

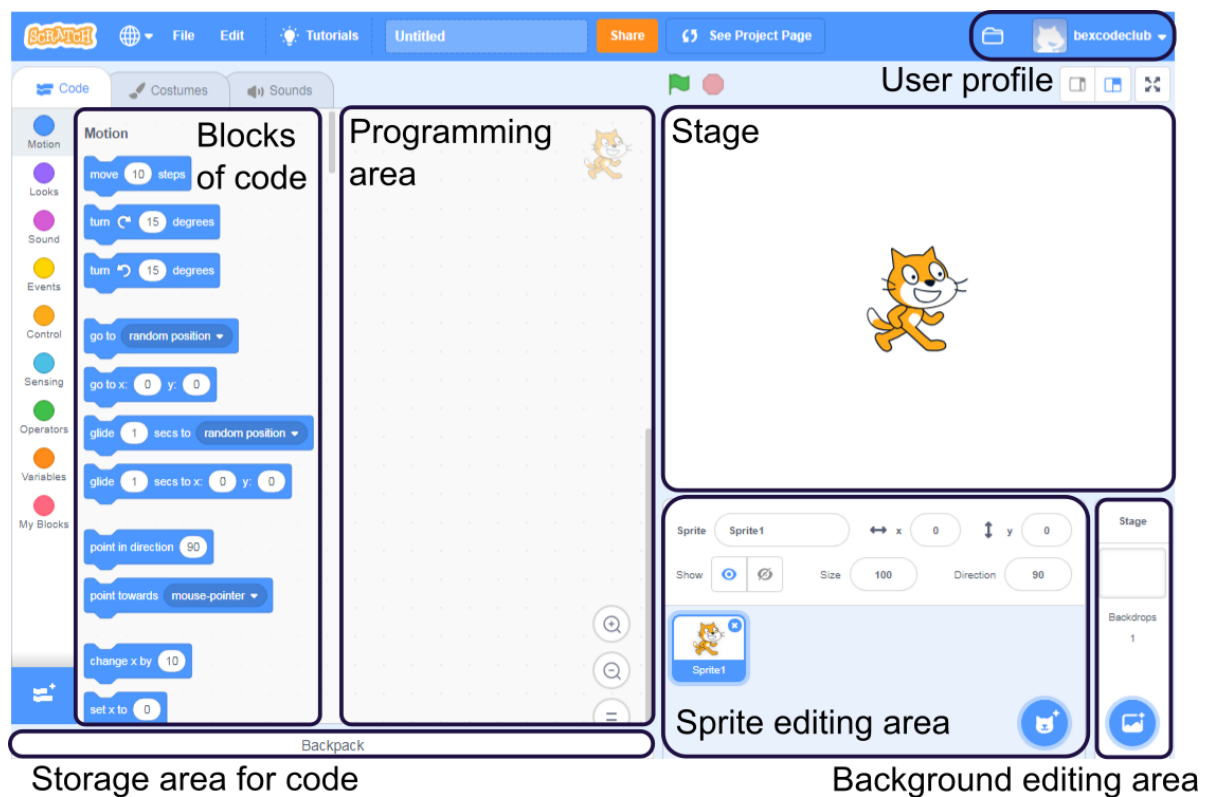


# Digital Storytelling with Scratch

*The story of how Maui brought fire to the world*

## SESSION 1 – Getting Started

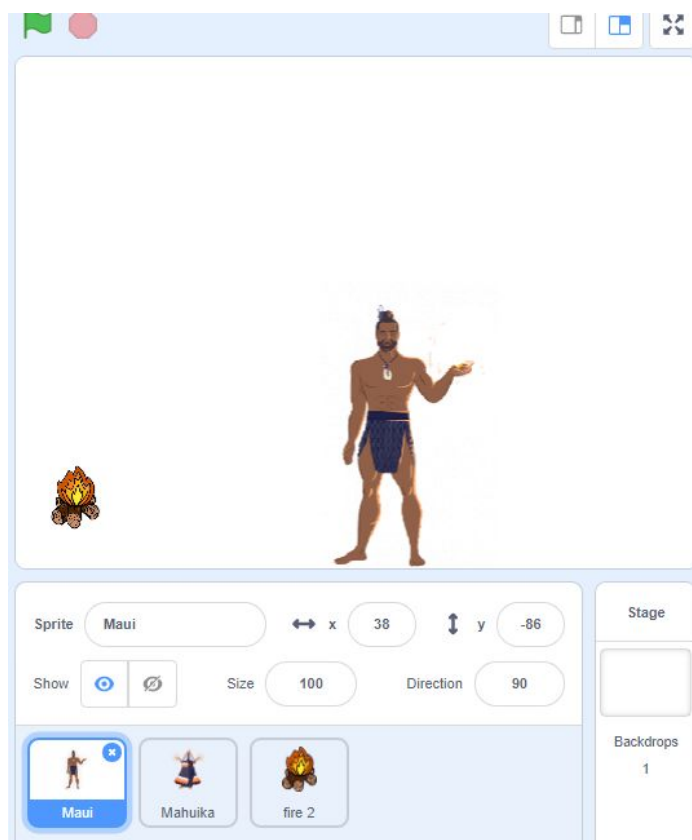
Join or log in to Scratch at <https://scratch.mit.edu>. Check out the diagram below and become familiar with the layout.



## Interactive Story Template

To begin the session you will need to head to <https://scratch.mit.edu/projects/320508066> and click 'see inside'. This will give you access to the template for Session 1 that you will use to complete tasks one, two and three.

If you want to learn more about this Maui narrative, head to: [How Maui brought fire to the world](#).



You can move sprites around by clicking and holding down the left click.

Challenge: Can you figure out how to change the size of your sprite?

## Adding Sprites

To begin creating your story, you first need to add some characters. In Scratch you can add characters using a 'sprite' found in the 'sprite editing area'. In a narrative, a sprite can also represent objects, for instance, stars, hats etc.

To add a sprite, hover your cursor over the sprite icon (pictured to the right) until it goes green. As you can see in the template, we have preloaded characters for the story of Maui for you to use!



Remember to change the size of your sprite to fit your setting. Note – the quality of an uploaded image will sometimes change.

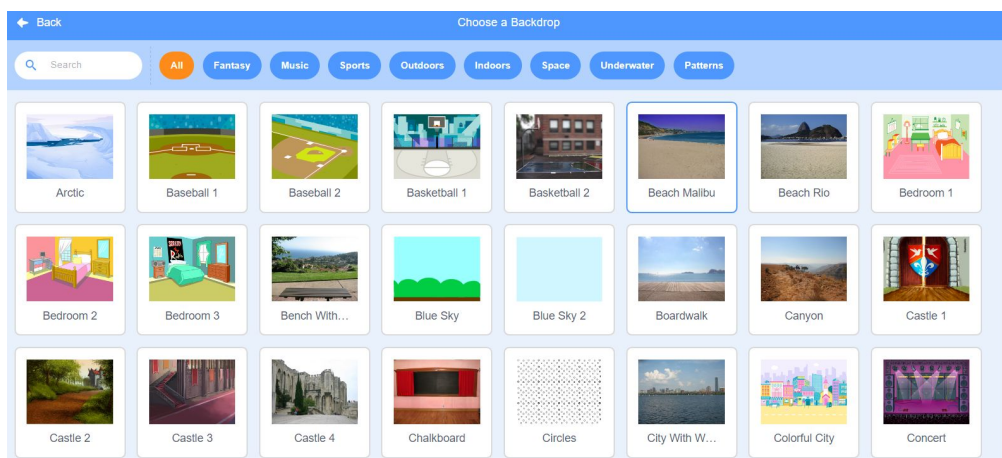
**Task One.** Now that you know how to add a sprite, add an arrow and place this at the top right hand corner of your stage. This arrow will act as a 'next' button to move on to the next part of Maui's story.

## Selecting a Backdrop

Now that you have your main characters and objects on the stage, it's time to add your setting, or as it's called in Scratch, a 'backdrop'. You can do this by hovering your cursor over the backdrop icon (pictured to the right) until it goes green. Select 'choose backdrop'.



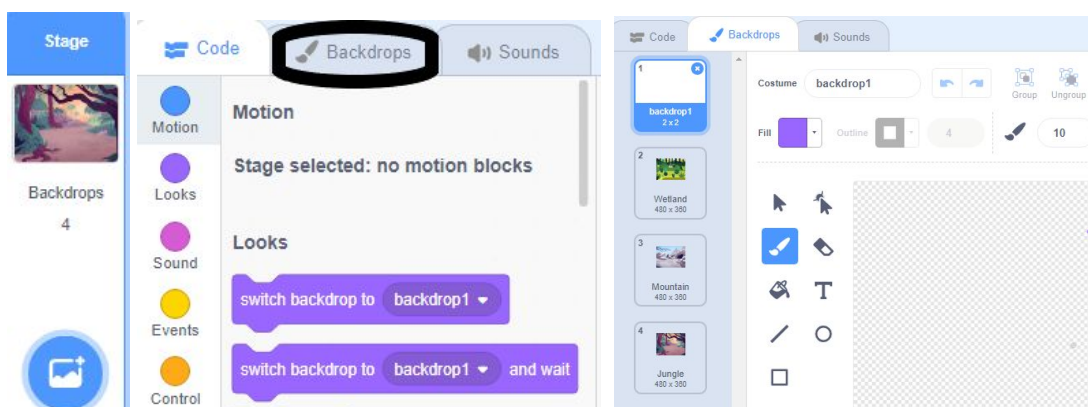
By selecting 'choose backdrop' a page will open with a selection of backdrops to choose from!



**Task Two.** For this story you need to look for specific backdrops that will highlight the setting of the story. Use the following brief, select relevant backdrops. Brief: *Beginning* = Forests and stars, *Middle* = Mountain, *End* = jungle.

While you are choosing your backdrops, your stage changes with each backdrop that you choose, don't worry it is being saved for you.

To view, edit or delete your backdrops head to your 'stage' and left click, head up to 'backdrops' and you will see the backdrops that you have selected along the left hand side, ordered as a list.



You can edit, delete and rename your backdrops to make it easier for you when programming.

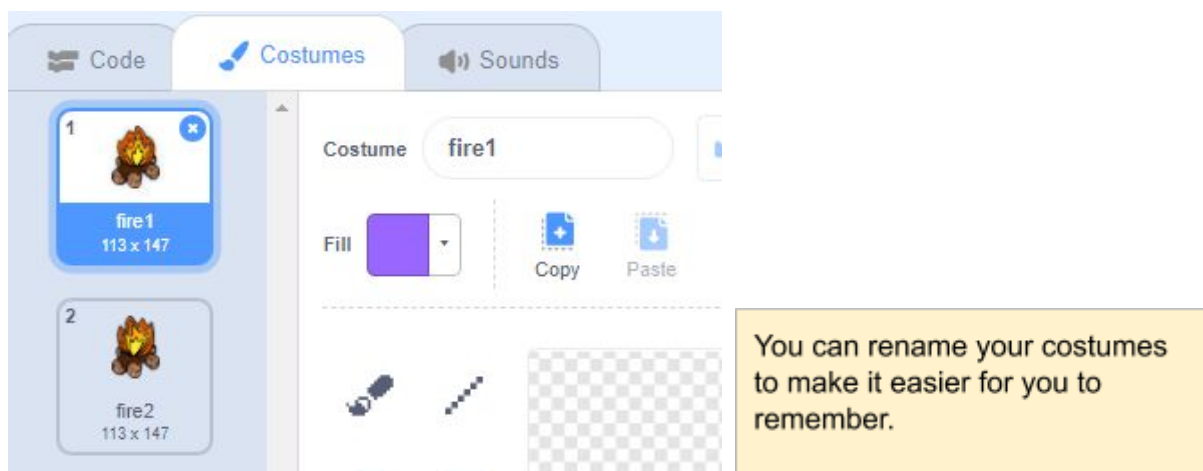
## Sequencing

To bring your story to life, you need to begin programming! Here you will learn about a range of Scratch blocks and their functions, and how you can apply this to designing and creating digital stories. You will also learn about the story of Maui and Mahuika, the conventions of narratives, coding and programming.

It's time to add a bit of animation to your fire sprite! First, make sure your fire sprite is selected:

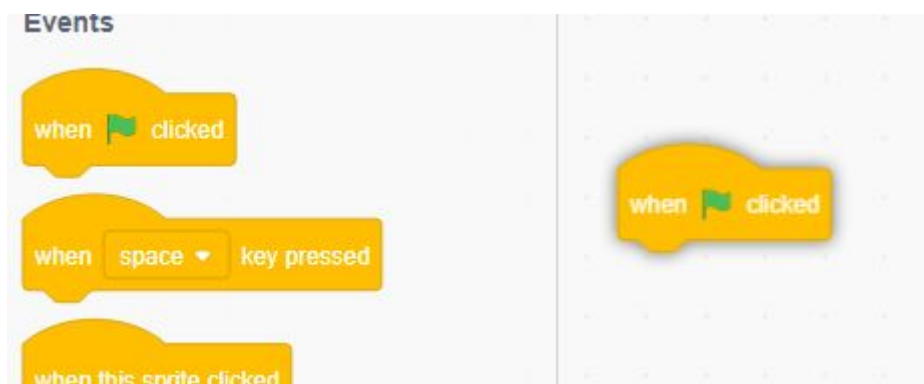


Then head over to 'costumes' in the top left hand corner of the stage. You'll notice that your sprite has three costumes: fire 1, fire 2 and fire 3. For this session you'll only use fire 1 and 2.



**Task Three.** To animate your fire, the program needs to switch from fire costume 1 to fire costume 2, like you would in a cartoon flip book. To begin, left click 'code' which will take you back to your code editing format. Now you are ready to begin programming.

To animate your fire, create an event that will tell the computer when to start your program. This can be found in **Events**. Look for the green flag then click and drag this block over to your coding area.

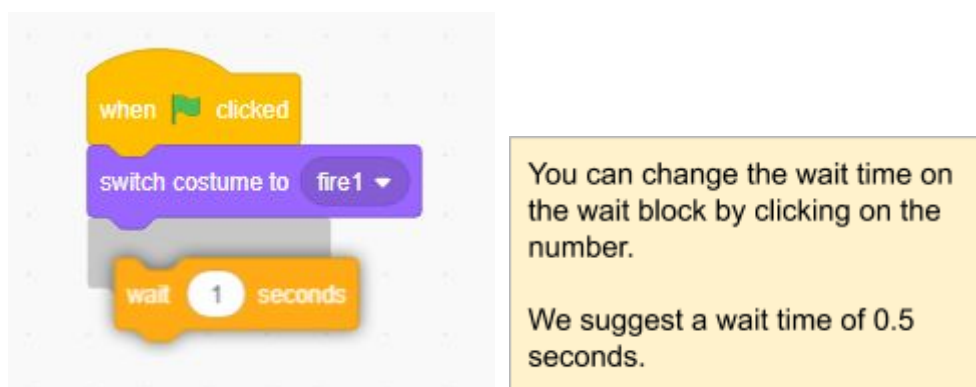


Now that you have created an event block instruction, you need to give the program something to do once you press the green flag. You want to animate your fire to give it an element of realism! You will do this by switching from fire costume 1 to fire costume 2. From your blocks, find **Looks** and look for 'switch costume to'. Click and drag 'switch costume to' over to your code area under the event block.

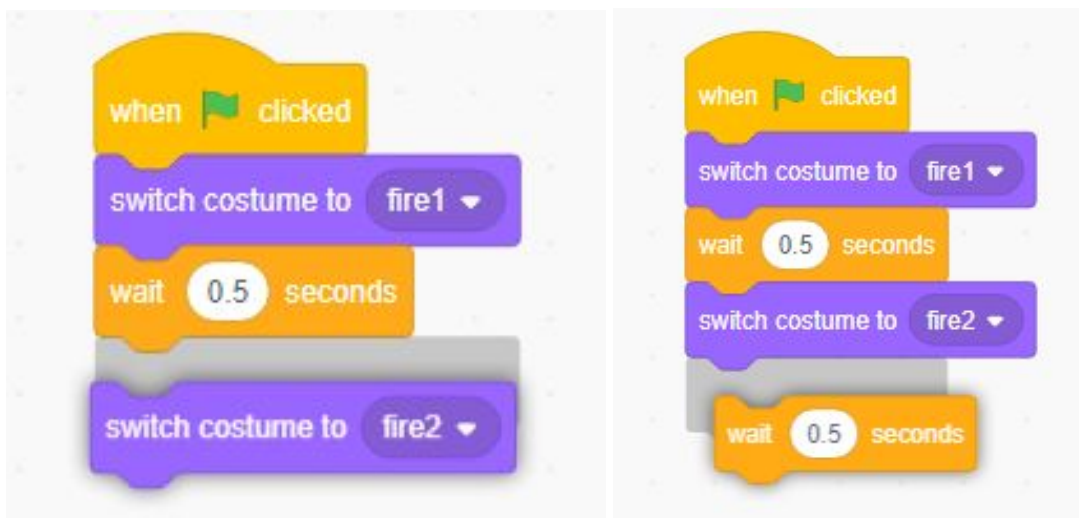


You have now officially created your first program! Right now the computer knows that when you press the green flag your sprite will switch it's costume to 'fire 1'. Now you want the computer to 'wait' for a bit then switch costume to 'fire 2'.

Look for the 'wait' block in the **Control** section, then add this block to your existing code.



Repeat this process, but remember that you need to switch from costume 'fire 1' to 'fire 2' with a wait block in between. To duplicate a block you simply right click on the block and select 'duplicate'.



## Repetition

Sometimes you want to repeat a set of instructions. As you can see when you press the green flag, the set of code will end after the last 'wait' block because there are no more instructions for the computer to perform. This means your animated fire will no longer be animated!

To delete blocks of code in Scratch, you can either right click on the block you want to remove and click delete, or drag and drop the blocks back into the centre code bar.

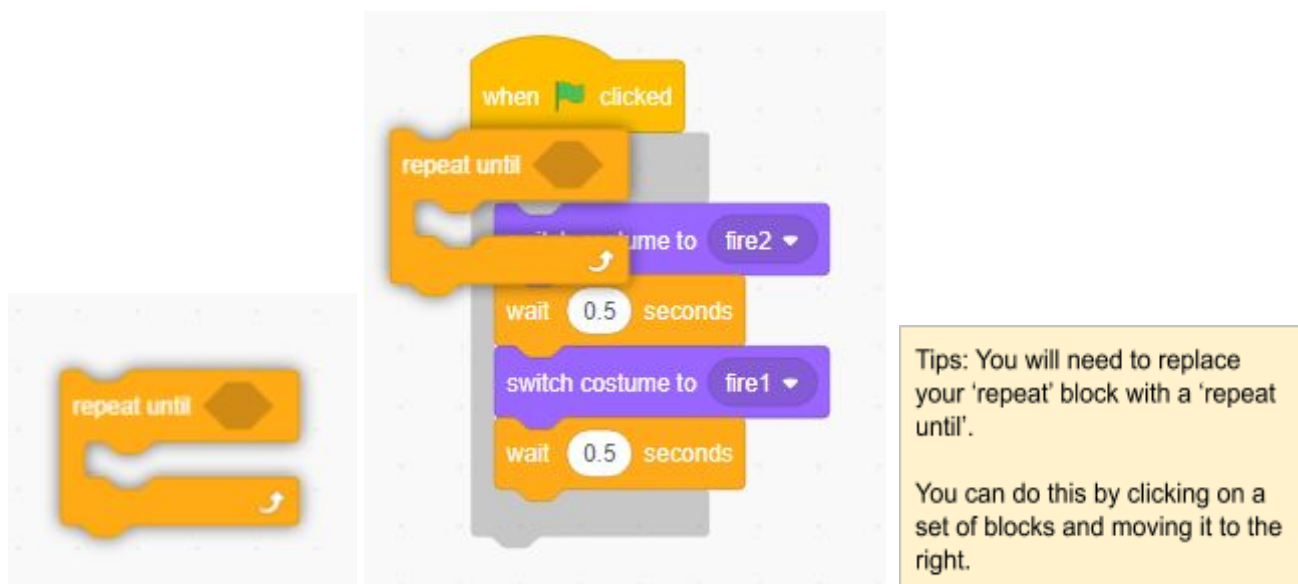
Luckily the computer has an easy way to repeat sections. In **Control**, there is a block called 'repeat.' Other blocks can be put inside this block, and will repeat the instructions for the number of time in the white area. This is called a loop.



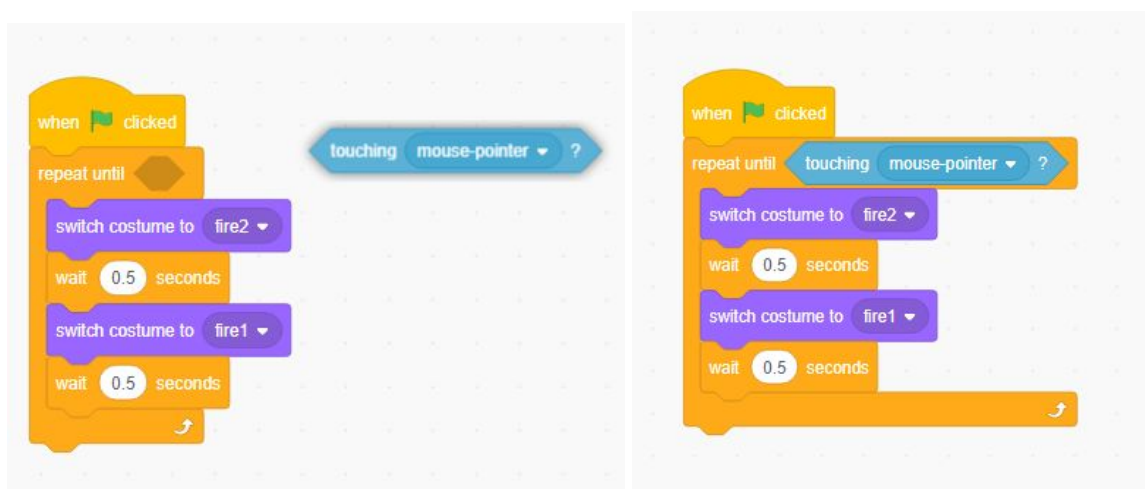
Extra: Instead of using a repeat block you can also add a 'forever' block which will run the code forever.



For this story, you need to also put the fire out. To do this, instead of using a 'repeat' block with a value, you will input a **Sensing** block to stop your flames. You will do this by replacing your 'repeat ( )' with a 'repeat until' block.



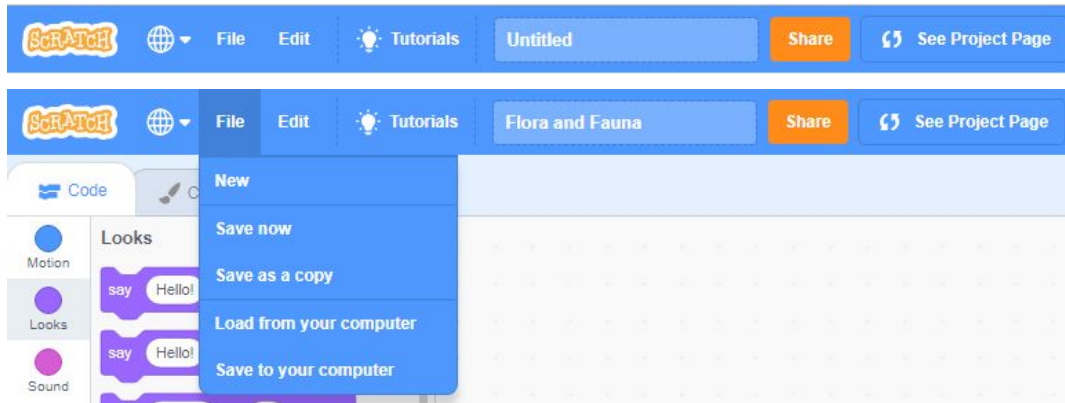
The 'repeat until' block requires you to provide an extra piece of information, which is when you want the code to stop repeating. You can tell Scratch to continue repeating the instruction until the mouse pointer is touching the sprite, by going into **Sensing** and selecting the 'touching \_\_\_\_' block. Drag the 'touching \_\_\_\_' block into the space in the 'repeat until \_\_\_\_' block. Make sure that the sensing block is set to 'mouse-pointer'.



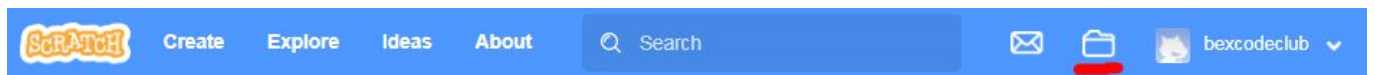
Give it a go! Start the program and hover your cursor over your flame and watch it stop!

## Saving your work

It is important that you remember to save your work at regular intervals. Change the name of the file in the bar above the stage. Click 'file' and then 'save now' to save your project.



## Opening your work



To open your work, log in to Scratch. Click on the folder icon next to your username to open your work. Find the project from last session and click 'see inside'.

## CHECK POINT

After Session 1, I know how to:

- Select, edit and delete a sprite
- Select, edit and delete a backdrop
- Understand the purpose of the **Events** blocks
- Understand how to use a 'repeat block'
- Begin using sensing block



## SESSION 2 – Adding Detail

As noted earlier, the fire sprite has three costumes listed. The last costume was created using the scratch feature called 'paint'. Essentially, paint allows you to add more detail to your code by giving a set of instructions that will put the burning fire out and leave black smoke.

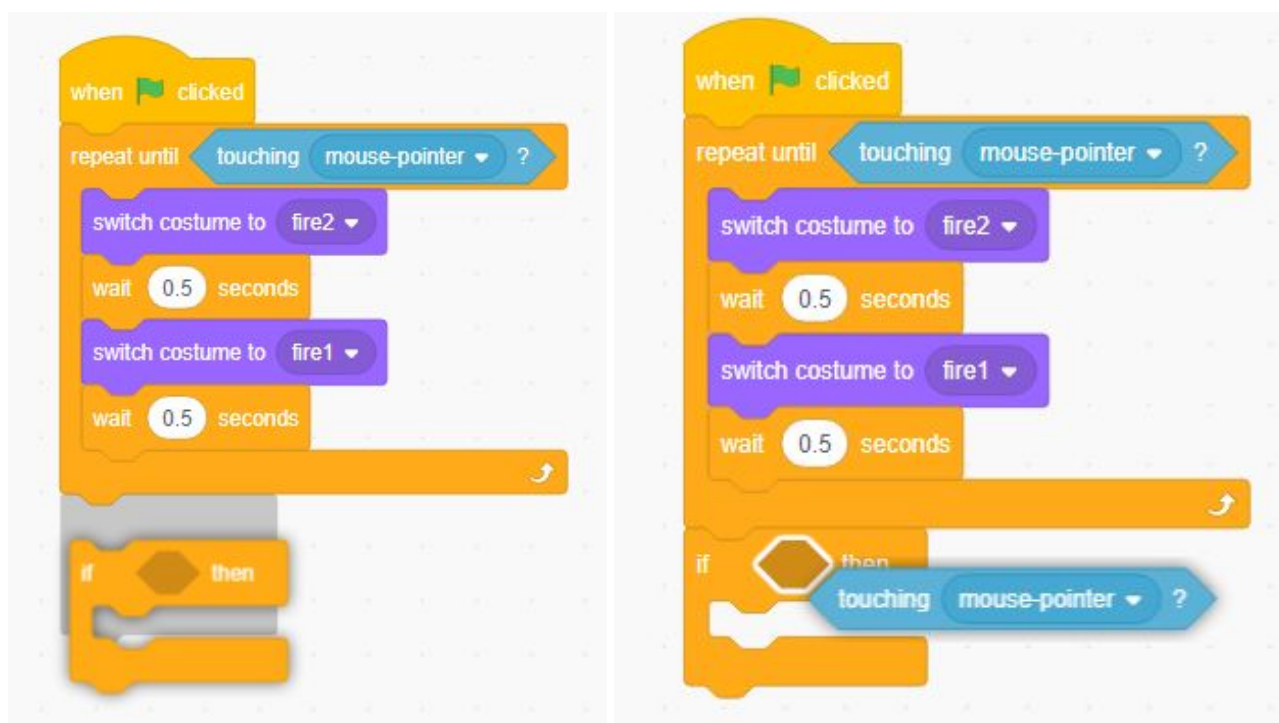
### Conditional statements

A conditional statement is a statement that a computer uses to help it make a decision.

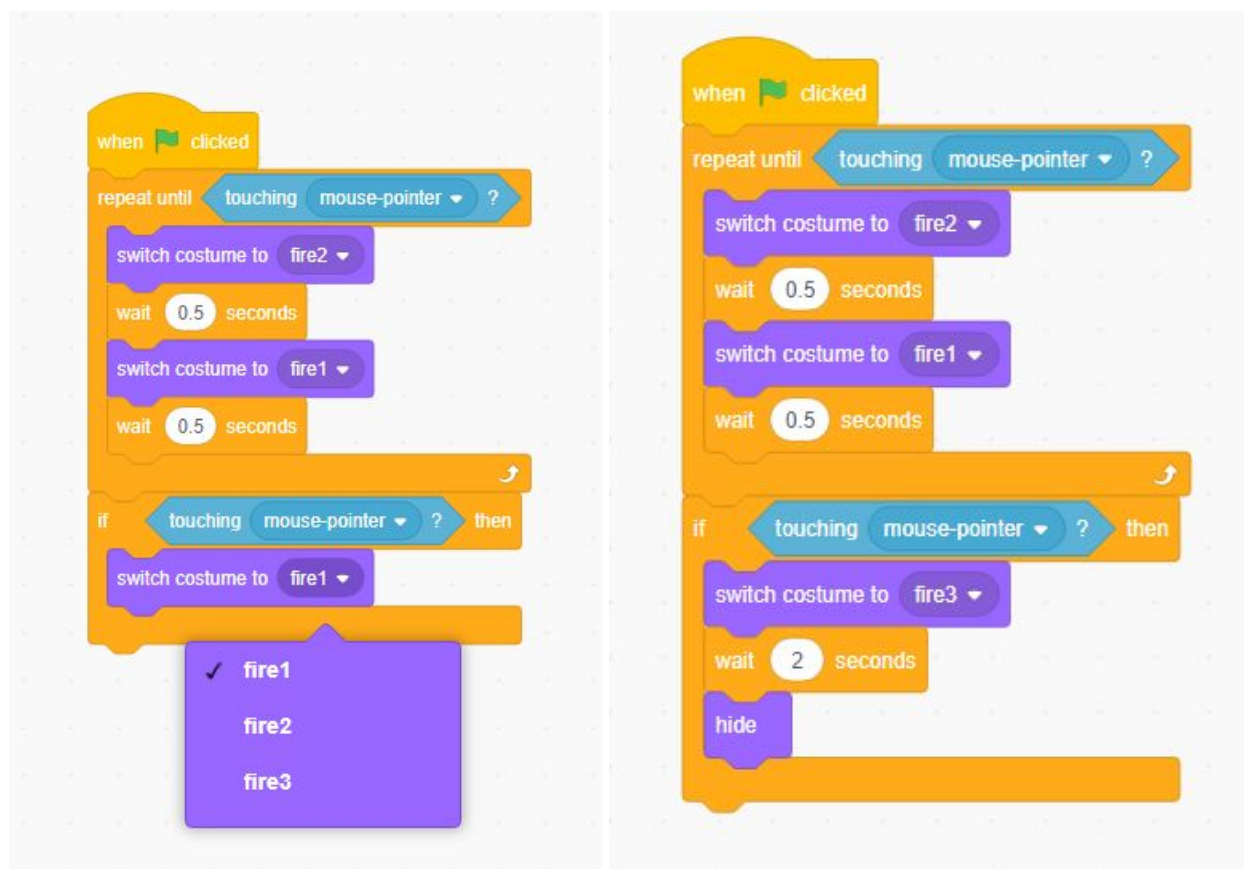
You are going to create some code that causes something to happen when the fire is touched by your mouse pointer. In this case, you want the fire to burn out.

From **Control**, find the 'if \_\_\_ then' block. Add it to your fire code along with a 'touching \_\_\_' block from **Sensing** under your repeat loop.

We use conditional statements all the time, for example "if you pick up all your toys, then you can watch tv" or "if you eat your broccoli, then you can have an ice cream or else you'll have to have an apple".



Right now the last section of code says, 'if sprite is touching mouse pointer then.' You now need to give the final part of the instructions to put the fire out. This is to switch to 'costume 3', wait for two seconds, and then to hide the fire.



The last section of code says: If sprite is touching mouse pointer then switch to costume fire 3, wait for 2 seconds then hide. Give it a go and see your programme in action!

Now that your code for fire is complete, head down to your sprite editing area and duplicate your sprite to add more flames to your stage. You'll need to have more flames for the rest of the sessions. When you duplicate the sprites the code will also copy.

Head to the link below to see a completed version of the tasks so far. For the next session, you can use your own code or feel free to use the code below and remix to complete the rest of the story: <https://scratch.mit.edu/projects/321240694>

You'll notice that when you try and press the green flag your fire won't appear, that is because the last of your code tells the sprite to hide. You need to add the 'show' block and place this underneath your green flag event. This will tell the computer that once the green flag is pressed.

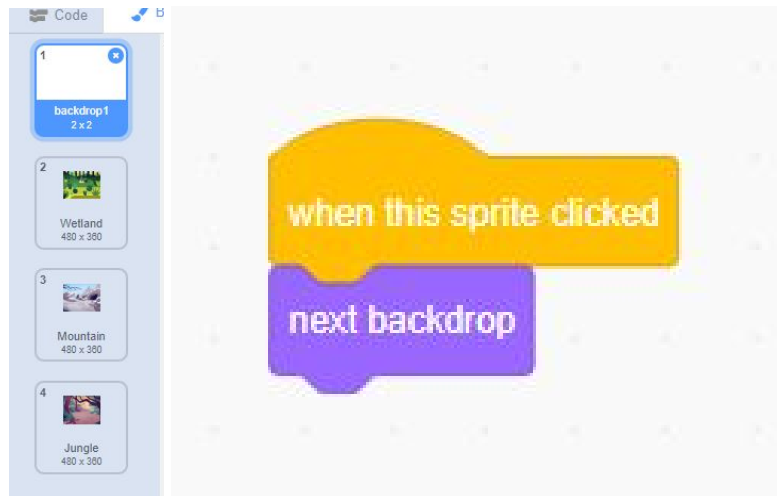
## User Input

Because your story is interactive, you need to create ways for the user to interact with your story. Putting out the fire is a great example of an interaction, but you also want the user to be able to change scenes like flipping a page in a book.

You will add a simple code to your 'next' arrow to allow your users to change backdrops. Make sure your arrow sprite is selected.



As you can see, after you add an **Events**, when you click the arrow sprite the stage will switch to the next backdrop in order you selected them. Because of this, it is important to have your backdrops in order of the story setting! Check your backdrops to make sure they are in the correct order. You can reorder them by clicking and holding the backdrop.



## Adding speech to Maui

Because Maui is narrating the story you will need him to speak to your audience. You can do this by heading over to the **Looks** section and use the 'say' blocks.



This code creates the effect of a speech bubble! Go ahead and add your text for Maui to say.



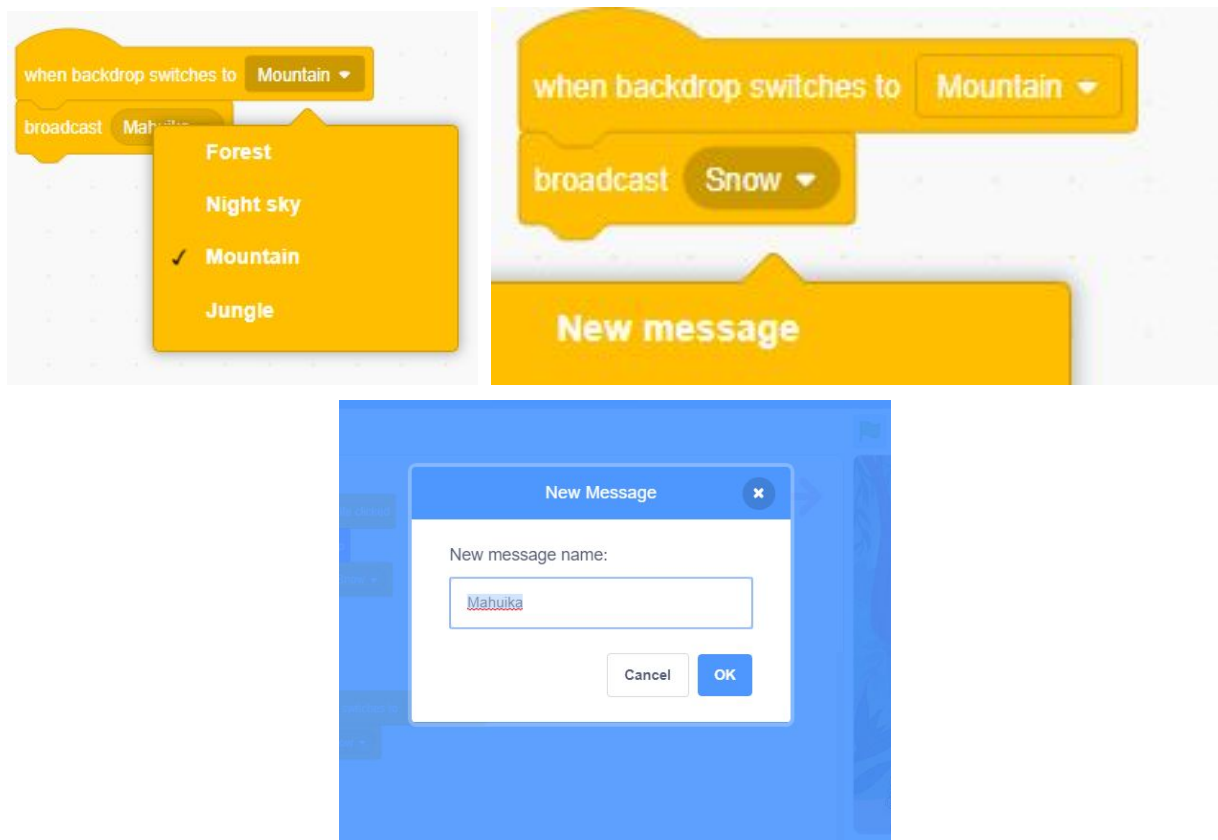
## SESSION 3 – Broadcasting Messages

### Broadcasting and receiving messages

Sometimes, you will want to end a message between sprites and backdrops. This will pass a message to all the sprites and backgrounds in use, and can be used as a signal for something to start or stop happening.

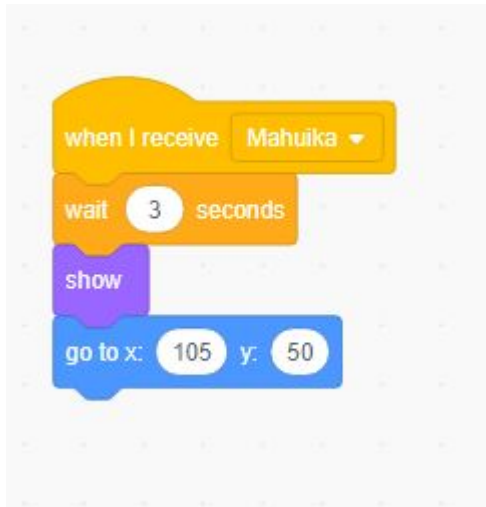
To progress your story, you need to introduce the character Mahuika. You want her to appear after the arrow is pressed and when the backdrop setting switches to 'mountain' as this will be her home. There are a few ways to do this, but for this session you will have your arrow send a message to Mahuika to appear after the backdrop has switched to 'mountain'.

First select the arrow sprite. Head over to the **Events** section and select, 'When backdrop switches to \_\_\_\_'. Next, select 'broadcast'. Use the drop down arrow to select 'mountain'. Use the drop down in 'broadcast' and select 'new message'.



When broadcasting messages make sure you create a name for that message that relates to the scene. As your story grows you will eventually have a range of messages being broadcasted and received.

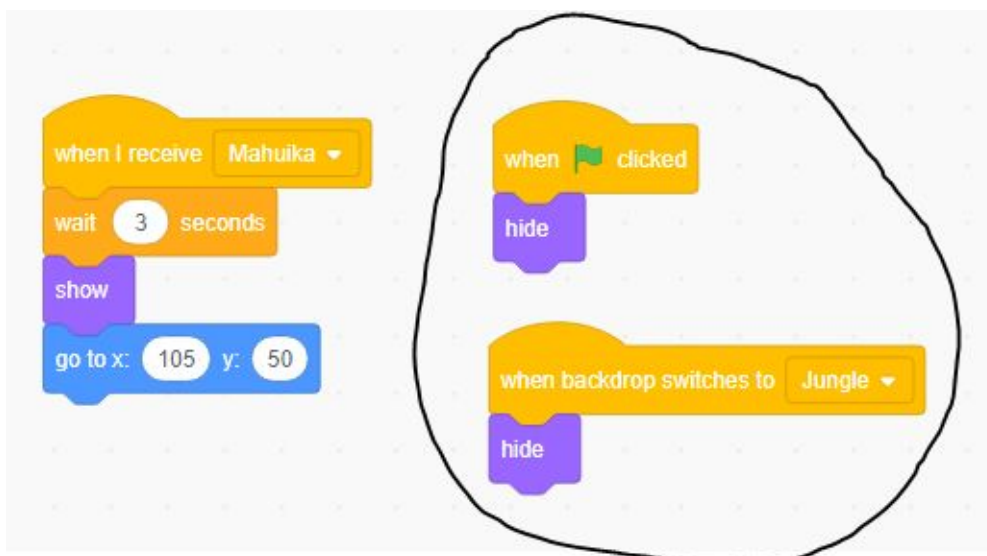
Now that a message has been broadcasted, you need Mahuika to receive this message and appear when the backdrop switches to 'mountain'. You also want to make sure she appears at a specific location, so use your **Motion** blocks to let her know where to stand. In this story you want her to stand in front of the cave.



You will notice that when you move her around, the x and y coordinates change value.

## To think about

As the director of this story, you want to instruct characters and sprites to only appear when you need them. That means you also need to instruct Mahuika to disappear from the stage when the green flag is pressed, otherwise she will stay there for the whole story!



Here you can see that the instructions for Mahuika to hide when the green flag is pressed and to show when she receives the call.

You also want her to hide when the backdrop switches to 'jungle' as she is not needed in that scene.



## Character conversation

You want Mahuika to engage in a conversation with Maui. Here is where you give your characters instructions or 'lines' to speak. You can do this by broadcasting and receiving messages along with your 'say' blocks. First, Mahuika will say something when she sees Maui. So you want Mahuika to 'say' and broadcast a message for Maui. You are adding to Mahuika's code.



Please remember to make sure you have selected the right character when adding your code.

Now you want Maui to receive the message and respond when he receives Mahuika's message. Following the same process, you want to create a similar set of code for Maui. You are creating a set of code for Maui to receive Mahuika's message!



Don't forget to add wait time in between blocks.

Now that you have built your capabilities and programming skills, complete the rest of the story of Maui and Mahuika. Don't forget to read the story from the link provided in Session 1!



## SESSION 4 – My Story

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From session one, two and three you have developed some basic skills in creating a story using code. You now have the opportunity to apply some of your new skills to retell or rewrite your own story on Scratch.

Head to the link below to see a completed version of Sessions 1, 2 and 3. You'll notice an animation of snow in this story that uses a more complicated set of code. Read the programme for this animation. What do you think? You can also use this as a guide for you to recreate your own story!

<https://scratch.mit.edu/projects/321396165>

