

If statements

Before you start

Make sure you have already followed along with [Lesson 2 - If statements](#) before starting your challenge 🧠!

You will need to download the resource pack from challenge 1 which includes images for your game [here](#) (you should already have this downloaded from the last lesson) ✅.

Challenge

Start your project

- ❑ For this challenge, we are going to continue to build on challenge 1. On the start page click **Open** and open the file from wherever you saved it.

Adding other behaviors

We are now going to create more objects and add behaviors to these new objects.

- ❑ Create a new sprite named **bullet** using the bullet image from the resource pack. When you select where you want the bullet to be on the layout, make it outside in the gray area.
- ❑ Add the **bullet behavior** to the bullet
- ❑ Add the **destroy outside layout** behavior to the bullet as well

The bullet behavior makes the bullet sprite act like a bullet. The destroy behavior makes it so that when a bullet goes outside of the layout, it gets removed from the game. This makes the game run faster 🏃.

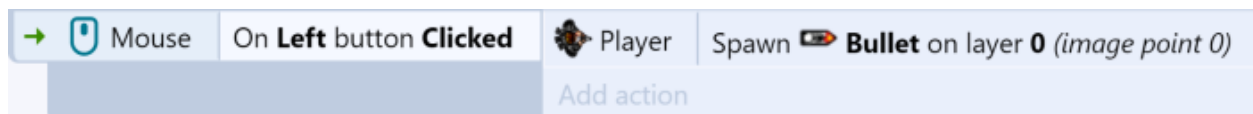
- ❑ Select the monster sprite and give it the **bullet** behavior as well. This will make the monster move across the screen like a bullet.
- ❑ Run the game and see what happens now that we have added these behaviors to these objects

- ❑ Add a new sprite and give it the image of the explosion in the resources pack. Make sure this sprite is off of the screen like the bullet.
- ❑ Give the explosion sprite the behavior of **fade**
- ❑ Select the monster sprite again. You will see some new properties now that we have a new behavior. Change the monster's **speed** to 150.

Conditions, actions, and sub-events

Time to add some more conditionals and logic to our game 🧑!

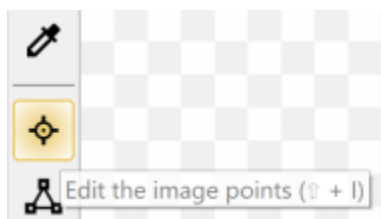
- ❑ Go to the **Event Sheet View** (you should see one event from last time)
- ❑ Let's get the player to shoot a bullet. Make a new event:
 - ❑ Condition- Mouse -> On click -> Left
 - ❑ Event- Player -> Spawn another object -> Object: bullet



- ❑ Run the game and see our new bullets fly 🙌!

If you look closely at where the bullets are coming from, the bullets are coming from the middle of the player, not the barrel of the gun. Let's fix that 🔧.

- ❑ Right click on the player in the right project bar and select **Edit animations**
- ❑ Click the origin and image points tool

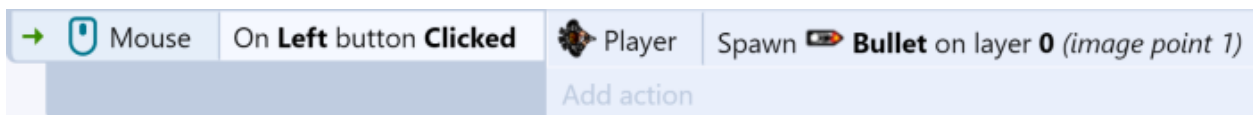


- ❑ Right click on the left menu under origin and select **Add a new image point** and name it **barrel**

- ❑ Now that you have this new point selected, wherever you click on the sprite will become that image point. Try clicking on the barrel of the gun and note that its number is 1.



- ❑ Right click on the action we added spawning the bullet and change the image point to 1.

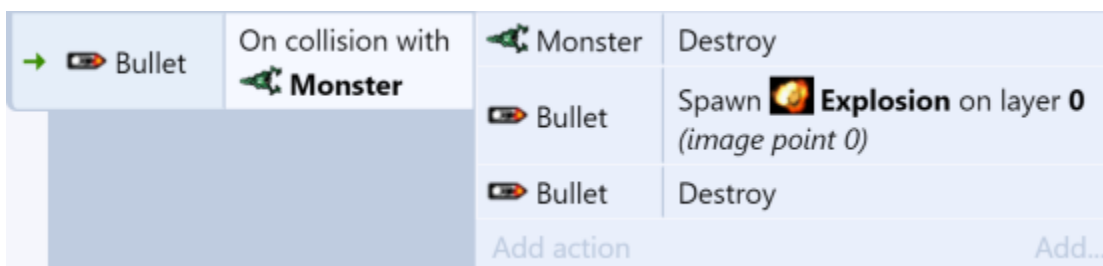


- ❑ Your bullet will now come out of the barrel of the gun (or wherever you set the image point to be).

The bullets will now save us from the monsters!

Let's make it so that when a bullet hits a monster, it disappears from the game.

- ❑ Let's add another event to our event sheet:
 - ❑ Condition: Bullet -> On collision with another object -> Monster
 - ❑ Action: Monster -> destroy
 - ❑ Action: Bullet -> Spawn another object -> Explosion
 - ❑ Action: Bullet -> Destroy



Let's break down the event above so we can understand it better. When a bullet hits a monster, we want to (1) destroy the monster, (2) we spawn an explosion over the bullet, (3) we destroy the bullet since it hit a monster 💣.

- ❑ Run the game and try to shoot one of the monsters. *Hint: you may have to move a monster's initial position to be able to get a shot.*

The explosion effect

Did you notice that the explosion had a weird black background that didn't look right around it? We can fix that.

- ❑ Click on the explosion sprite on the right project menu
- ❑ Change the **Blend mode** property on the left to **Additive**.
- ❑ Run your game and see if this fixed things

Make the monsters have some more brains 🧠

Right now the monsters are just wandering off of the screen. Making it a bit more interesting, let's have them start off at a random angle and then come towards the player.

- ❑ Create a new event
 - ❑ Condition: System -> On start of Layout
 - ❑ Action: Monster -> Set angle -> random(360)
- ❑ Create another event that moves out monster toward the player
 - ❑ Condition: Monster -> is outside layout
 - ❑ Action: Monster -> Set angle toward position ->
 - ❑ X: player.X
 - ❑ Y: player.Y
- ❑ Now for one final touch: let's keep spawning monsters with another event
 - ❑ Condition: System -> Every X seconds -> 3.0
 - ❑ Action: monster -> Spawn another object -> monster
 - ❑ Action: monster -> Set position ->
 - ❑ X: random(LayoutWidth)
 - ❑ Y: random(LayoutHeight)

Well done!!

🎉 Yay!! You have now completed your first challenge in Construct 3. Now that you are finished talk to your **Coding Coach** and show off your awesome work!