

**Investigate: Level: 6**

**Design: Level: 6**

Discovery College [Technology Web Site:](https://sites.google.com/a/dc.edu.hk/technology/)

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**Area of Interaction:** Environments.

*Alternative energy sources must be developed.*

***ATL:*** Research Skills.

Information Literacy: Web based ePortfolios

**Context.**

The use of fossil fuels is slowly but surely destroying the planet. Fosil fuels are a finate resource and alternative energy sources must be found. One way we, as individuals can help to alleviate the need for fossil fuel is to design small charging devices for personal use. Collectively this will make a difference.

Solar energy is a renewable energy source and doesn’t impact the natural evvironment as much. This will allevate the use of fossil fuels and so less polltuion will b emmitted into the atmophere and therefore have a postive imapct on global warming.

**Task:**

Your task is to design and create a working solar powered charging device. It must be suitable for portable devices such as MP3 players that can be charged at a maximum of 5.5V.

**Significant Concept:**

*Energy can be generated in many ways.*

**Unit Question:**

*How can technology help slow global warming?*

**Attitude: Level: 6**

### **Assessment**

**Create: Level: 6**

Year 8: Solar Charger [Information] [Systems]

MYP Technology

You will follow the Design Cycle to complete this task. I have created a checklist for you to follow for each stage of the Design Cycle complete with due dates. I will assess each section independently and then the whole Design Folio will be submitted for final assessment.

Remember to use your Google Site during this unit!

Year 8: Solar Car Challenge [Information] [Systems]

**Investigate**

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|  | **Assessment Criteria: A - Investigate** | |
| **5-6** | You have created a design brief. You have described the problem. You have investigated the problem, **logically organizing** information from appropriate and **acknowledged sources**. You have listed a **range** of specifications that must be met by the product/solution. |  |
| **3-4** | You have **stated** the problem in the form of a **design brief**. You have investigated the problem, **selecting** information from some **acknowledged** **sources**. You have listed **some specifications** that must be met by the product/solution. |  |
| **1-2** | You have **investigated** the problem, sometimes inappropriately. You **collected** information. |  |

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| **Investigate: [Due: 4/5/11]**  **Identify the Problem. (Research)**   * Write some **guiding questions** * Explain the **AOI.** * Write a Design brief.     **Develop the Design Brief**   * Conduct **research** into the impact of using renewable energy sources * Describe how solar cells work. * Research into components   **Formulate a Design Specification**   * Write a **detailed** Design Specification * Describe the **test** of your completed charger. * Bibliography | **Investigate- Tips for Success**  [www.myp-tech.wikispaces.com](http://www.myp-tech.wikispaces.com)  4-6 GQs. Questions that guide your research. What do I need to know to make this thing??  Design brief is: What, Why, Who and maybe How.  Solar, wind, tidal. Paragraph on each. Pics & videos.  Photovoltaic cells  Use GWR’s headings.  TEST: incandescent globe, in bright sun. Test using a multi meter! |

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|  | **Assessment Criteria: B- Design** | |
| **5-6** | You have generated a **range** of feasible designs, **each compared** against the design specification and you **explained** the reasons for your choice of final design. |  |
| **3-4** | You have generated a **few** designs, selecting one and **comparing** it against the design specification. |  |
| **1-2** | You have generated **one** design, and made some attempt to **describe** it. |  |

**Design**

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| **Design**: **[Due: 4/5/11]**  **Design a product or Solution**   * Sketch **several, feasible** designs for your charger and annotate thoroughly. * Evaluate **each** design against the Design Specification. * Justify your chosen design. | **Design- Tips for Success**  2-4 designs. Well drawn! Need to know the components needed and the sizes.  Design spec as a check list-in sentences |

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|  | **Assessment Criteria: C - Plan** | |
| **5-6** | You have produced a plan that contains a **number** of **detailed**, **logical** steps that describe the use of resources and time. You have described possible problems with the plan. |  |
| **3-4** | You have produced a plan that contains a number of **logical** **steps** that include **time**. |  |
| **1-2** | You have produced a plan that contains **some details** of the steps required to complete the design. |  |

**Plan**

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| **Plan: [Due: th]**  **Plan a Product or Solution**   * Write a **detailed** materials and component list * Write a **detailed** Production Plan for how you will make your car. * Evaluate your plan and explain any changes. | **Plan- Tips for Success**  Component: eg, motor, axel, solar panel, axel holder, wire, gears, pulleys  Materials: balsa, acrylic, HIPS,  Step by step guide: colour code who does what. (new tool = new step)  Steps, Tools, process, time, who.  Evaluate: describe possible problems??? |

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|  | **Assessment Criteria: D - Create** | |
| **5-6** | You have **competently** used **appropriate** techniques and equipment. You have followed the plan, resulting in a product/solution of **appropriate** quality. |  |
| **3-4** | You have used **appropriate** techniques and equipment. You have considered the plan resulting in a product/solution of **good** quality. |  |
| **1-2** | You have created at least **part** of a product/solution |  |

**Create**

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| **Create: [Due: ]**  **Create the Product or Solution**   * Build your car with your team to the best of your ability.   **Use Appropriate Techniques and Equipment**   * Keep a **detailed** Process Journal each lesson. * Test and your car and explain improvements.   **Follow the Plan**   * Follow your production plan a explain **any** changes | **Create- Tips for Success** |

**Evaluate**

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|  | **Assessment Criteria: E - Evaluate** | |
| **5-6** | You have **considered** the success of the product/solution based on the results of **testing** and your **own views**. You have provided an evaluation of your own performance at **different stages** of the design cycle and suggested improvements. |  |
| **3-4** | You have **considered** the success of the product/solution **and** your own performance and suggested ways in which these could be improved. You have **compared** the final product/solution against **some** of the design specification requirements. |  |
| **1-2** | You have **considered** the success of the product/solution **or** your own performance |  |

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| **Evaluate: [Due: ]**  **Evaluate your Product or Solution**   * Race your car against other teams. * Evaluate your completed project against the Design Specification. * Suggest improvements to your final product   **Evaluate your Use of the Design Cycle.**   * Evaluate your use of the Design Cycle. * Evaluate the AOI and your understanding of the ‘Big Picture’ * Evaluate your personal engagement in the project. (effort and attitude.) | **Evaluate- Tips for Success** |

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|  | **Assessment Criteria: F - Attitude** | |
| **5-6** | You have **consistently** displayed a satisfactory standard in personal engagement (motivation, independence, general positive attitude) **and** attitudes towards safety, cooperation and respect for others. |  |
| **3-4** | You **mostly** displayed a satisfactory standard in personal engagement (motivation, independence, general positive attitude) **and** attitudes towards safety, cooperation and respect for others. |  |
| **1-2** | You have **rarely** displayed a satisfactory standard in personal engagement (motivation, independence, general positive attitude) **or** attitudes towards safety, cooperation and respect for others. |  |

**Attitude**