# TAS ASSESSMENT TASK NOTIFICATION

# YEAR 7 TECHNOLOGY MANDATORY 2021

**Task Number:** 1

**Topic/s:** Digital Technology – *"Micro:bit Madness"*

**Weightings:** 100% (70% Project, 30% Digital Portfolio)

**Due Date:** Tuesday 23rd November 2021 (Term 4 Week 8)

**Time:** In class

**Venue:** Digital Design Portfolio and Project Demonstration Video submitted on Stile Education

## Outcomes to be Assessed:

TE4-1DP designs, communicates and evaluates innovative ideas and creative solutions to authentic problems or opportunities

TE4-2DP plans and manages the production of designed solutions

TE4-3DP selects and safely applies a broad range of tools, materials and processes in the production of quality projects

TE4-4DP designs algorithms for digital solutions and implements them in a general-purpose programming language

TE4-7DI explains how data is represented in digital systems and transmitted in networks

TE4-9MA investigates how the characteristics and properties of tools, materials and processes affect their use in designed solutions

TE4-10TS explains how people in technology related professions contribute to society now and into the future

**Task:** HI

Details: Digital Portfolio and Project

## Electronic Submission of Task:

Yes

## Format of Electronic Submission:

Stile Education

**Please Note:**
1. The College policy regarding malpractice, including cheating and plagiarism, late submission and absenteeism will apply. Please refer to moodle.pmaclism.catholic.edu.au (Assessment Tasks – Rules and Procedures). Stage 6 students should also refer to their *2021 Assessment Handbooks*.
2. Email is NOT an accepted form of assessment task submission.
3. If you are going to be away for any reason, including school based activities, you must fill in a "Planned Absence Notification" form and submit to the Assistant Principal Curriculum or the Leader of Curriculum. This form can be found at http://moodle.pmaclism.catholic.edu.au/mod/page/view.php?id=17637.

**Electronic Submission Specifications:**

**FOLIO submission**

**STEP 1:** Save PowerPoint digital design portfolio as a PDF file

- Open your PowerPoint app on your iPad
- Open your Micro:bit portfolio presentation
- Select File > Export > PDF

**STEP 2:** Upload digital design portfolio to Style Education

- Open Stile Education app and login
- Select *Technology Mandatory – Micro:bit Madness*
- Select Assessment Task > Assessment task upload
- Upload your PowerPoint digital design portfolio as a PDF
- Select hand in for marking
- Digital design portfolio has been submitted.

**Project demonstration video**

**STEP 1:** Save project demonstration video as a mp4, mov, or .avi file. Video must be viewable via the VLC media player
- Open your project demonstration video application
- Export video as either of these extensions: mp4, mov, or .avi (no higher than 720p definition, due to large file sizes)
- Check the file plays correctly and that audio and sound quality is adequate.

**STEP 2:** Upload your project demonstration video to Stile Education

- Open Stile Education app and login
- Select *Technology Mandatory – Micro:bit Madness*
- Select Assessment Task > Assessment task upload
- Upload your Project demonstration video
- Select 'I'm done hand in for marking' at the bottom of the page to finalise submission.
- Project demonstration video has been submitted.

# TASK - Micro:bit madness

**Project Item:** Design, create and video document an interactive game that incorporates the Micro:bit processor.

**Digital Design Portfolio:**

Students are to complete a Word Processed Portfolio that reflects the design process of their project. Office 365 Word, powerpoint, google docs or google slides can be used to create the design folio.

**Design Statement:**

There are many games and activities that we engage with that require a user to write down scores, keep track of points and maintain time, all while still trying to play the game. These human / analogue processes can be digitised through scripting code to function with a microcomputer, such as the Micro:bit. This is how automation occurs when a predictable and repetitive task can replicated digitally. Code written for the Micro:bit computer can take digital and analogue inputs, creating programs allowing a user to participate with a game. The interaction of the user with the Micro:bit should enhance the experience of playing a game.

**Design Brief:**

- Design a game that incorporates the Micro:bit to enhance the experience of 'playing' a physical game. Consider the input and output elements of the game that provide positive, gameplay, accessibility, practicality, implementation, ease of use and functionally of the game and Micro:bit.
- Create a prototype of the game incorporating the operational Micro:bit and other components of the game. The prototype must not exceed the size of a regular shoe box (300mm x 180mm x 120mm). A range of materials may be used to create the game. A range of electronic components are available to use. These include; the Micro:bit, coloured LED lights, speaker, servo motor, battery pack, alligator clips, bread board, jump wire etc The Micro:bit is to be authored with a functioning script developed with the makecode.org editor.
- Document the design process through a written Digital folio as well as video of the software simulated and the final functioning prototype project.

**Project selection:**

- ☐ Project should start with research and then seek approval from a teacher before commencement
- ☐ Keep it simple and realistic – remember your skill level and the time factor involved for completion
- ☐ Select a project you are interested in or can relate to
- ☐ Consider starting with simple code that is achievable and then pursue more complex algorithms

**Criteria:**

- ☐ The project must have an accompanying audio/video recording show-casing how the final product meets the design brief and its functionality/construction and a recording of the code simulated and functioning. The file extension uploaded should be a .mov, .avi or .mp4. Screeencastify can be used to record the makecode.org script and simulator.
- ☐ The project must have an accompanying Digital Design Portfolio produced with Office 365 Word or powerpoint. The formatting of this folio must include a title page, contents page, headings as outlined.

<u>M</u>icro:bit Madness: *Digital Design Portfolio Outline*

Using your device, you are to complete your digital design portfolio in Office 365. Each slide of your digital design portfolio should have the following headings and relevant information. The pages are a minimum requirement, if you need more then that is fine.

| Pages | Heading | Information |
|---|---|---|
| 1 | **Title Page** | It must include the heading; *'Micro:bit Madness'*. It must also indicate your *name*, *class, teacher* and *one relevant image*.<br>Be creative and set the theme that you will use throughout your digital design portfolio. |
| 2 | **Contents page** | Generated contents page |
| 3 | **Design Brief** | Rewrite the *design brief into your own words* and **bold** the key words. |
| 4 | **Design Considerations** | As a class, create a brainstorm about the design considerations for your interactive game. |
| 5-6 | **Research** | **Page 5  Research – Games/Micro:bit features**<br>Playing games can lead to a number of cognitive benefits – including improving memory, coordination and social skills. Research into a number of different types of games and record their theme and game play, cognitive benefits, Possible ways to incorporate a microbit into the game<br>**Page 6  Research - Prototype – Skill Tester**<br>Complete an IPO chart for the skill tester prototype. Identify the inputs process and outputs in a table. Include an example showing that part of your code.<br>Write a paragraph explaining how the Skill Tester practically functions with reference to the code written.<br>Provide an image screenshot of the makecode.org script for the Skill Tester |
| 7-8 | **Ideas Generation** | **Page 7 - Idea 1   Page 8 -Idea 2**<br>Draw and label **two** possible games that can be developed incorporating the Micro:bit. Describe the interactive games features (including inputs and outputs), the purpose of the game and the theme. Next to or below each sketch complete a PMI chart stating what you liked, disliked and found interesting about the design. |
| 9-10 | **Final Design/ Make** | Write a script for your video<br>In the script you need to discuss the following<br>Why you have chosen this idea for your final idea?<br>What are the functions of the game how does it work how is it wired and coded what are some of the parts components of the game<br>How will you make the game? (materials/resources)<br>What other elements of design have you used/considered (aesthetics, ergonomics, durability, environmental<br>How do you play the game?<br>What are some of the challenges?<br><br>Film your game in use and demonstrate how it functions with your code<br>Take a photo of the script and place on this part of your folio<br><br>Complete your code for the game you have chosen, take a screen shot and place on this part of your folio |

| 11 | **Resources** | Include a list of **all** materials and equipment used to make your micro:bit interactive game also include the computer and software elements |
|---|---|---|
| 12-13 | **Procedure** | List the steps of construction in your own words. Insert **five** pictures giving further detail of the main steps of construction. Also include snippets of your micro:bit code as an indication of programming progress. |
| 14 | **Evaluation** | Complete an evaluation of your mico:bit, content to include<br>• Describe how the final product (the interactive game) met the design brief.<br>• Describe what you found enjoyable about creating the interactive game<br>• List one thing you would change in your project and explain why you would want to alter it.<br>• Provide context of what challenged you during the development of your interactive game |
| **Presentation** | | The formatting of the folio flows logically and is consistent. Diagrams and tables are represented neatly. A table of contents is present and correct. |

| Components | Elements | | | | | Marks |
|---|---|---|---|---|---|---|
| **Title Page** | 1 | | | 0 | | |
| | Title Page includes all elements | | | Title Page includes some elements | | |
| **Design Brief** | 2 | | | 1 | | |
| | Complete Design Brief with highlighted key words | | | Incomplete Design Brief / key words | | |
| **Design Considerations** | 1 | | | | | |
| | Mind Map showing Design Considerations | | | | | |
| **Research** | 5 | 4 | 3 | 2 | 1 | |
| | Undertakes and evaluates a range of appropriate research | Undertakes and analyses appropriate research | Undertakes and explains some appropriate research | Undertakes and outlines limited appropriate research | Provides minimal evidence of appropriate research | |
| **Ideas Generation** | 5 | 4 | 3 | 2 | 1 | |
| | Demonstrates an extensive application of creativity | Demonstrates a thorough application of creativity | Demonstrates a sound application of creativity | Provides basic evidence of ideas generation | Provides elementary evidence of ideas generation | |
| **Final Design** | 3 | | 2 | | 1 | |
| | Evaluates the selection of ideas for final design | | Explains the selection of ideas for final design | | Recognises some of ideas for final design | |
| **Resources** | 1 | | | | | |
| | Provides a complete list of required materials | | | | | |
| **Procedure** | 5 | 4 | 3 | 2 | 1 | |
| | Provides an extensive record of the steps of construction | Provides an thorough record of the steps of construction | Provides a sound record of the steps of construction | Provides a basic record of the steps of construction | Provides an elementary record of the steps of construction | |
| **Evaluation** | 3 | | 2 | | 1 | |
| | Provides an extensive summary including positives, negatives and improvements | | Provides a sound summary including positives, negatives and improvements | | Provides an elementary summary including some positives, negatives or improvements | |
| **Presentation Techniques** | 4 | | 3 | 2 | 1 | |
| | Demonstrates a range of quality presentation techniques | | Demonstrates a range of appropriate presentation techniques | Demonstrates a limited range of presentation techniques | Demonstrates minimal presentation techniques | |
| | | | | | **Total** | |
| | | | | | | **/30** |

**TECHNOLOGY MANDATORY – Year 7 – Stage 4 VIDEO PROJECT UNIT: Micro:bit Madness  NAME_____CLASS_____**

| Components | Elements | | | | | Marks |
|---|---|---|---|---|---|---|
| | **15 -13** | **12 - 10** | **9 - 7** | **6 - 4** | **3 - 0** | |
| **Overall quality of the product** video | Project displays extensive qualities in all aspects including sound, lighting, tone, projection, use of props, cohesive information | Project displays high qualities in most aspects of sound, lighting, tone, projection, use of props, cohesive information | Project displays sound qualities in some aspects of sound, lighting, tone, projection, use of props, cohesive information | Project displays basic qualities in few aspects of sound, lighting, tone, projection, use of props, cohesive information | Project displays limited qualities in minimal aspects of sound, lighting, tone, projection, use of props, cohesive information | |
| | **15 -13** | **12 - 10** | **9 - 7** | **6 - 4** | **3 - 0** | |
| **Competency in practical skills** code | Student has demonstrated an extensive range of practical coding skills inclusive of 5 or more ideas | Student has demonstrated a thorough range of practical coding skills 4 or more ideas | Student has demonstrated a sound range of practical coding skills 3 or more ideas | Student has demonstrated a basic range of practical coding skills 2 or more ideas | Student has demonstrated a limited range of practical coding skills 1 or more ideas | |
| | **5** | **4** | **3** | **2** | **1 - 0** | |
| **script** | Student writes an extensive script inclusive of all elements of design (aesthetics, function and durability) Student reflects and evaluates all design considerations | Student writes a thorough script inclusive of most elements of design (aesthetics, function and durability) Student reflects and evaluates most design considerations | Student writes a sound script inclusive of some elements of design (aesthetics, function and durability)  and /or Student reflects and evaluates some design considerations | . Student writes a basic script inclusive of few elements of design (aesthetics, function and durability) and/or, student reflects and evaluates few design considerations | Student writes a limited script inclusive of 1or 2 elements of design (aesthetics, function and durability) or student reflects and evaluates 1or 2 design considerations. | |
| | | | | | **Total** | |
| **Comments:** | _____ | | | | | **/35** |

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