# University of Newcastle Coding & STEAM 2019

## Week 7 Homework Tasks

**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 remix and add some extensions to a Starter Game project in Scratch**. You can choose one of the three Starter Game projects in the list below. **We would prefer you that you choose one of the Starter Game projects that you did not work on during the Week 7 session.**

The three Starter Game projects are:

* [Maze Project](https://scratch.mit.edu/projects/230587476/#editor)
* [Pong Project](https://scratch.mit.edu/projects/230588269/#editor)
* [Scrolling Project](https://scratch.mit.edu/projects/230589078/#editor)

If you worked on all three of the above Starter Game projects during the Week 7 session, you can choose another project that you find through [Scratch’s Explore feature](https://scratch.mit.edu/explore/projects/all) to remix and add extensions to.

**After choosing one of those Starter Game projects, you should then remix it**. You can do this by clicking the clicking the *“remix”* button at the top centre of the editor. If you are logged into your Scratch account, this will take a copy of the project, which you can make your own changes to.

**Add the blocks to add the controls and game features to the Games project, from the *Creative Computing Unit 4: Games Part 1* document.** The blocks that you will need to add to the game project to make it work are in the activities.

**Next, you should add two “extensions” to your game.** Some ideas for extensions to add, as well as example projects, are available from the last page of the *Creative Computing Unit 4: Games Part 1* document, which is linked on the Week 7 session page. The example projects for the extensions are also listed below:

* [Score](http://scratch.mit.edu/projects/1940443)
* [Levels](http://scratch.mit.edu/projects/1940453)
* [Timer](http://scratch.mit.edu/projects/1940445)
* [Enemies](http://scratch.mit.edu/projects/1940450)
* [Rewards](https://scratch.mit.edu/projects/1940456/)
* [Mouse](https://scratch.mit.edu/projects/25192659/)
* [Restart](https://scratch.mit.edu/projects/25192935/)
* [Menu](https://scratch.mit.edu/projects/25192991/)
* [Multiplayer](https://scratch.mit.edu/projects/25192711/)

You may decide that you would like to add a feature to your game that is not on that list above. If you do, just take note of that and tick the “Other” checkbox when completing the homework form (the homework form is explained in more detail below).

**Note:** you can use the Backpack in Scratch to copy blocks from one project to another. For example, if you want to add blocks to change levels in your game, you could copy blocks to do this from the Score project into your Game project. 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.

**You should take note of the two extensions that you add to the project because you will need to put these in the** [Week 7 Homework Form](https://forms.gle/KDvepVdxPQDwJLf58), **which you will have to complete as part of the homework task.**

**Next, you may want to make changes to “personalise” the project.** These can be any change you like. For example, you may change a Sprite’s costume, change the backdrop or add some new Sprites to the project. An example of this, where I have changed the theme of the Scrolling project, is explained in the *Scrolling Extension Example* section below.

**After you have added the two changes to the project and are happy with the changes that you have made to personalise the project, you should share the project and add it to the “*STEAM Week 7 Homework”* Class Studio.** Please note that, to see the “STEAM Week 7 Homework” 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 7 Homework Form**](https://forms.gle/KDvepVdxPQDwJLf58). The form has a few different questions in it. First, there are questions about the Starter Game project that you chose to remix. Second, there is a question where you tick the checkboxes for the two extensions that you have added to the project. Third, there is a space for you to write about any other changes that you made to the project to “personalise” it. The form also has some spaces with questions about identifying whether (and how) **Conditionals**, **Operators** and **Data** (some of the *Computational Concepts*) are used in the project you remixed. For each of these questions, if the particular concept (for example, **Conditionals**) is used in the project, you should give an example of how that concept is used. For example, in the Scrolling game project above, you could respond to the question “Are Conditionals used in the Scratch project you remixed? If so, how?”, with the response “An example of when Conditionals are used is when the Helicopter Sprite checks whether it is touching a green colour”.

**When you submit the Week 7 Homework Form, I will automatically receive an email and will check your homework task.** So, 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.

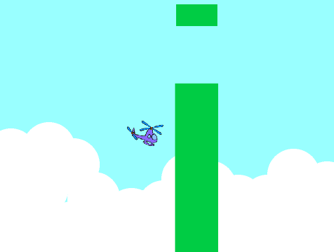
On the next two pages I have included an example of how I added two extensions (*Score* and *Levels*) to one of the Starter Game projects (*Scrolling*) and “personalised” it with a Spooky theme.

## Scrolling Extension Example

This section has been included to show you some ways that you can add two extensions to the Scrolling Game project and “personalise” it. You do not have to make these changes yourself (or change the Scrolling project); these are included simply as an example of extensions that could be added to a project, as well as how it can be “personalised”.

### Remixing the Project and Adding the Blocks

First, I remixed the Scrolling project, which creates a copy of the project for me to change. A screenshot of the original project is shown below.

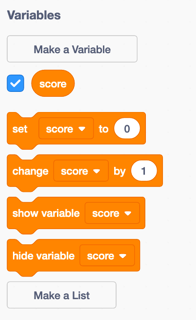


I added all of the blocks from the Scrolling activity (which is on page 9 of the *Creative Computing Unit 4: Games Part 1* document), so that the Helicopter Sprite moves up when the space bar is pressed and stops when it runs into the green wall.

### Adding the Score Extension

Next, I added my first chosen extension to the project – to add a *Score*.

To add a score to my game, I first had to create a variable by clicking the “Make a variable” button in the *Variables* section and named it “score”. After creating the variable, the *Variables* section of my project looked like this:



Note that I have the checkbox next to the *score* bubble ticked. This means that the *score* variable will be shown in the top-left corner of the Stage (in a Stage monitor).

After creating the *score* variable, I added a *set score to 0* block to the Helicopter Sprite. This means that the stack of blocks that move the Helicopter back to the centre of the Stage will also cause the *score* variable to be reset to 0 every time the player starts a new game. The added *set score* *to 0* block is highlighted by the green rectangle in the image below.



Next, I added a *change score by 1*block to one of the stacks of blocks in the Gliding Bars sprite, as highlighted by the green rectangle in the image below.



After adding that *change score by 1* block, the *score* variable will increase by 1 every time the Gliding bars sprite disappears off the left side of the Stage.

### Adding the Levels Extension

The second extension that I decided to add to the Scrolling game was *Levels*. Now, each time the player scores two points, the level will also increase.

To add *Levels* to the game, I first created a new variable called *level* following the steps I used for creating the *score* variable earlier on.

Like the *score* variable, I wanted the *level* variable to be set to 1 when the player starts a new game. To do this, I added the *set level to 1* block to the Helicopter Sprite, as highlighted by the green rectangle in the image below.



Next, I added blocks to the Gliding bars Sprite that cause the *level* variable to increase and the *score* variable be set to 0 each time every time the player scores two points. The blocks that I added to the Gliding bars Sprite are highlighted by the green rectangle in the image below.



After adding those blocks, the *level* variable increases by 1 every time the player moves the Helicopter through the gap in a wall twice.

## Personalising the Project

After adding the extensions to the Scrolling project, I decided I wanted to change the theme of the project. Instead of a Helicopter flying through the sky, I changed the Sprite to a Bat and made it fly through castles instead.

I made the following changes to the Scrolling project:

* I added the Woods backdrop and 3 of the different Castle backdrops
* I removed the 2 backdrops that were in the Starter project
* I changed the colour of the Gliding bars costumes to be dark gray with Scratch’s Paint Editor
* I changed the *if touching color* block to check whether the colour being touched is the same as the Gliding bar’s colour
* I changed the Helicopter Sprite to be a Bat instead
* I added a block to make the Bat flap its wings when the space bar is pressed
* I added some blocks to make the backdrop change when the level increases

You can see my [finished Scrolling project online here](https://scratch.mit.edu/projects/230589078/#editor) with these changes made to it.