DOWN AMPNEY PRIMARY SCHOOL

Term
Unit Overview: KS1 DT
Mechanisms: Wheels and Axles

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<td rowspan="2"><u>National Curriculum Links</u>
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught to:
<u>Design</u>
Use research and develop design criteria to inform the design innovative, functional, appealing products that are fit for purpose, aimed at individuals or groups. Generate, develop, model and communicate their ideas through discussion, annotates sketches, cross-sectional and explored diagrams, prototypes, pattern pieces and computer-aided design.

<u>Make</u>

• Select form and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.
• Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.

<u>Evaluate</u>

• Investigate and analyse a range of existing products.</td>
<td rowspan="2"><u>Substantive Knowledge</u>
❖ Experience of working with paper and card to make simple flaps and hinges
❖ Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape
❖ To know about the movement of simple mechanisms such as wheels and axles
❖ Measure, mark out, cut and shape materials and components
❖ Assemble, join and combine materials and components.
<u>Designing</u>
❖ Generate initial ideas and simple design criteria through talking and using own experiences.
❖ Develop and communicate ideas through drawings and mock-ups.
<u>Making</u>
❖ Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.
❖ Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics
<u>Evaluating</u>
❖ Explore and evaluate a range of products with wheels and axles.
❖ Evaluate their ideas throughout and their products against original criteria.
<u>Technical Knowledge</u>
❖ Explore and use wheels, axles and axle holders.
❖ Distinguish between fixed and freely moving axles.
❖ Know and use technical vocabulary relevant to the project.</td>
<td colspan="2"><u>Unit Outcomes</u>
Design, make and evaluate a push/pull toy.</td>
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<td><u>Key People</u>
Archimedes
Leonardo Da Vinci

<u>Related Learning</u>

Science – working scientifically: ask simple questions and observe closely. Explore use of everyday materials.

Spoken language – use of technical vocabulary. Ask relevant questions to extend understanding and build vocabulary and knowledge.

Mathematics – number of wheels, more than, less than, equal</td>
<td><u>Vocabulary</u>

Vehicle, wheel, axle, axle holder, chassis, body, cab, assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism, design, make, evaluate, purpose, criteria, functional

Names of tools, equipment and materials used

<u>Intended Users</u>
Themselves, people who help us, friends, story character, farmers/farm animals, teddy, class doll

<u>Purpose of Products</u>
Making work or everyday life easier, moving objects, toy vehicle to play with, solving a problem for a story character

<u>Key Competencies</u>
problem-solving, teamwork, negotiation,</td>
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- Evaluate their ideas and products and products against their own design criteria and consider the views of others to improve their work.
- Understand how key events and individuals in design and technology have helped shape the world.

Technical knowledge

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- Understand and use mechanical systems in their products (for example, gears, pullets, cams, levers and linkages).
- Understand and use electrical systems int heir products (for example, series circuits incorporating switches, bulbs, buzzers and motors).
- Apply their understanding of computing program, monitor and control their products.

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<td>consumer awareness, organisation, motivation, persuasion, leadership, perseverance</td>
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Prior learning

- ❖ Assembled vehicles with moving wheels using construction kits
- ❖ Explored moving vehicles through play
- ❖ Gained some experience of designing, making and evaluating products for a specified user and purpose
- ❖ Developed some cutting, joining and finishing skills with card.

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Future application of skills

LKS2:

- ❖ Use a wider range of materials and components than in KS1, including electrical components.
- ❖ To know electrical systems have an input, process and output.

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British Values

Democracy: Children work together to support each other in lessons and children that are more able can be given the opportunity to lead with their own examples of their work. Children take turns both in speech and practically with others. Children understand that it is not always possible or right to have their own way and understand the value of compromise. Children must take the views and opinions of others into account but still have the right to make their own choices.

Rule of Law: Children understand the importance of safety rules when using tools.

Individual Liberty: Children are taught that DT is a very subjective and personal subject which provides an opportunity to express themselves. The children are encouraged to make

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		decisions with their own design choices, style and sometimes media choice. Children are expected to take responsibility for all of the equipment used when working in DT. Tolerance: Children understand that many great design ideas originate from other cultures. When completing the food and nutrition units, food from different cultures are discussed as well as food that is accepted in different faiths. Mutual Respect: Children are given many opportunities to critique each other's work in a positive and constructive manner whilst showing respect for the opinions and beliefs of their peers which may differ from their own. Christian Values **Courage**: Have courage to try new ideas and be innovative. **Respect**: Evaluate your own work in a positive and respectful way. Support peers and offer feedback on their designs. **Trust**: Having trust in a process and being able to work towards a vision. Trusting your own creative ideas is an important part DT.