Topic: Animation

Short Description: This activity includes instructions for the four main parts of UBTECH's 2021 Hour of uCode activity. Use this resource to get started creating your own animation project.

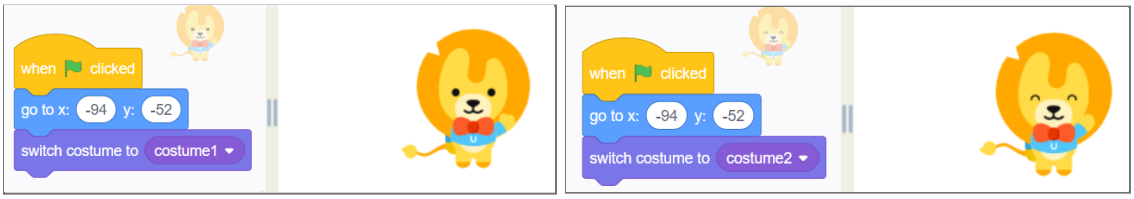
Part 1: Getting Started with Sprites

1. Open uCode in a web browser - Google Chrome is preferred.
2. Upon opening uCode exit out of the **Resource Center** pop-up and you will be in *Stage Mode*. You will see Uco the Lion in the staging area (top right). Use Uco or change to a different sprite by hovering over the orange **Choose a Sprite** button (looks like a lion) below the staging area.

3. Once you have chosen a sprite, rename it where you see Sprite1 at the top left of the screenshot above. You can also remove any sprites by clicking the X around the image of that sprite.
4. With your sprite selected, start to program it to do various things. Let's start by placing your sprite in a specific place within the staging area. Start by clicking the **Events** drawer on the left side of the screen. Drag one of the top three blocks over to the workspace to start your code. For this example, let's use the **when clicked** block.

5. To place your sprite within the staging area, you will need to use the **go to x: y:** block from the **Motion** drawer. If you move your sprite on the screen with the **Motion** drawer open, it will update the x and y coordinates in the block for you. Once you drag the block to connect it under your **when clicked** block, you will have to manually adjust the coordinates. You can find the coordinates below the staging area where you renamed and/or choose a new sprite.

6. With the sprites in uCode, you have the option to switch between different costumes using the **switch costume to** block. A costume could show a change in outfit, facial expression, or position of the sprite. For example, see the **costume1** option for Uco below on the left and **costume2** on the right. Notice that the position of his tail and left arm has changed along with his eyes.

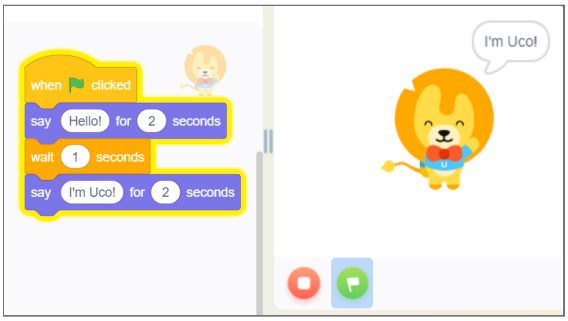


7. Add a **wait ( ) seconds** block to follow the switch costume to block. If you would like this change to repeat, add a **forever loop** around those blocks. You can find both of these blocks in the **Control** drawer. See our example below. Run your code to see how your sprite changes.

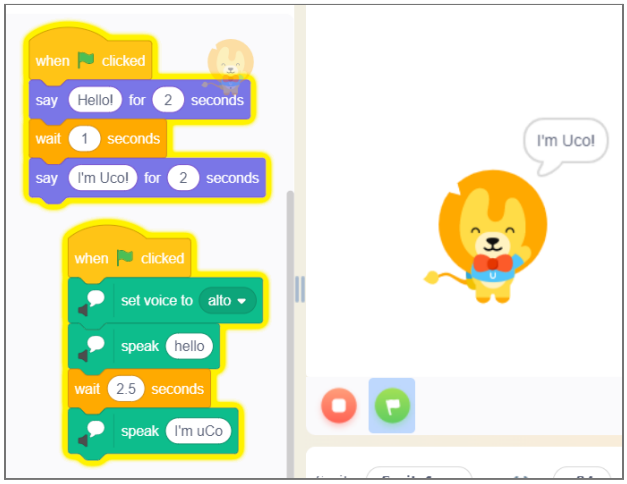
Part 2: Making Sprites Talk

1. Next, we want our sprite to talk to us by showing text on the screen *and* using a voice. Here is one way that you can make that happen. Start by dragging another start block onto your workspace. We are going to continue using the **when clicked** block.

2. In the **Looks** drawer find the **say ( ) for ( ) seconds** block and drag it to connect below your new start block. Add in a message to see Uco talk through a speech bubble when you click on the green flag. To add in multiple **say** blocks, use the **wait** blocks in between sentences.

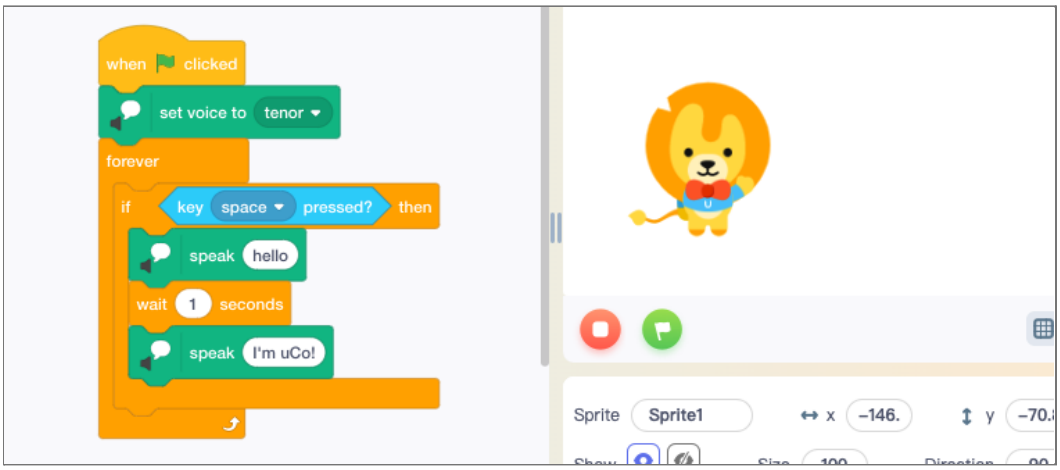


3. To give Uco a voice, create the same program but using text to speech blocks. Click the **Add Extension** button below the drawer list to access more blocks. Enable the **Text to Speech** extension. You will see this drawer below the **My Blocks** drawer. Create a similar set of code using the **set voice to** and **speak ( )** blocks.



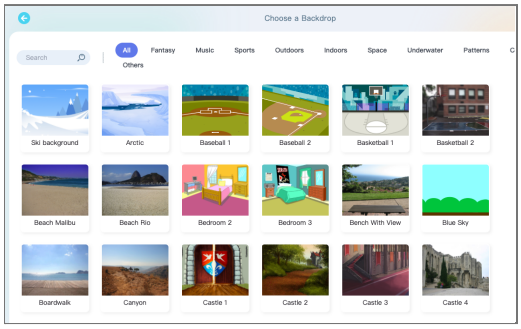
*NOTE *in the above example the wait time is adjusted to align with the speech bubble text. The capitalization of Uco also needed to be changed to uCo for correct pronunciation. Experiment with the pitch of Uco's voice as well as the language used.*

4. To make Uco communicate at a specified time, add a few additional blocks. Go to the **Control** drawer and drag over a **forever loop** block along with an **if ( ) then** block. Place your speech blocks inside the two blocks as shown below. Now, from the **Sensing** drawer, drag the **key ( ) pressed?** block and place it in the **if ( ) then** block as shown below. In this example, Uco will now talk when the spacebar is pressed.

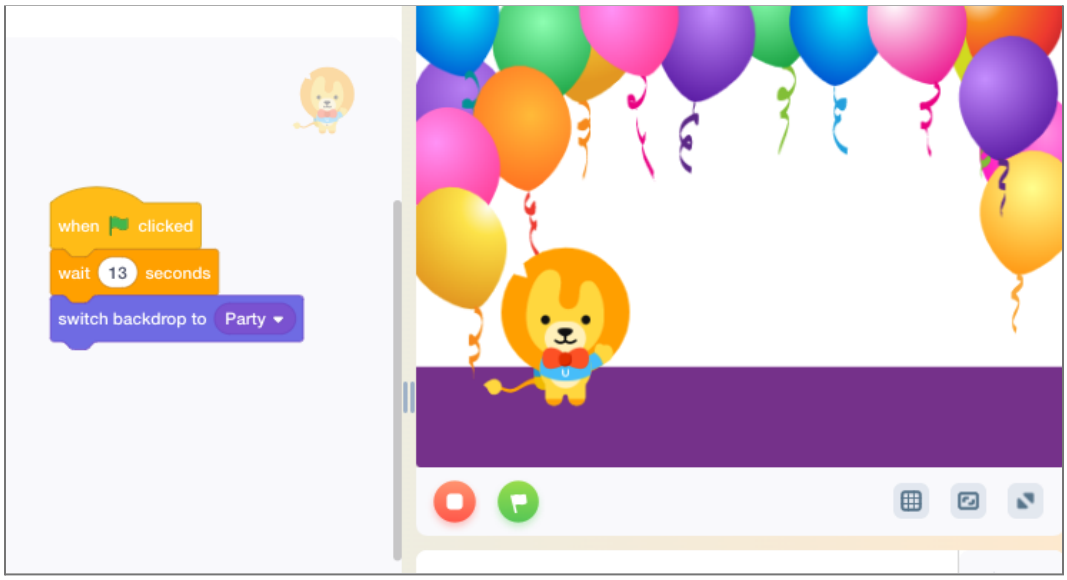


Part 3: Adding a Backdrop

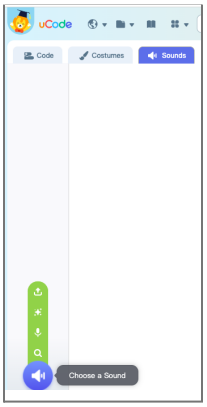
1. To add a background, hover over the **Choose A Backdrop** button under the staging area and click the applicable option. uCode has a variety of backdrops to choose from or you can upload or create your own.



2. Once you find the backdrop that is right for your scene, introduce it into your animation in different ways. For this activity, we change the backdrop at a certain time. To do this, drag over a start block, the wait block you've already used, and then find the **switch backdrop to ( )** block in the **Looks** drawer. Add this to the other blocks to create a program that looks like the example to the right.

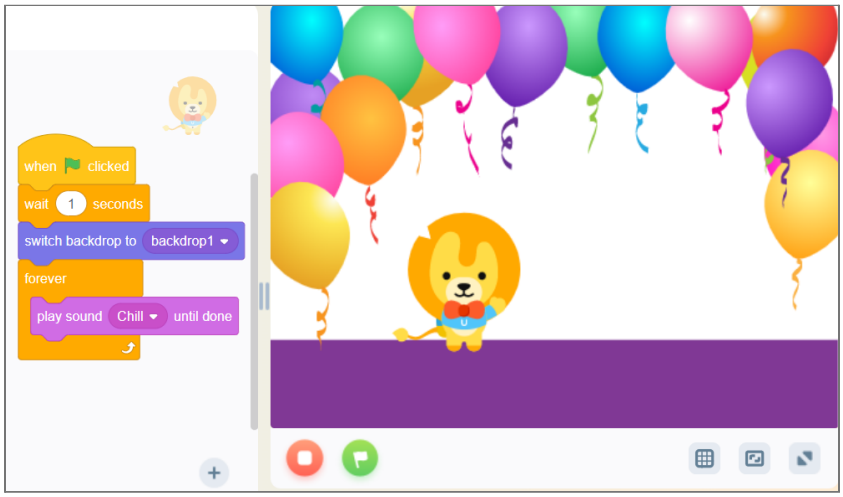


Part 4: Adding Sounds and Music



1. To make this a really fun project, add some sounds and/or music. In the workspace you will see three tabs at the top: **Code**, **Costumes**, and **Sounds**. Click on the **Sounds** tab and then hover over the **Choose a Sound** button at the bottom of the screen. This is where you can select music and sounds to add to your program.

2. Once you select a sound, you have the option to edit it in the **Sounds** tab. When you're ready to use it, go back to the workspace by clicking the **Code** tab and then the **Sound** drawer. You will see the sound you selected auto populated in the first two blocks within this drawer. See an example below.



You now know the basics of creating a fun animation in uCode. We encourage you to expand on what you learned here to create your own code to create a holiday inspired animation.

If you want to share what you've created, we'd love to see it! You can submit your programs here or tag us on social media using #HourofuCode and @ubtechedu.