

Master 7a

Making Shapes

Using a Block-Coding Program

Which of the images below did each set of block code create?
How do you know?

```

when clicked
  go to x: 0 y: 50
  point in direction 90
  erase all
  set pen color to magenta
  set pen size to 5
  move 150 steps
  turn 90 degrees
  move 100 steps
  turn 90 degrees
  wait 1 seconds
  move 150 steps
  turn 90 degrees
  move 100 steps
  turn 90 degrees
  wait 1 seconds
  
```

```

when clicked
  go to x: 0 y: 50
  point in direction 90
  erase all
  set pen color to magenta
  set pen size to 5
  pen down
  repeat 2
    move 100 steps
    turn 90 degrees
  wait 1 seconds
  move 150 steps
  turn 90 degrees
  
```



Making Shapes


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How are the code sequences alike? How are they different?

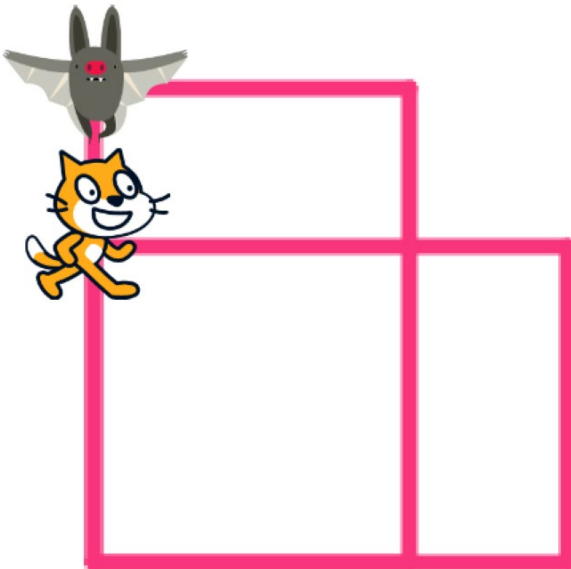
What do you think *move*, *turn*, *repeat*, and *point in direction* might mean?

Notice the colour coding that is used to organize blocks according to function: blue indicates Motion blocks; orange indicates Control blocks, and dark green indicates Pen.

Click on the link: <https://scratch.mit.edu/projects/481518787/>,

then click  at the top of the page to run both code sequences concurrently. Discuss what happens.

Does this help you decide which code goes with which sprite (Cat or Bat)? Explain.



Master 7c

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Part A: Altering Code to Make Matching Rectangles

In the program you looked at as a class, Cat and Bat are drawing rectangles.

When both code sequences are run at the same time, the rectangles overlap.

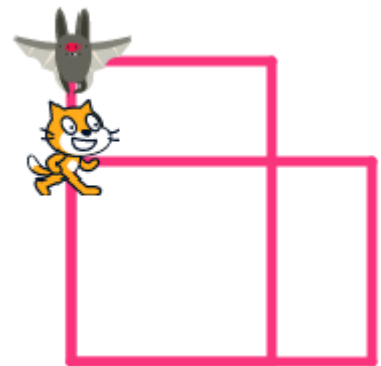
You are going to investigate how you might alter the code so the rectangles match exactly.

```

when clicked
  go to x: 0 y: 50
  point in direction 90
  erase all
  set pen color to pink
  set pen size to 5
  pen down
  move 150 steps
  turn 90 degrees
  move 100 steps
  turn 90 degrees
  wait 1 seconds
  move 150 steps
  turn 90 degrees
  move 100 steps
  turn 90 degrees
  wait 1 seconds
  
```

```

when clicked
  go to x: 0 y: 50
  point in direction 90
  erase all
  set pen color to pink
  set pen size to 5
  pen down
  repeat 2
    move 100 steps
    turn 90 degrees
    wait 1 seconds
    move 150 steps
    turn 90 degrees
  
```



Master 7d

Making Shapes (cont'd)

Using a Block-Coding Program

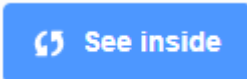
What to Do

Work with your partner.

Modify this existing project:

<https://scratch.mit.edu/projects/481518787/>

- Log in if your teacher would like you to.
- Click **See Inside** to alter the code



or, if you've logged into Scratch, click **Remix** to get your own copy of this project.



- Alter the code so that the rectangles overlap and match exactly.
- Change some of the numbers, then see how your changes impact the outcome (what Cat or Bat draws).
- Talk about what you're changing and why.
Change just 1 thing at a time!

Did you use a Repeat Block to make the code more efficient?
Explain.

Challenge:

Alter the code to make different overlapping quadrilaterals.

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Making Shapes (cont'd)

Using a Block-Coding Program

Part B: Altering Code to Make Different Quadrilaterals

Modify this existing project:

<https://scratch.mit.edu/projects/552699263/>

Cat and Basketball are trying to create quadrilaterals.

The image shows two Scratch code snippets and a visual result. The first code snippet starts with 'when green flag clicked', followed by 'go to x: 50 y: 50', 'point in direction 90', 'erase all', 'set pen color to pink', 'set pen size to 5', and 'pen down'. A 'repeat' block with 2 iterations contains 'move 150 steps', 'turn 80 degrees', 'wait 1 seconds', 'move 100 steps', and 'turn 90 degrees'. The second code snippet starts with 'when green flag clicked', followed by 'go to x: 100 y: 150', 'set pen color to blue', 'set pen size to 10', and 'pen down'. It then uses four 'glide 1 secs to x: y:' blocks with coordinates (150, 0), (0, 0), (0, 150), and (150, 150). To the right, a visual shows a pink quadrilateral and a blue quadrilateral on a white background. A cat character is sitting on the pink shape, and a basketball is on the blue shape.

What do you notice about these code sequences?

How do you change the pen colour? Thickness?

Notice the repeat and the glide to (x,y).

Making Shapes (cont'd)

Using a Block-Coding Program

Are both shapes actual quadrilaterals?

Alter the code sequences to create different quadrilaterals.

Then, alter the code so that Cat's quadrilateral and Basketball's quadrilateral don't overlap.

When altering concurrent code that incorporates the **erase all** block,



you might find it easier to remove the erase all block and put it to the side. You can always click it in between executing (running) the code each time.

Challenge:

Create different quadrilaterals or try making triangles.

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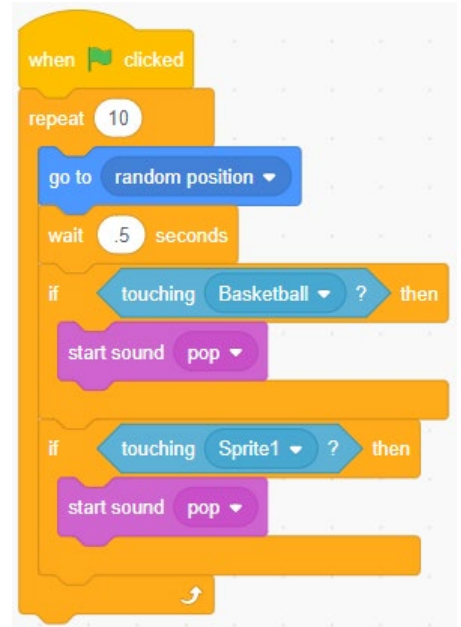
Making Shapes (cont'd)

Using a Block-Coding Program

Part C: Using Conditional Statements to Make Parallelograms

Modify this existing project:

<https://scratch.mit.edu/projects/552702669/>



Alter the code to make parallelograms for Cat and Basketball.

Alter the code so the parallelograms don't intersect.

Adjust the Balloon code in different ways to get used to the Conditional Statements. Consider changing the sound, the action that occurs when the balloon is touching each sprite, the frequency (wait time) of the balloon moving, the number of repeats...

Challenge:

Create additional new parallelograms or triangles that don't intersect.

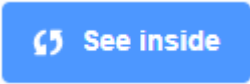
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Making Shapes (cont'd)

Using a Block-Coding Program

Tips

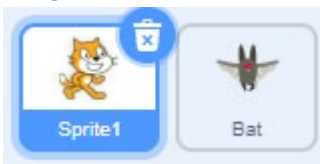
- You may wish to get an account and be logged in so that everything can be saved.
- If you are logged in, when you are looking at samples, or at your My Stuff, click **See Inside** to see or edit the code.

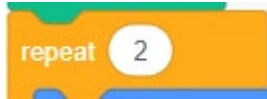
A blue button with a white icon of a document with a magnifying glass and the text "See inside".

- When you click , the code executes, or “runs”.
- You can click the values in the code and change them.

A blue block with an orange top edge, containing the text "move 100 steps".

- You can click and drag any of the blocks of code out of the script and leave them out or change their order.
- To see the code for Bat you need to click on the Bat sprite. Right now, the code would be shown for the Cat.



- You can move the blocks in the code  to different spots in the code to change the repeating action of your sprite (Cat or Bat).

Making Shapes (cont'd)

Using a Block-Coding Program

Self-check in

What have you learned about block coding so far?

Did you get stuck? If so, what did you do?

Did you turn to your classmates for help? If so, how did they help?

What are you doing to help the learning of others?

This is “hard fun.” What do you think we mean by “hard fun”?

What other activities do you do that are “hard fun”?