

Success criteria for the proposed solution.

	Feature	Aim (how it should work)	How to determine success
Mechanics	Playable character mechanics.	The playable character should be able to freely navigate (in eight two-dimensional direction) the world and interact with certain objects and platforms.	Testing the movement of the character (each direction and jumping should be assigned to a key) and each interaction with other objects in the project (that's objects in terms of java (an object being a 'thing')).
	Object mechanics.	Objects should be intractable with the character, some should block the character's ability to freely navigate the map until certain conditions are met, such as interacting with another object.	Testing the interactions between the character and objects. Both collisions, interactions and conditions will have to be tested to have a working object system.
	Platform mechanics.	Platforms should always interact with the character by being solid and preventing the character from passing through them at any time. This can be disadvantageous like a wall, or a key benefit like a floating platform to add jumping over a wall.	Multiple collision detection tests from all angles. Separate testing for vertical and horizontal collisions. Further tests to see how they interact to the character standing on them.
	Level and environmental mechanics.	The character should be able to change level after meeting certain conditions (e.g. reaching the end of the screen, pressing up on a door or collecting a flag). Everything should be able to be placed in the environment and communicate to avoid any placement issues.	Set up multiple levels running multiple scenarios with varying conditions. If a user can make the character navigate these levels and transition to the next using the tools they have available, then this section is a success.

Solution/ Game	The main character.	The main character should be science themed and child friendly. While navigating the game, the character should be animated and respond well to the users inputs.	Research would be required when developing the sprite for the character, example of protagonists from other games can be linked to the age rating of their respective games, this can be analysed to determine a design that is child-friendly. Black box testing can be used for the character themselves during the game. Having a blank level with the character will allow me to test movements, sync animations and adjust speeds.
	The levels.	Each level should have objects creating puzzles to retard the progression of the player, followed by a smooth and clearly defined transition for progression to the next level.	While initial white box testing should be used on prototype levels to determine if the puzzles are viable mechanically, with an increase in the number of levels; black box testing becomes viable, as ultimately, each level is just a permutation of already defined logic, therefore we are only concerned about the result after a few levels.
	The themes used.	Each level and puzzles in the game should have the theme of GCSE triple science. On the other hand, things like the character and any possible tutorial levels should be science themed, but should avoid directly symbolising one of the three core sciences.	Once again, careful design by using the GCSE textbooks used by the school should ensure that the themes used in the game a valid and match my client's wishes. Further research outside of the GCSE books can help to provide themes outside of the core sciences (something like robotics would be a safe choice).

	The game aesthetics.	The visual designs of the game should be consistent, giving the game a feeling of completion. While the art itself should be clear enough so that the user can determine what it is that they are looking at.	The design itself should be consistent, seeing that I am the only one who is producing it. While am I not an artist, I should be able to convey most objects into a digital drawing. Due to the lack of time, I cannot improve my artistic skills to ensure that every object is clear. Instead I will show objects to a small range of people (maybe three to five), allowing me to adjust images if one of them is having problems interpreting any visual.
User interactions/ Themes	The users experience during the game.	The user should be engaged during their time playing the game. Ideally, they should be reading text and not skipping object interactions to finish the game in haste.	Alpha followed by beta testing can determine this factors. Average playtime can be judged to determine difficulty (long playtimes for few levels suggest difficulty) and player engagement (short playtimes for a long game can suggest boredom if there is a story aspect to the game, as people are skipping it, on the other hand there may be some kind of exploit in the game allowing abnormal playtimes).
	User interactions and views after the game.	The whole purpose of this game is to promote GCSE science and build up an interest in science in general.	A direct measure of this would be in the form of a short survey. Users could also be interviewed after playing, but this requires a lot of time and/or manpower (things I do not have). Observations of users immediately after allow inferences to be made about the game (such as talking to each other about puzzles after playing, it shows interest in the themes).

Management	Solution testing.	My solution needs to go through rigorous testing and quality control to ensure my client gets the best possible solution to their problem.	White box testing in the first stages for each module, with further white box testing with each new module introduced. As the size of the solution increases without adding more modules (e.g. level implementation), black box testing will be the next form of testing. After that alpha testing with a few select people (mostly friends and fellow students), followed by a more widespread beta testing with students that fit into my target audience.
	Client meetings and interactions.	As this is the solution to my client's problem. I need to maintain regular contact with my client to ensure that they are well informed of everything that is going into the solution and that every aspect of the solution has their approval.	Regular meetings with my client. This isn't actually possible as my client is quite busy, therefore when I do have a meeting, I compensate by having them review massive amounts of content, hence each meeting taking a one hour period.
	Planning, deadlines and documentation.	To ensure the project is done on time, plans will be made for sections of the work. Deadlines will result from these plans, as well as deadlines to show my client prototypes and get feedback.	The measure of success for these aspects will be the following: <ul style="list-style-type: none">• The concentration of documentation produced over time, following my plan.• My client's feedback and ability to response well to any models or documentation giving to them.• The mark scheme of the component 03 programming project.

Client	The product needs to be science based	All assets and themes in the games will be science based, from level to object and obstacle design.	A visual check should suffice.
	It should promote all of GCSE science	The game will be split into three parts, each part will represent one of these aspects of science.	A visual check should suffice, there should be three clearly distinguishable parts.
	The product needs to be fun	By using a game format and avoiding quizzes it should feel more like an enjoyable experience then revision. By ensuring that the game and controls work, immersion should also help to increase enjoyment when playing the product.	This will have to be assessed via the feedback from external users.
	It has to be online or available across the school's shared network area	Either I export the final version of the product as a web service or as an executable file on the school's server.	This will be determined by how I upload the final product, there will be a shortcut with a recognisable icon.
	It has to be suitable for year 7s and year 8s	Stylised graphics and simple themes and controls will make the game appeal to a younger target audience.	This will have to be assessed via the feedback from external users.
	All students should be able to complete it- therefore it should be easy to use	Simple controls and a reduced overall complexity will make the game accessible to people of all abilities. Removing the ability to die will also ensure that anyone can finish the game without having their progress lost.	This will have to be assessed via the feedback from external users.

	Between the fun aspect and target audience, there should be no questions present	As pre-GCSE students would not be able to complete GCSE questions, none would be present in the game.	A visual check should suffice.
	It needs to be in a game or simulation format	Liberal use of a graphics user interface with sharp input/output feedback will immerse the user as either a game (i.e. has a set win condition and means of getting to them) or a simulation (i.e. the ability to interact with an environment with set rules)	A visual check for the use of GUI and I/O to create what feels like a game. The effectiveness of this approach will then be decided by external testers.