**MYP TECHNOLOGY YEAR 5**

**Pump up the Volume**

[Information] [Systems]

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| **Branches of Technology:**  **Information:**  Communication of information using appropriate digital media technologies  Communication of design ideas  **Systems:**  Electronic systems (circuits, amplifiers)  CAD/CAM  Speaker design | |
| **Areas of**  **Interaction (AOI):** | **Student learning Expectations (SLE’s)** |
| **Approaches to Learning** | ***Organisation***: Project management ***Thinking*:** Use of primary and secondary sources. Placing value on sources. |
| **Human Ingenuity** | ***Awareness***: Understand the importance and impact of design  ***Refection***: Reflect upon their own choices based upon design.  ***Action***: Create your own ‘designer’ product |

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| **Significant Concept:**  Design is not just what it looks like and feels like. Design is how it works. | **Unit question:**  **Why are ‘designer’ products so appealing?** |
| **Context**  Being able to combine form and function is the aim of all designers. In this design challenge, your task will be to do just that. Students will explore the relationship between form and aesthetics balanced against function and practicality. Students will also the nature of design and attempt to discover why designer products are so desirable.  **Task:**  To explore the nature of good design, you will design and make a pair of speakers. These will be portable and either use batteries or a computer to power them. You need to decide on a specific client and design to meet their needs. | |



**The Design Cycle**

You will follow the Design Cycle to complete these tasks. I have created a checklist for you to follow as you address the MYP Technology learning objectives. I will assess each section of the Design Cycle independently and then the whole Design Folio will be submitted for final assessment.

Please refer to my wiki for help. [www.myp-tech.wikispaces.com](http://Www.myp-tech.wikispaces.com)

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**Objectives & Assessment**

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| **MYP Technology Objectives** | **Assessment Tasks Checklist** |
| **Investigate Objectives:**  **Identify the Problem. (Research)**   * Evaluate the importance of the problem for life, society and the environment. * Outline the design brief.   **Develop A Design Brief.**   * Formulate and discuss appropriate questions that guide the investigation. * Identify and acknowledge a range of appropriate sources of information. * Collect, analyse, select, organize and evaluate information. * Evaluate the sources of information.   **Formulate a Design Specification.**   * List the specific requirements that must be met by the product/solution. * Design tests to evaluate the product/solution against the design specification. | **Investigate Tasks:**  **Identify the Problem. (Research)**  Investigate the culture of design. Investigate the economic, environmental and social consequences of ‘designer’ products.  Write a design brief outlining the needs, of your chosen client.  **Develop A Design Brief.**  Write guiding questions  Primary and secondary sources.  Research into: speaker design, how speakers work, construction techniques, and acoustics. etc. Describe the principles of good design.  Justify and fully reference your sources.  **Formulate a Design Specification.**  List the specific requirements of your client.  List the requirements of good aesthetics.  Describe the practical requirements.  Clearly explain multiple tests for your completed product. |
| **Design Objectives**:  **Design a Product or Solution**   * Generate several feasible designs that meet the design specification * Evaluate the designs against the design specification * Select one design and justify its choice. | **Design Tasks:**  **Design a Product or Solution** |
| **Plan Objectives:**  **Plan a Product or Solution**   * Construct a plan to create the product/solution that has a series of logical steps * Construct a plan to create the product/solution that makes effective use of resources and time * Evaluate the plan and justify any modifications to the design. | **Plan Tasks:** |
| **Create Objectives:**  **Create the Product or Solution**   * Use a range of appropriate techniques and equipment competently. * Ensure a safe working environment for themselves and others.   **Use Appropriate Techniques and Equipment**   * Follow the plan to produce the product/solution. * Evaluate the plan and justify any changes to the plan (when necessary).   **Follow the Plan**   * Create a product/solution of appropriate quality. | **Create Tasks:** |
| **Evaluate Objectives:**  **Evaluate your Product or Solution**   * Carry out tests to evaluate the product/solution against the design specification * Evaluate the success of the product/solution in an objective manner based on testing, their own views and the views of the intended user. * Evaluate the impact of the product/solution on individuals and on society. * Explain how the product/solution could be improved.   **Evaluate your Use of the Design Cycle.**   * Evaluate their performance at each stage of the design cycle * Suggest ways in which their performance could be improved. | **Evaluate Tasks:** |
| **Notes:** | |

**Assessment Rubric: iRobot**

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| **Achievement level** | **Criterion A: Investigate**  **Level descriptor** | |
| **0** | You did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | You **stated** the problem.  You investigated the problem, collecting information from **few** sources.  You listed some specification points. |  |
| **3–4** | You **described** the problem, mentioning its relevance.  You investigated the problem, selecting and analysing information from **some** acknowledged sources.  You described a test to evaluate the product/solution against the design specification. |  |
| **5–6** | You explained the problem, discussing its relevance.  You critically investigated the problem, evaluating information from a **broad** **range** of appropriate, acknowledged sources.  You described **detailed** **methods** for appropriate testing to evaluate the product/solution against the design specification. |  |

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| **Achievement level** | **Criterion B: Design**  **Level Descriptor** | |
| **0** | You did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | The student generates one design, and makes some attempt to justify this against the design specification. |  |
| **3–4** | The student generates a few designs, justifying the choice of one design and fully evaluating this against the design specification. |  |
| **5–6** | The student generates a range of feasible designs, each evaluated against the design specification. The student justifies the chosen design and evaluates it fully and critically against the design specification. |  |

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| **Achievement level** | **Criterion C: Plan**  **Level descriptor** | |
| **0** | You did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | You produced a plan that contains **some details** of the steps and/or the resources required. |  |
| **3–4** | You produced a plan that contains a **number of logical steps** that include resources and time.  You made **some attempt** to evaluate the plan. |  |
| **5–6** | You produced a plan that contains a **number of detailed**, logical steps that describe the use of resources and time.  You **critically** evaluated the plan and **justified** any modifications to the design. |  |

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| **Achievement level** | **Criterion D: Create**  **Level descriptor** | |
| **0** | You did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | You considered the plan and created at least **part** of a product/solution. |  |
| **3–4** | You used appropriate techniques and equipment.  You followed the plan and **mentioned any modifications** made, resulting in a product/solution of **good quality**. |  |
| **5–6** | You **competently** used appropriate techniques and equipment.  You followed the plan and **justified any modifications** made, resulting in a product/solution of **appropriate quality** using the resources available. |  |

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| **Achievement level** | **Criterion E: Evaluate**  **Level descriptor** | |
| **0** | You did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | You evaluated the product/solution **or** your performance.  You made **some attempt** to test the product/solution. |  |
| **3–4** | You evaluated the product/solution **and** your performance and suggested ways in which these could be improved.  You **tested** the product/solution to **evaluate it** against the design specification. |  |
| **5–6** | You evaluated the success of the product/solution in an **objective** manner **based on the results** of testing, and the views of the intended users.  You provided an evaluation of your own performance **at each stage** of the design cycle and suggested improvements.  You provided an appropriate evaluation of the **impact** of the product/solution on life, society and/or the environment. |  |

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| **Achievement level** | **Criterion F: Attitudes in technology**  **Level descriptor** | |
| **0** | You did not reach a standard described by any of the descriptors given below. |  |
| **1–2** | You **occasionally** displayed a satisfactory standard in one of the aspects listed above. |  |
| **3–4** | You **frequently** displayed a satisfactory standard in both of the aspects listed above. |  |
| **5–6** | You **consistently** displayed a satisfactory standard in both of the aspects listed above. |  |