Académie
Prodigi

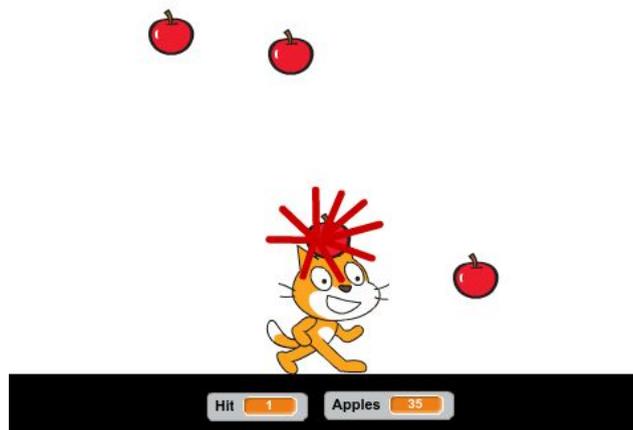# Learn Programming
Video Game Edition

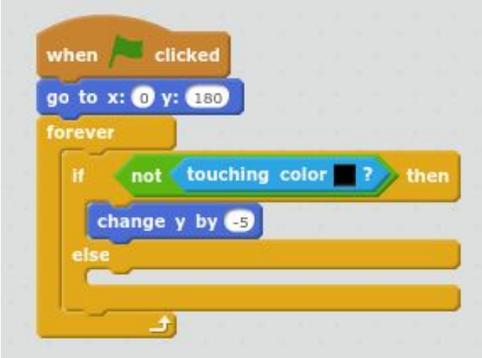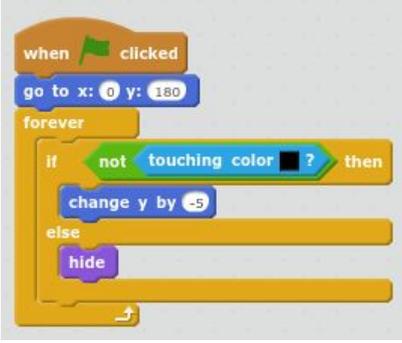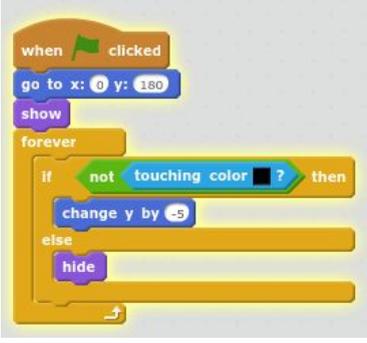# Raining
Apples

Raining Apples

Step	Challenge - Setup the environment	Hints	Done
A1	Add a floor to the backdrop. Make sure that it is black		☐
A2	Add the apple sprite to your sprites		☐
A3	ON THE CAT SPRITE Make sure when you press left and right arrow, your cat moves	 When key pressed → Events Point in direction → Motion Change x by → Motion	☐
A4	What? My cat is upside down when it turns!!!	On the little 🛈 on your sprite Look for the different rotation style	☐
Good Job!			

Step	Challenge - Add gravity	Hints	Done
B1	ON THE CAT SPRITE In order to add gravity we need to make sure the cat goes a little bit down all the time. In order to do that we need to change the Y in a forever loop Add a change y by -5 within a forever loop on the flag clicked	 Forever → Control Change y by → Motion	☐
B2	At the beginning of the game, we need to put the cat back to its original place	 Go to x: y: → Motion	☐
B3	We need to make sure it stops when it touches our floor so we need to add a condition. Gather all the blocs to make the condition	 If → Control Not → Operators Touching color → Sensing	☐
B4	Create the condition from the blocks we gathered to make sure that the cat stops going down if he touches the color black		☐
You just added gravity to your game! Way to go!			
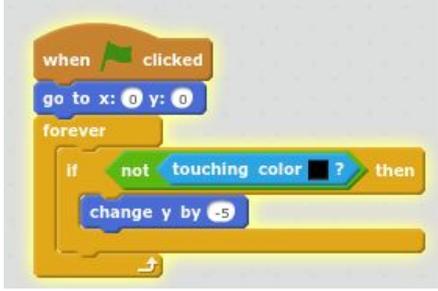
Step	Challenge - Drop the apples	Hints	Done
C1	ON THE APPLE SPRITE Add the gravity the same way you created the gravity on the cat sprite	Look how you added gravity on the cat sprite and do the same for the apple To make sure the apples start at the top we need a go to block that sets the Y value to 180 to make sure it starts at the top of the screen	☐
C2	We need to hide the apple if it touches the color black as if it would explode so we need to add an if else instead of an if. Let's change the if block for an if else.	 If else → Control	☐
C3	In the else section, we will ensure the apple is hidden. Add the hide block in the else statement	 Hide → Looks	☐
C4	Just make sure that we show again the apple when the script starts	 Show → Looks	
Well done! Your apple exploded but we want to make it more fun!			

Step	Challenge - Cool Explosion	Hints	Done
D1	We want to make a cool explosion when the apple touches the cat or the ground. First we will create a second costume for the apple for when it explodes. On the apple sprite, click on the costumes tab and add another costume. Try to find out how and make sure it looks like an exploding apple.		☐
D2	Now that we have 2 costumes for the apple, we want to change the costume for a little bit of time when it hit the floor or the cat. ON THE APPLE Add the switch costume to exploding apple and wait .1 sec.	 Switch costume → Looks Wait → Control	☐
D3	Great, but we now have a problem when we start the game. We should make sure that the costume setup is the normal apple	 Switch costume → Looks	☐
That is a pretty cool explosion!			
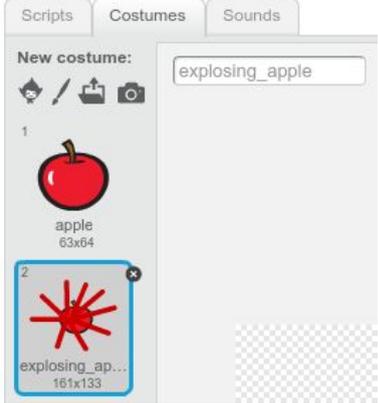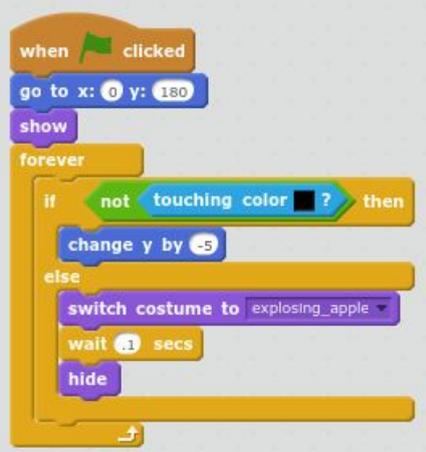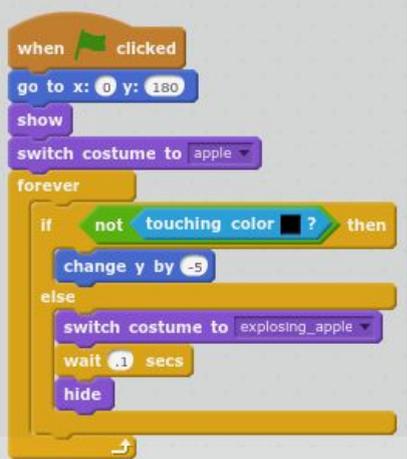
Step	Challenge - More apples please	Hints	Done
E1	Ok, now we want more apples to come from the sky. There is a block in scratch that help us create many sprites easily. This block is called create clone of. This block allows us to create another sprite in our game exactly like the original one. ON THE APPLE What we will do is just to change the event from when flag clicked to when I start as a clone, this block is in not in the event tab but in the Control tab.	 When I start as a clone → Control	☐
E2	Now nothing happens because we have not created any clone yet. ON THE APPLE We will add a when flag clicked event and in this event we will create a new clone every second. So what will happen is that once we click the flag, a new clone of the apple will be created every second forever.	 Forever → Control Wait → Control Create clone of → Control	☐
E3	We will just make a little change. Instead of hiding the clone after it hit the black, we will just delete the clone because we do not need sprite anymore once it exploded. We do not have to do this but it is good practice because if we generate many many clones, it might slow the computer if we do not delete them.	 Delete this clone → Control	☐
	WAY TO GO! Apples are falling from the sky….		
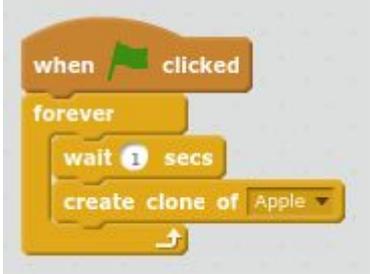
Step	Challenge - Make game unpredictable	Hints	Done
F1	Apples are falling from the sky, but they all fall from the same place, we want to make them fall from anywere. In order to do that, we will add a little random to their position. When we set the X and Y position at the beginning of the script, we will put a random block instead of putting a real value. The width of the game space is -240 to 240 so we can put a random block for the X that goes from -240 to 240 or any values you want.	 Pick random → Operators	☐
F2	Another thing we can do is to change the clone creation because one every second is also too predictive. We want to make this random. When we want to make things random, we use a pick random with a range of value and add a condition when it is equal to a certain number. In the example on the side, we say give me any number between 1 and 10 and if this number is 1, create a clone. We have a 1/10 chance all the time that a clone will be created. If we want more clones, make a lower range like 1 to 5 and if you want less clones make the number bigger like 1 to 100. Try with different number to experiment	 	☐
	WOW, that looks like a real game because nobody can predict how many apples and where they will be coming from		

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Step	Challenge - Keeping the score	Hints	Done
G1	In order to keep the score, we need to create a variable. Variables help us store information and show this information to the player. We will create 2 variables by clicking on the "Make a Variable" for all sprites in the Data tab. **Apples** To keep the number of apples created **Hit** To keep the number of times the cat has been hit by an apple The variables should appear on the gameplay, you can change the position by draging them where you want		☐
G2	ON THE APPLE Now we need to add 1 to the apple variable each time we create a new clone		☐
G3	We have a little problem when we start the game. We want to restart the number so that it always start at 0. ON THE APPLE Make sure we reset the variables to 0 when the game starts		☐
AWESOME JOB! But can you do the FINAL CHALLENGE?			
FINAL	Try to create the code so that the Hit variable adds 1 every time an apple hits the cat.	Don't forget to reset your variables when the game starts	☐
IT IS NOT EASY Go step by step and find that solution!			