Year 9 Computer Game Project

You and your teammate must design, develop, program and test a computer game for your Year 9 Maths class. It should have at least 2 levels and 2 mini-games as rewards for completing each level.

If you jump straight into your project without some ideas and some planning, it will be challenging to get the result that you want. Follow the guide below to help you ensure the success of your project, so you are ready to share it with the Year 9 Maths classes!

Digital Technologies Progress Outcomes

Computational Thinking	***Designing and Developing Digital Outcomes***

You will:
• design your game program, by breaking down the program into smaller parts and create simple algorithms for each part
• ensure your program contains:
  ○ inputs
  ○ outputs
  ○ sequence
  ○ conditions
  ○ loops
• test and debug your program to ensure it works correctly
• document your program with code comments
	You will:
	• design, develop, store, test and evaluate your computer game program
	• develop a game to address the need to have more creative and engaging maths games for the Year 9 students at St Hilda's
	• ensure your game design is appropriate to be played at school, has the correct content for Year 9 maths and is accessible on to be played over the internet on the student laptops.
	• share your game on the Scratch website to contribute to others and the open source software movement
	• combine digital content (sprites that you have created on Piskelapp) with your Scratch programming

1. First of all, select a team name. Be creative – this is the start of your teamwork!!

2. Create a new Google Slides document. The first slide should feature your team name and team members (include a photo).

3. There are some **social and end-user considerations** to take into account when thinking of your game idea to ensure that it is suitable for Year 9 Math's students at St Hilda's. Brainstorm some ideas around the following considerations and add them to your slide show:

    a. Maths content suitable for Year 9
    b. Ethical issues around sprites and content (appropriate for play in a school setting)
    c. Repeat playability
    d. Fun/reward aspects

4. Before you select your game idea and begin to develop your **game design**, it is important to brainstorm ideas for your theme/game idea. What types of levels will there be? What will the mini-games be? Brainstorm some ideas and add them to your slide show. As a team, decide on the best idea and write a short description of your game idea.

5. Pitch your idea to the class. You will have one minute to stand-up and pitch your game idea (along with the mini-games). This is your opportunity to get feedback from members of the class on your game idea and how you could improve your game.

6. Create an A3 **poster storyboard** to show the overall **design of your game**. Sketch this out by hand, so you don't get too caught up with finding sprites and backgrounds at this point. This poster storyboard should include what will happen at each main level of the game program and each mini-game. Include the following information on your poster storyboard:
    a. The theme of the game will be….

b. The sprites required are ….
c. The music/sound effects required are ….
d. The game will abide by ethical considerations by….
e. There will be _____ levels and each level will ……
f. The player will win a level when they……

Annotate (write a brief description to the side) your storyboard with the main **algorithms, variables, events** that are required for each level. For example:

- There will be a timer variable and it will count down from 60 seconds, when it gets to zero the level will stop.
- When the player touches a piece of fruit a question will pop up. If they answer it correctly, the score goes up by one. We need a score variable for this level.

Take a photo of your storyboard and add it to your slide show.

7. Start ***programming and trialling***!! Really good ideas for your programming are to:

a. Translate each part of your storyboard algorithms into Scratch code.
b. Test that one part (e.g. the timer or player movement) before you move onto the next part.
c. Add code comments to help you understand what you have done later.
d. Pair program with your teammate – take turns coding each part of your algorithm.
e. Save different versions of your programs so that you can go back to one that might work better.
f. Get one level working and then test it out before creating other levels. Test this level with some of your classmates (who don't know your program as well as you do). Make any changes based on their feedback.
g. Repeat for the other levels.

8. **Final Testing**. Do as much testing as possible!
a. Test with some of your classmates & make any changes based on their feedback.
b. Test with some of your year 9 friends (who may be in another Maths class)
c. Test with your family/girls at the hostel.
d. Make any changes based on their feedback.

9. Write up a **final evaluation** of your game and add it to your slide show.
a. Did it meet all design elements that are on your storyboard?
b. Did the Year 9 maths students enjoy it?
c. What was the best part of your game?
d. What would you improve upon next time?

10. Promote and **share**
a. Share your game on the Scratch website to share your work with others.
b. In the sharing description include your team name, game name, description of your game, directions, and a few of the players' comments (feedback) as well!!