Milefield Primary School Approach to teaching of Design & Technology

Intent

Our Design and Technology curriculum is taught discretely through specific concepts and themes, which is underpinned by the accelerated learning approach to teaching and learning. The key concepts, principles and themes have been developed from the National Curriculum into a range of progressive knowledge and skills through which the children are helped to grow and develop to succeed in 21st century Britain.
This progressive curriculum allows a purposeful way of teaching and learning, enabling us to provide a more meaningful and sequential approach to the schema for DT At MFPS, Design and Technology is an inspiring, rigorous and practical subject.

Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on various disciplines to inspire their learning. As part of our Design and Technology curriculum, we cover several key areas:

- product design & evaluation
- food technology
- textiles
- resistant materials

The Design and Technology curriculum we offer is designed to meet the needs of all our pupils. It is rich, varied, imaginative and ambitious and meets the needs of individual learners by can easily be adapted for pupils with additional needs

Implementation

At Milefield Primary our Design and Technology curriculum is taught discretely through specific concepts and themes, to ensure depth and rigour in key subject concepts and context. The Design and Technology curriculum is rich and varied and provides our pupils with the skills required for life in the 21st Century. Planned, systematic encounters with substantive concepts in specific and varied contexts support pupils' progress.
Many of these concepts feature regularly throughout the study of DT in a range of disciplines.

- Design
- Make

• Evaluate
• Technical Knowledge

The Accelerated Learning Cycle, based on the work of Alastair Smith, is applied in all lessons. It stems from the idea of a supportive and challenging learning environment. The cycle has active engagement through multi-sensory learning, encourages the demonstrating understanding of learning in a variety of ways and the consolidation of knowing. A gather, skills, apply approach to planning and delivery of lessons is taken across school to ensure children develop a deep understanding of specific skills and are able to apply these in a range of situations.

Impact

At Milefield Primary, formative assessment is ongoing throughout each lesson. It judges progress and enables teachers to make flexible adaptions to their planned teaching. Through this regular ongoing assessment, tasks are matched to the ability of each child through scaffolds, adult support and providing a level of challenge that is stimulating for pupils and questioning skills.

Alongside formative assessment, Insight is used as a summative assessment to assess foundation subjects. The analysis of data from insights, identifies any gaps or misconceptions to be addressed.

Adaptations

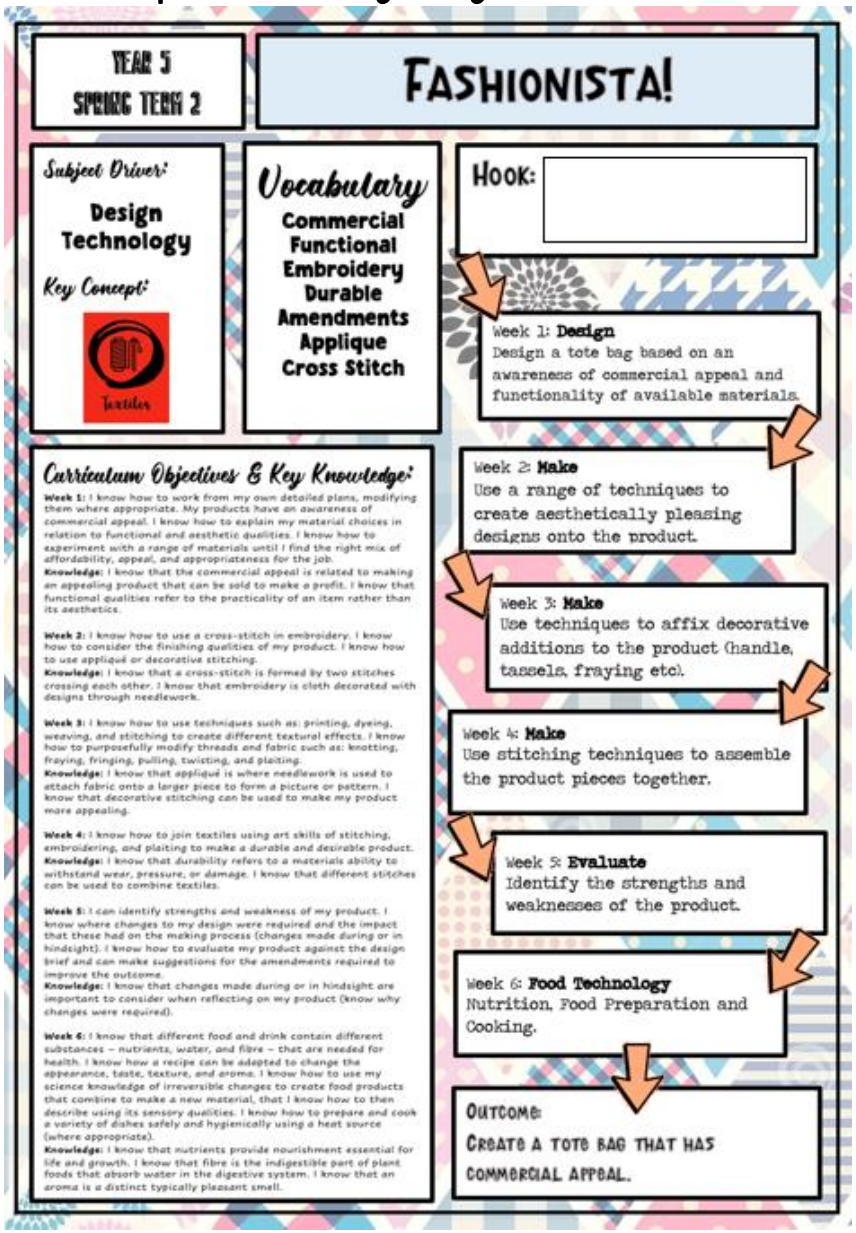
At MFPS our curriculum is ambitious for all pupils, including those children with SEND. Curriculum designers and teachers have high expectations of what SEND pupils can achieve and the curriculum is not diluted or unnecessarily reduced for SEND pupils. Every pupil is different and so what works for each pupil varies. Pupil's individual needs are carefully considered and adaptations are planned to ensure the success of pupils. The way that our curriculum is

designed ensures that chunks of learning are sequenced in a coherent way to enable all pupils, including those with SEND, to build on prior knowledge. Cognitive overload can be a barrier to learning which is one of the reason why we have chosen half termly curriculum drivers.

Where pupils are identified with having complex needs it may be appropriate to provide a personalised curriculum which will be based on individual needs and will retain ambition for the pupil. Where working memory is an issue for pupils, including those with SEND, we look to reduce extraneous load as much as possible as well as identifying key information when teaching. Adaptations to support individual pupils will be recorded on personal school support plans.

At MFPS we do not assume that pupils with SEND learn content better through practical work as this can cause distraction and cognitive overload rather than increase clarity or accessibility. The curriculum is not narrowed for any pupils. Knowledge is taught and then pupils are provided with opportunities for scientific enquiry to test and investigate the knowledge taught. Pupils' specific needs determine the types of adaptations which are required. These adaptations are in how the subject is taught rather than the content pupils are expected to learn. Where appropriate, learning will be chunked into smaller steps and pre learning and consolidation time in planned in to support need. Time is also planned to ensure pupils with SEND are pre taught vocabulary to support their understanding. Adaptations may include supporting pupils to pay attention to key aspects as well as reducing excessive or unhelpful demands on working memory.

Example knowledge organiser



YEAR 5
SPRING TERM 2

FASHIONISTA!

Subject Driver:
Design Technology

Key Concept:
Textiles

Vocabulary
Commercial
Functional
Embroidery
Durable
Amendments
Applique
Cross Stitch

Hook:

Curriculum Objectives & Key Knowledge:

Week 1: I know how to work from my own detailed plans, modifying them where appropriate. My products have an awareness of commercial appeal. I know how to explain my material choices in relation to functional and aesthetic qualities. I know how to experiment with a range of materials until I find the right mix of affordability, appeal, and appropriateness for the job.
Knowledge: I know that the commercial appeal is related to making an appealing product that can be sold to make a profit. I know that functional qualities refer to the practicality of an item rather than its aesthetics.

Week 2: I know how to use a cross-stitch in embroidery. I know how to consider the finishing qualities of my product. I know how to use appliqué or decorative stitching.
Knowledge: I know that a cross-stitch is formed by two stitches crossing each other. I know that embroidery is cloth decorated with designs through needlework.

Week 3: I know how to use techniques such as: printing, dyeing, weaving, and stitching to create different textural effects. I know how to purposefully modify threads and fabric such as: knotting, fraying, fringing, pulling, twisting, and plaiting.
Knowledge: I know that appliqué is where needlework is used to attach fabric onto a larger piece to form a picture or pattern. I know that decorative stitching can be used to make my product more appealing.

Week 4: I know how to join textiles using art skills of stitching, embroidering, and plaiting to make a durable and desirable product.
Knowledge: I know that durability refers to a materials ability to withstand wear, pressure, or damage. I know that different stitches can be used to combine textiles.

Week 5: I can identify strengths and weakness of my product. I know where changes to my design were required and the impact that these had on the making process (changes made during or in hindsight). I know how to evaluate my product against the design brief and can make suggestions for the amendments required to improve the outcome.
Knowledge: I know that changes made during or in hindsight are important to consider when reflecting on my product (know why changes were required).

Week 6: I know that different food and drink contain different substances – nutrients, water, and fibre – that are needed for health. I know how a recipe can be adapted to change the appearance, taste, texture, and aroma. I know how to use my science knowledge of irreversible changes to create food products that combine to make a new material, that I know how to then describe using its sensory qualities. I know how to prepare and cook a variety of dishes safely and hygienically using a heat source (where appropriate).
Knowledge: I know that nutrients provide nourishment essential for life and growth. I know that fibre is the indigestible part of plant foods that absorb water in the digestive system. I know that an aroma is a distinct typically pleasant smell.

Week 1: **Design**
Design a tote bag based on an awareness of commercial appeal and functionality of available materials.

Week 2: **Make**
Use a range of techniques to create aesthetically pleasing designs onto the product.

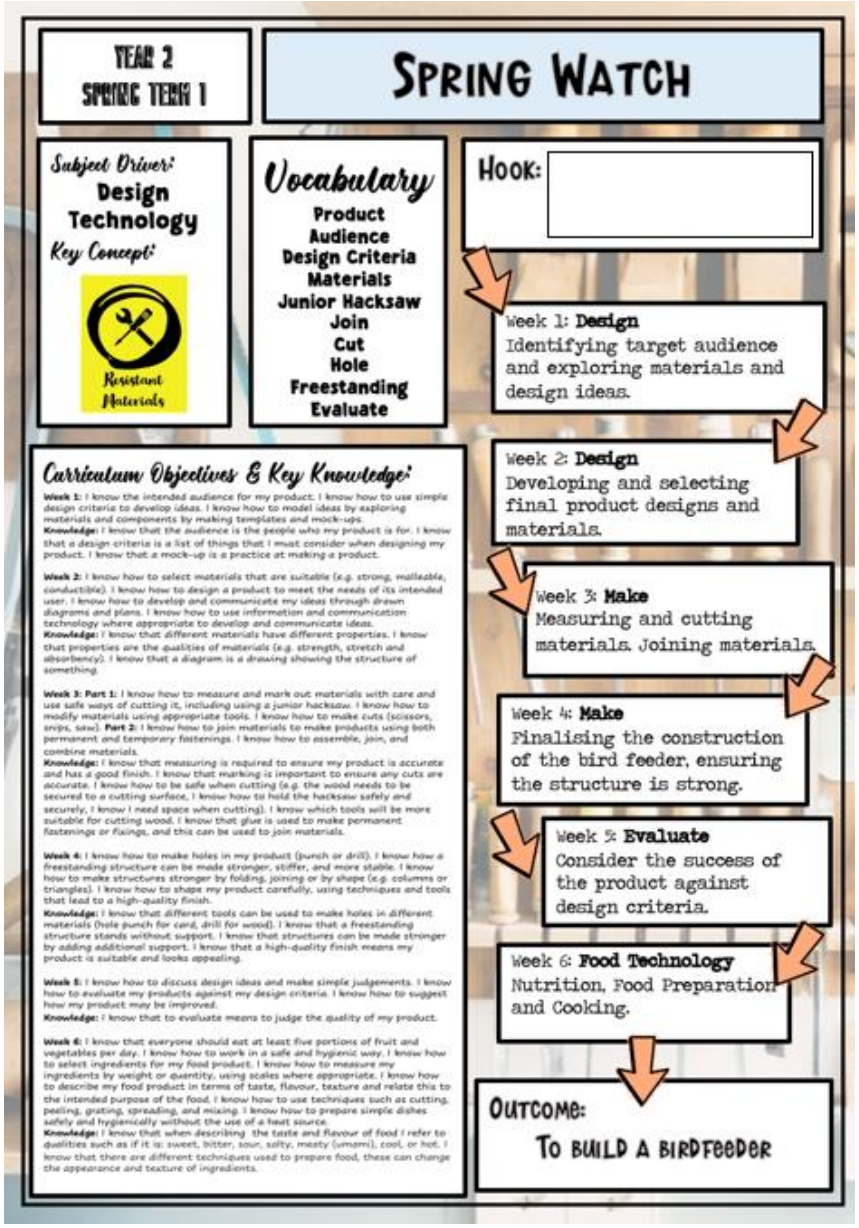
Week 3: **Make**
Use techniques to affix decorative additions to the product (handle, tassels, fraying etc).

Week 4: **Make**
Use stitching techniques to assemble the product pieces together.

Week 5: **Evaluate**
Identify the strengths and weaknesses of the product.

Week 6: **Food Technology**
Nutrition, Food Preparation and Cooking.

Outcome:
Create a tote bag that has commercial appeal.



YEAR 2
SPRING TERM 1

SPRING WATCH

Subject Driver:
Design Technology

Key Concept:
Resistant Materials

Vocabulary
Product
Audience
Design Criteria
Materials
Junior Hacksaw
Join
Cut
Hole
Freestanding
Evaluate

Hook:

Curriculum Objectives & Key Knowledge:

Week 1: I know the intended audience for my product. I know how to use simple design criteria to develop ideas. I know how to model ideas by exploring materials and components by making templates and mock-ups.
Knowledge: I know that the audience is the people who my product is for. I know that a design criteria is a list of things that I must consider when designing my product. I know that a mock-up is a practice at making a product.

Week 2: I know how to select materials that are suitable (e.g. strong, malleable, conductible). I know how to design a product to meet the needs of its intended user. I know how to develop and communicate my ideas through drawn diagrams and plans. I know how to use information and communication technology where appropriate to develop and communicate ideas.
Knowledge: I know that different materials have different properties. I know that properties are the qualities of materials (e.g. strength, stretch and absorbency). I know that a diagram is a drawing showing the structure of something.

Week 3: Part 1: I know how to measure and mark out materials with care and use safe ways of cutting it, including using a junior hacksaw. I know how to modify materials using appropriate tools. I know how to make cuts (scissors, snips, saw). **Part 2:** I know how to join materials to make products using both permanent and temporary fastenings. I know how to assemble, join, and combine materials.
Knowledge: I know that measuring is required to ensure my product is accurate and has a good finish. I know that marking is important to ensure any cuts are accurate. I know how to be safe when cutting (e.g. the wood needs to be secured to a cutting surface, I know how to hold the hacksaw safely and securely, I know I need space when cutting). I know which tools will be more suitable for cutting wood. I know that glue is used to make permanent fastenings or fixings, and this can be used to join materials.

Week 4: I know how to make holes in my product (punch or drill). I know how a freestanding structure can be made stronger, stiffer, and more stable. I know how to make structures stronger by folding, joining or by shape (e.g. columns or triangles). I know how to shape my product carefully, using techniques and tools that lead to a high-quality finish.
Knowledge: I know that different tools can be used to make holes in different materials (hole punch for card, drill for wood). I know that a freestanding structure stands without support. I know that structures can be made stronger by adding additional support. I know that a high-quality finish means my product is suitable and looks appealing.

Week 5: I know how to discuss design ideas and make simple judgements. I know how to evaluate my products against my design criteria. I know how to suggest how my product may be improved.
Knowledge: I know that to evaluate means to judge the quality of my product.

Week 6: I know that everyone should eat at least five portions of fruit and vegetables per day. I know how to work in a safe and hygienic way. I know how to select ingredients for my food product. I know how to measure my ingredients by weight or quantity, using scales where appropriate. I know how to describe my food product in terms of taste, flavour, texture and relate this to the intended purpose of the food. I know how to use techniques such as cutting, peeling, grating, spreading, and mixing. I know how to prepare simple dishes safely and hygienically without the use of a heat source.
Knowledge: I know that when describing the taste and flavour of food I refer to qualities such as if it is: sweet, bitter, sour, salty, meaty (umami), cool, or hot. I know that there are different techniques used to prepare food, these can change the appearance and texture of ingredients.

Week 1: **Design**
Identifying target audience and exploring materials and design ideas.

Week 2: **Design**
Developing and selecting final product designs and materials.

Week 3: **Make**
Measuring and cutting materials. Joining materials.

Week 4: **Make**
Finalising the construction of the bird feeder, ensuring the structure is strong.

Week 5: **Evaluate**
Consider the success of the product against design criteria.

Week 6: **Food Technology**
Nutrition, Food Preparation and Cooking.

Outcome:
To build a birdfeeder