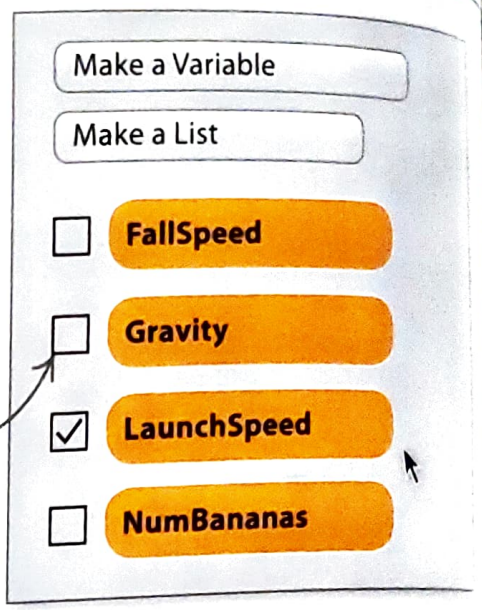
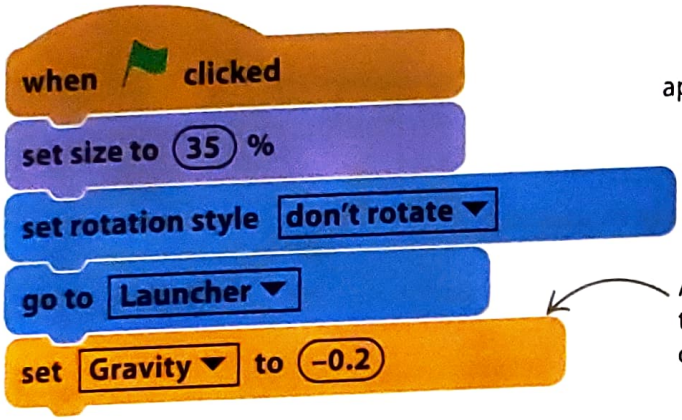
14 Make two more variables for all sprites: "FallSpeed" and "Gravity". Then add a "set Gravity" block to the monkey's "when clicked" script and amend his "when space key pressed" script as shown below. The new blocks use variables to simulate gravity. "FallSpeed" keeps track of how many steps the monkey needs to be moved down by gravity. The value of "Gravity" is how much "FallSpeed" increases each time the monkey moves.

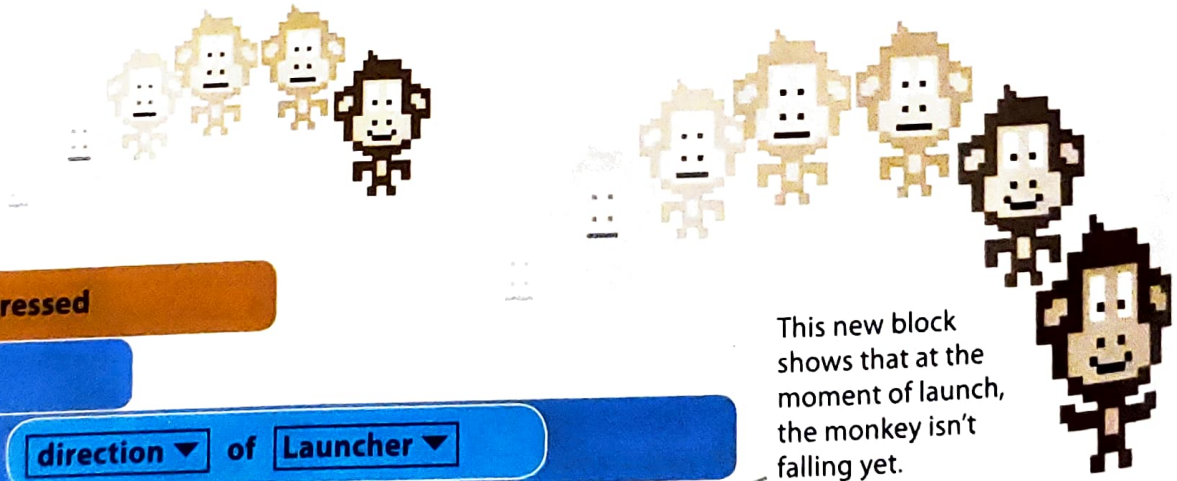


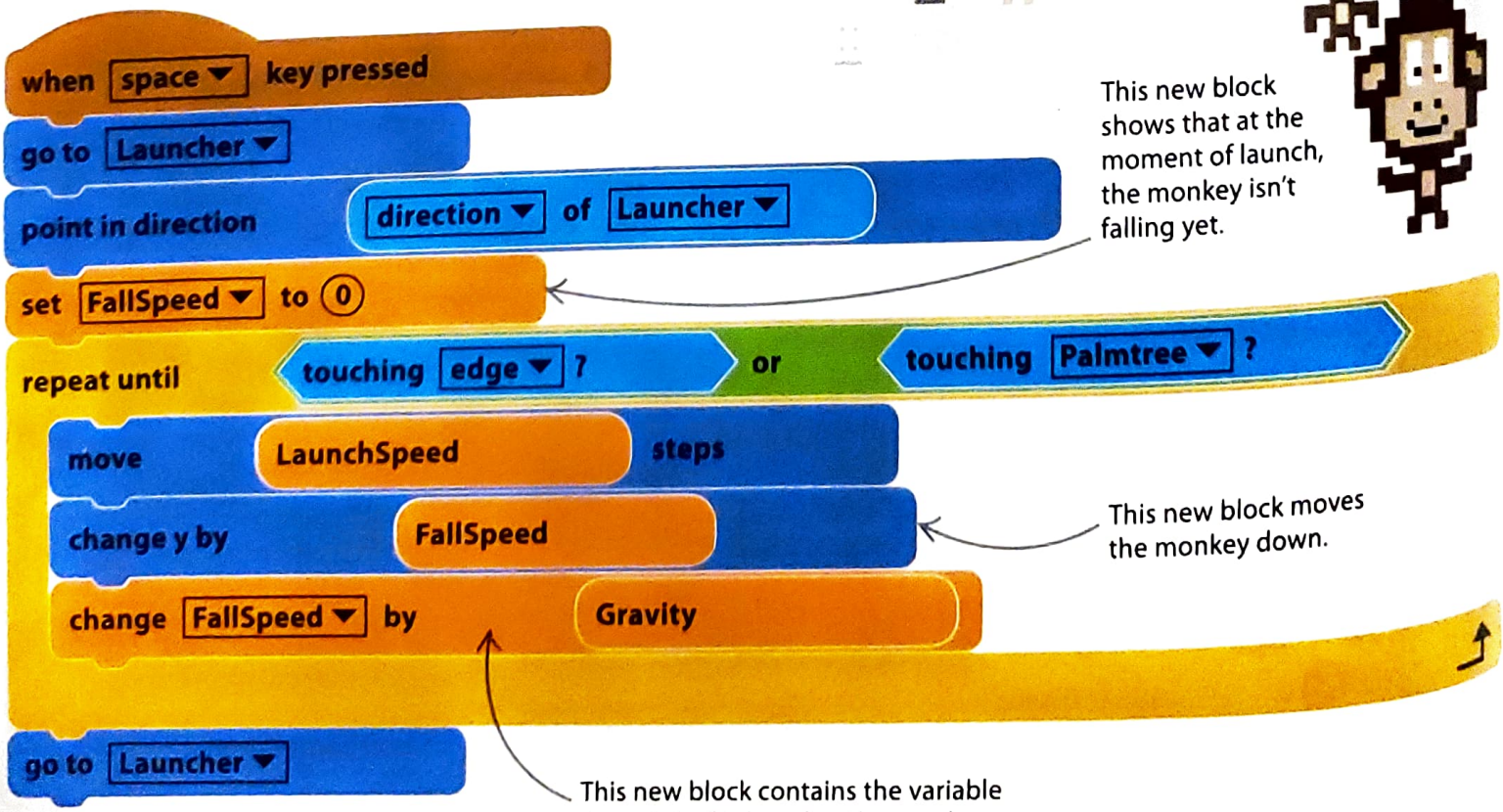
Deselect the box next to a variable to stop it appearing on the stage.

△ **Hiding variables**
If you don't want variables to appear on the stage, you need to uncheck the box next to them in the Data section. Do this for these two new variables.



Add this block to the "when clicked" script.





This new block shows that at the moment of launch, the monkey isn't falling yet.

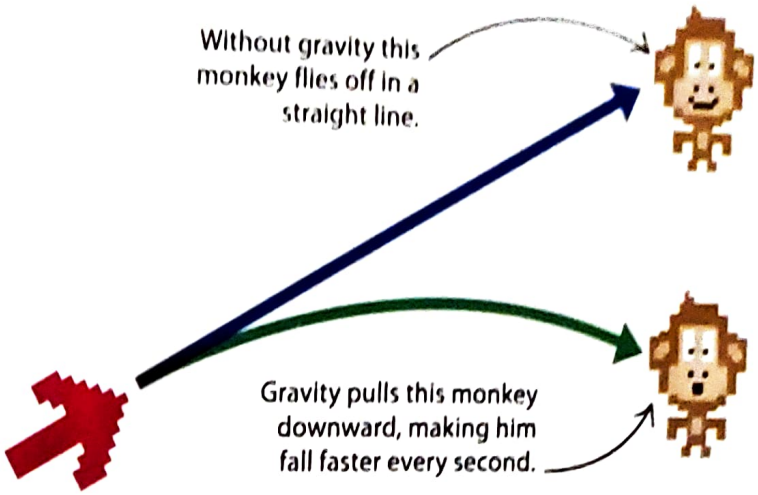
This new block moves the monkey down.

This new block contains the variable "Gravity", which makes the monkey fall faster each time the loop runs.

EXPERT TIPS

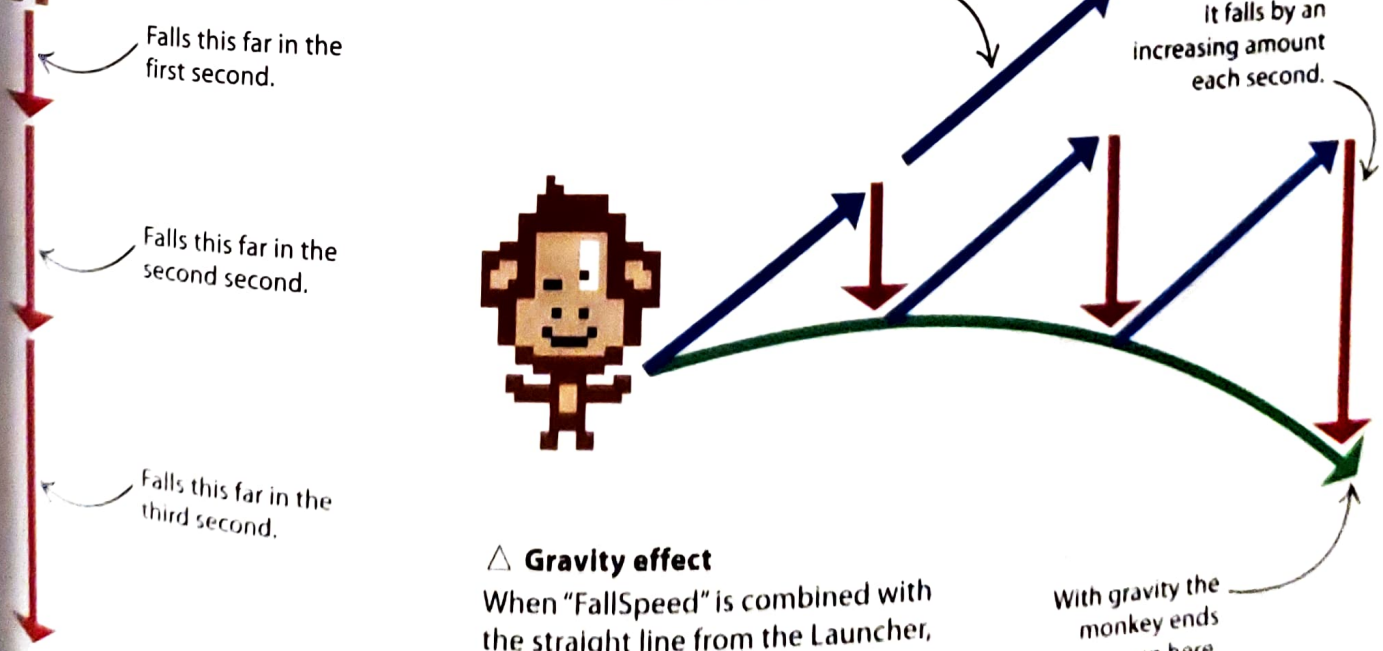
Real world gravity

In the real world, when you try to throw something in a straight line it curves slowly back toward the ground as gravity pulls it down. To make the game work in the same way, you move the monkey along the straight line, but also add a downward move after each shift along that line, to create the same effect as the constant downward tug of gravity. This allows the monkey's movement to seem natural, making the game more engaging.



15 Run the project again—you can now direct the monkey over the tree to reach the tricky low bananas. But how exactly is the Scratch gravity working? Every second, the monkey falls a little bit faster than the second before, creating a downward curve.

◁ **Falling faster**
The "FallSpeed" variable makes the monkey fall farther each time the "repeat" loop runs.



△ **Gravity effect**
When "FallSpeed" is combined with the straight line from the Launcher, the monkey's path curves back toward the ground in a realistic manner.