

## USE MODIFY CREATE Page 1

Work with a partner. Load Scratch.

exploringnestedloopswithprocedures



Work with a partner  
of same ability

# Exploring Nested Loops Using Procedures

### Use (run and read without changing)

Run the code using the green flag. What does it draw?

Look at the code inside the arrow sprite. It has two procedures you can tell they are procedures because they have been defined.

The main program uses the procedures as many times as it needs to.

### Work with a partner to answer these questions.

- 1, What colour are the procedure blocks?
- 2, How many times in the main program is the **rectangle** procedure used?
- 3, Which loop is nested inside another loop.
- 4, How many times in the main program is the **square** procedure used?
- 5, Initialisation means thinking about how the program can be reused by resetting itself back to where it started and removing the effects of previous use. Record any instructions that might be initialisation.

Mark the use question using the answer sheet

### Modify (to make small changes)

Work with a partner. Open Scratch and load

exploringnestedloopswithprocedures

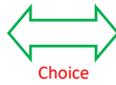


Work with a partner  
of same ability

- 1, Can you name two ways to make the program run more slowly?
- 2, What does the move 80 and the move -80 do to the pattern?  
Change the numbers to find out.
- 3, What would you change to make the program draw four squares after each rectangle instead of three?
- 4, What would you change to make the program draw five rectangles perfectly spaced?  
HINT a circle has 360 degrees

Mark the modify questions using the answer sheet





**CREATE**

Work on your own

Work your way through the create options below

**Option 1**

Create another nested loop and another procedure called **smallsquare** to draw a pattern of squares at the end of each square.

**Option 2**

Change the main program so that it uses the same procedures and nested loops to create a different pattern.

**Option 3**

Come up with your own suggestion that uses nested loops and procedures. Talk to your partner about it first.

# Exploring Nested Loops Using Procedures

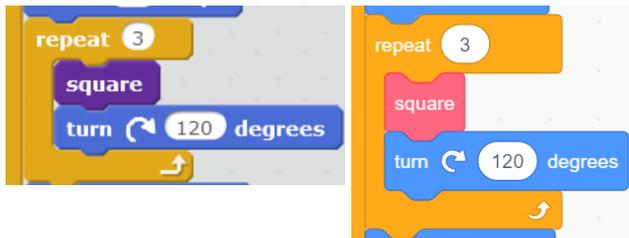


**Use answers**

1, Purple in Scratch 2 and Pink in Scratch 3 (1 mark)

2, 4 times as it is in a loop (1 mark)

3, This code (1 mark)



4, It is used 12 times. The outer counted loop multiplies by the inner counted loop ( $4 \times 3 = 12$ ) (1 mark)

5, point in direction, go to x and y, clear (1 mark for each total of 3 marks)

**Modify answers**

1, Increase the wait blocks in the procedures to longer than 0.2 seconds. Add more wait blocks into either the procedures or the main program. (1 mark for each total of 2 marks)

2, 80 moves the three square pattern further out from the central pattern and the  $-80$  move back in to draw another rectangle in the centre. (1 mark)

3, You need to change the nested loop so that instead of three loops it carried our four loops and you would need to change the turn between loops to 90 degrees as  $4 \times 90 = 360$  where as  $4 \times 120 = 480$  would be over 360 and lead to a less even pattern. (1 mark for each change total of 2 marks)

4, Change the outer loop to 5 and the first turn right to 72 degrees. (1 mark)

# Exploring Nested Loops Using Procedures