


Ladder


Give the player the ability to climb.


Climbing is another way for the player to move around and progress through the level. Ladders can be used to let players reach spots that would have been impossible with jumping. They can also be used to allow players to climb down into the depths of a level to explore what lies below. For climbing we will check to see if we are colliding with a ladder object. If we are, we will move our player up or down depending on the keys pressed.


Before we get started: Create a ladder sprite. Name it "Sprite_Ladder". Go to **Transform** → **Resize Canvas** to make the ladder sprite **64 x 64**. Open up the sprite and draw your ladder. Note: Only draw a small section of your ladder. We will make it stackable. Make a ladder object. Create a new object. Name is **Object_Ladder** and set the sprite to **Sprite_Ladder**.


Object_Player


 **Event: Step <Step>**
Action: Check object
Applies to: Self
Object: Object_Ladder
x = 0
y = 0
Check relative

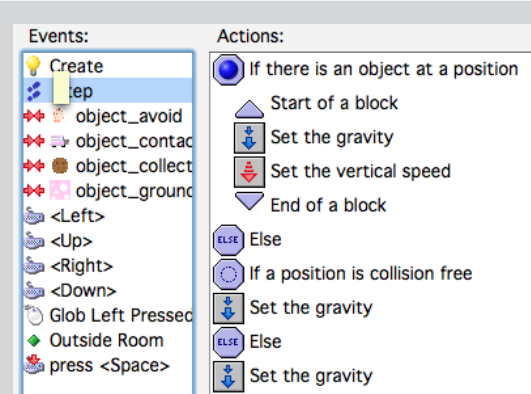
[same event]
 Action: Start block

[same event]
 Action: Set gravity
Applies to: Self
Direction: 270
Gravity: 0
NOT Relative

[same event]
 Action: Set vertical speed
Applies to: Self
Vertical speed: 0
Not Relative

[same event]
 Action: End block

[same event]
 Action: Else



We are adding these additional actions to our Step Event to account for colliding with the ladder. If you were to jump into a ladder, you should "hang on" to it and not fall back to solid ground. To do this, we need to turn off gravity when the player is colliding with the ladder.

NOTE: Your player must have the **Move: Player (Gravity)** attributes in order for the ladder to be useful. The gravity code must be put after the Else action in order for the Ladder to work. See the [Move: Player \(Gravity\)](#) card for instructions on how to set the gravity for the player in your game.

Ladder

Add the following actions *above* what is already in the **Keyboard <Up>** event under your **Object_Player**.

Object_Player

Event: Keyboard <Up>

Action: Check object

$x = 0$

$y = 0$

Check Relative

[same event]



Action: Start block

[same event]



Action: Check empty

$x = 0$

$y = -1$

Objects: Only solid

Check Relative

[same event]



Action: Jump to position

$x = 0$

$y = -5$

Check Relative

[same event]



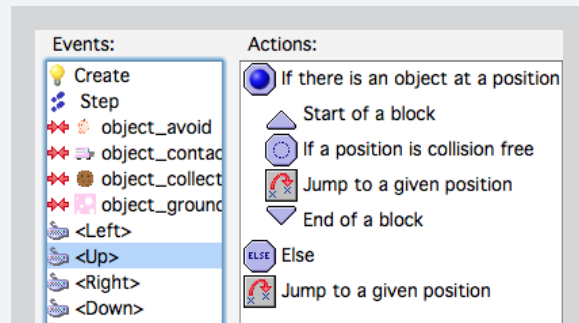
Action: End block

[same event]



Action: Else

Click **Add Event** and add a new **Keyboard <Down>** event. Repeat the above actions for **Keyboard <Up>** *except for the Else action*. Remember to change any negative values to positive, since we are now moving in the opposite direction.



We now have two functions for the up button. If the player is colliding with the ladder ("hanging on"), we want the UP key to climb the ladder instead of making our character jump, which he only does when he is on solid ground.

NOTE: The actions for climbing down a ladder are exactly the same as climbing up the ladder. The only difference is that the values in **Check Empty** and **Jump to Position** are *positive* instead of negative. Just like left and right, a negative value points up and a positive value points down.