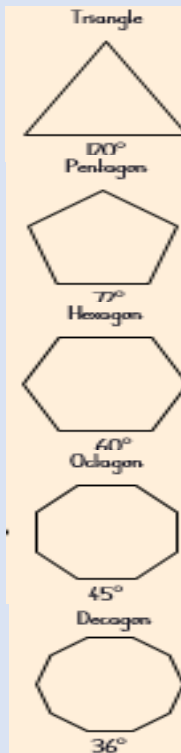
Decomposing our task into smaller parts makes it easier to write instructions for. Breaking down into smaller parts means we can check that we have included all of the steps for our program.



Creating procedures: A **procedure** is a named code snippet that can be run multiple times. Creating a procedure will mean that we can save time later on as we will run the whole code snippet by typing the one word that we used as a procedure name.

```
TO square
repeat 4 [fd 100 rt 90]
END
```

To run a procedure type its name e.g. **square**



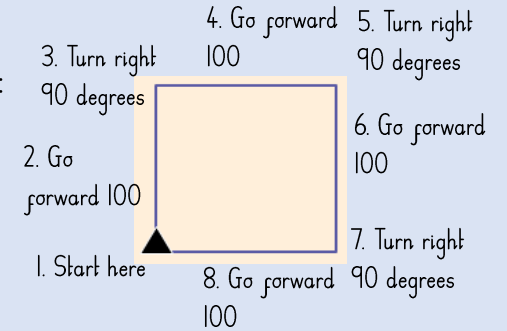
An **algorithm** is an ordered set of precise instructions.

To make sure our **algorithm** is going to achieve the right outcome, it is a good idea to plan out each step.

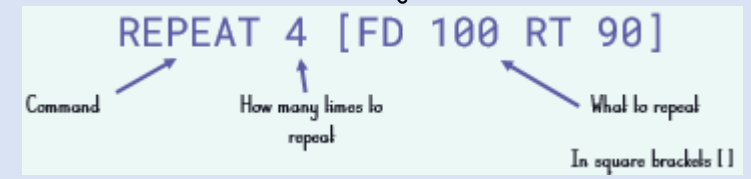
1. Mark your start position.
2. Include the directions, their lengths and any turns and degrees needed.
3. Number the instructions.

Our LOGO algorithm is:

```
FD 100 RT 90
FD 100 RT 90
FD 100 RT 90
FD 100 RT 90
```



Repeat means 'to do or say something again.' We can use the repeat command in a count controlled loop so we don't have to write out the same command over again.



Scan the QR code to go to turtleacademy.com/playground