# University of Newcastle: Coding & STEAM 2019

## Week 8: Homework Task Details

**We would prefer that you complete this activity while logged in your Student Account (the account name and password that I sent to you).** If you do complete the homework with your personal or Teacher Account, that is okay but please let me know this through email.

**Your task this week is to create projects that solve three different “Puzzles” in Scratch**. The puzzles that you will solve in this task are from the *Interactions* activity, which is from the Creative Computing Guide’s *Games* Unit. The Puzzles that have been chosen (#4, #5 and #6) were not included in the Week 8 session’s activity. The three Puzzles are listed and explained below but you can also view them in the [Week 8 Homework Interactions Puzzles](https://cs4s.github.io/steam-2019/week-8/homework/week_8_homework_puzzles.pdf) document.

The three different Homework Puzzles are:

* **Puzzle #4:** When the sprite touches something blue, it plays a high note. When the sprite touches something red, it plays a low note.
* **Puzzle #5:** Whenever two sprites collide, one of them says: “Excuse me.”
* **Puzzle #6:** Whenever the cat sprite gets near the dog sprite, the dog turns and runs from the cat.

You should create new and different Scratch projects for the different Puzzles and change the projects’ titles to *Puzzle #4*, *Puzzle #5* and *Puzzle #6* appropriately.

**After you have finished working on each of the projects that solve a Puzzle, you should share the project and add it to the “*STEAM Week 8 Homework Puzzles”* Class Studio.** Please note that, to see the “STEAM Week 8 Homework Puzzles” Class Studio, you should be logged into your Student Account. If you complete the activity in your personal or Teacher account, please let me know so that I can check your project.

**Finally, you should complete the** [**Week 8 Homework Form**](https://forms.gle/ZpkQrQ7XAmMjhDJ99). The form has a few different questions in it. First, there is a question that asks you which of the Puzzles (#4, #5 and #6) you solved (the goal is to solve all three of them as part of the homework). The form also has some spaces with questions about identifying whether (and how) **Conditionals**, **Operators, Loops** and **Events** (some of the *Computational Concepts*) are used in the projects that you created. For each of these questions, if the particular concept (for example, **Conditionals**) is used in one of the projects, you should give an example of how that concept is used. For example, if you use a *touching color* block to solve one of the Puzzles, you could respond to the question *“Did you use any Conditionals when solving the Puzzles? If so, please give an example of how you used them.”* with the response: *“An example of when Conditionals are used is when the Cat Sprite checks whether it is touching a blue colour and plays a note”.*

**When you submit the Week 8 Homework Form, I will automatically receive an email and will check your homework task.** You will not have to email me when you have completed the homework task this week, unless you completed the project in your personal or Teacher account. I will email you once I have checked the homework and let you know that I have recorded that you have completed the homework task.

## Assistance

### Guidance

This week’s tasks involve a lot less guidance than previous weeks’ tasks and the tasks are fairly open-ended. When creating projects that solves each of the Puzzles, you should aim to start from a blank project each time and not to remix an existing project, like you have in previous weeks’ sessions.

If you are trying to complete the projects, get stuck or don’t know how to get started, there are a few different ways to get assistance or get un-stuck:

* Move onto the next Puzzle and see if you can solve that. If you solve the next one successfully, go back to the previous Puzzle and see if the blocks that you have learned about when solving that Puzzle can be used to solve the previous Puzzle
* Have a look at some of the projects in [the Studio where other learners (from the Scratch community) have shared their projects that solve the various Interactions Puzzles](https://scratch.mit.edu/studios/487213/) and see if you can use similar blocks to solve them yourself.
* Have a look at the [STEAM Week 8 Homework Puzzles Class Studio](https://scratch.mit.edu/studios/25156336/) and see if any of the projects that other teachers in the program have shared can help you solve the Puzzles yourself
* Send me (Daniel) an email about the Puzzle and a link to the project you have tried solving it in. I will send you an email with some notes and/or a project with some of the steps completed that you can remix

**Note:** you can use the Backpack in Scratch to copy blocks from one project to another. For example, if you want to add blocks that can be used to solve one of the Puzzles, you could copy blocks to do this from one of the projects in the Studios mentioned above. However, adding these blocks to your project does not mean that they will work automatically, you may need to make some changes to the blocks to get them to work in your project.

### Common Blocks

When solving the Puzzles, you may have to use blocks that you have not used in any of the other sessions’ activities. There are a few different features of Scratch that we have not explored yet and, consequently, you may have to experiment with a variety of different blocks to solve the Puzzles.

There a few blocks in the *Sensing* category that are likely to be useful when completing the Puzzles. We recommend that you have a look at the *Sensing* blocks and experiment with them, to see what they do. Additionally, you will probably find that the blocks in the *Control* (for example, the *if then* and *forever* blocks), *Operators* (for example, ­the *=* block) and *Motion* (for example, the *point towards* and *move)* categories will be particularly useful when solving these Puzzles.

You may find that most of the Puzzles also involve making Sprite/s move around the Stage. In that case, having some blocks that you can copy between the Sprites or Projects to move them around the Stage may be useful. I have included an example of a stack of blocks in the picture below that could be used to move the Sprite. These blocks will cause the Sprite to start moving in a random direction (between 0 and 180 degrees) and then to keep moving around the Stage (bouncing off the edges of the Stage).

