

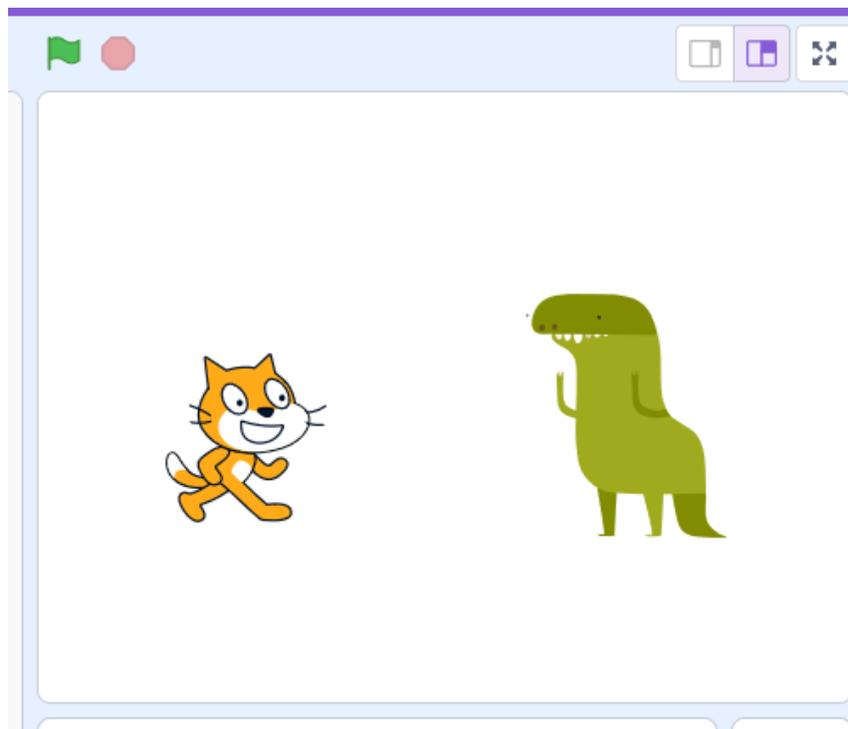
## Rules

- 1) Player 1 rolls 2 dice
- 2) If the current player rolls a 7, then they get a point and their turn ends.
- 3) If the current player rolls double 1's, they lose a point and their turn ends.
- 4) If the current player rolls anything else, their turn ends and they neither gain nor lose a point.
- 5) Pass the dice to Player 2 and repeat steps 2) – 5)
- 6) Each player should get 5 turns. The player with the most points at the end of 5 turns wins.

Play a few rounds with physical dice and try to pay attention to what you're doing at each step. The idea is to try to turn your playing into an **algorithm**.

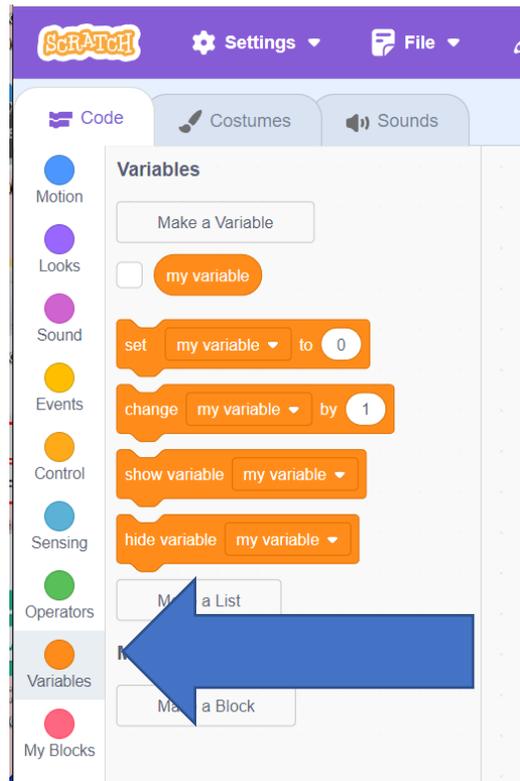
Once you get a hang of what is supposed to happen, let's try to make two sprites play our game in Scratch!

The first thing we want to do is add two players. In the example game, we will use the cat and the dinosaur, but you can use whatever you like!



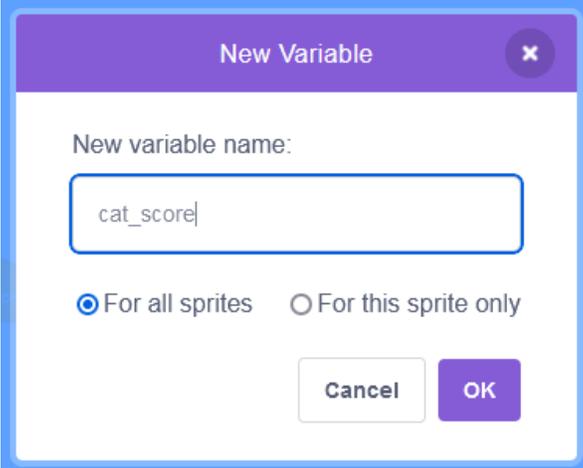
## Sevens

We need to make a **variable** on each sprite that can hold that player's score.



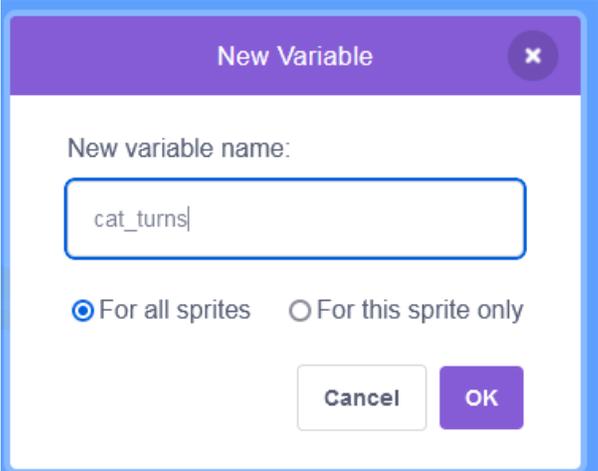
## Sevens

Make sure to name your variable something you can remember. Also make sure the Cat's score is only available to the cat (so which button underneath should you pick? *For all sprites* or *For this sprite only*?)



The screenshot shows a 'New Variable' dialog box with a purple header and a close button (X) in the top right corner. Below the header, the text 'New variable name:' is followed by a text input field containing 'cat\_score'. Underneath the input field, there are two radio button options: 'For all sprites' (which is selected) and 'For this sprite only'. At the bottom of the dialog, there are two buttons: 'Cancel' and 'OK'.

We should also make a variable to keep track of the number of turns the cat has completed.

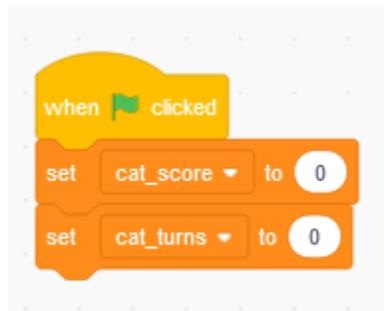


The screenshot shows a 'New Variable' dialog box with a purple header and a close button (X) in the top right corner. Below the header, the text 'New variable name:' is followed by a text input field containing 'cat\_turns'. Underneath the input field, there are two radio button options: 'For all sprites' (which is selected) and 'For this sprite only'. At the bottom of the dialog, there are two buttons: 'Cancel' and 'OK'.

Now try to do the same for the dinosaur.

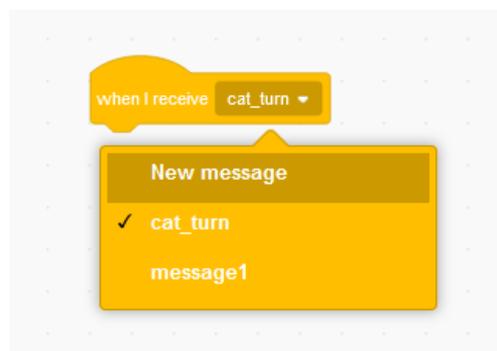
## Sevens

Before we start coding our game, we should set up things so we always start on turn 1 and we start with 0 score. On the cat we add the blocks:



Now you try **initializing** (*when green flag clicked*) the dinosaur by adding the same code on the dinosaur.

Our turns are going to take place by broadcasting messages. When the cat receives a message, it will start its turn, when the dinosaur receives a message, then it will start its turn.

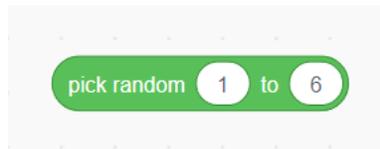


You will have to pick New message and make a message call cat\_turn.

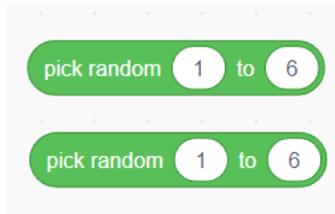
This is for the cat. Try to create a new message called dino\_turn and add it to the dinosaur.

## Sevens

How are we going to code the dice? Rolling a dice will be Scratch picking a number between 1 and 6 at random. Find the following block:



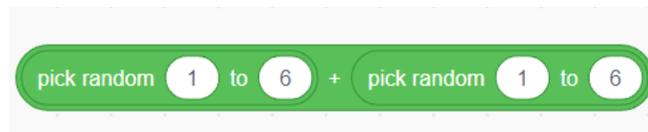
We have two dice, so we'll need this twice.



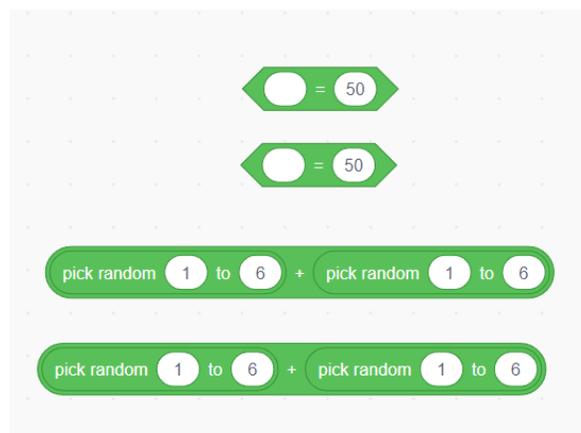
We need to add these two dice together. Find the



block and put the two "dice" into it:

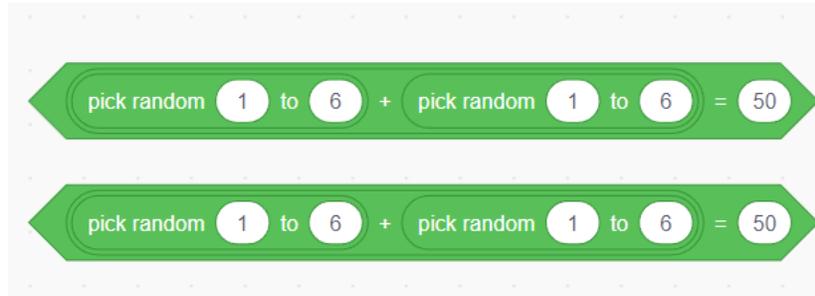


We have two "special" rolls that can happen. If the sum is 7 (get a point and end the turn) and if the sum is 2 (lose a point and end the turn). Duplicate your block above (so there are two of them) and get two of the following commands out.



## Sevens

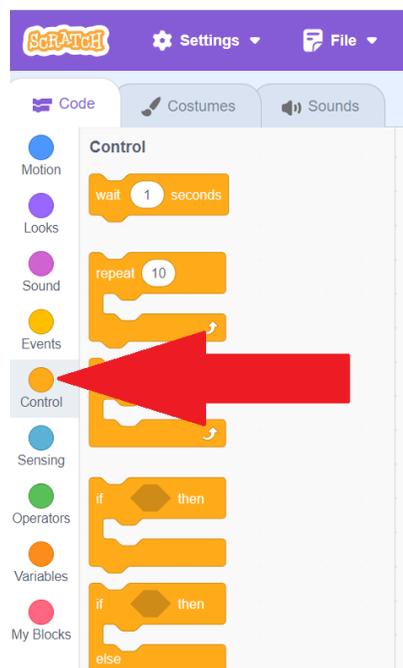
Put the “die” into each circle.



But we don't want the dice to equal 50 for our special rolls. We want one to equal 7 and one to equal 2. So change those 50s, one to a 2 and one to a 7.

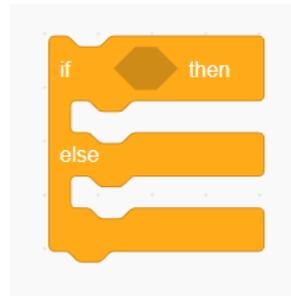
Now we're going to start putting in “if/else” commands. These are statements that only run under certain conditions. It's like “if you finish your vegetables, then you get desert, else you have to go to bed early.” Conditionals are like that for a computer program.

Let's start with one if/else block. They are under Control.



## Sevens

We want an if/then/else block.



Let's think about what happens if the cat rolls a 7:

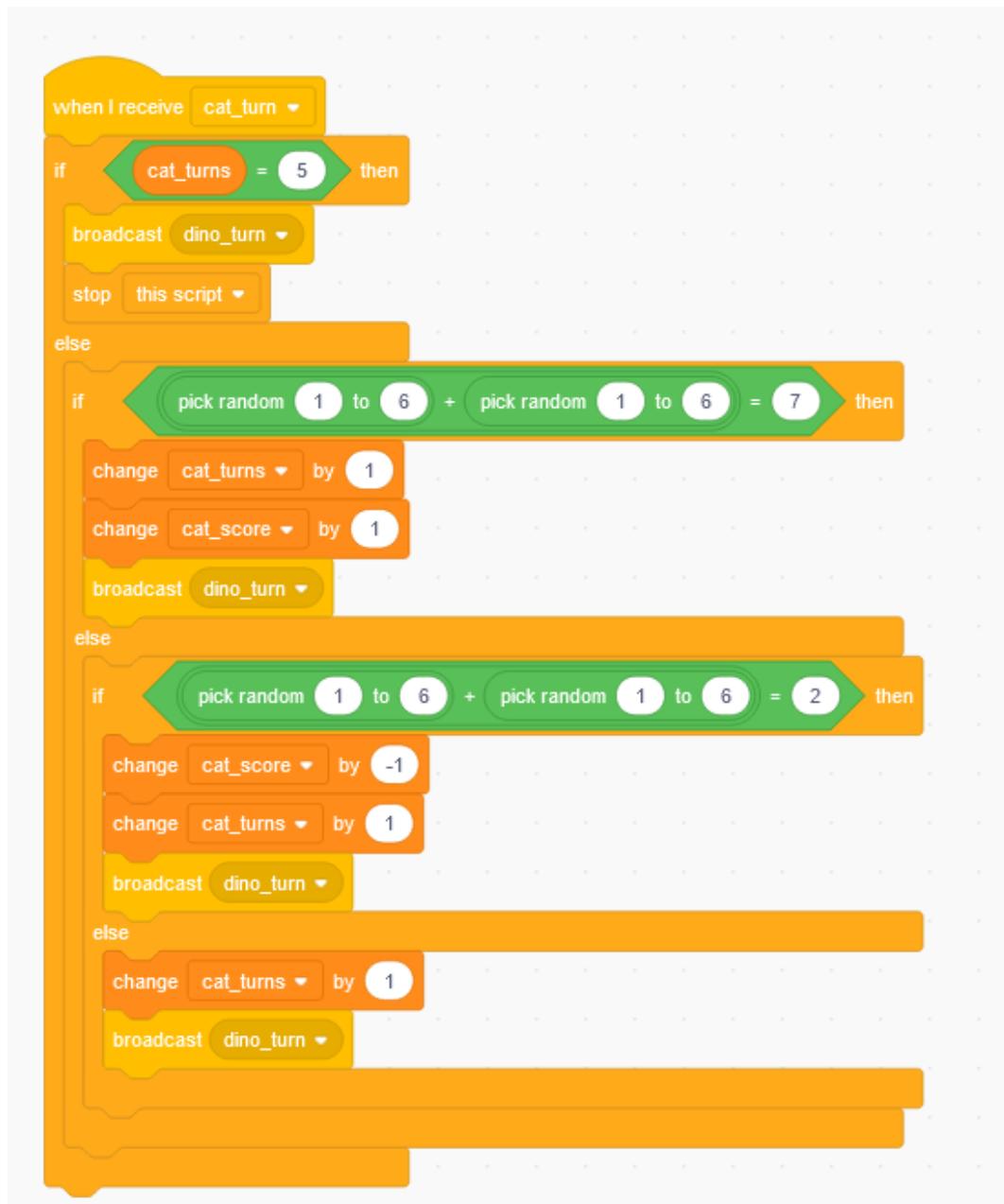
1. The `cat_score` variable increases by 1.
2. The `cat_turns` variable increases by 1.
3. The cat's turn ends and the dino's turn begins. Remember *broadcast dino\_turn* is how we tell the dino it's the dino's turn to go.

Let's add these all into our if/then/else block.



We can do that for the other options, like rolling a 2 or being at turn five so the game ends. Doing that gives us some pretty complicated code for the cat:

## Sevens



Your goal is to put this code on the cat in Scratch, and then adapt this code for the dinosaur.

When you're done and you click the green flag nothing will happen! There's one block missing from the cat so the whole process can start. Can you figure out what it is and where it goes?

## Sevens

Once you have the game working, can you add new rules? Maybe something might happen when the sum is a three? Or maybe something might happen when you roll doubles? Or maybe you want to Scratch to show what the values for the rolls are?