STEAM Year 8
Animatronics Project Overview

STEAM SKILLS

- Creativity
- Logical Reasoning
- Using failure to learn and grow

You will:

- Understand how to produce various timer control and/or conditional control loops
- Understand the difference between analogue and digital inputs
- Understand how to produce a simple systems analysis
- Understand how to make design ideas clear and workable
- Understand how different mechanical systems can be used to transfer motion

In addition to these key learning points, you will also:

- Improve your **creative** thinking skills and your card modelling skills
- Improve ability to **Identify problems and develop solutions.**
- Improve your ability to l**ogically work through** tasks and work collaboratively.

Tasks	25/04/2022	02/05/2022	09/05/2022	16/05/2022	23/05/2022	06/06/2022	13/06/2022	20/06/2022	27/06/2022	04/06/2022	11/06/2022
Design brief and Mood Board											
Design Ideas/Orthographic drawing											
Design review and collaborative design											
Card Modelling skills lesson											
Assemble/refine Mechanism											
Complete systems anlaysis - test servos and/or lights											
Program microbits.											
Create card model and structure											
Add colour and detail to designs											
Poster Presentation											
Exhibition											

Lesson Overview

1. Produce a design brief and mood board
2. Independently produce a 2D design a 2.5D design and a 3D design that meets the design brief.
3. Collaboratively identify and modify one design to produce your final design
4. Independently produce a systems analysis
5. Assemble/refine a linkage kit for your project
6. Collaboratively produce and program additional input or output systems and a card structure for you model.
7. Produce a poster presentation and identify how you met the skills.

Key Words

Organisation
Animatronics
Accuracy
Creativity
Planning
Innovation
Systems analysis
Digital
Analogue
Conditional control
Timer Control

Suggested websites or support available

Nilheim mechatronics
Engineered arts

YouTube videos for inspiration

Movie trailers related to chosen film title.

Cross curricular

Maths and science across the project

SMSC

Sustainability and plastics are an issue for prop design, recycling and reusing materials is also however common practice.

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	SUCCESS CRITERIA Highlight your starting point for each skill in **PINK**, at the end of the project highlight where you think you got to in **BLUE**.		
Grade Range	**Using failure to learn and grow**	**Creativity**	**Logical reasoning**
0	I presented no work.	I presented no work.	I presented no work.
1	WWW: I can identify some basic errors and mistakes with my work. EBI: I need to reflect more on my mistakes and try to not repeat them.	WWW: I can develop some ideas using existing examples and try to make my own changes to them. EBI: I need to make my designs my more my own and try to bring something new into them.	WWW: I understand some of the cause and effect in my work EBI: I need to try to work out what the other possible choices and results could be in the task.
4	WWW: I can identify some issues and mistakes and overcome them. I can reflect on the causes of mistakes and see why they happened. EBI: I need to think more carefully about past experiences\mistakes so that I do not make the same mistake again.	WWW: I can develop and show some fresh ideas and my examples are mostly developed by myself. EBI: I need to use other peoples examples and ideas more for inspiration than copying and develop my own style.	WWW: I clearly understand cause and effect and use them as I work. I make predictions whether something will or will not work and test my hypothesis out. EBI: I need to ensure that I cover more\all possibilities when I test or try to solve my problem..
6	WWW: I managed to independently identify and fix issues and mistakes. EBI: I should refer to my past errors (looking at my past work) and attempt to resolve potential mistakes at the design stages.	WWW: I use examples only as a start point and can develop numerous different options from there. My final ideas clearly show my own personality and style. EBI: I need to try and produce alternative unique ideas that accurately meet the design requirements.	WWW: I can apply clear logic thinking as part of my problem solving and regularly rely upon this to know whether something is likely to work or not. I can identify faults effectively. EBI: I should make sure that I work out the logical opposites to my work and use them to aid testing and fault finding.

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8	WWW: I can shown and explain, using previous issues and mistakes, why my work or solutions will be more likely to succeed than in previous efforts. EBI: When testing a problem, I need to make sure that I also try to prove something doesn't work as well as what does work to gain a better understanding.	WWW: I can develop multiple new ideas and options that accurately meet the design requirements. My solutions are highly innovative, unique and purposeful.	WWW: I use logical processes and arguments to confidently ensure an efficient solution is found. I use logic for fault finding frequently and successfully. I understand that inverse operations are used for checking and proof. EBI: Make use of logic tables to prove and test more advanced ideas or concepts.