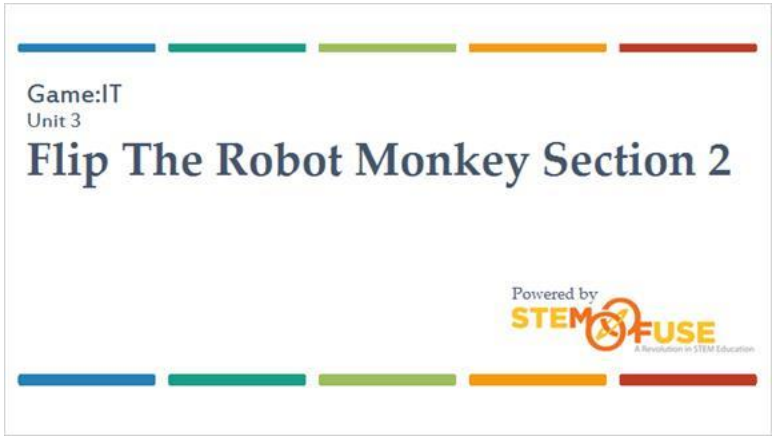
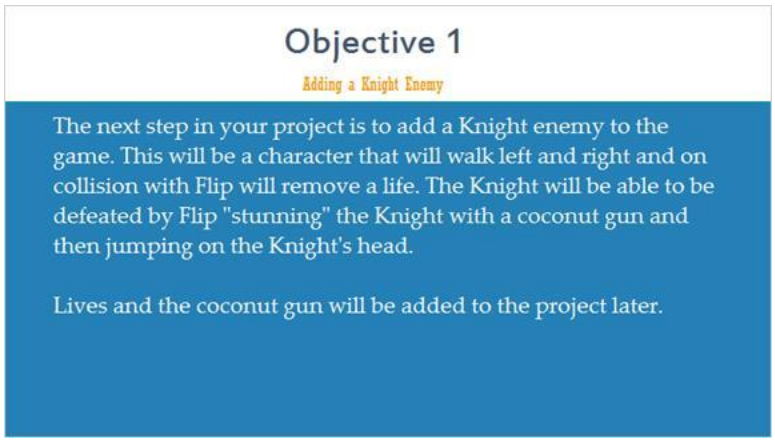
1 - Title Slide: Flip The Robot Monkey Section 2



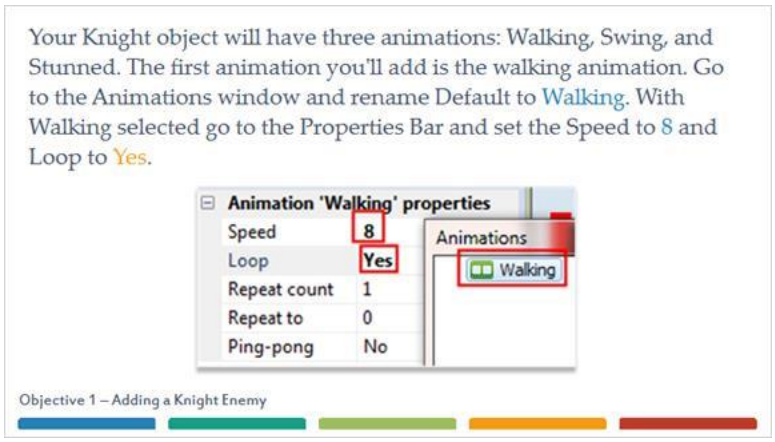
2 - Section Objective

3 - Objective 1: Adding A Knight Enemy

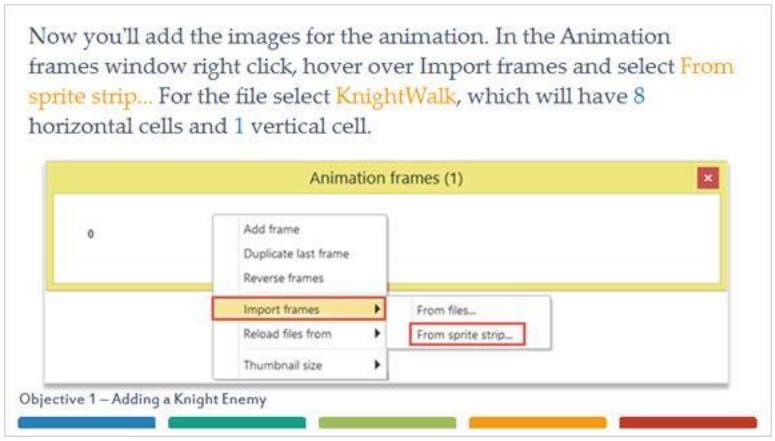


4 - Knight Sprite

5 - Knight Animation Walking



6 - KnightWalk Import Frames



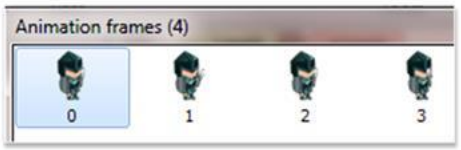
7 - Knight Swing Animation

Delete the first blank frame from the Animation frames window.

Go to the Animations window, right-click and select Add animation. Name this animation Swing and you won't have to change any of its properties.

8 - Import Sprite Strip Stunned

Go to the Animations frames window and import the sprite strip named KnightSword. This strip will have 4 horizontal cells and 1 vertical cell. Delete the first blank frame.



Add the last animation named Stunned. This animation will only have a single frame so you can go to the image editor and click the open button and select the KnightStun file.

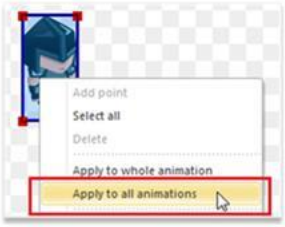
9 - Knight Collision Polygon

The collision polygon for the Knight object isn't as important as the one for Flip as the Knight won't be jumping and moving around as much. For this reason, you can simply set the collision polygon to the bounding box.

To do this, click the Collision polygon button on the left toolbar. When that is selected, right click on the image and select Set to bounding box.

10 - Apply To All Animations

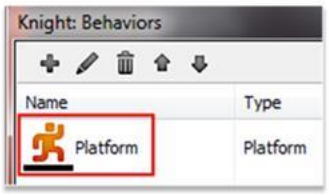
Now you'll want to apply this change to all the animations. Right click on the image again and select Apply to all animations. Click Yes to confirm your choice and then you can close the image editor.



11 - Platform Behavior

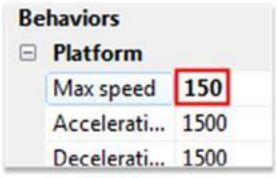
With the object animations set you're ready to add the functionality to the object. In order to get the object to move left and right you're going to add the Platform behavior to it.

Make sure the Knight object is selected and then go to the Properties Bar and select the Behaviors link. Add the Platform behavior to the object.



12 - Platform Max Speed

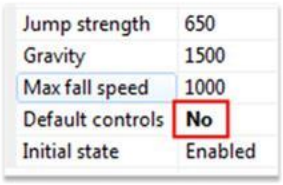
You'll now make some changes to the Platform properties. The first change is to the Max speed to make the Knight move slower. Go to the Behaviors section of the Properties Bar and change the Max speed to 150.



13 - Platform Default Controls

The next change you want to make is to turn the default controls off. This will allow you to set the movements of the Knight through events.

In the Platform properties set the Default controls setting to No.



Objective 1 – Adding a Knight Enemy

14 - Instance Variables

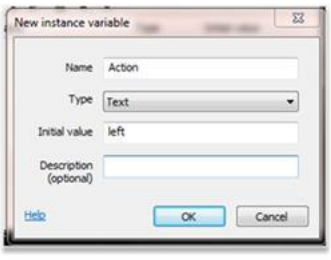
The next thing you'll want to do is add a few instance variables to the object. These variables will help control the Knight's movements as well as store a value for the amount of time it's stunned.

Click the Instance variables link in the Properties Bar.

Objective 1 – Adding a Knight Enemy

15 - Action Text Variable

Click the Plus button to add a new instance variable. The name of this variable will be Action and the Type will be Text. For the Initial value type in left.



Objective 1 – Adding a Knight Enemy

16.1 - On Your Own

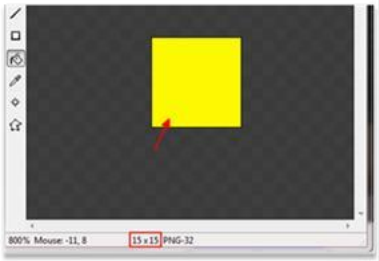
16.2 - Instance Variables

17 - EdgeMarker Sprite

18 - EdgeMarker Image Editor

In the image editor, Resize the image to a Width and Height of 15 pixels. Now use the Fill tool to make the image a bright color to make it more visible in the layout editor (a bright yellow is suggested).

Close the image editor when this is done.



Objective 1 – Adding a Knight Enemy

19 - EdgeMarker Visibility

There's one property you'll need to change for this object. Go to the Properties section of the Properties Bar and set the Initial visibility to Invisible. This will prevent the object from being seen when you run the layout, but collisions and events will still happen with the object.

Objective 1 – Adding a Knight Enemy

20 - Knight EdgeMarker

Now, you'll want to make some changes to your layout so you can properly test the Knight object's event when you need. Create two instances of EdgeMarker object and place them on either side of the Knight object. This will indicate where the Knight will change direction.

Your Knight and EdgeMaker objects should look similar to this.

Objective 1 – Adding a Knight Enemy

21 - Knight Actions Group

You're ready to set up the events for your Knight. To start go to your event sheet and add a new group. Set the name to Knight Actions and for the Description put Set the Knight enemy actions and movements. Press Ok to add the group.

22 - Compare Knight Actions

Next you'll add the events for the different values of the Action variable. There will be four values possible for Action: left, right, swing, and stun. First you'll set the events for left and right.

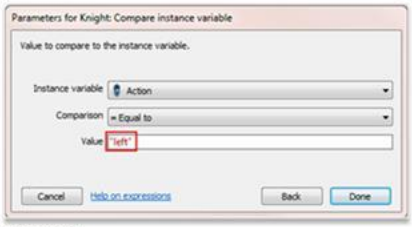
Add a sub-event to the Knight Actions group. Use Knight as the object and for the condition select Compare instance variable in the Instance variables section.

Since the Action variable is text, you'll have to use a string in your expression. Strings are just text used in a programming language. Text that makes up the string has to be included in double-quotes, e.g. "left".

23 - Compare Action Variable

So in the Parameters window have the Instance variable set to Action and the Comparison to Equal to.

For the value you'll be testing for the left action, so in this field input "left".



24 - Simulate Knight Control

25.1 - On Your Own

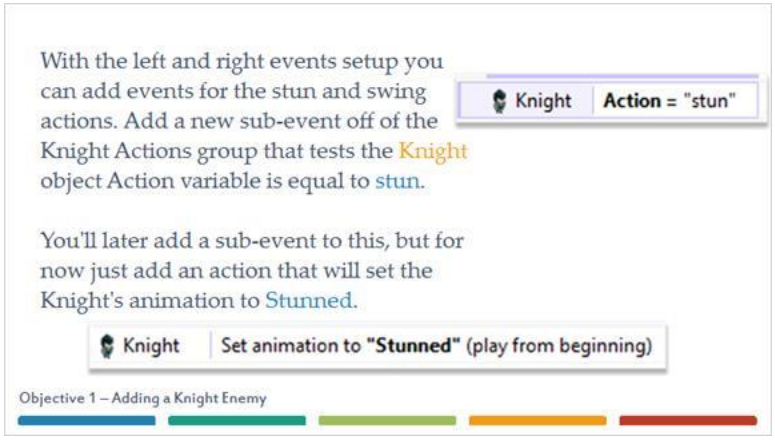
25.2 - Knight Actions Image

26 - Next Steps

27.1 - On Your Own

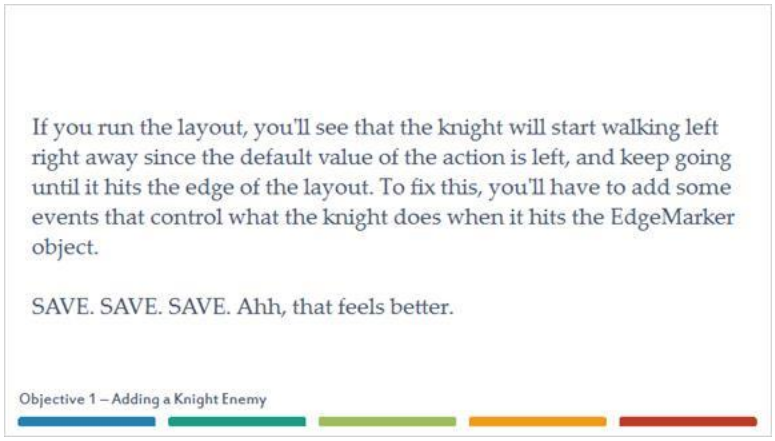
27.2 - Show Knight Actions

28 - Knight Stun And Stunned Animation



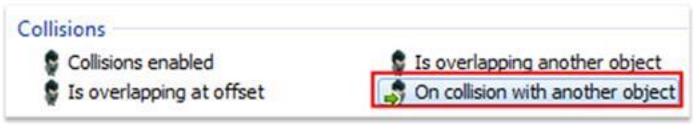
29 - Knight Swing Animation

30 - Knight In Action



31 - Knight On Collision

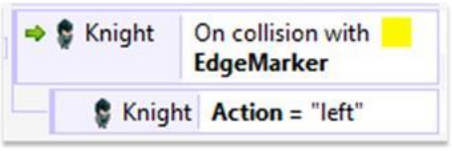
Off the of the Knight Actions group add another sub-event that uses the Knight object. For the condition select On collision with another object under the Collisions section.



32 - Knight Action Left

In the Parameters window, set the Object field to EdgeMarker and click Done to add the event.

Next you'll want to test what the current Action is and you'll do this in a sub-event. Add a sub-event to your new event that uses the Knight object and tests if Action is equal to left.



33 - Knight Set Value Right

If the Knight collides with the EdgeMarker and it's moving left you want the Knight to reverse direction and move right.

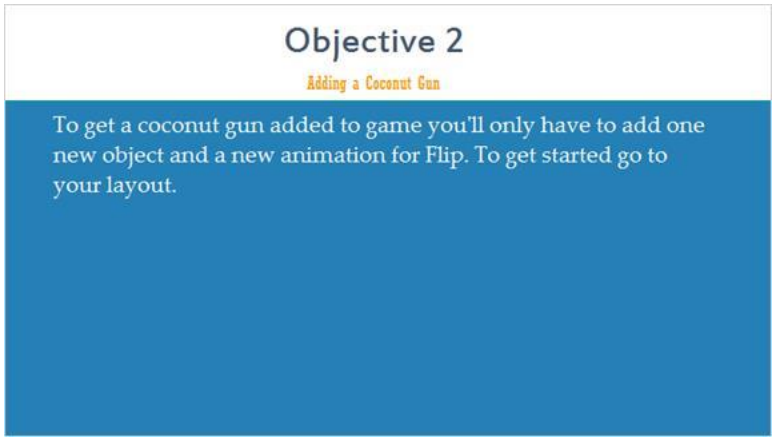
Off of the last sub-event, you created add an action that uses the Knight object and the Set value action under the Instance variables section.

In the Parameters window, set the Action variable to "right". Make sure you input the text as a string using the double-quotes. Click Done to insert the action.

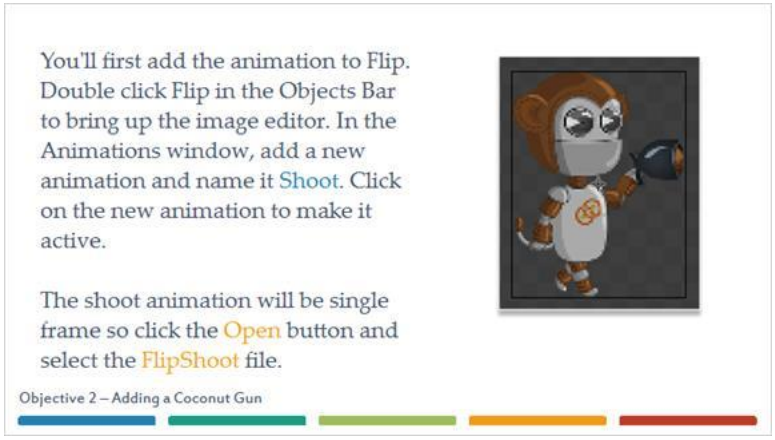
34 - Knight Else Event

35 - Knight System Else

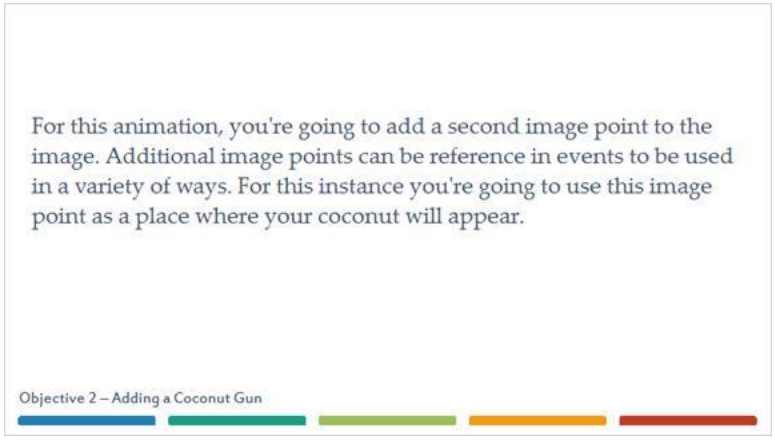
36 - Objective 2: Adding A Coconut Gun



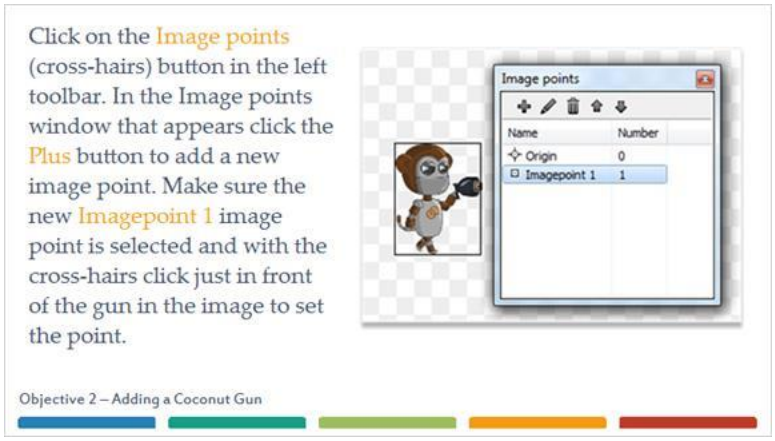
37 - FlipShoot Animation



38 - Additional Image Points



39 - Adding Image Points



40 - Setting Default Collision Polygon

The last thing to do with Flip is to set the collision polygon for the new animation. In the Animations window, select the Default animation. Now in the left toolbar select the Collision Polygon tool. Right-click on the image and select Apply to all animations. Click Yes to confirm and then close the image editor.

Objective 2 – Adding a Coconut Gun

41 - Coconut Sprite

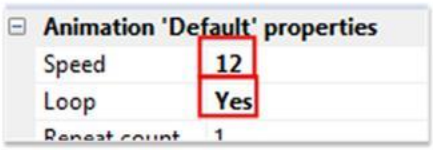
Next, you'll add the coconut object to your layout. Add a new object that is a Sprite object type and name it Coconut. When the cross-hairs appear, click somewhere outside of the layout to bring up the image editor.

In the Animation frames window, right click, hover over Import frames and select From sprite strip. Select the Coconut file and it will consist of 6 horizontal and 1 vertical cell. Delete the first blank frame.

Objective 2 – Adding a Coconut Gun

42 - Coconut Animation Properties

Click on Default in the Animations window. In the Properties Bar, set the Speed to 12 and Loop to Yes. This will give the coconut the illusion of spinning fast. Close the image editor when this is done.

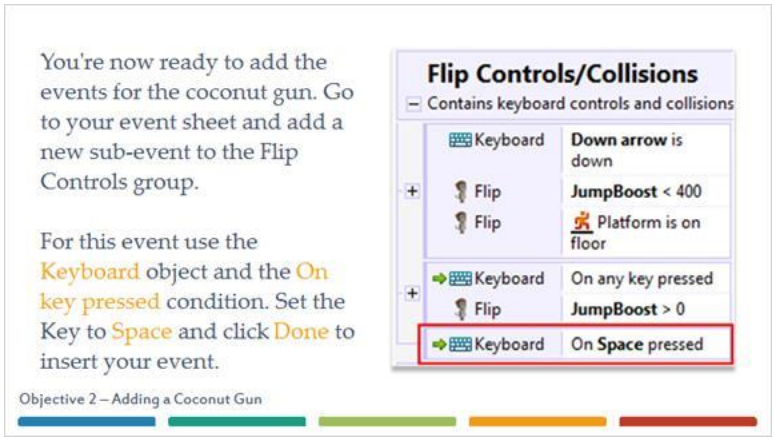


Objective 2 – Adding a Coconut Gun

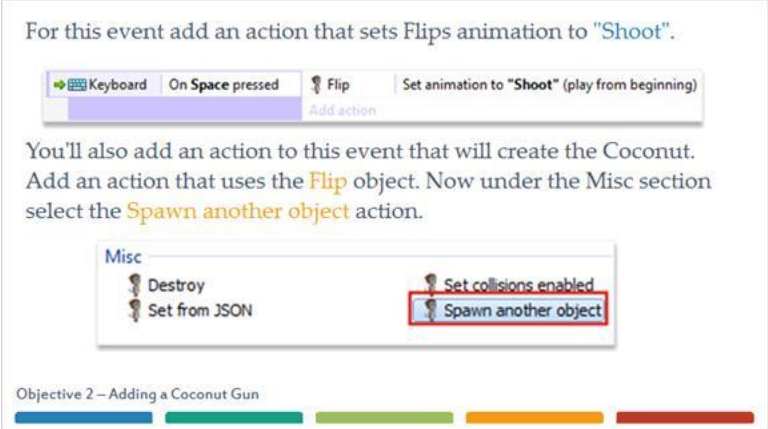
43 - Bullet Behavior

44 - Bullet Behavior Settings

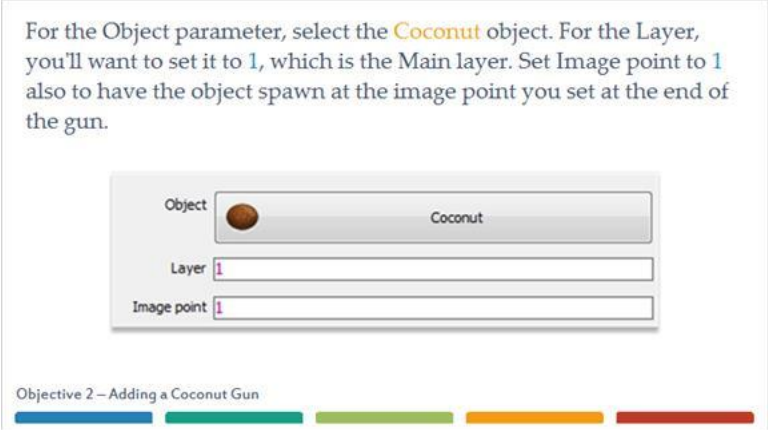
45 - Keyboard On Space Pressed



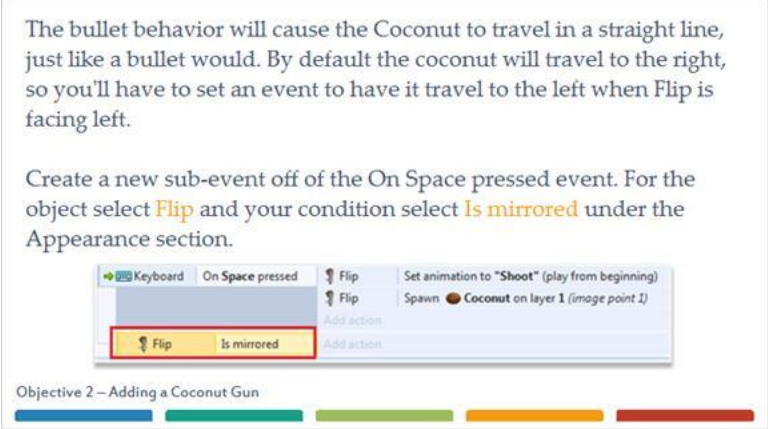
46 - Flip Spawn Another Object



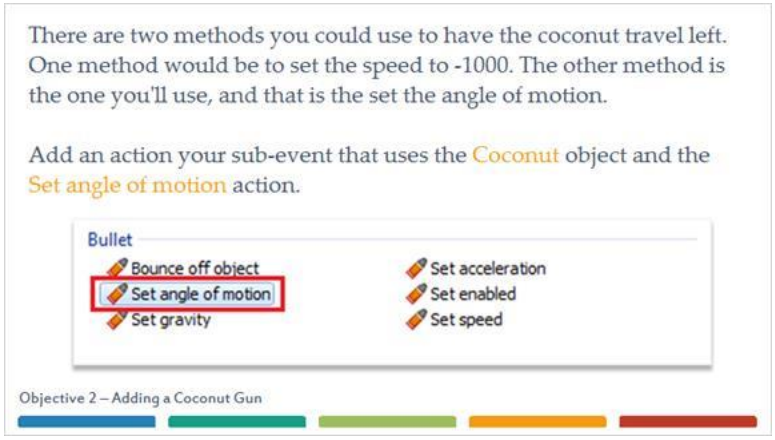
47 - Spawning Coconut Object



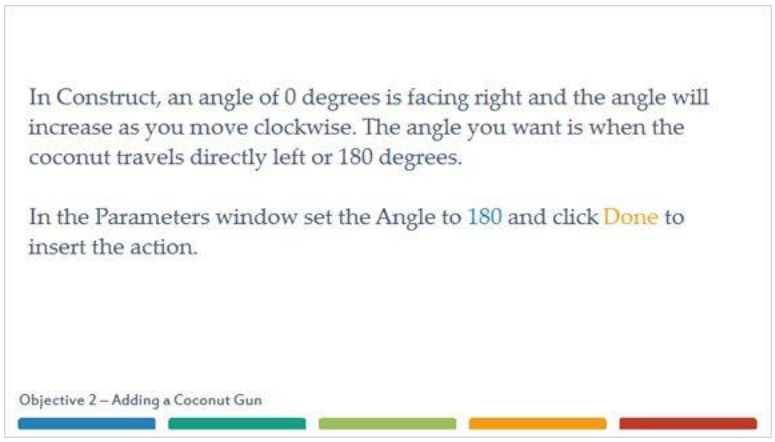
48 - Flip Is Mirrored



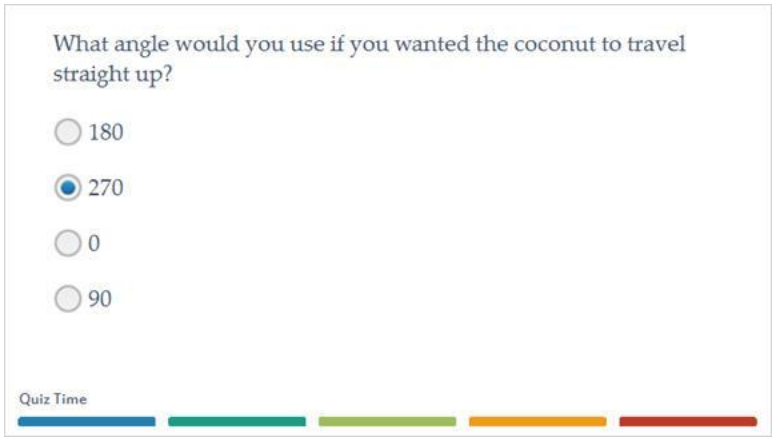
49 - Coconut Set Angle Of Motion



50 - Coconut Angle Parameters



51 - Quiz



52 - Coconut Collisions Group

You'll next want to create a new group and events for the coconut collisions. Create a new Group named Coconut Collisions and click OK to add the group.

53 - Coconut Is On Screen

The first event you'll add to this group will cause a Coconut to be destroyed when it leaves the screen.

Add a new sub-event to the group that uses the Coconut object and for the condition scroll down to the Size & Position section and select Is on-screen.

54 - Inverting Coconut Event

Since you want the event to fire when the Coconut is off the screen right click on the condition and select Invert.

Now add an action to the event that uses the Coconut object and for the action select Destroy under the Misc section.

55 - Coconut On Collision

The next event you'll add to this group will destroy the Coconut when it hits a platform. Add a new sub-event to the Coconut Collisions group that uses the Coconut object and the On collision with another object condition. For the Object select Platform.

Add an action to this event that will destroy the Coconut object.

56 - Coconut Knight Collision

Next you'll add the events for when the Coconut stuns the Knight. When this happens, the Knight will become stunned for 3 seconds, during this time Flip can jump on the Knight to defeat him. If the 3 seconds are up and the Knight hasn't been defeated it will go back to its previous action.

First, add a new sub-event to the Coconut Collisions group that has a condition for the Coconut colliding with the Knight.

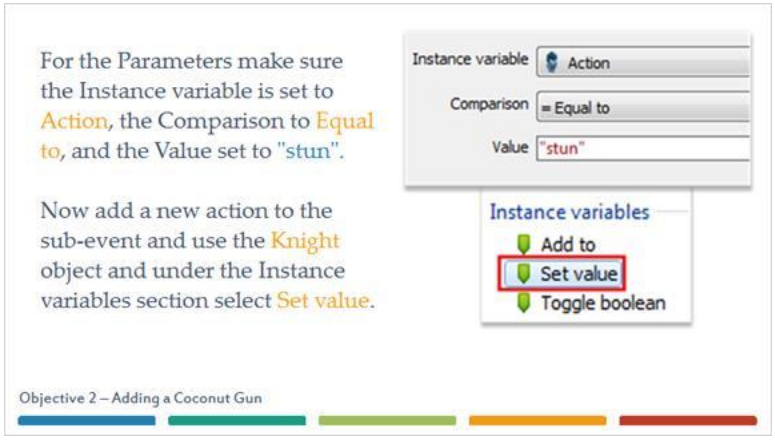
57 - Knight Comparison

To set up the actions for the collision, you'll need two sub-events, one for when the Knight is stunned that will reset the stun time to 3 and the other if he is not stunned that will store the previous action as well as set the stun time.

First add a sub-event to the Coconut on collision with Knight event that uses the Knight object and the Compare instance variable condition.

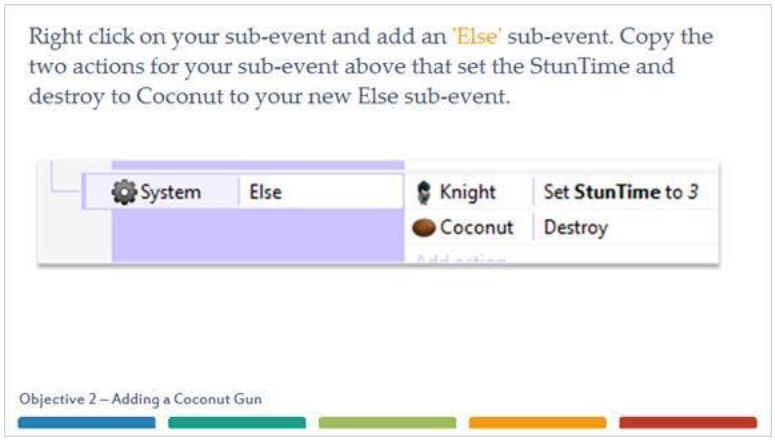
When a collision event occurs in Construct and there are multiple instances of an object only the instance where the collision occurs will be selected in events.

58 - Instance Variable Set Value



59 - Knight Set StunTime

60 - System Else StunTime



61 - Knight Set Value PrevAction

Next you'll want to add an action to store the Knight current Action in the PrevAction variable.

Add an action that uses the Knight object and the Set value action.

For the Parameters set the Instance variable to PrevAction. For the value, you'll want the Knight's current value in its Action variable. To get this the value will be Knight.Action.

62 - Knight Set Action Stun

Now you'll want to add another action that will use the Knight object and set the Action variable to "stun".

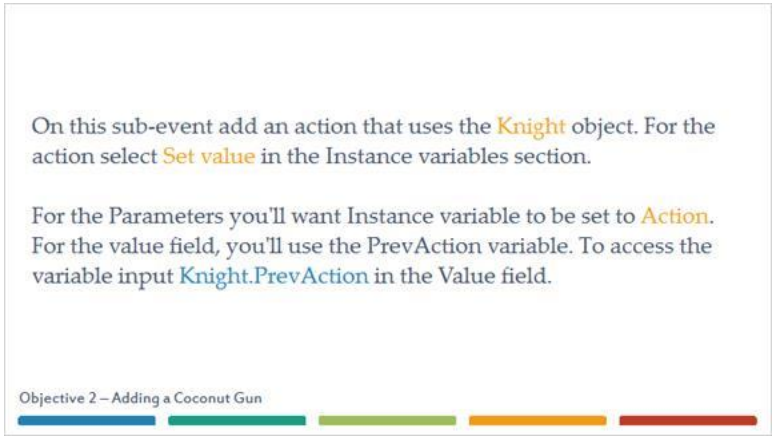
Since Construct will run events from top to bottom as they are on the event sheet, it's important that the action that sets the Knight's action to stun is below that action that set the PrevAction variable.

63 - Knight Compare Instance Variable

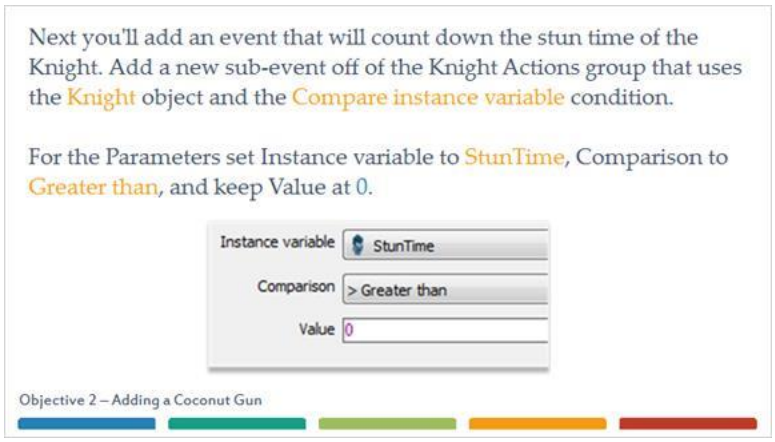
You'll now set up the events that will countdown the StunTime of the Knight and reset its action when it's no longer stunned.

In the Knight Actions group, find the event that tests if Action is equal to stun. Off of this event add a new sub-event that uses the Knight object and the Compare instance variable condition. For the Parameters set Instance variable to StunTime and click Done.

64 - Knight Sete Value Action



65 - Knight Compare StunTime



66 - Every X Seconds

67 - StunTime Countdown

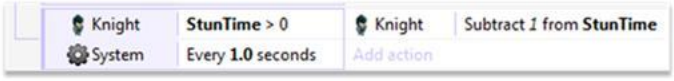
With this condition, you can specify how often, in seconds, you would like the event to run. For this instance, you need to event to run once per second to countdown the StunTime.

Keep the Initial value as 1.0 and click Done.

68 - Knight Subtract From

Now you can add the action to the event. Use the Knight object and for the action select Subtract from under the Instance variables section.

For the Instance variable parameter select StunTime and keep the Value as 1. Click Done to complete the action.

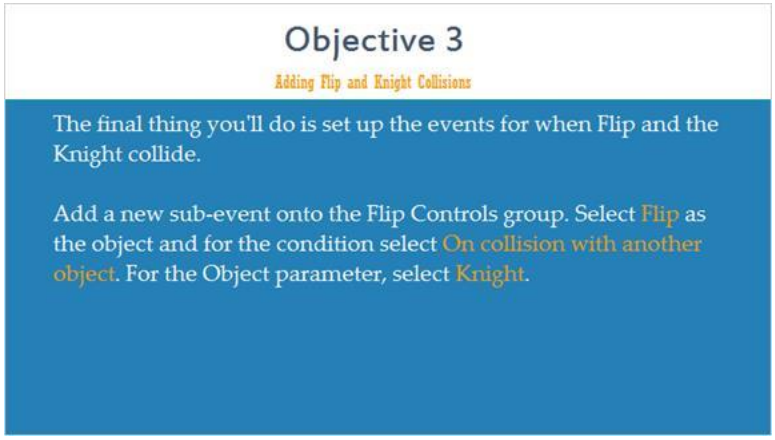


69 - Coconut In Action

If you run the layout now and shoot a coconut at the Knight by hitting Space, you'll see that the knight will be "stunned". After the three seconds expire, the Knight will begin to walk again.

Hold your horses. It's time to save, partner.

70 - Objective 3: Adding Flip And Knight Collisions



71.1 - On Your Own

71.2 - Knight Stun Action Image

72 - Flip Is Falling

Next you'll want to test if Flip is falling when the collision happens. You'll do this as a sub-event of the last sub-event you added.

Add a sub-event to the last sub-event that uses the Flip object and the Is falling condition under the Platform section.

73 - Flip Compare Y

Now you'll add a condition onto this event to test if Flip is above the Knight when the collision occurs. Remember the Y-values in Construct start with 0 and increase as you move down.

Add a condition to the sub-event that uses the Flip object and the Compare Y condition under the Size & Position section. For the Comparison select Less than.

74 - Flip Compare Y

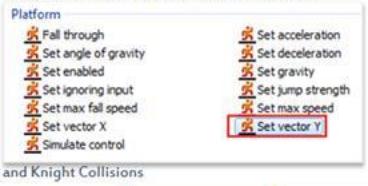
For the Y coordinate type in Knight.Y-40. Since the Y coordinate of the Knight is based on its origin point, you need to remove 40 to get the co-ordinate near the top of the image.

Click Done to add the condition.

75 - Knight Set Vector Y

Next you'll add actions to the event where your condition was just added. The first action will destroy the Knight. Add this action by using the Knight object and the Destroy action.

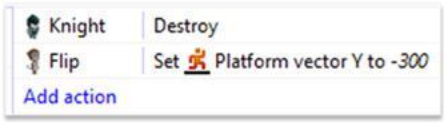
Next you'll want to add an action that will simulate Flip bouncing up off the Knight. To do this, add an action that uses the Flip object and the Set vector Y action in the Platform section.



76 - Flip Set Platform Vector Y

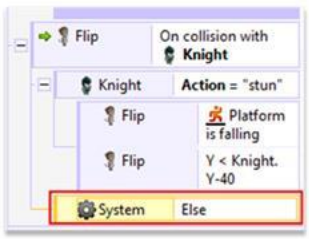
The Y vector will set the vertical motion of Flip, with positive values setting the motion down and negative values setting the motion up.

For your Vector Y field set the value to -300. Press Done to add the action.

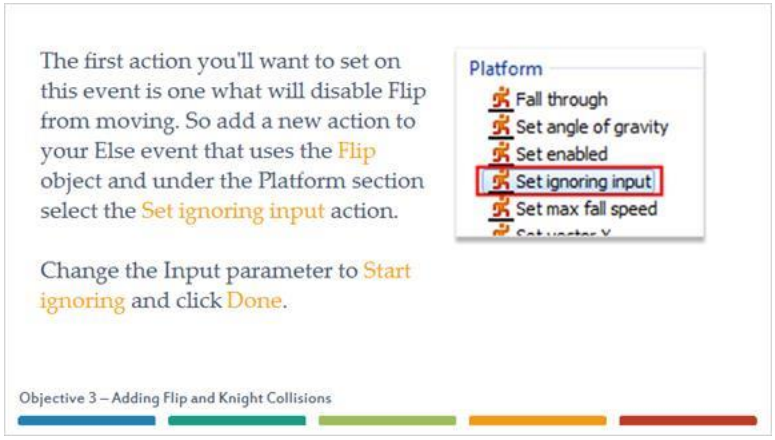


77 - System Else

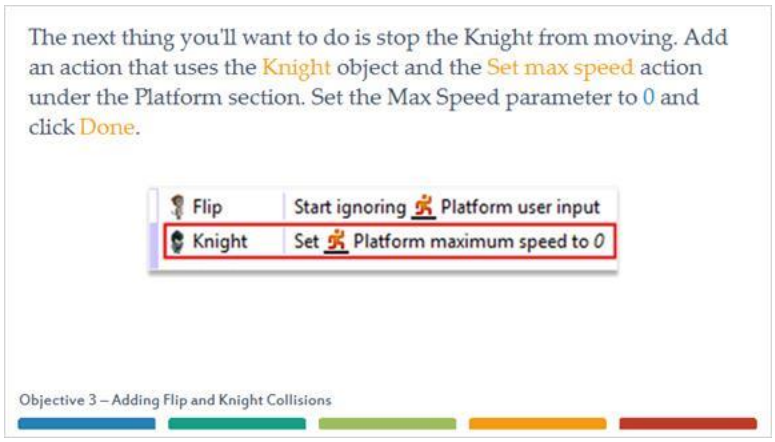
Next you'll set up the events for when Flip collides with the Knight when it's not stunned. Right-click on the event that tests if Action is equal to stun, go to add, and select Add 'Else'.



78 - Flip Set Ignoring Input



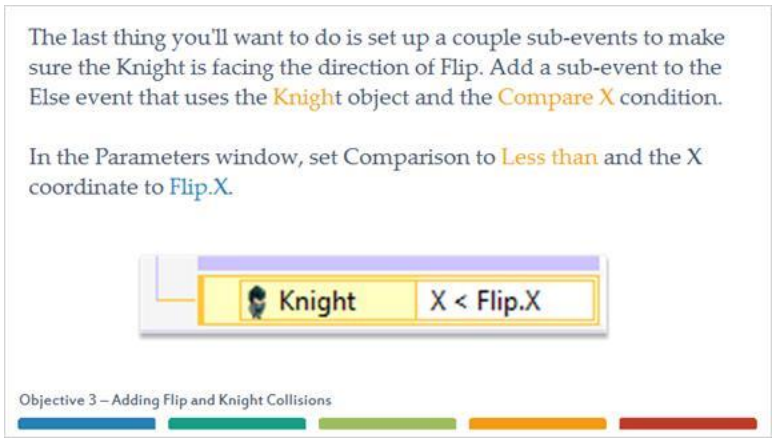
79 - Knight Set Max Speed



80.1 - Knight Actions

80.2 - Knight Action Image

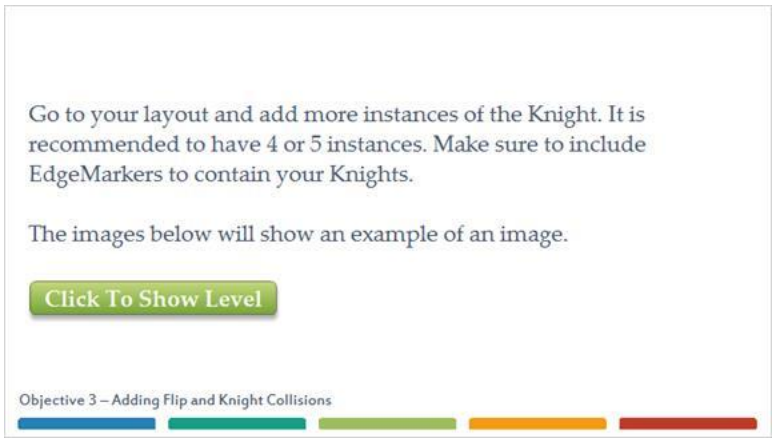
81 - Knight Compare X



82.1 - On Your Own

82.2 - Knight Actions Image

83.1 - Example Level

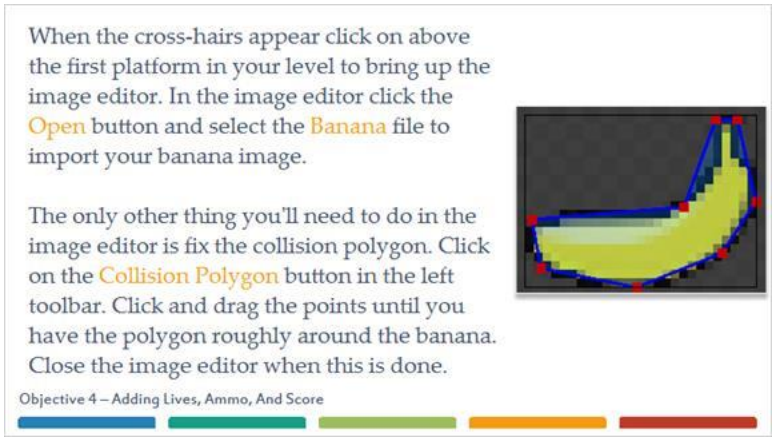


83.2 - Level

84 - Testing Your Layout

85 - Objective 4: Adding Lives, Ammo, And Score

86 - Banana Collision Polygon



87 - Ammo Sprite

The Banana object won't need any other behavior or property changes. So, in your layout add more instances of your Banana throughout the level.

Next you'll add the object for the coconut gun ammo. Add a new object that is a Sprite and name it Ammo. Click above the first platform in your level with the cross-hairs to bring up the image editor.

Another example of the layout with Ammo and Banana objects placed will be provided after more elements are added to the layout.

88 - Adding Ammo

In the image editor, click the Open button and select the Ammo file. No other steps are needed so close the image editor when the ammo image is imported.

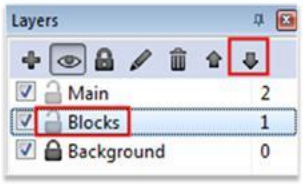
In the layout add one or two more instances of the Ammo object to your level.

When you add the score, lives, and ammo to your game you're going to want to display them on the screen. To do this, you're going to add a new layer to your game. This layer will be for an HUD, or heads up display. This is found and many games and is used to display relevant information for the player.

To begin click on the Layers tab on the right side of the screen.

89 - New Layer Blocks

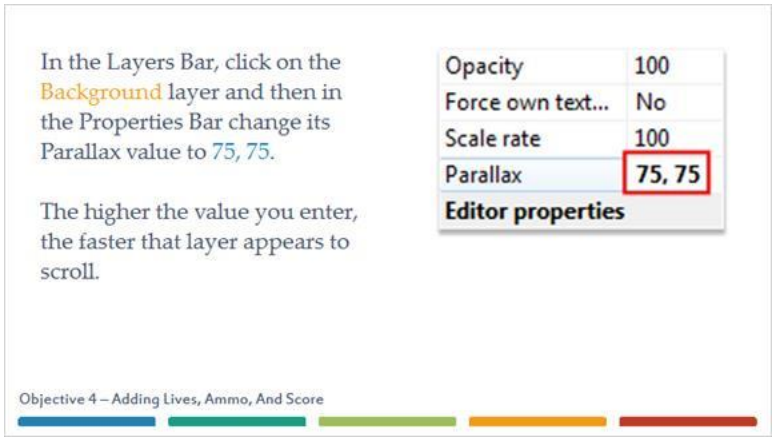
Click the plus button to add a new layer. Rename the layer to Blocks and click it to make it active. Next click the Down arrow button in the Layers Bar to move this layer below the Main layer.



90.1 - Parallax Settings

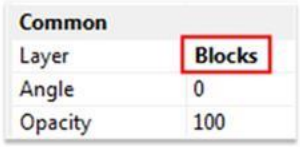
90.2 - Parallax Settings Image

91 - Background Parallax



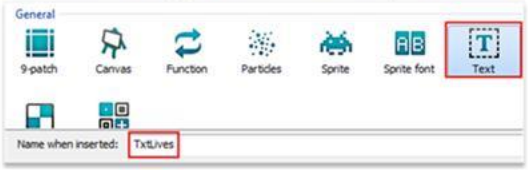
92 - Moving Objects To Different Layers

Before you add the objects for your HUD, you're going to change the layer of a couple of objects. With a layout tab selected (not an event sheet tab) click on the Ground object in the Objects Bar or the layout itself. In the Properties Bar, change its Layer to Blocks. This will make sure the Flip and Knight objects appear on top of the ground. Do the same for the Platform object as well.



93 - Text Objects

Make sure your active layer is HUD and add a new object to your layout. Select Text as the type and name the object TxtLives.

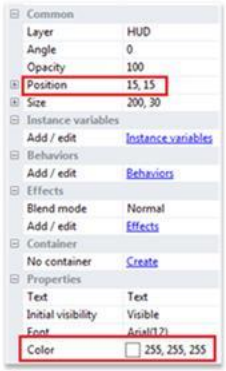


Click in the upper left of your layout when the cross-hairs appear to insert the object.

To learn more about the Text Object Click Here

94 - Text Object Settings

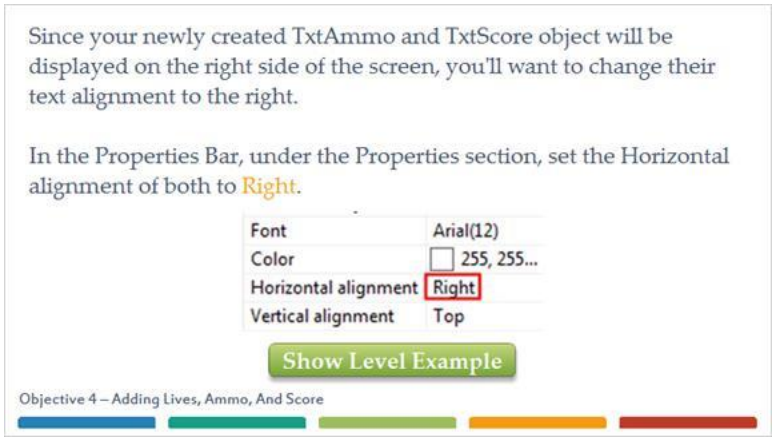
With the object selected go the Properties Bar and change its Position to (15, 15). Next go to the Properties section and change the Color setting to White.



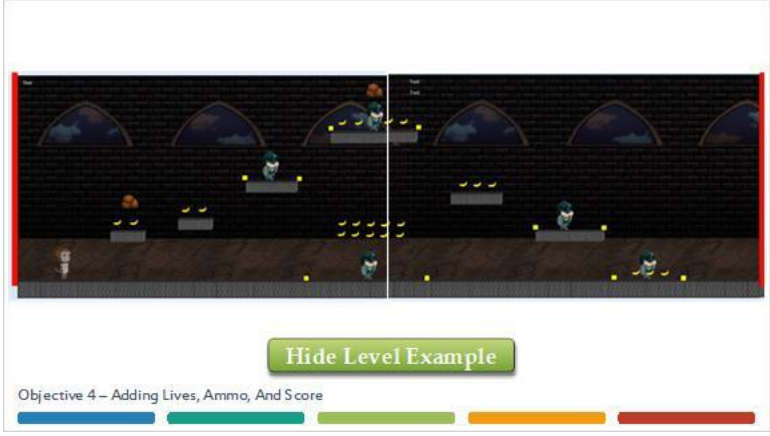
95.1 - On Your Own

95.2 - Level Example

96.1 - Level Example



96.2 - Level Example Image



97 - TxtAmmo Object

Now you're ready to set up your events. The first thing you'll want to do it set it so the TxtAmmo and TxtScore objects are on the right side of the screen. Since many screens are not the same size you'll want to set it so these object will be positioned based off the screen size.

Go to the event sheet and add a new action to the Start of layout event. Select the TxtAmmo object and for the action select Set X under Size & Position.

98.1 - Viewport Right

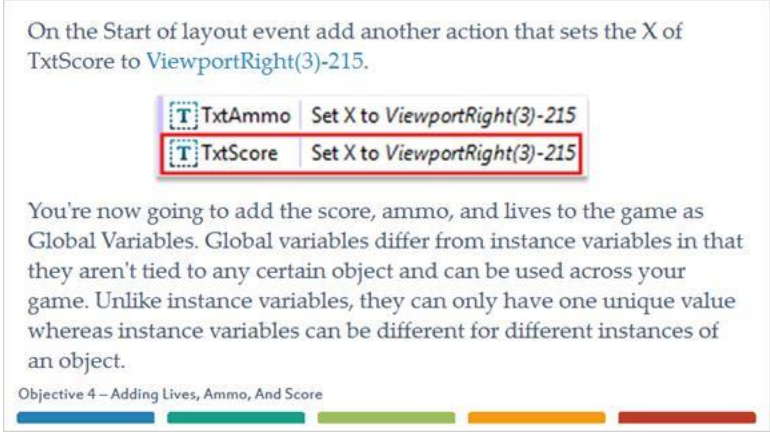
For the X value, you're going to use the expression ViewportRight. This will return the X value of the right side of the viewport boundaries of a layer. In this case, you'll use ViewportRight to set the X position to 215 pixels less than the right edge. The three within the parentheses refers to the layer number. In this case, the 3 refers to the HUD layer.

In the X field input ViewportRight(3)-215.

Show Parameters

98.2 - Parameters Image

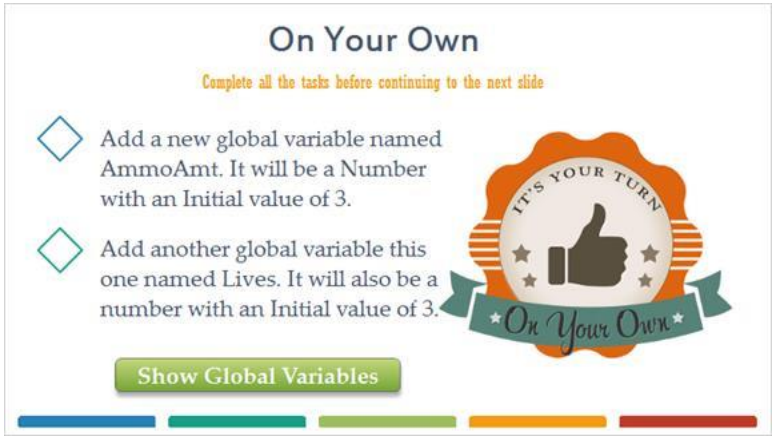
99 - Adding Global Variables



100 - New Global Variable

101 - Score Global Variable

102.1 - On Your Own



102.2 - Global Variables Image

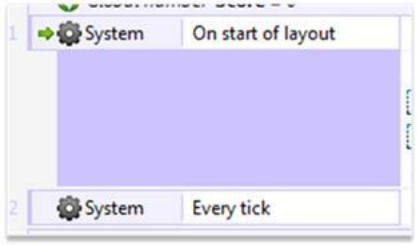
103 - System Every Tick

With the variables added you can set the events that will display the values in the text objects. You'll do this using an event that will run every tick. A tick will occur about 60 times per second, so essentially this will run all the time.

Add a new event that uses the System object and the Every tick condition.

104 - Moving Events

To keep your event sheet organized, move the Every tick right below the Start of Layout event.

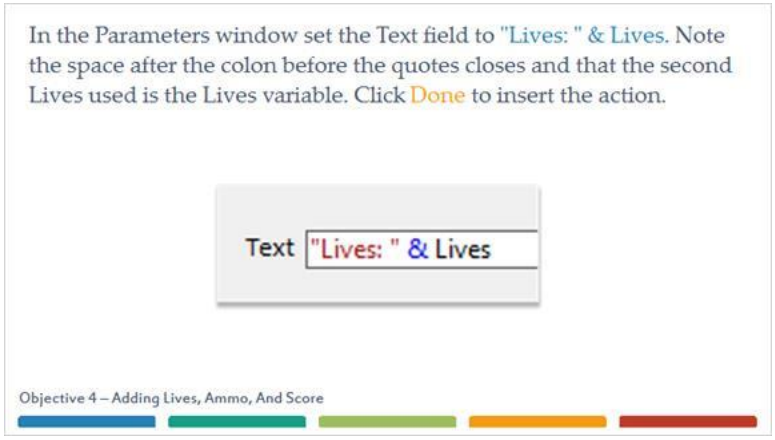


105 - TxtLives Set Text

Now add an action to this event that uses the TxtLives object and the Set Text action.

In the parameters, you're going to use the first instance of combining strings and a number in an expression. These can be combined by using an & symbol.

106 - Text Setting



107.1 - On Your Own

107.2 - Every Tick Image

108.1 - Score Action

Now you'll just need to set up the event that will change the values of the global variables.

Go into the Flip Controls group and in the Flip on collision with Knight event find the action that Destroys the Knight. Add a new action that uses the System object and the Add to action under the Global & local variables section. Set the Variable to Score and the value to 100 and click Done to add the action.

Show Score Action

108.2 - Score Action Image

Hide Score Action

109.1 - Ammo Event

Next add a new sub-event to the Flip Controls group. Use the Flip object and the On collision with another object condition. Select Ammo as the Object in the parameters.

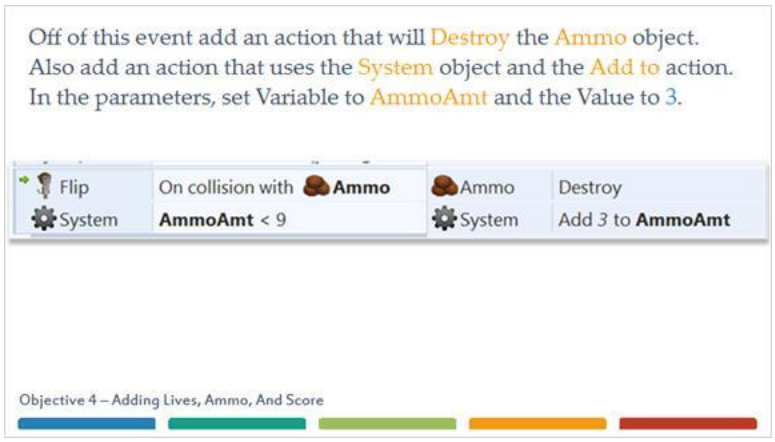
Add another condition to this event that uses the System object and Compare variable condition. Set to the parameters to test if AmmoAmt is Less than 9.

This condition will only let Flip pick up ammo if he has less than 9.

Show Score Action

109.2 - Ammo Event Image

110 - System Add to AmmoAmt

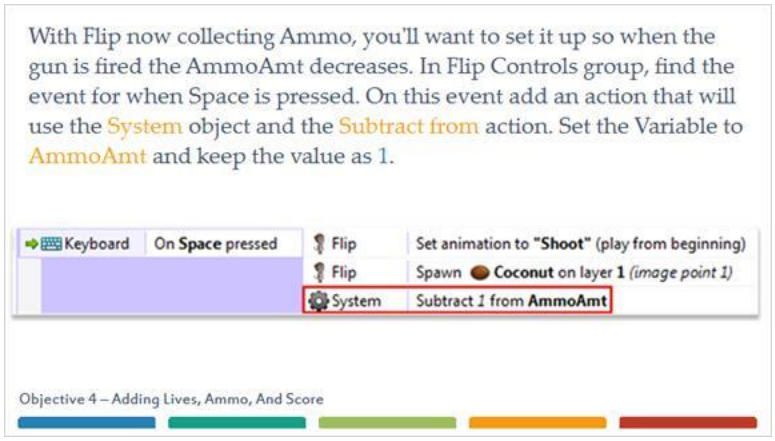


111 - On Your Own

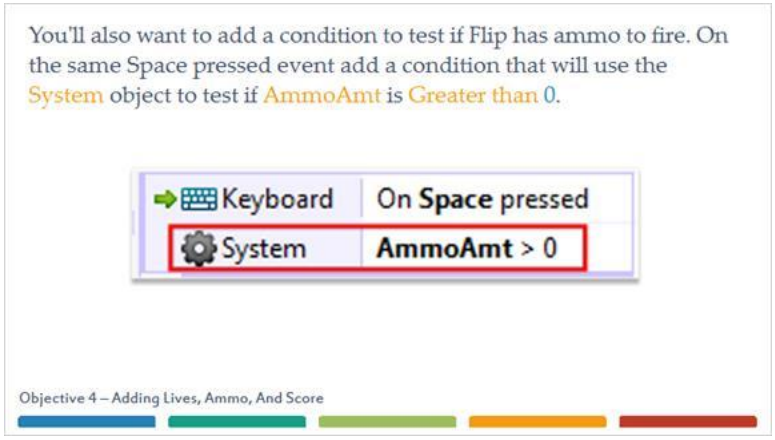
112.1 - On Your Own

112.2 - Sub-event Image

113 - System AmmoAmt Subtract From



114 - AmmoAmmt Greater Than



115.1 - On Your Own

115.2 - Banana Event Image

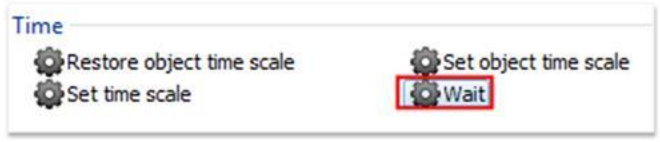
116 - Knight On Any Finished

Next you'll set the event that will remove a life when a Knight collides with Flip. In the Knight Actions group, locate the event that tests if Action is equal to "swing". Off of this event, add a sub-event that uses the Knight object and the On any finished condition in the Animations section.

117 - System Wait

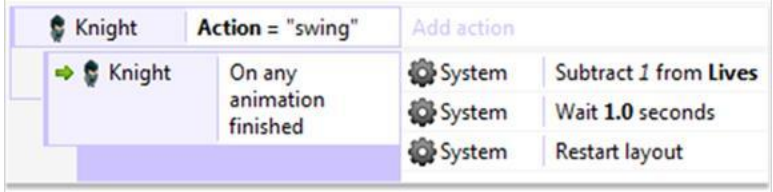
Add an action to this sub-event that uses the System object and the Subtract from action. Set the Variable to Lives and keep the Value as 1.

Next add an action that uses the System object and an action called Wait which is under the Time section at the bottom.



118 - Restart Layout

Keep the Seconds parameter as 1.0 and click Done. Now add a final action that uses the System object and the Restart layout action.



119 - Play The Game!

120 - Success