

STEAM Year 8

DT Knowledge Unit

STEAM SKILLS

- Analysis
- Accuracy
- Logical Reasoning

You will

- Learn about motion transfer, structures and forces use of jigs and fixtures.
- More advanced drawing skills, and use of workshop machinery.

<p>Lesson Overview</p> <ul style="list-style-type: none"> • Understand levers and linkages, gears and ratios • Work with structures and forces • Why we use jigs and fixtures • Marking out and accurate cutting, production of cams • Construction and assembly 	<p>Key Words</p> <p>Lever Gear Gear ratio Linkages Rotation Oscillation Linear Torsion Tension Compression Shear</p>
<p>Suggested reading or support available</p> <p>https://www.bournetoinvent.com/projects/gcse_de_theory/5.html</p> <p>https://www.bbc.co.uk/bitesize/guides/zbt26yc/revision/1</p>	<p>Cross curricular</p> <p>Rotation and linear movement (Maths) Ratio (Maths) Moments and mechanical advantage (Science)</p> <p>SMSC</p> <p>Re-use and recycle sustainability</p> <p>Literacy links</p> <p>Written analysis,</p>

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	Analysis	Accuracy	Logical reasoning
0	I presented no work.	I presented no work.	I presented no work.
1	<p>WWW: I can say what the task to be solved was.</p> <p>EBI: I need to understand the problem in more detail.</p>	<p>WWW: I have made an attempt to complete the task with some success.</p> <p>EBI: I need to try and take more time and care with my work to avoid mistakes.</p>	<p>WWW: I understand some of the cause and effect in my work.</p> <p>EBI: I need to try to work out what the other possible choices and results could be in the task.</p>
4	<p>WWW: I can identify the task and individual problems to be solved with some help.</p> <p>EBI: I need to break the problem down into parts and describe how the parts are linked.</p>	<p>WWW: I have completed the task with reasonable accuracy and have created a successful piece of work</p> <p>EBI: I need to make sure I have planned and prepared my work beforehand and take more care to avoid errors.</p>	<p>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.</p> <p>EBI: I need to ensure that I cover more\all possibilities when I test or try to solve my problem.</p>
6	<p>WWW: I can independently and accurately identify the various problems within the overall task.</p> <p>EBI: I need to make sure that I have carefully and in detail examined all possible parts of the problem.</p>	<p>WWW: I have consistently completed tasks with care and with few mistakes resulting in a successful piece of work.</p> <p>EBI: I need to ensure my work is planned and prepared thoroughly to ensure I can complete a task without any errors.</p>	<p>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.</p> <p>EBI: I should make sure that I work out the logical opposites to my work and use them to aid testing and fault finding.</p>
8	<p>WWW: I can analyse the problem(s) thoroughly and can give a comprehensive and accurate description of each problem to be solved within the overall task.</p>	<p>WWW: I always complete the tasks with a high level of precision and accuracy and have produced a quality outcome which is both functional and elegant.</p> <p>EBI I should consider ways of producing every part of my work to a consistently high quality.</p>	<p>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.</p> <p>EBI: Make use of logic tables to prove and test more advanced ideas or concepts.</p>