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This is Activity number 1 of our Scratch Lesson.

We are going to create a Hello World program and an Animated Comic Strip.

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In this activity we will create the traditional first program called Hello World.

This is typically the first program created in any programming language because we often use these commands to display information to the screen.

We will explore the Say and Think blocks that are part of the Looks commands.

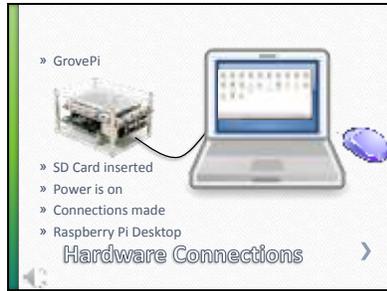
We will also explore a few of the Control commands.

And then we will create a comic strip style conversation between a dog and a cat.

Finally you will create your own project using your Scratch coding skills.

Let's get started.

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First we need to have the hardware ready to go.

We are going to assume you have made the connection to the GrovePi as demonstrated in prior lessons, and have either a laptop connected or you are using a monitor, mouse, and keyboard connected to the Raspberry Pi.

We also assume you have the GrovePi SD card inserted, you have turned it on, made the necessary connections, and you can see the Desktop of the operating system on the Raspberry Pi. If you haven't done that, then pause this video and come back after you have the hardware ready.

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Now let's start Scratch.

From the Raspberry Pi Desktop, we double click the Scratch icon.

When the Dexter menu appears, in the first box, we click the down arrow and from the list choose 'Just Scratch, no robot'.

Then we click on the Start Programming button.

The Scratch Project Editor opens. A couple of pop-up boxes may also appear, we click on OK for them.

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Now let's create our code.

We will use the sprite to display a text message.

We will use the cat as our sprite, but remember we could import another sprite if we wanted using the Sprite Command buttons.

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First we select the Sprite. Next we will use the Scripts area and the Blocks area to create our code.

Step 1: Click on looks and drag out a Say Block in to the script.

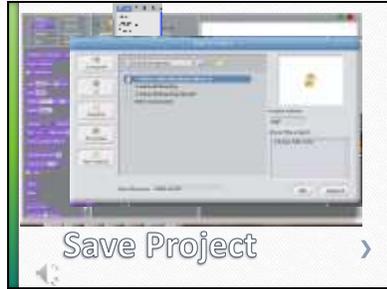
Step 2: It already has the word 'Hello' to display as text. We type 'world' in after hello.

Step 3: Now we just double click on the say block and we see a talk bubble come out from the sprite that says Hello World!

That's it. You have created the Hello World project.

That was pretty easy, so let's learn a little more.

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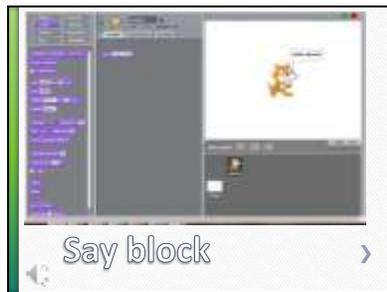


But before we continue on, let's save our project.

From the File menu we choose Save. We choose our Thumb Drive folder and open the Scratch Programs Folder. Then we name our file Hello World We also type our name in the Project author area and type a description of the project.

And when we're done with those three things, we click Ok.

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Now we know that we can use the Say block to make a sprite display a text message.

The Scratch sprite looks like a comic character.

And one of the things we often see in comics is a conversation between two characters.

So let's create that.

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Let's add another Sprite.

We select the button for New Sprite from File.

From the folders we select Animals. From the list of animals, we scroll down and select the Blue Dog named Dog2-a and click on OK.

Then we click inside the Sprite Stage and place the Dog behind the Cat Sprite.

You may have to place the dot a bit over the cat and then click on the Cat and move it to the right.

After doing that, come back and click on the dog so it is selected.

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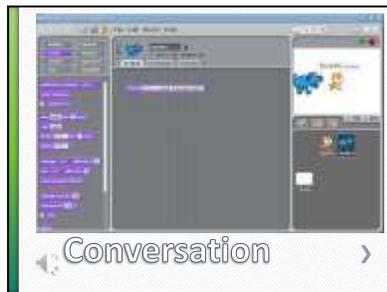
So now let's make it look like the dog is thinking something.

Step 1: Click on looks and drag out a Think Block in to the script.

Step 2: It already has the word Hmmm to display as text. We type after the Hmmm 'I wonder if she plays Fetch?'.  
Step 3: Now just double click on the think block and you'll see a think bubble come out from the dog sprite that says "Hmmm I wonder if she plays Fetch?"

So now we have created the beginnings of a conversation.

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But we often want to have more than one message as part of a conversation. So let's have the cat think something. Down in the Sprites list, we click on the Cat.

Once again we drag over a think block. This time we type in "I wonder if he dances?" after the Hmmm

We double click the think block and the cat displays our thinking message.

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That's fine as long as we are in the editor ,we can just keep clicking the blocks and changing the message that is displayed.

But when we want to share it with someone else, we would like to click something and have the messages display automatically.

For example, we learned there is a green flag that we can click and the program will play.

Let's try that, and click the Green Flag. But nothing happens.

In Scratch coding, when we want something to start with a user action, we use a control command that has a hat on it.

Let's click on Control and we see there are three blocks that have a curved shape on top that looks kind of like a hat.

Let's drag out a When Green Flag Clicked block and put it above the Say Hello World.

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Now let's click the green flag and run the program.

The cat says Hello world. But the dog doesn't do anything.

We need to have the When Green Flag Clicked block also for the dog.

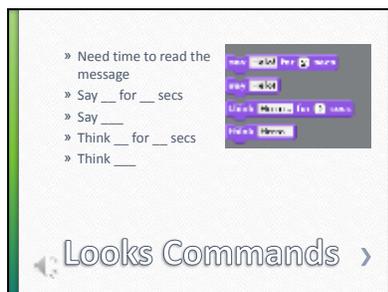
So we click on the Dog and drag out the When Green Flag Clicked.

And we position it just above our think block so the two blocks snap together.

The hat commands always need to be the first one in a group of blocks.

Now let's click on the Green Flag again and see what happens.

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So now we see the cat saying Hello World and the Dog thinking I wonder if she plays fetch?

Our Green flag commands have given us a good start at having a project we can share with others.

But what if it could be more like a comic strip and continue the conversation between them?

You may have noticed there are other Say and Think blocks.

There is a Say some message for some number of seconds.

And a Say some message

And a Think some message for some number of seconds

And a Think some message.

When we are viewing the messages in a conversation, we need time to read them, so we need the action to pause for a few seconds so we can read it.

That's what these other two blocks do, they add a few seconds of pause after the display of the message.

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Let's drag out a think for 2 secs block.

Let's type our message I wonder if she plays fetch? Into this block.

Then let's go up and select the other think block

First we drag it down so it is no longer connected to the When Green Flag clicked.

Next we do a right mouse click on it, and select delete.

Next we drag our new think message up and connect it to the When Green Flag clicked.

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With this new block we have added some time for the message to continue to be displayed.

Let's do the same for the Cat's message.

We select the Cat Sprite.

We click on Looks and drag out Say Hello for 2 Seconds.

We go up and drag down the Say Hello World so it is disconnected.

Then we right click on it and delete it.

Now we drag up the Say Hello for 2 Seconds and connect it to the when Green Flag Clicked.

Now we drag out a think for 2 seconds.

Let's change it's message to Hmmm I wonder if he dances?

Lets' drag this message up under the say hello for 2 seconds so they are connected.

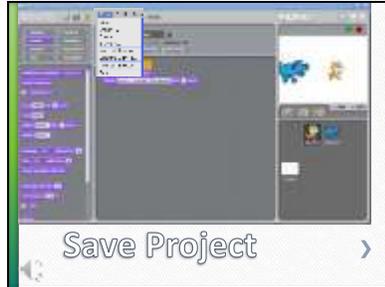
Then we can delete the other think message.

Finally, let's press the green flag to run the program.

Now we see the cat say Hello and the dog at the same time thinks.

And then the cat thinks.

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We now have a conversation started, so let's save our project.

From the File menu we choose Save As.

We choose our Thumb Drive folder and open the Scratch Programs Folder, if necessary.

Then we name our file Hello World Part 1

We also type our name in the Project author area and type a description of the project.

Then we click Ok.

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Now it's your turn.

Add a few more says and thinks to have a conversation between the dog and the cat.

Or you may choose to use other Sprite characters.

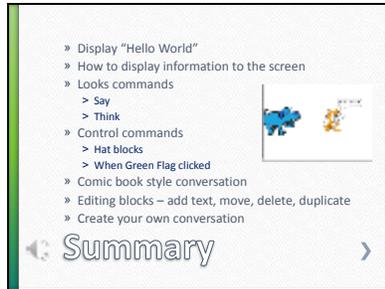
Remember you can right click on a block and choose duplicate to copy it. What is the conversation you want to show?

Feel free to change the beginning conversation and the number of seconds the message is displayed as well.

Just remember you will be sharing this with your teacher and possibly classmates, so be wise in your choice of conversation.

When you are done, use Save As and Save your Project as Hello World Part 2.

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That's it for Activity 1. Here's a summary of what we accomplished. First we created the traditional "Hello World" project with a single Say command.

And with that we learned how to display information to the screen. We also tried out the Say and Think looks commands and saw how they worked.

We learned that we need to use Control commands when we want others to interact with our program. We used one of the Hat blocks, when green flag clicked, to start the conversation between our two sprites. Next we saw how we can create a comic book style conversation between characters using the say for 2 seconds and think for 2 seconds.

And along the way we learned about editing blocks by typing in new text, moving the blocks, deleting the blocks, and duplicating them, and using wait time between actions.

Finally, you created your own project where you created a conversation between two sprites. That's a great start at learning how to code with Scratch.

In our next activity we will learn how to move the characters on the screen.