Before you begin: some basics

Most of what we’ll be doing will be done with these buttons. They are your new best friends. If you get lost, hug a tree, then come back here.

All files for this tutorial are in the Dropbox folder named “Game Maker scrolling shooter”

When you open Game Maker, it may ask you if you want to use Advanced or Simple mode. USE ADVANCED MODE. Simple mode is, again, for chumps.

Step One: Add some enemies!

1. Create a new sprite
Import the image enemy1_strip3.png.

2. Create a new object
Select the sprite you just created for the your new object, and then add a Create event with an action of Set Vertical Speed of 4. This will make the enemy fly toward the player from the top of the screen.

Check to see if the enemy flies off the screen

Now we want the enemy to fly off the bottom of the screen and reappear up at the top, so that it looks like enemies just keep flying at you. To do this, we add a Step event (which makes the game run the actions in this event 30 times a second) , and for the action, go to the Control tab and pull out the Test Variable action. Set it so it tests variable Y (the vertical axis of the room) for the value “room_height” and the operation is “larger than”. Hit ok.

If the enemy flies off the screen, jump back to a random spot at the top of the screen

Add a Jump to Position action, and set the X to random (room_width) and Y to ~65.

What was all that? We wanted to have the enemies fly down the screen, and when they go off the bottom of the screen, reappear up at the top. The flying down was already taken care of by giving them a vertical speed. So what we needed to program is If an enemy goes
off the screen, then they reappear at the top. The **Test variable** is the “if” part of our statement. In this example, we test the Y variable, which is the position of the enemy on the Y (vertical) axis, which Game Maker will fill in when it runs this action.

The last part, the **operation**, we set as “larger than”. The operation is the relationship between the variable and the value - in this case, we want to see if the Y-position of the enemy is bigger than the room height, because, if it is, it’s off the screen.

The **test variable** action will take the question you’re asking (Is the Y-position of the enemy off the screen?) and see if the answer is “true” or “false”. If it’s true, the game will do whatever action you put after **test variable**. If it is false, it will skip the rest of the actions and wait until the next “step” in the game and run the test again.

**So what is that “random()”?** It would be a boring game if the enemy always appeared in the same place, right? To make things more interesting, we would like the enemies to appear at a different location every time it comes back to the top of the screen. The random() variable has the game pick a number between 0 and whatever number you put inside the parentheses. In our case, we used another variable, `room_width`, which stands for how wide the room is. The random() variable is extremely useful - adding randomly-generated locations or enemies is a great way to add surprise and interest in a game.

**Step Two: Make your enemies show up in game!**

We could just add a bunch of enemies to the map, but then we’d be limited to just that number of enemies for the whole game, which would be boring. Instead, let’s have more enemies keep showing up all the time - and for the number of enemy to keep increasing over time. This is hard to do directly on the enemy object, so we’re going to add an “invisible object” to control our enemies. Make a new object, don’t give it a sprite, and name it “enemycontroller”. Add a **Create** event, and have it **Create an Instance** of the enemy at a random position above the screen (use the same values as the Jump to Position we just did for the enemy), then a **Set alarm** action, set for 500 steps.

Alarms let us time out events in our game, but we have to tell the game what to do when the alarm goes off. Create an **Alarm** event, then have it **Create an Instance** of a new enemy and then **Set Alarm** for 500 steps. That’s all - now place that controller object in the room - it will show up like a little question mark. Test it out!

**What was that?** Our first **Create** made one enemy and started a timer. When that timer goes off, it triggers the **Alarm** event creates a second enemy and resets the timer. Each time the timer goes off, a new enemy appears, making our game harder and harder as time goes on.
Step Three: make enemies blow up when you shoot them!

1. **Bring in the sprites, sounds, and objects we need for explosions**
   Click Add Sound and import snd_explosion1.wav. Name it something like “enemyexplosion.” Now click Create Sprite and bring in explosion1_strip6.png. Set the origin to center. Create a new object, name it “explosion-enemy”, and give it the explosion sprite we just imported. The only programming the explosion object needs is to get rid of it when it is done—so go to Other events, then click on Animation End, and give it the Destroy Instance action.

2. **Program enemies to explode**
   Open up the enemy object. Add a Collision event for when the enemy collides with a bullet. For actions, have it:
   1. Play Sound so we hear the explosion sound,
   2. Destroy Instance of the bullet (hint: select other),
   3. Play the explosion animation by adding Create Instance of the explosion animation at 0.0 relative,
   4. Move the enemy back up to the top by having it Jump to Position to a random position above the screen (you can just copy the Jump to Position from the Step event we made before),
   5. And, finally, we want to earn points when we shoot enemies, so add a Set Score action (found in the score tab) to increase the score by 5, being sure to check relative.

Step Four: make the player explode when hit by enemies

1. **Bring in the sprites, sounds, and objects we need for explosions**
   Add another explosion sound and sprite, following the same steps as above - this time, bring in snd_explosion2.wav and explosion2_strip7.png. Create a new object with that explosion sprite, and add the following commands: add an Animation End event (find it under the Other tab), then have it Destroy the Instance of the explosion object, Sleep (under the main2 tab) 1000 milliseconds to let the explosion sound finish, Show Highscore Table (under score tab), and then Restart the Game (under main2 tab).

2. **Program your player to explode**
   Now go back to the player object, and make a Collision event with the enemy plane which Plays Sound of the second explosion sound, Destroys the Instance of the player, and then Creates Instance of the second explosion.
CONGRATULATIONS! YOU’VE TAKEN THE FIRST STEPS TO LEARNING GAME MAKER!

IF YOU DON’T ALREADY HAVE THE GAME MAKER BADGE, SHOW YOUR PROJECT TO ONE OF THE IDEALAB STAFF MEMBERS AND THEY’LL TELL YOU HOW TO GET ONE!

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