

Year 4 MYP Technology

Name:.....

Due Date:

SYSTEMS

Unit of Work: Design a hydraulic device that performs a useful action.

Context: Sometimes items need to be moved that cannot be touched e.g. radioactive waste is a dangerous substance. It should not be touched by human hands. A machine can move the waste from one spot to another. You have to create a similar device. You cannot touch the item that is being moved. You need to create a hydraulic device.

Challenge: Design and make a device that will move a package from one stop to another using hydraulics using the available equipment (see below).

Criterion A

Investigate:

The problem

Explain the problem in your own words.

Available equipment (available but you do not have to use)

- Plastic syringe
- Plastic tubing
- Water
- Corruflute
- Cardboard
- Card
- Bolsa wood

Design brief

Using the information gathered, explain the type of machine you intend to make and why? Produce a design specification.

Using a broad range of sources (remember to acknowledge your sources)

- What is hydraulics? How does it work? Check out: <http://science.howstuffworks.com/hydraulic.htm>
- Various hydraulics: where are hydraulics used? Why are they useful in these places?
- What is needed to construct a hydraulic machine / device
- Which example do you think is the best (most useful) and why?
- Questions of your own.

Design Specification: these are your limits

Here are some common requirements. All designs must qualify for these. Please add more of your own.

- Only the machine can touch the package.
- The machine must be powered by hydraulics.
- More of your own requirements.

The test

Describe how you intend to test the final product to ensure that it meets all the requirements and is successful? Will you hand out any questionnaires for peers to respond on?

Criterion B

Design

Choose 2 recipes to test; remember the design brief asked you to create a dessert that is pleasing to the eye, is delicious to eat and is nutritious as well.

- Design 1: diagram, description, advantages and disadvantages, design specification checklist
- Design 2: diagram, description, advantages and disadvantages, design specification checklist

- Design 3: diagram, description, advantages and disadvantages, design specification checklist
- Chosen design with justification
- Modifications

Analyse each design against the brief and the design specification.

Annotate (label) each design; the following might be helpful:

- Will I have to touch the item with my hands?
- Will the device move the item correctly?
- Have I included resources that are available?

Criterion C

Plan:

Draw up a table with the following headings as shown:

Date/Day/ Lessons/Week	Time Allocated	Equipment / resources	Team member5	What safety issues do I need to consider?	Actual time taken to complete the step

Using this table produce a production plan outlining your estimated use of time and resources when creating your device.

Criterion D

Create:

Follow your production plan to prepare and serve the device.

Record in the production plan table (in the comments section) when and how you use tools, materials and techniques. Justify any changes you make from your plan.

Remember to start your process journal and keep it up to date.

Criterion E

Evaluate:

Evaluate the success of your device based on the **results of testing** and the **views of others**. Reflect on your own performance **at each stage of the design cycle** and suggests improvements. Consider the task as a whole and the impact it could have on life, society and/or the environment.

Criterion F: attitudes in technology

Maximum 6

Attitudes when working in technology focuses on the overall assessment of two aspects:

- Personal engagement (motivation, independence, general positive attitude)
- Attitudes towards safety, cooperation and respect for others

DUE DATES

Investigate: 16-20 Feb

Design: 23-27 Feb

Plan: 2-6 March

Create / test: 9-20 March

Present: 24 March

Evaluate: 26 March