Don't load Scratch

Work with a partner of same ability

Code-it Gold Resource

Pattern code with procedures

Investigate (read code)

Read the code on the left. It has two procedures you can tell they are procedures because they have been defined.

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

Work with a partner to answer these questions.

1, How many times in the main program is the rectangle procedure used?

2, Put a circle around the loop that is nested inside another loop.

3, How many times in the main program is the square procedure used?

4, Initialisation means thinking about how the idea can be reused by resetting itself back to where it started and removing the effects of previous use. Circle any instructions that might be initialisation.

Predict

Think about what the code does in the main program starting at the top and working through to the bottom. Explain each step to your partner. Now draw what you think the program will look like when it runs.

Exploring Nested Loops Using Procedures

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Work with a partner. Open Scratch and load exploringnestedloopswithprocedures

Run the code

Were your predictions correct?

Mark your investigate questions on the previous page using the answer sheet.

Modify (to make small changes)

1, 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?

4, What would you change to make the program draw five rectangles perfectly spaced?

Mark your modify questions using the answer sheet.

Make

Work on your own

Work your way through the challenges below
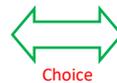
Choice

Work on your own

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

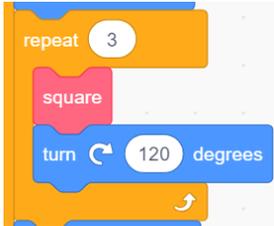Come up with your own suggestion that uses nested loops and procedures. Talk to your teacher about it

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Investigate answers

1, 4 times as it is in a loop

2, Circle around this code

3, It is used 12 times. The outer counted loop multiplies by the inner counted loop (4x3=12)

4, point in direction, go to x and y, clear

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 change, 2 marks in total)

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 would 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 4x90 =360 where as 4x120=480 would be over 360 and lead to an uneven pattern. (1 mark)

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

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