Autumn Levers and Linkages

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| National Curriculum Links |
| Designing• Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user.• Use annotated sketches and prototypes to develop, model and communicate ideas.Making• Order the main stages of making.• Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.• Select from and use finishing techniques suitable for the product they are creating.Evaluating• Investigate and analyse books and, where available, other products with lever and linkage mechanisms.• Evaluate their own products and ideas against criteria and user needs, as they design and make.Technical knowledge and understanding• Understand and use lever and linkage mechanisms.• Distinguish between fixed and loose pivots.• Know and use technical vocabulary relevant to the project. |

Spring Circuits and Switches/Programming and control

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| National Curriculum Links |
| Designing• Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups.• Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.Making• Order the main stages of making.• Select from and use tools and equipment to cut, shape, join and finish with some accuracy.• Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.Evaluating• Investigate and analyse a range of existing battery-powered products.• Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.Technical knowledge and understanding• Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.• Apply their understanding of computing to program and control their products.• Know and use technical vocabulary relevant to the project. |

Summer Pneumatics

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| National Curriculum Links |
| Designing• Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user.• Use annotated sketches and prototypes to develop, model and communicate ideas.Making• Order the main stages of making.• Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons.• Select from and use finishing techniques suitable for the product they are creating.Evaluating• Investigate and analyse books, videos and products with pneumatic mechanisms.• Evaluate their own products and ideas against criteria and user needs, as they design and make.Technical knowledge and understanding• Understand and use pneumatic mechanisms.Know and use technical vocabulary relevant to the project |