# Pinner Wood School

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| **Year Group** | 6 | **Term** | Spring 1 | **Subject** | DT | **Topic** | Crafty Criminals – Criminal Trap **(Construction and Mechanisms) Levers, Pulleys and Gears** |
| | | | | | | **Key Question** | **KQ: How would I catch a criminal in 2022?** |
| **Prior Learning and other Curriculum Links** | **Year 5**<br>• I can create prototypes to show my ideas.<br>• I can produce step by step plans to guide my making, demonstrating that I can apply my knowledge of different materials, tools and techniques.<br>• I can make detailed evaluations about existing products and my own products whilst considering the views of others to improve my work.<br>• I can build more complex 3D structures and apply my knowledge of strengthening techniques to make them stronger or more stable<br>• I can understand how to use more complex mechanical systems (gears, pulleys, cams, levers and linkages)<br>**Year 4**<br>• I can use my knowledge of existing products to design a functional and appealing product for a particular purpose and audience.<br>• I can consider how existing products and my own finished products might be improved and how well they meet the needs of the intended user.<br>• I can apply techniques I have learnt to strengthen structures and explore my own ideas | | | | | **Target Tracker statements (Skills)** | • I can apply my knowledge of materials and techniques to refine and rework my product to improve its functional properties and aesthetic qualities.<br>• I can use my knowledge of famous designs to further explain the effectiveness of existing products and products I have made.<br>• I can use a wide range of methods to strengthen, stiffen and reinforce complex structures and I can use them accurately and appropriately.<br>• I can apply my understanding of computing to program, monitor and control my product.<br>• I can generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes pattern pieces and computer-aided design. |

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| **Fundamentals** | I can use my knowledge of materials, techniques, structures, famous designs and programming to refine and rework, monitor and control my product to improve its functional and aesthetic qualities. | **Key Facts/Sticky Knowledge** | Fulcrum – the point against which a lever is placed to get a purchase, or on which it turns or is supported<br>Lever – a rigid bar resting on a pivot (fulcrum), used to move a heavy load with one end when pressure is applied to the other<br>Pivot – the central point, pin, or shaft on which a mechanism turns or oscillates<br>Pulley – a wheel with a grooved rim around which a cord passes, which acts to change the direction of a force applied to the cord; used to raise heavy weights |
| **Our Curriculum Journey** | **Journey:** In this unit, the children will learn what is meant by the terms pulley, lever and gear. They will be given different items to explore whether a gear, lever or pulley has been used. Following on from this, the children will then start planning their own invention to capture a "Crafty Criminal" linking to their knowledge of levers and pulleys. They will design using an exploded diagram labelling the parts and then begin to make prototypes. Finally, the children will evaluate how effective their mechanism was. | | |
| **Key Vocabulary (revisited)** | Mechanism Lever Slider Slot Guide or Bridge Axle Axle holder Chassis Friction Dowel Mechanism Lever Linkage Slot Guide or bridgeLoose pivot Fixed pivot System | **Key Vocabulary (new)** | Pulley Gear Drive belt Gearing up or down Mechanical system Driver Follower Mesh Motor spindle |