

[The Counting Cat (a program in Scratch)]

Now we're going to make the cat count. For this, we're going to introduce new variables. So first, we go to the "Data" category and select "Make a variable". We can give it any name we like, let's call it "counter". Now we'll start by initializing the counter value to 0, and then for each step around the loop, we're going to increase the counter by 1, and then get the cat to say what that value is up to. So counter is just the name of the variable, we could call it "n" or "x" or "what to say", but at any given time, it holds a numerical value. It's a good time to look at the ordering of events here. We started at 0, then at the start of the loop, we increase the value, then the cat says what the value is, and we pause before starting the next cycle of the loop. Now if we want the cat to start at 0, we could change the 0 to a -1, or we could change the updating code to speak before it updates the value of the counter.

In this case, we just repeated the loop 10 times. If we use a forever loop, the cat will keep on counting until we press stop. However we can also set up a stopping condition.

In Scratch, this is the "repeat until" loop, while next week we might refer to it as a "while" loop. So let's set this up so that the cat will keep counting until it reaches 100. We can specify that condition as stopping once the counter value is greater than 99. So it'll run 100 times through in this case, or if we change the updating condition so that it increases by 10 each time, now the loop will only run 10 times – so it's dependent upon this condition. And of course we could ask the user to set either the stopping condition, or the number to count by.

We can create these as variables, but then we can set them to the user specified input. Note that answer will change after we ask the next question. And so now we know how to set up multiple variables which can be used to make many different types of

interactive algorithms.