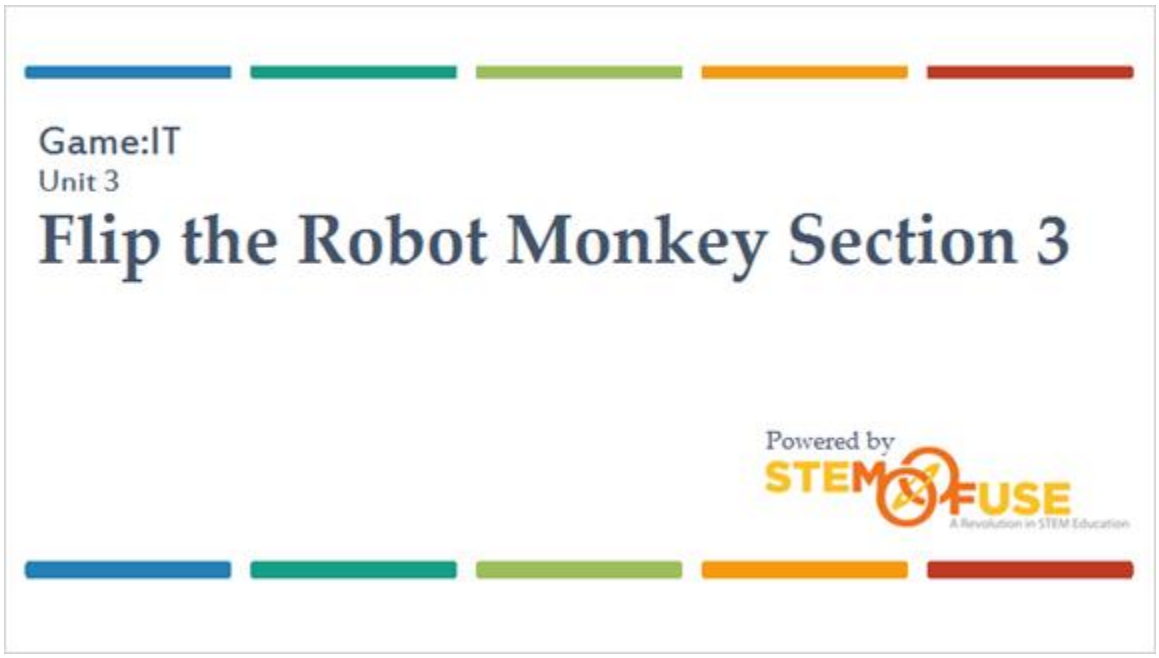
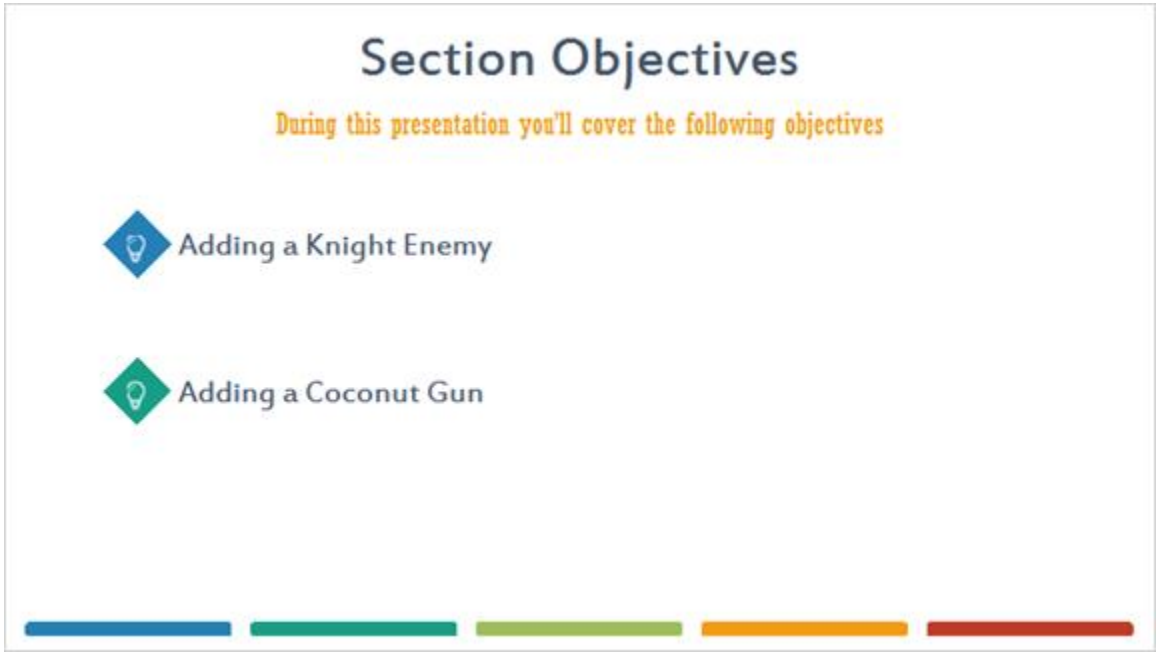
Flip the Robot Monkey Section 3

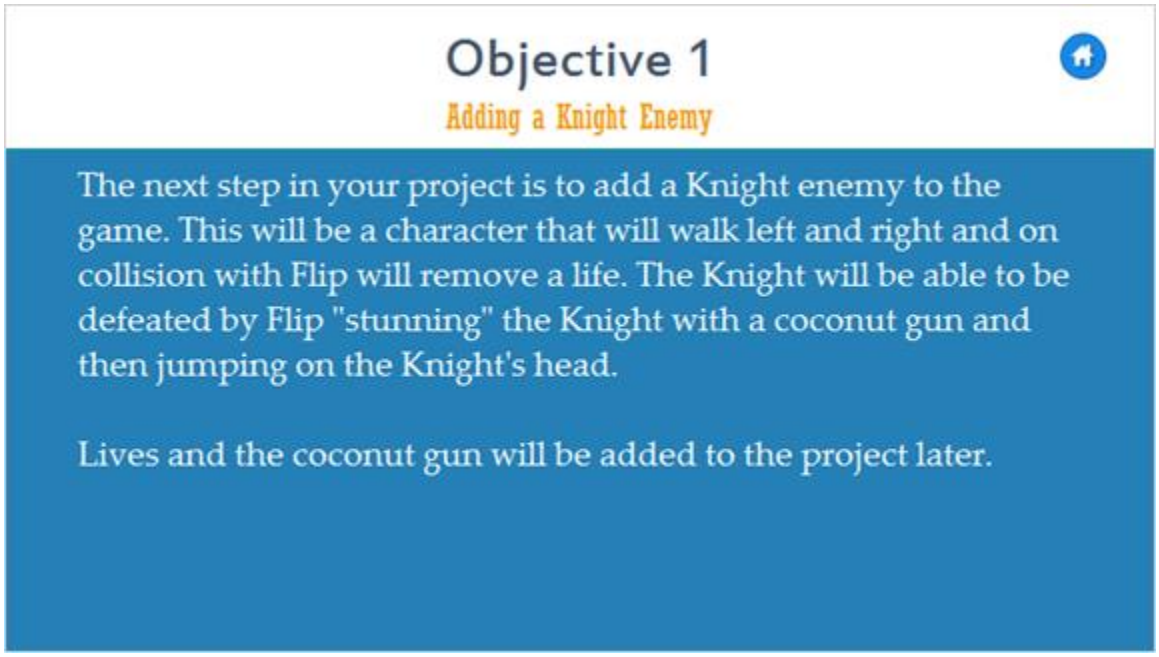
1 Title Slide: Flip the Robot Monkey Section 3



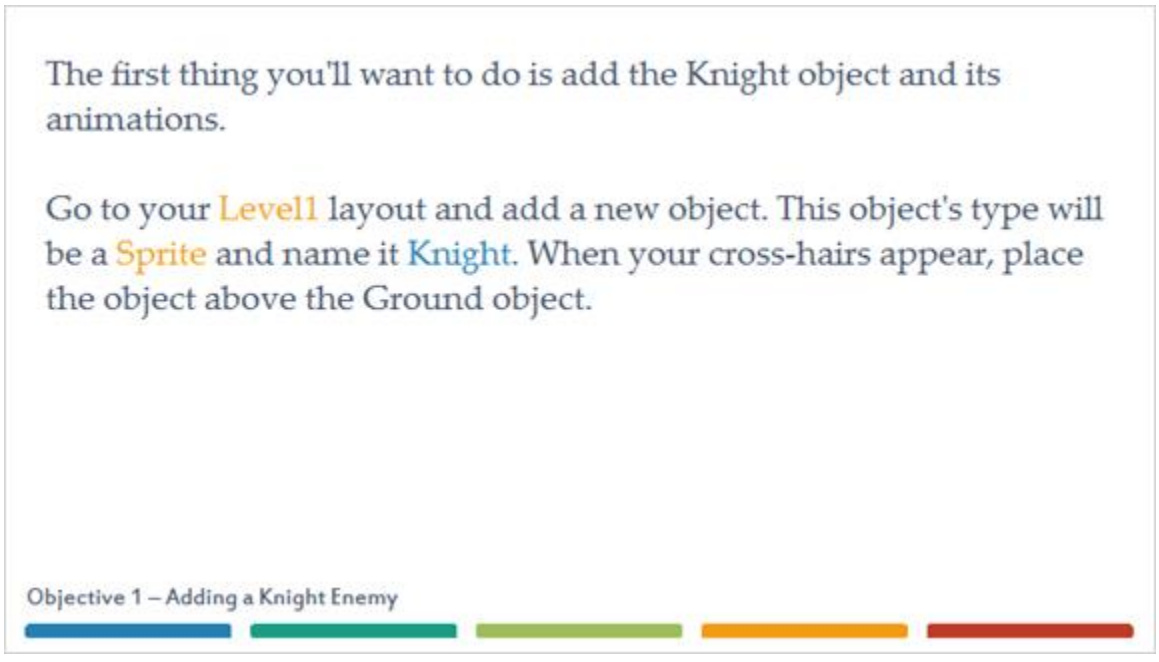
2 Section Objectives



3 Objective 1: Adding a Knight Enemy

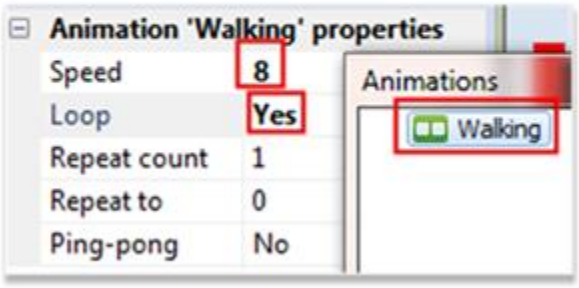


4 Knight Sprite



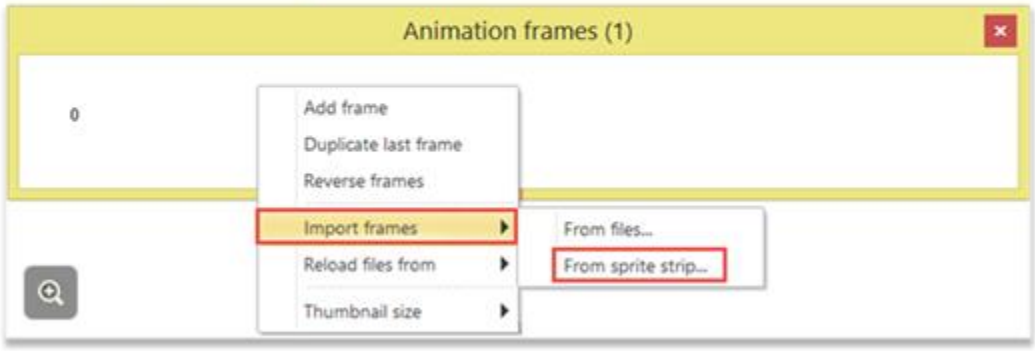
5 Knight Animation Walking

Your Knight object will have three animations: Walking, Swing, and Stunned. The first animation you'll add is the walking animation. Go to the Animations window and rename Default to Walking. With Walking selected, go to the Properties Bar and set the Speed to 8 and Loop to Yes.



6 KnightWalk Import Frames

Now you'll add the images for the animation. In the Animation frames window, right-click, hover over Import frames, and select From sprite strip... For the file, select KnightWalk, which will have 8 horizontal cells and 1 vertical cell.



7 Knight Swing Animation

Delete the first blank frame from the Animation frames window.

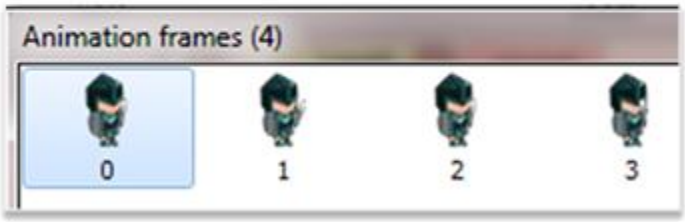
Go to the Animations window, right-click, and select Add animation. Name this animation Swing and you won't have to change any of its properties.

Objective 1 – Adding a Knight Enemy

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.

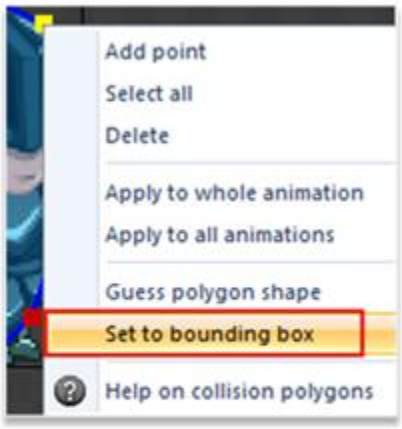


Objective 1 – Adding a Knight Enemy

9 Knight Collision Polygon

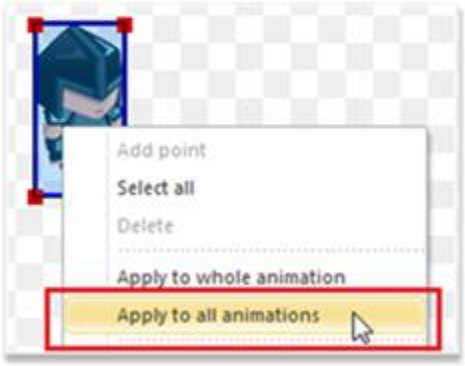
The collision polygon for the Knight object isn't as important as the one for Flip, because the Knight won't be jumping and moving around as much. For this reason, you can simply set the collision polygon to the bounding box.

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

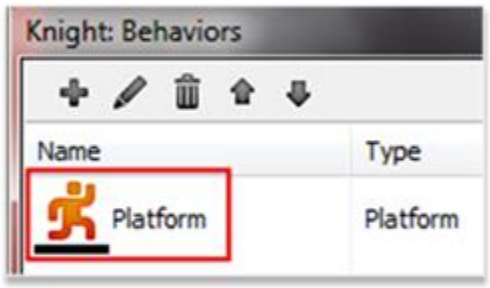
Now you'll want to apply this change to all the animations. Right-click on the image again and select Apply to all animations. Click Yes to confirm your choice and then you can close the image editor.



11 Platform Behavior

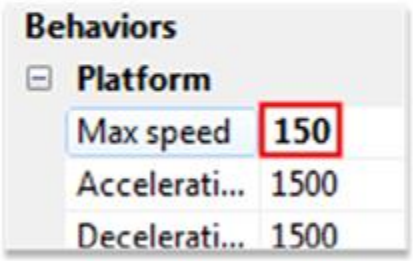
With the object animations set, you're ready to add the functionality to the object. In order to get the object to move left and right, you're going to add the Platform behavior to it.

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

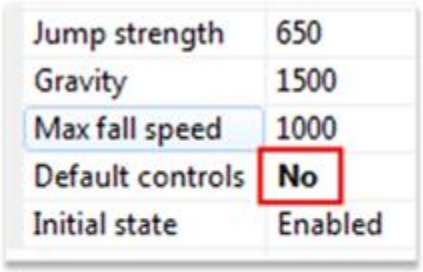
You'll now make some changes to the Platform properties. The first change is to the Max speed to make the Knight move slower. Go to the Behaviors section of the Properties Bar and change the Max speed to 150.



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.



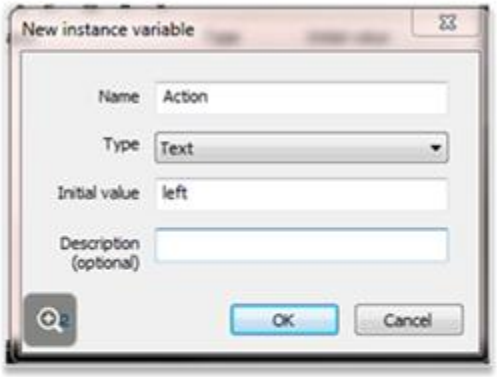
14 Instance Variables

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.

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 On Your Own

On Your Own

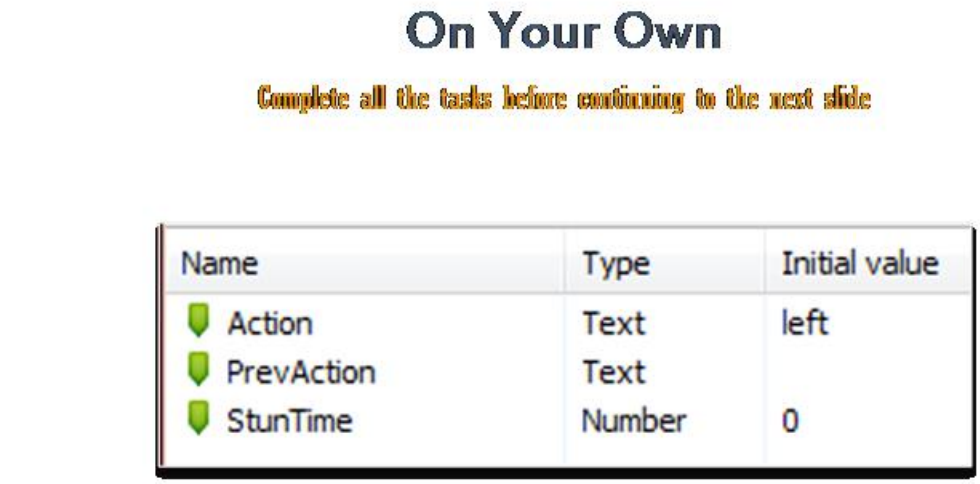
Complete all the tasks before continuing to the next slide

- Add another instance variable named PrevAction with a Type of Text and no initial value.
- Add an instance variable named StunTime that is a Number with an Initial value of 0.

Show Instance Variables

Objective 1 – Adding a Knight Enemy

Instance Variables (Slide Layer)

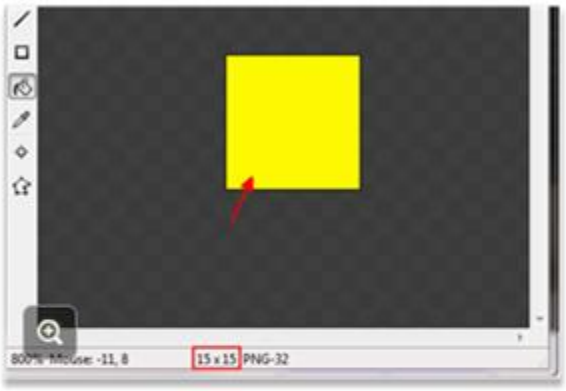


17 EdgeMarker Sprite

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 the EdgeMarker object and place them on either side of the Knight object. This will indicate where the Knight will change direction.

Your Knight and EdgeMarker objects should look similar to this.

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.

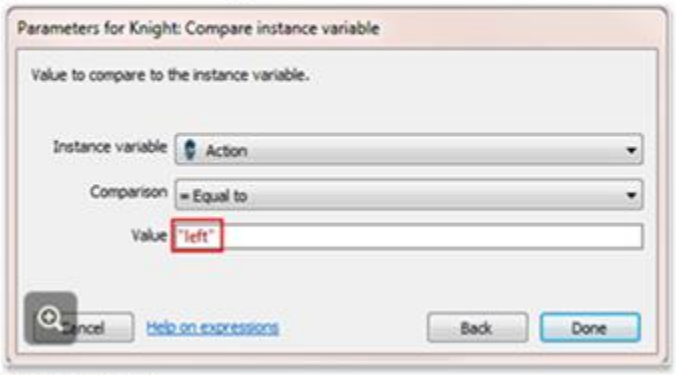
Add a sub-event to the Knight Actions group. Use Knight as the object and for the condition select Compare instance variable in the Instance variables section.

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 On Your Own

Knight Actions Image (Slide Layer)

26 Next Steps

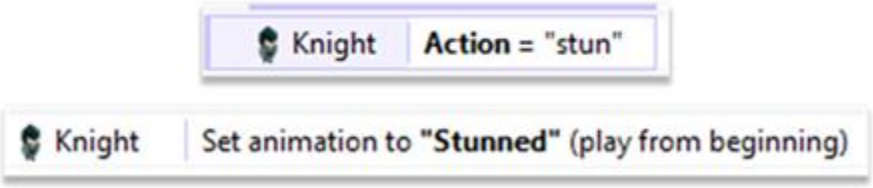
27 On Your Own

Show Knight Actions (Slide Layer)

28 Knight Stun and Stunned Animation

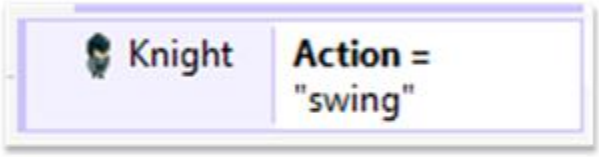
With the left and right events setup, you can add events for the stun and swing actions. Add a new sub-event off of the Knight Actions group that tests the Knight object Action variable is equal to stun.

You'll later add a sub-event to this, but for now, just add an action that will set the Knight's animation to Stunned.



29 Knight Swing Animation

For the swing action, just add an event that has a condition that tests if Action is equal to "swing." You'll add actions to this event later.



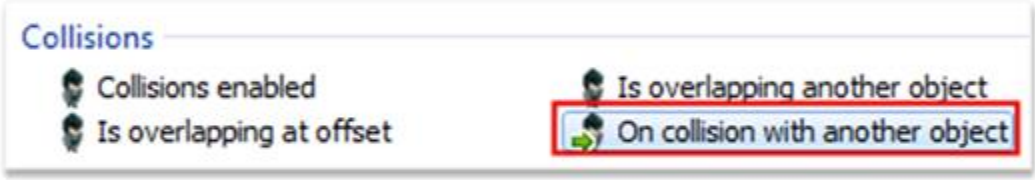
30 Knight In Action

If you run the layout, you'll see that the knight will start walking left right away since the default value of the action is left, and keep going until it hits the edge of the layout. To fix this, you'll have to add some events that control what the knight does when it hits the EdgeMarker object.

SAVE. SAVE. SAVE. Ahh, that feels better.

31 Knight on Collision

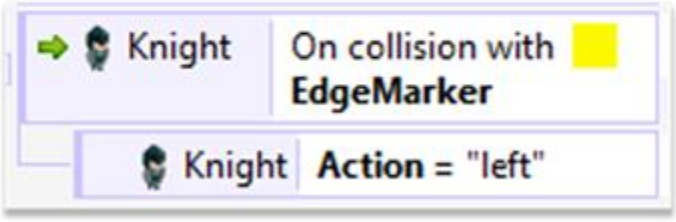
Off of the Knight Actions group, add another sub-event that uses the Knight object. For the condition, select On collision with another object under the Collisions section.



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.

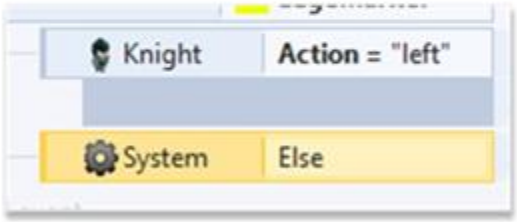
Off of the last sub-event you created, add an action that uses the Knight object and the Set value action under the Instance variables section.

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

You'll need to add another event that sets the action to left. You could do this by adding an event that tests if the action is equal to left, but to make things easy, you're going to use an else event.

Right-click on the your last sub-event (Knight Action=" left"), go to add, and select Add 'Else'.

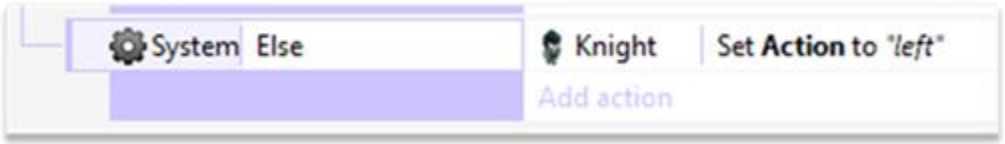


35 Knight System Else

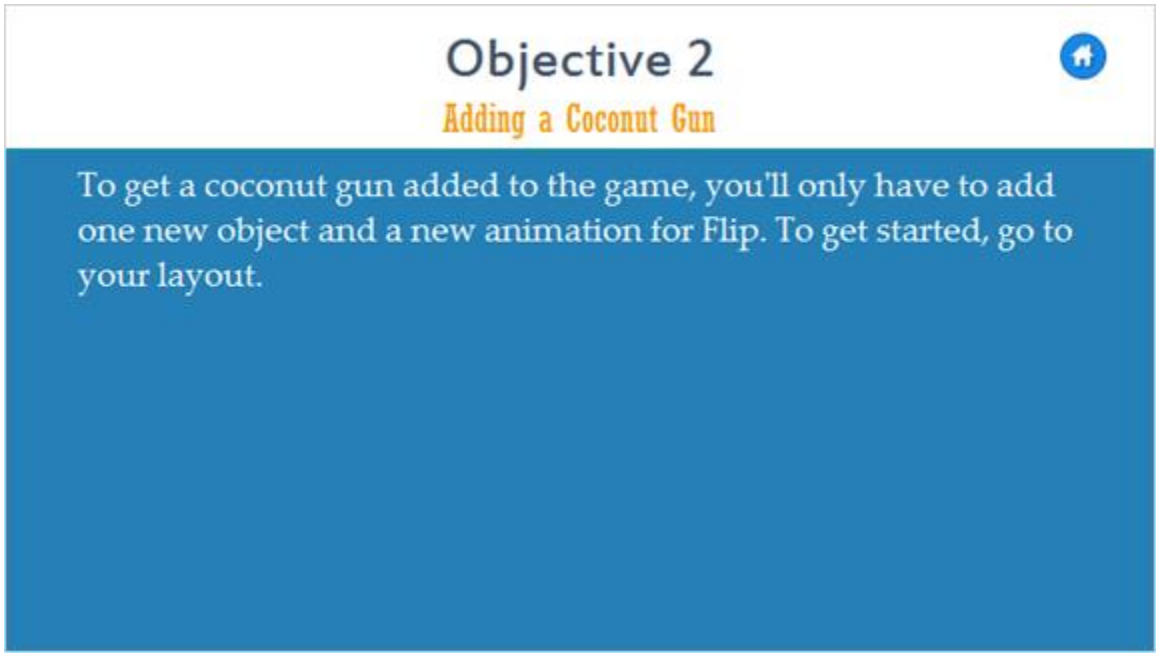
In your new Else sub-event, add an action that set the Knight's Action variable to left.

If you run the layout, you'll now see that the Knight will move back and forth between where the EdgeMarkers are placed.

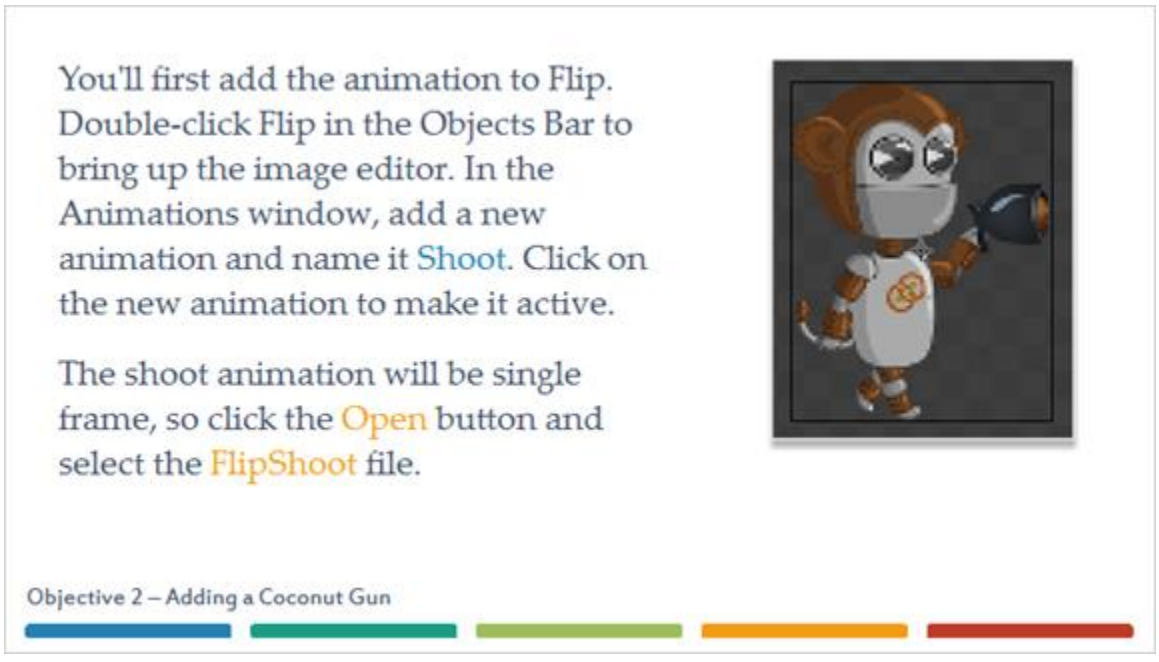
Currently, there is no way for Flip and the Knight to interact. To fix this, you're going to add a Coconut gun that Flip can use to stun the Knight and then defeat them by jumping on the Knight.



36 Objective 2: Adding a Coconut Gun



37 FlipShoot Animation



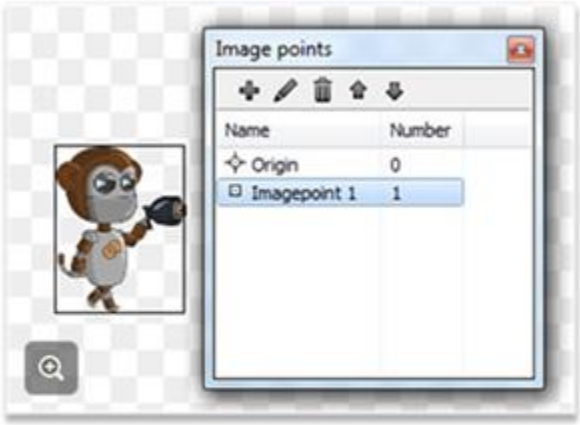
38 Additional Image Points

For this animation, you're going to add a second image point to the image. Additional image points can be reference in events to be used in a variety of ways. For this instance, you're going to use this image point as a place where your coconut will appear.

Objective 2 – Adding a Coconut Gun

39 Adding Image Points

Click on the Image points (cross-hairs) button in the left toolbar. In the Image points window that appears, click the Plus button to add a new image point. Make sure that the new Imagepoint 1 image point is selected, and with the cross-hairs, click just in front of the gun in the image to set the point.



Objective 2 – Adding a Coconut Gun

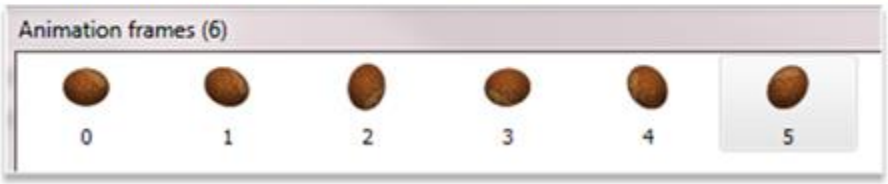
40 Setting Default Collision Polygon

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.

41 Coconut Sprite

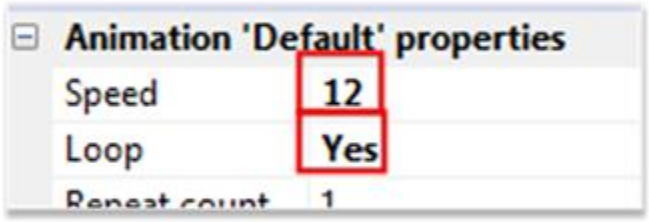
Next, you'll add the coconut object to your layout. Add a new object that is a Sprite object type and name it Coconut. When the cross-hairs appear, click somewhere outside of the layout to bring up the image editor.

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.



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.



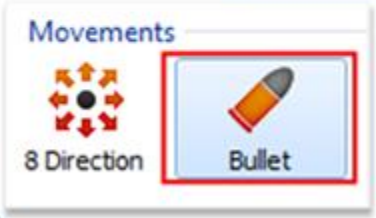
Objective 2 – Adding a Coconut Gun

43 Bullet Behavior

You'll now want to add a behavior to the Coconut. Since the Coconut will act as a bullet, you'll add the Bullet behavior.

In the Properties Bar, click the Behaviors link and add a new behavior. Under the Movements section, select the Bullet behavior.

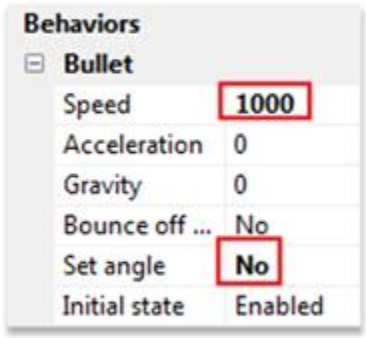
To learn more about Bullet Behavior, Click Here



Objective 2 – Adding a Coconut Gun

44 Bullet Behavior Settings

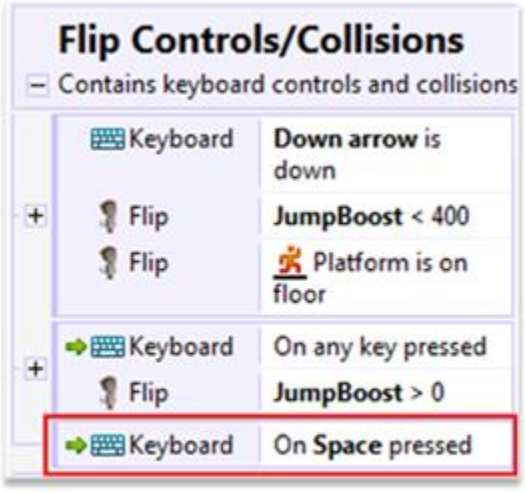
With the behavior added, go to the Bullet properties. Set the Speed to 1000 and change Set angle to No.



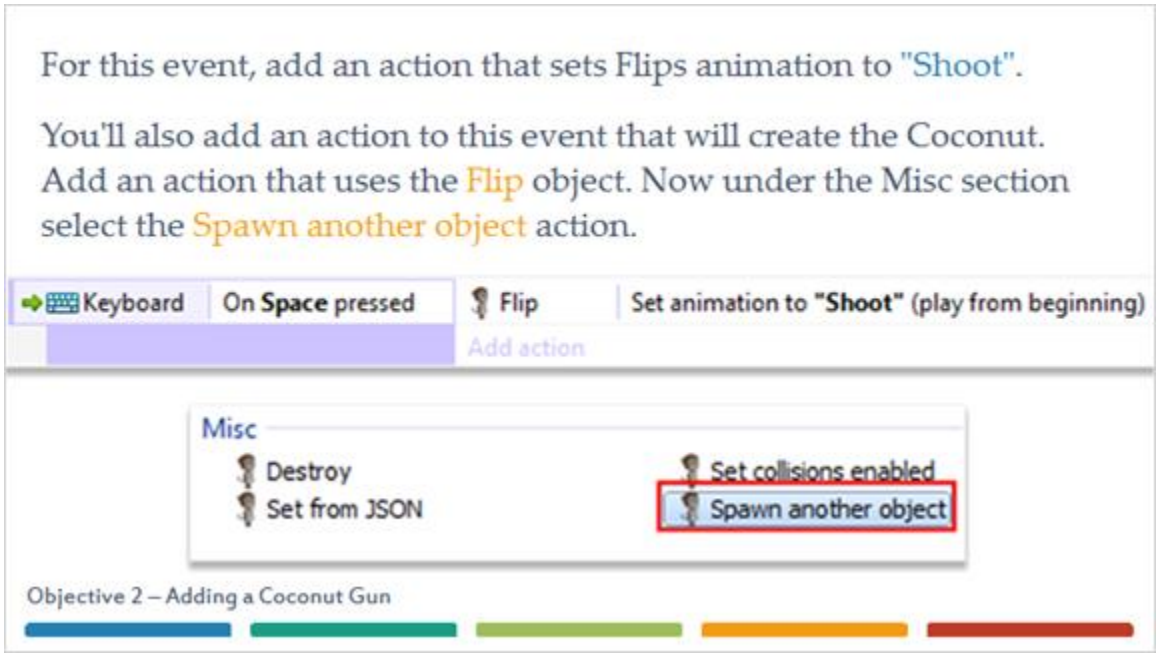
45 Keyboard On Space Pressed

You're now ready to add the events for the coconut gun. Go to your event sheet and add a new sub-event to the Flip Controls group.

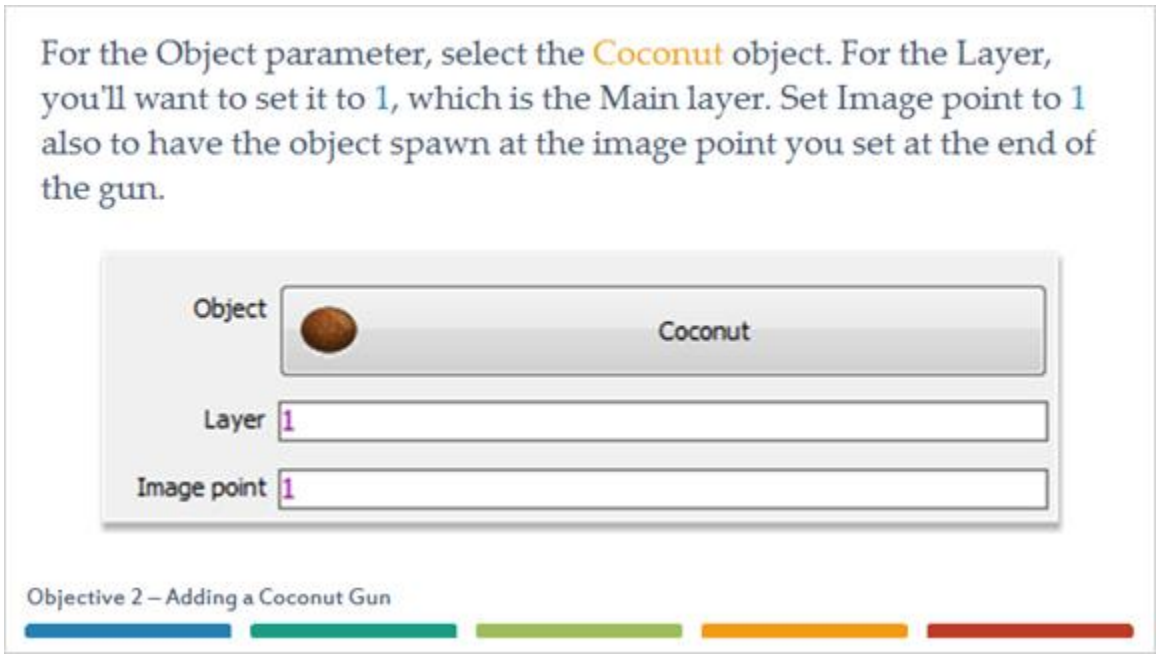
For this event, use the Keyboard object and the On key pressed condition. Set the Key to Space and click Done to insert your event.



46 Flip Spawn Another Object



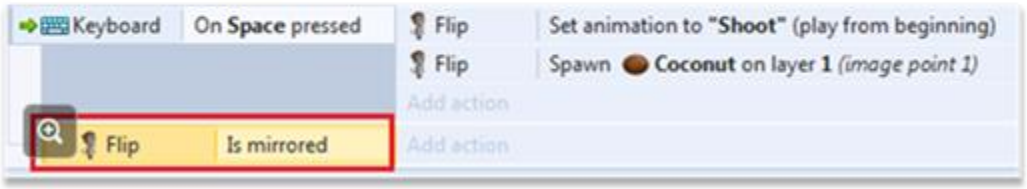
47 Spawning Coconut Object



48 Flip Is Mirrored

The bullet behavior will cause the Coconut to travel in a straight line, just like a bullet would. By default, the coconut will travel to the right, so you'll have to set an event to have it travel to the left when Flip is facing left.

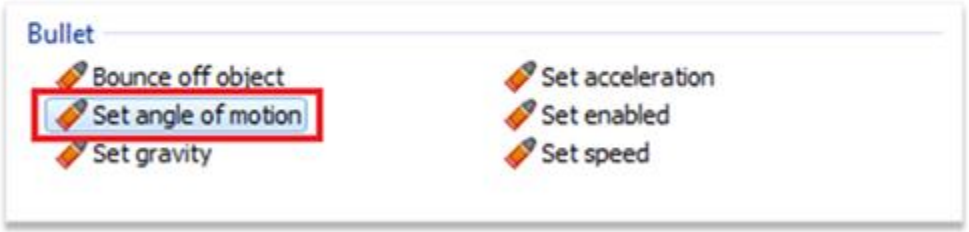
Create a new sub-event off of the On Space pressed event. For the object, select Flip and your condition select Is mirrored under the Appearance section.



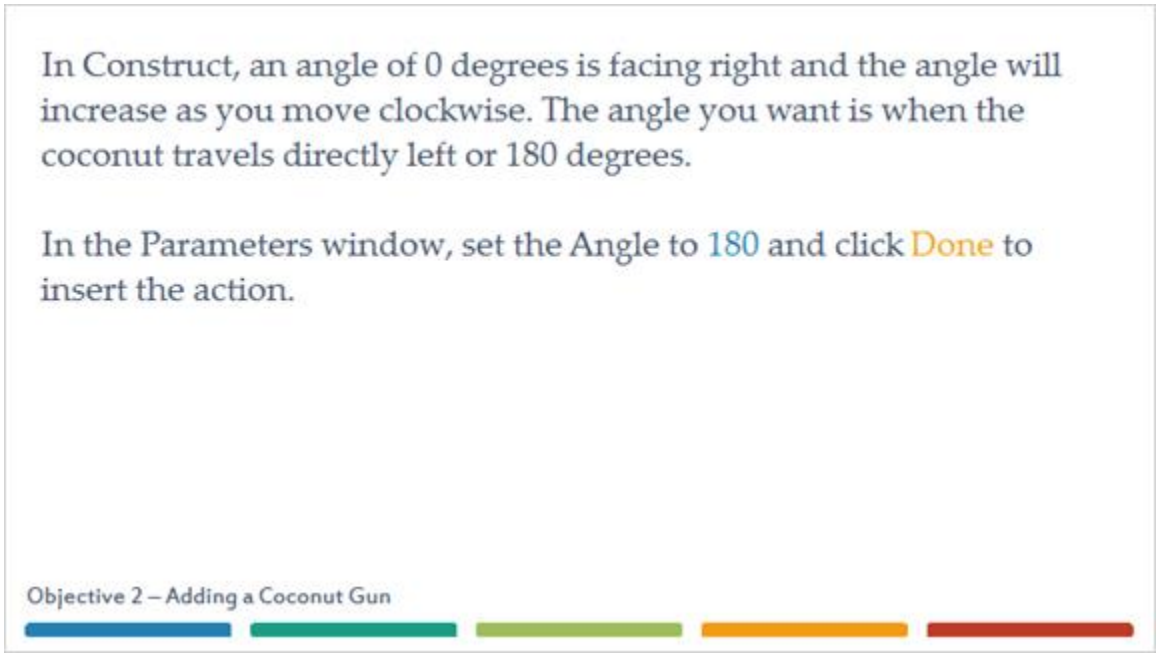
49 Coconut Set Angle Of Motion

There are two methods you could use to have the coconut travel left. One method would be to set the speed to -1000. The other method is the one you'll use, and that is the set the angle of motion.

Add an action to your sub-event that uses the Coconut object and the Set angle of motion action.



50 Coconut Angle Parameters



51 Quiz

(Multiple Choice, 10 points, unlimited attempts permitted)

Correct	Choice
	180
X	270

0
90

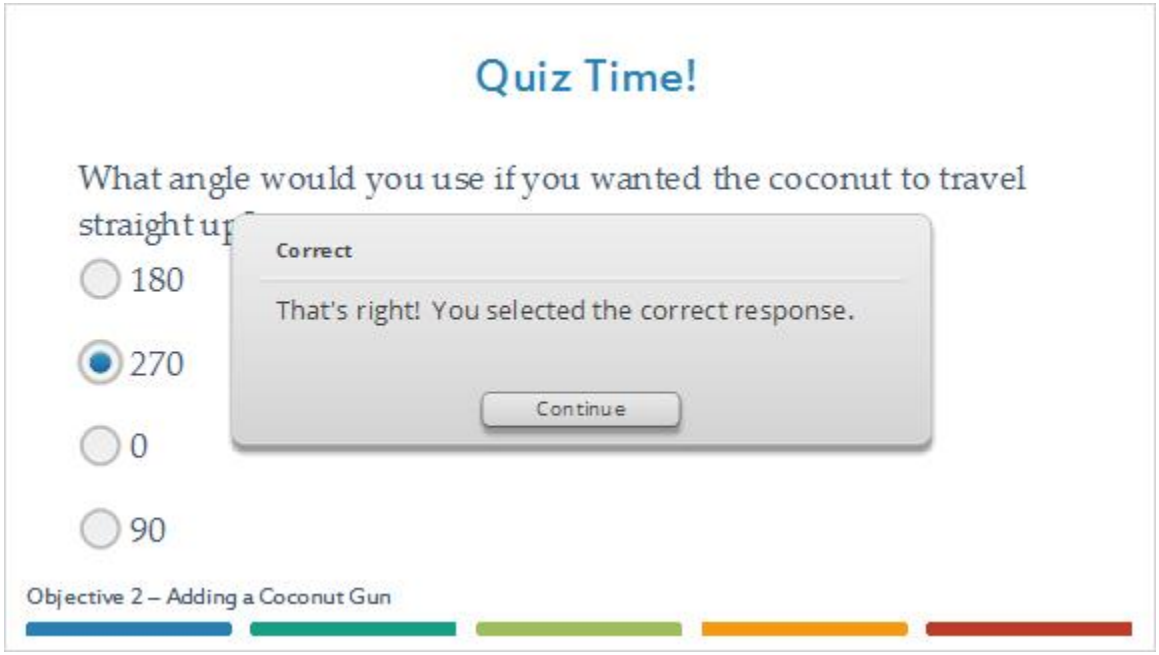
Feedback when correct:

That's right! You selected the correct response.

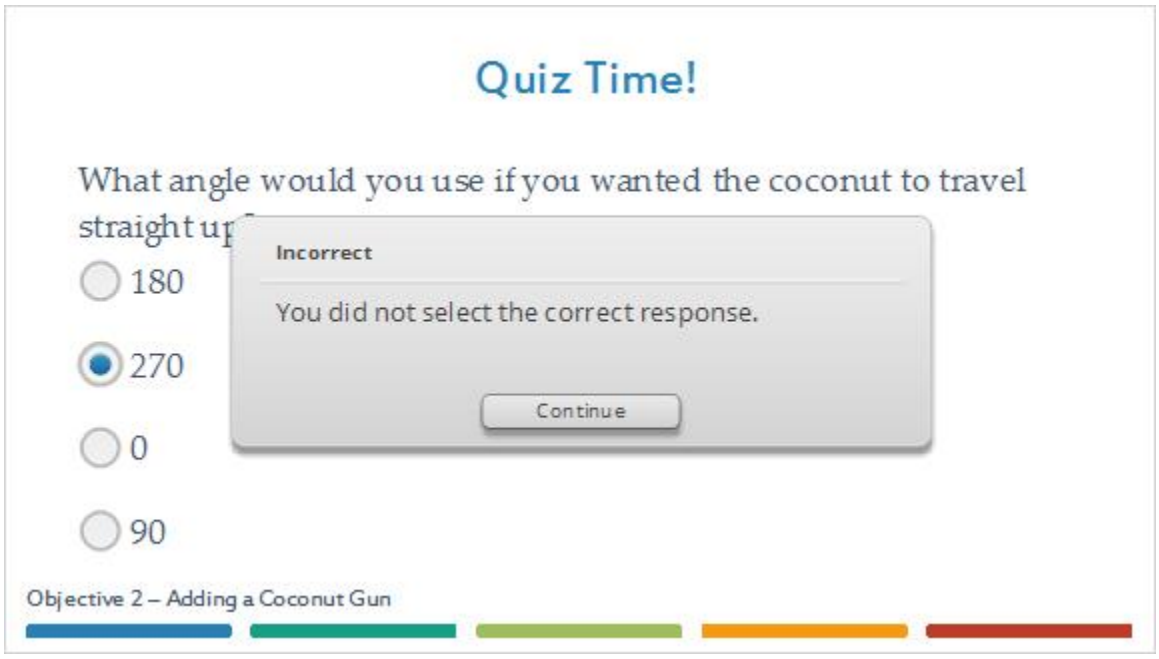
Feedback when incorrect:

You did not select the correct response.

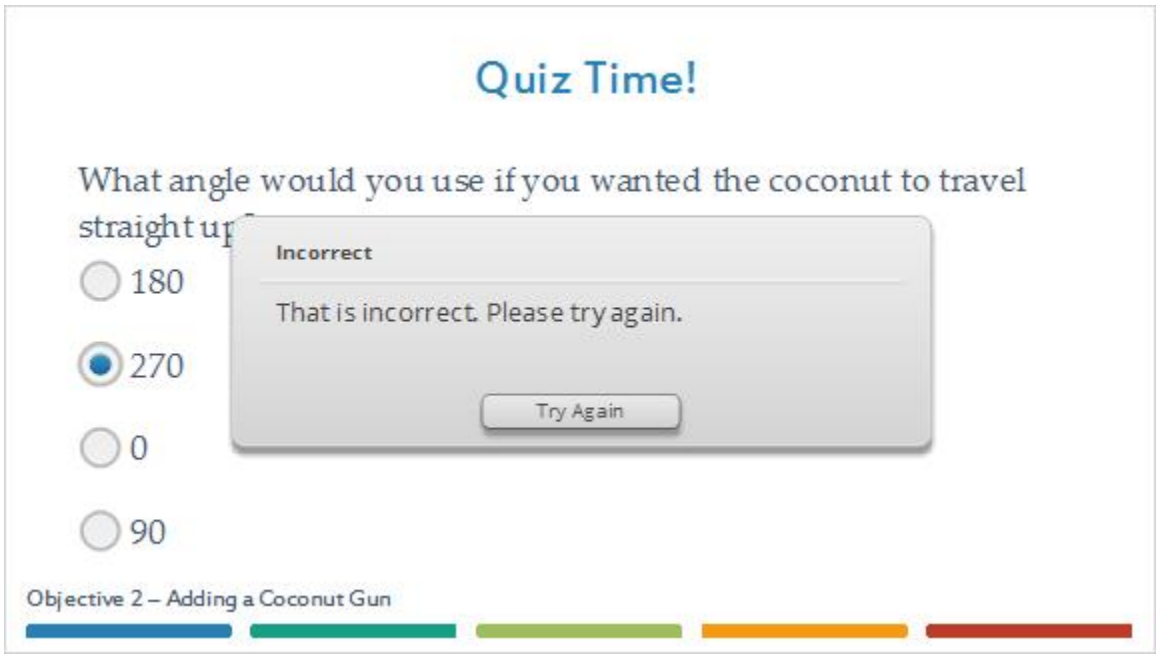
Correct (Slide Layer)



Incorrect (Slide Layer)



Try Again (Slide Layer)



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.

Objective 2 – Adding a Coconut Gun

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.

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54 Inverting Coconut Event

Since you want the event to fire when the Coconut is off of 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.

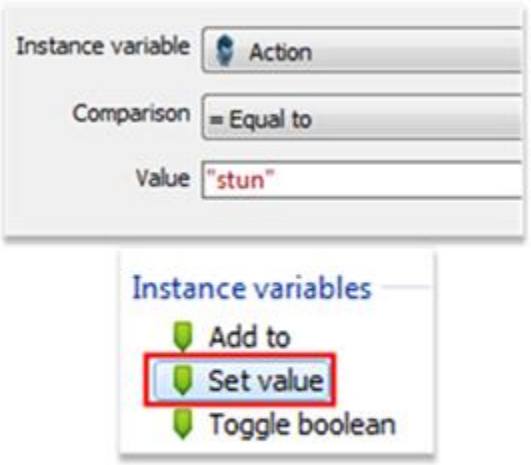
First, add a sub-event to the Coconut on collision with Knight event that uses the Knight object and the Compare instance variable condition.

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

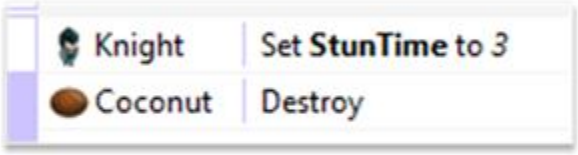
For the Parameters, make sure the Instance variable is set to Action, the Comparison to Equal to, and the Value set to "stun".

Now add a new action to the sub-event and use the Knight object and under the Instance variables section select Set value.



59 Knight Set StunTime

In the Parameters window, select StunTime for the Instance variable, and in the Value field, insert 3. Click Done to add the action, and then add another action to the event that will destroy the Coconut object.



60 System Else StunTime

Right-click on your sub-event and add an 'Else' sub-event. Copy the two actions for your sub-event above that set the StunTime and destroy to Coconut to your new Else sub-event.

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 Set Value Action

On this sub-event, add an action that uses the Knight object. For the action, select Set value in the Instance variables section.

For the Parameters, you'll want Instance variable to be set to Action. For the value field, you'll use the PrevAction variable. To access the variable, input Knight.PrevAction in the Value field.

65 Knight Compare StunTime

Next, you'll add an event that will countdown the stun time of the Knight. Add a new sub-event off of the Knight Actions group that uses the Knight object and the Compare instance variable condition.

For the Parameters, set Instance variable to StunTime, Comparison to Greater than, and keep Value at 0.

66 Every X Seconds

Next, you'll add another condition to this event that will cause it to run every second. Right-click on the sub-event, go to Add and select Add another condition. For the object, select System, and for the condition scroll down to the Time section and select Every X seconds.

To learn more about the Every X Seconds, Click Here

Objective 2 – Adding a Coconut Gun

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.

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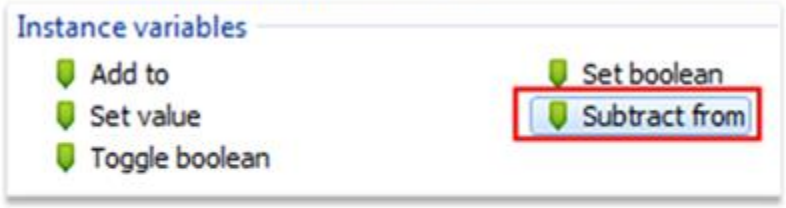
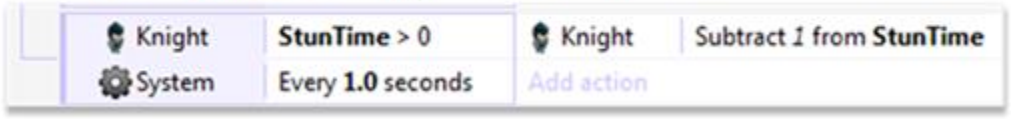
68 Knight Subtract From

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 Success

Notes: