

Brown Bear, Brown Bear, What Do You See? Sequence Worksheet

(Original Story by Bill Martin Jr. and Eric Carle)



	Start Time	Total Length (seconds)	Describe Expression / Actions
			Starting Expression:
Brown bear, brown bear, what do you see? I see a red bird looking at me.	___:___	___	Brown Expression:
			Red Expression:
Red bird, red bird, what do you see? I see a yellow duck looking at me.	___:___	___	
			Yellow Expression:
Yellow duck, yellow duck, what do you see? I see a blue horse looking at me.	___:___	___	
			Blue Expression:
Blue horse, blue horse, what do you see? I see a green frog looking at me.	___:___	___	
			Green Expression:
Green frog, green frog what do you see? I see a purple cat looking at me.	___:___	___	
			End Expression:
<i>THE END</i> <i>Always include an end or "Reset" expression</i>	___:___	0	

Requires

- Mini-bot with 1 Servo and 1 Tri-Color LED
- Hummingbird with USB and Power Cord
- Computer with CREATE Lab Visual Programmer & Audacity software
- Microphone for computer (may be built-in)

Recording the Audio

1. Launch Audacity software
2. When ready to start reading "Brown Bear, Brown Bear", press the record button (the red circle)
3. Use the yellow square button to stop recording.
4. Use the green arrow button to listen to your recording.
5. Audio tracks with mistakes can be deleted by pressing the small X on the top left of the track.
6. When you are happy with the track, go to the "File" menu and click "Export..."
7. Select a save location (either the flash drive or your desktop) for your file and make sure that you set the "Save as type" to be "WAV (Microsoft) signed 16 bit PCM"
8. On the second pop-up screen, just click the "Ok" button on the bottom.

Timing the Audio

1. Use Audacity or other music playing software to play your recording.
 - a. Audacity is nice for this because you can "see" the sounds.
 - b. Audacity also has a play green arrow play button on the far right that allows you to slow the audio down using the slider next to it.
2. While listening to each stanza, record (on the worksheet) the start times of each stanza. (Displayed in seconds as a timeline along the top of the track.)
 - a. Zoom in on the track to see the times in more detail (press "Ctrl & 1")
 - b. Optionally (more advanced), also record the end times for each stanza (for example, if you wanted to turn off the LED between stanzas)
3. Calculate the total length of each stanza
 - a. Calculated: [Start time of the next stanza] minus the [Start time of this stanza]

Designing the Expressions

1. Design the expressions (on the worksheet) required for the poem:
 - a. Starting expression which starts the audio, and has the initial servo position and the initial LED color.
 - b. Color expressions - give each stanza a color assignment and pick a servo position.
 - i. Animal colors used in the poem are: Brown, Red, Yellow, Blue, and Green
2. Match each action or expression with a length in seconds

Setting up the Mini-Bot

1. Plug in the servo and tri-color LED of the MiniBot into the Hummingbird
2. Connect the Hummingbird to the computer with the USB cord and to AC power with the power cord

Programming the Robot Expressions

1. Launch the CREATE Lab Visual Programmer
2. If prompted select a location for saving the Expression and Sequence files. Your flash drive is a good choice for saving files, select it by clicking "Choose Location..." and then browsing to the drive through the "Look in" dropdown box.
3. On the Expression Builder tab, click to enable the Tri-Color LED and Servo on the MiniBot.
4. Then set the color of the Tri-Color LED to be red and set the servo to the position you designed.
5. Click the "Save" button and type in "Red" as the expression name.
6. Next, set the color of the Tri-Color LED to be yellow (red + green) and set the servo.
7. Click the "Save" button, then select "Save As..." and type in "Yellow" as the expression name.
8. Repeat Steps 6 and 7 for all of the colors in the poem:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Red | <input type="checkbox"/> Blue |
| <input checked="" type="checkbox"/> Yellow | <input type="checkbox"/> Green |
| <input type="checkbox"/> Brown | <input type="checkbox"/> Black (The End / Reset) |

Next we will make expressions for the audio, first click the "New" button and confirm "Yes"

9. Now click to enable the audio of the expression
10. Select the "Clip" audio type.
11. Click the "Add New Clip" button
12. Finally click and drag the "Brown Bear" wav file from your computer into the "Drag Files Here" box and click "Ok"
13. Select your clip from the dropdown menu, sometimes the new clip is at the very bottom or is sorted alphabetically.
14. Click the "Play" to test play your audio
15. Click the "Save" button and type in "Poem Audio" as the expression name.

Programming the Robot Sequences

1. Now click on the Sequence Builder tab to begin making robot sequences.
2. Start by dragging your "Poem Audio" expression into the top of the sequence and set the delay to "0 seconds", this means that the next expression will happen simultaneously with the next expression.
 - a. From now on, whenever you play the sequence it will start the audio.
 - b. **IMPORTANT NOTE:** Once the robot starts to play the audio it will only stop when the audio ends, the stop button cannot stop the audio. If you press the play button twice, the audio will play over itself – like an echo or a musical round.
 - c. We recommend muting your computer audio if the poem becomes distracting.
3. Next drag in the "Brown" expression, and set the delay to the number of seconds you calculated on your worksheet.
4. Next add the "Red" expression to the end and set the delay to the number of seconds you calculated on your worksheet.
5. Test play the sequence to make sure the timings worked how we expected.
6. Click the "Save" button and type in "Brown Bear" as the sequence name.
7. For each follow stanza, add the next color expression.
 - a. Remember to adjust the color delay to match your worksheet.
 - b. **Note:** Occasionally, while you work, press the "Save" button and then "Save" again to keep your sequence updated in case of a computer crash.
8. When you are finished, play the sequence and see how well the audio and the actions match up!

Extra Challenge: Think about how you would make it so each stanza had two expressions ... for example make "Red bird, red bird, what do you see? I see a yellow duck looking at me." use both Red and Yellow expressions?