Sample 'My Design Guide' activities

This resource was developed as part of an Applied Technology CPD 2019/2020 workshop which took place during the 2019/2020 school year. All materials used during this workshop can be viewed in the Technologies section of www.jct.ie within the CPD Workshops tile.

Website Link:
https://www.jct.ie/technologies/cpd_supports_applied_technology_cpd_workshops_2019_2020

The learning experiences below were showcased as part of a unit of learning during this workshop and focused on how students could use 'My Design Guide' to better support their engagement in research, design, and realisation. This sample resource may assist you in planning and developing suitable challenges for your student's context. Reference to this resource can be found on slides 50 – 65 of the Applied Technology 2019/2020 CPD workshop presentation.

What is included in this PDF?

1. Sample unit of learning

Included is the sample unit of learning developed by the Applied Technology team using a generic school context. Contained in the unit of learning plan are the learning outcomes and key learning activated by engaging with the challenges below.

2. Sample 'My Design Guide' activities.

Included in this resource are sample 'My Design Guide' activities for students' engagement. It is important to take note of the learning outcomes, key learning and the action verbs in the unit of learning plan which contextualise the worksheet activities.

Link to Resource

Note: It is recommended that you view the CPD workshop materials in conjunction with using this resource to contextualise the resource and develop a better understanding of how the unit of learning was developed.

Teacher Name: Click or tap here to enter text.

APPLIED TECHNOLOGY PLANNER

Class Group: 1st years

Unit: **CPD Day 2019/2020**

Duration: **4-6 weeks**

Date Commence: Click or tap to enter

Consider the age, stage and prior learning of the students.
What learning do we want to focus on?
Explore both the strands and elements when choosing learning outcomes.

AGE AND STAGE:

First Year

i. April/May 1st year
ii. 4-6 week unit of learning

PRIOR LEARNING:

- 2 Design and Make Projects and portfolios

- Introduction to materials technology, electronics
- Applied control introduction

FOCUS OF LEARNING:

- Develop deeper understanding of applied control
- Promote student curiosity – social issues
- Focus on an issue in your community and build awareness of others
- Further develop visual and realisation communication skills

EXPLORE STRANDS AND ELEMENTS:

1.1, 1.2, 1.8, 1.10, 1.13, 2.2, 2.4, 2.8, 3.3,3.4, 3.6

CHOSEN LEARNING OUTCOMES

1.1 develop a design solution drawing on experience and using evidence, reasoning and decision making

1.2 analyse problems using a systematic approach

1.13 communicate evidence of the iterative process of design

2.4 design a logical sequence of instructions to control a device or system

2.8 create control solutions to indentified problems

3.3 explain how human, societal, and environmental considerations affect solutions and outcomes

Identify the learning outcomes for your unit of learning.
Identify the key learning for students using action verbs to support your thinking.
Consider how we will assess and report evidence of learning

LENS TO FOCUS THE LEARNING (OPTIONAL)

Sustainable Development Goals

KEY LEARNING

1.1 , 1.2, 1.13: Further develop students understanding and experience of research, design and realisation

1.2 ,2.4,2.8: Apply control and systems thinking to create a solution to this brief

1.1 , 1.2, 3.3: Building student awareness of road safety and propose solutions to address this in their local area

ACTION VERBS

Analyse: study or examine something in detail, break down in order to bring out the essential elements or structure; identify parts and relationships, and to interpret information to reach conclusions

Communicate: use visual gestural, verbal or other signs to share meaning or exchange information; interaction between sender and recipient; both work together to understand

Create: process and give form to the topic of what is to be created using selected methods and material and/or to give the material used a new form

Design: planning the features of a solution that solves a perceived user problem

Develop: advance a piece of work or an idea from an initial state to a more advanced state

Explain: give a detailed account including reasons or causes

Develop ideas for how students could experience this learning.
How will I know they are learning?

HOW COULD STUDENTS EXPERIENCE THIS LEARNING?

- Thematic brief- success criteria (portfolio +responses) -stages
- Road Safety – RSA representative
  i. Site visit
  ii. Role play > discussion
  iii. Storyboard- scenarios - identify risks – user needs
  iv. Groups – mind-map -local context
- Applied control - software
  i. Traffic sequence – program
  ii. Microbit control – discovery learning (allows experimentation)
  iii. Introduce systems thinking – respond to the brief
- Primary research – evidence gathering
  i. Evidence gathering

Presentation — Identifying risk /hazards

Questioning skills focus

ONGOING ASSESSMENT

- Student portfolio to record decisions
- Group critique
- AFL Techniques
- Feedback

Using your own classroom context, what methodologies and resources will support students in experiencing the learning outcomes.
Ensure assessment aligns with the learning outcomes and their action verbs

RESOURCES

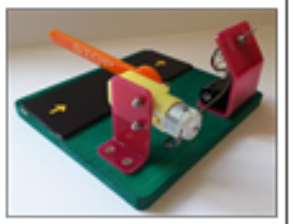
- Focus on microbit response – hardware + software- IT access
- 'My Design Guide' – primary research, questioning
- Co-create success criteria
- Material Focus – build on skills – acrylic manufacture

METHODOLOGIES

- AFL – Feedback loop
- Group critique – final
- Learning Log – decisions
- Experts – control programming

ASSESSMENT AND REPORTING

- Portfolio Evaluation
- Recorded feedback
- Success criteria

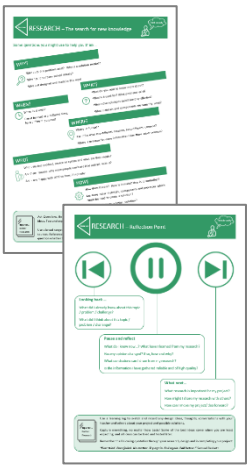


REFLECTION

This resource is only for use during JCT facilitated Applied Technology workshops

Activity: Using 'My Design Guide' – Identifying problems and challenges

Task 1: What questions do you need to ask to better **understand** this situation?



Activity: Using 'My Design Guide' - Developing curiosity

Task 1: What questions do you need to ask to better **understand** this situation?

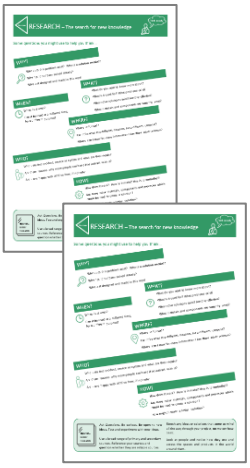
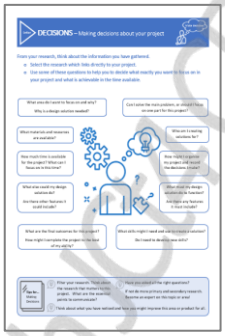
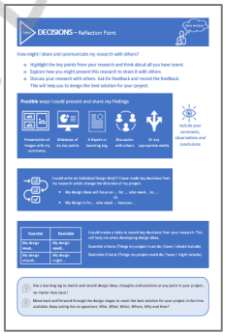


Photo by Casey Clingan on Unsplash

Using *My Design Guide*

Decision making, idea generation and working with constraints





Is there a better solution?
Write a design brief for how you might solve this problem.

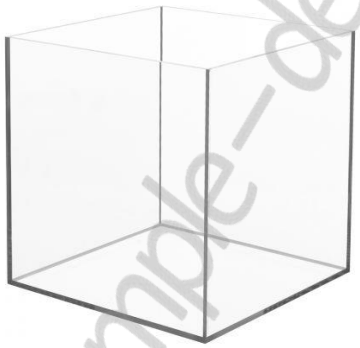
- ***My design will focus on … for … who need … to …***

How would your design ideas change if you had to include one of the following items?

Realising solutions

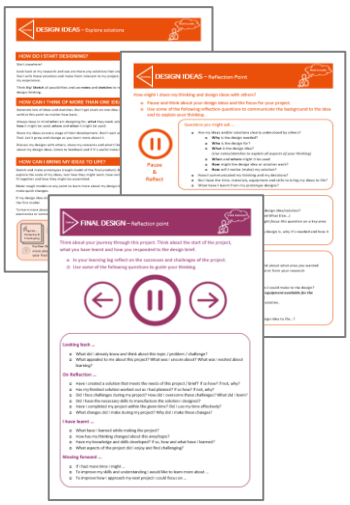
(How can I make my design idea?)

Q: By design or otherwise, how might I assemble my solution effectively?



Sides of an Acrylic box?

A **rack** to a piece of **Acrylic**?



Q: Do I have the time, materials, equipment, and skills to bring my idea to life?

This resource was created to support a Professional Development workshop facilitated by JCt4 during the 2019-2020 school year and sits within the context of the discussions that took place during this workshop.