

## Dilworth School Technology – junior campus

### Electronic Matchbox Bug Project Year 5



Name: Nathan Green Room: 501

|   | Target areas to improve during project *     | Tick two targets |
|---|--|------------------|
| F | State the key attributes for a product.      |                  |
| O | Research into bugs and electronic components |                  |
| L | Create and develop an imaginative idea       | ✓                |
| I | Evaluate product carefully                   |                  |
| O | Understand safety in a workshop              |                  |
| M | Measuring & assembling accurately            |                  |
| A | Attaching electronics accurately             |                  |
| K | Increase knowledge of processes              |                  |
| E | Increasing looks through decoration          |                  |
| E | Creating a quality product                   | ✓                |

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### Electronic Bug Assessment Technological Practice (Level 2)



| Technological Practice  | Needs Attention  | Satisfactory  | Very Good  | Excellent   |
|---|--|---|--|---|
| <b>Brief Development</b><br>(Key Attributes)                  | A few key words written stating what is needed for the electronic bug to work.   | A range of words stating what is needed for the electronic bug to work.   | A range of words stating what is needed for the electronic bug to work, with some explanation of why they are needed.                      | A wide range of needs stated for the electronic bug to work, with clear explanation why these attributes are important.                                 |
| <b>Planning for Practice</b><br>(Resources & Recording ideas) | One idea sketched with simple labelling of materials needed.   | One/two ideas sketched for electronic bug. All necessary materials needed to make the bug labelled on EACH design.  | A few ideas sketched for electronic bug. All necessary materials, tools and resources needed to make the bug clearly labelled (annotated). | A range of ideas sketched for electronic bug. All necessary resources labelled (annotated) with some reasons explaining why these resources are needed. |
| <b>Technological Outcome</b><br>(Developing an Idea)          | Final electronic bug design has attempted to be made – but may need to be completed. Final product is the same as the original design. | Final electronic bug has been completed to a satisfactory quality with working electronics. Final product resembles the initial idea but shows some improvement | Well made electronic bug with working electronics. Idea has changed and improved from the original design.                                 | High quality final product. Idea has shown drastic improvement and change (modification) linked to initial key attributes.                              |

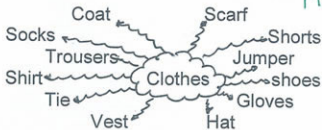
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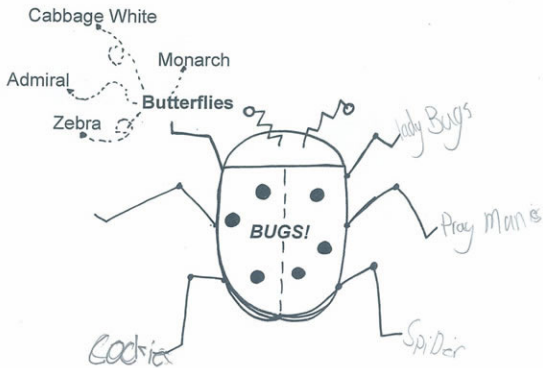
## Analysis - Brainstorming

**Brainstorming** – we can use a spider diagram to help use to think quickly about a subject.

You need to write down as many things as possible that link to the key word in the centre.  
For example:



**Task:** Brainstorm as many different themes as you can for the picture on the front of your card. A start has already been made!



✓ Good Start  
Can you add more?

# Initial Ideas



## Initial Ideas

Creating a range of innovative design ideas.

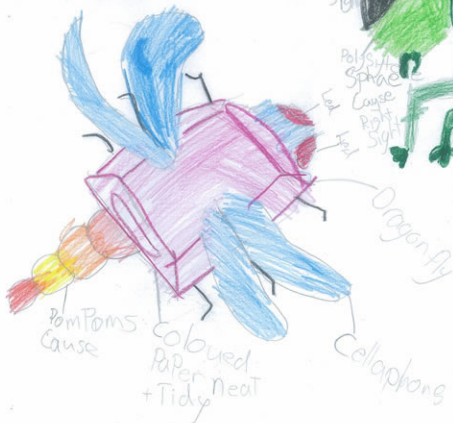
Sketch 2D and 3D ideas.

Annotate them – explain each idea.

Analyse and evaluate each design.

Compare the designs.

Choose the best design to fulfil the design brief.



Nice, unique  
use of items  
well labelled  
materials.  
Reasons to  
give reasons  
for design.

Name: Morgan Grace



# Research

## Research

Collecting information relating to the design brief and analysis which will aid designing.  
 Gather data, question stakeholders.  
 Investigate existing designs.  
 Look at the good, bad and interesting aspects of designs.  
 Be inspired and use the information discovered.

## Specification

A list of essential and desirable criteria for your product to fulfil.

Kj Attributes

pipoclear legs ✓

LED antennae  
So it will glow ✓  
White Bulbs ✓

## Design Brief for Electronic Matchbox Bug Project

I am going to design and manufacture a decorative electronic bug. The bug will use a parallel or series circuit to create the glowing eye(s). AA batteries will be housed inside a matchbox, which then creates the body of the bug.

Match Box to keep the Batteries safe ✓

fourth battery

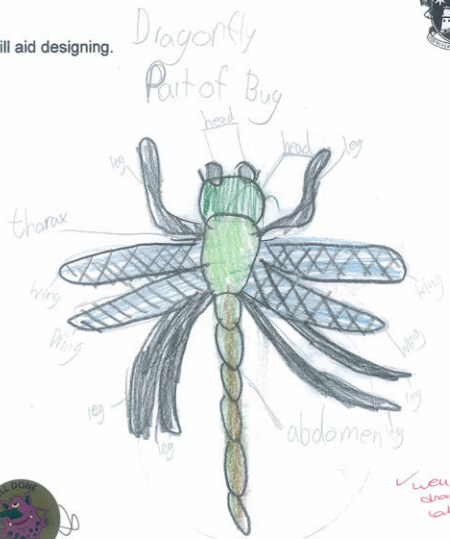
batteries power

how will the bulb work?

decide on circuit ✓

Assemble ?

well thought out.  
 need to see reasons for your thoughts  
 E

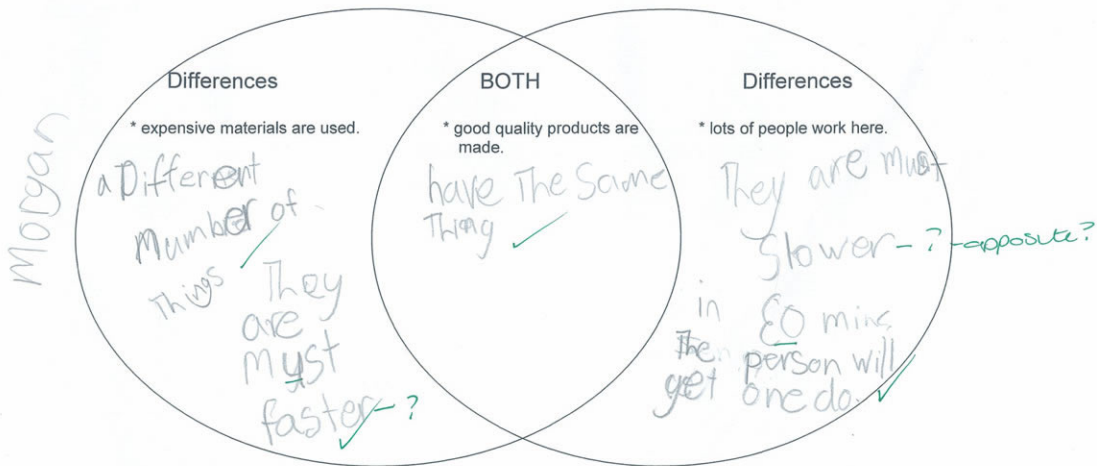


✓ well drawn + labelled

Name: Morgan Grace



THESIS: Products can be made in different ways, but some parts of the process are similar.



ONE-OFF PRODUCTION

MASS PRODUCTION

TASK: Add to the Venn diagram. What is different between processes? What is the same?



Morgan

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## Electronic Components

Task: Fill in the table with the correct information.

| 3D Picture | Circuit symbol | Component name | Job/description                              |
|------------|----------------|----------------|--|
|            |                | Battery        | These carry the current around the circuit X |
|            |                | L.E.D          | When connected they glow brightly ✓          |
|            |                | Wire           | These create voltage which is used X         |
|            |                | Switch         | This device turns the circuit on or off ✓    |

Switch

Battery

Light Emitting Diode (L.E.D)

Wire

When connected correctly they glow brightly.

These create voltage which powers the circuit.

These carry the current around the circuit

This device turns the circuit on or off.

WOW

Morgan

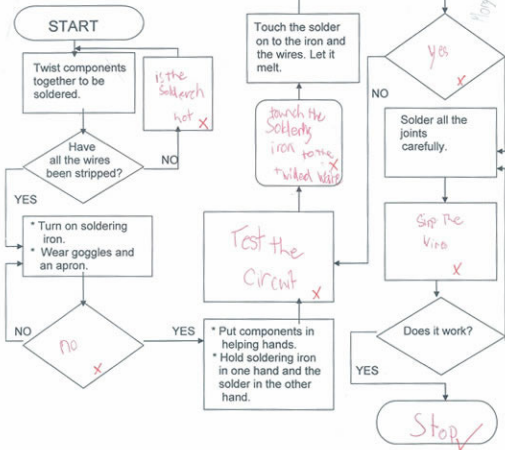
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## How to Solder (Flow Charts)

Task: Fill in the flow chart with the correct information.



Is the Soldering-iron hot?

Strip the wires

~~STOP~~

Did it melt? ~~— ?~~

Touch the soldering iron to the twisted wires.

~~YES~~

Wait 3 Seconds ~~— ?~~

TEST the circuit.

~~NO~~

*think carefully about the stages of soldering. ask for help if you are unsure.*