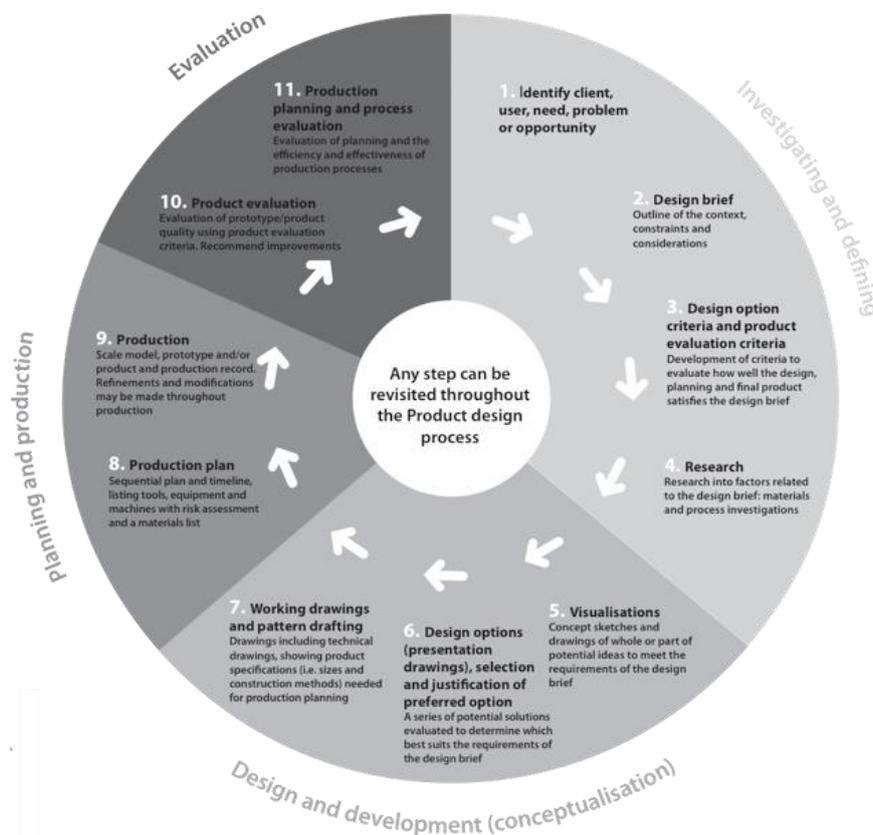


Design and Technologies

Small Engines and Designed Project.

There are some major problems with the current modes of transport. Most cars, trucks, motorbikes and trains all use non-renewable power source in the way of fossil fuels. Your challenge is to investigate an alternative power source, thinking about the impact on the environment and produce a transport model using that alternative. You will need to follow the production cycle shown below.

For each step shown below, you will need to include information to fulfil the requirement. Refer to the checklist for more details.



Investigate

- Complete the worksheets on small engines.
- Identify the need for your new project using a mind map.
Use the How, When, Where, What, Why, Who system.
- Create a design brief showing the
 - context (reasons why you want to investigate and build something using that power source)
 - Construct a list of Constraints (things the project must be) and Considerations (things the project might be) from the Product Design factors shown here:
 - **Purpose, function and context**
 - **Human Centred Design**



- **Innovation and creativity**
- **Visual, tactile & aesthetic**
- **Sustainability**
- **Economics**
- **Legal Responsibilities**
- **Materials**
- **Technologies**



- Develop 5 evaluation criteria based upon your constraints and considerations
- Show research of similar projects to your proposed idea. Annotate each picture showing the following:
 - Materials – what it is made out of and why you like it (sustainability)
 - Processes – How has it been constructed?
 - Innovation – What new idea has been used/shown?

Design

- Create 3 different visualisations and annotate each drawing.
- Create 2 design options of your project.
- Create a technical drawing using Fusion 360. It can be printed on the 3D printer. Fusion 360 can be downloaded here: <http://www.autodesk.com/products/fusion-360/students-teachers-educators>



Production

- Dismantle and rebuild a Briggs and Stratton lawn mower engine. It needs to run for 10 minutes after the rebuild.
- Show a production plan to complete your project showing steps that need to be completed by specific dates. Make sure you are finished by October 26.
- Complete the Ongoard training.
- Keep a diary of the production process. Include progress pictures.

Evaluation

- How does the finished product match with the original idea, what changed and give reasons why it changed.
- Answer the evaluation criteria listed in the Investigation section.
- Analyse the process and procedures that you went through to make the project. What things worked well and what things could be improved.

