Design Technology Policy

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Design Technology (DT) is a subject that should promote problem solving opportunities for our children. At Wood Fold, throughout both Key Stage 1 and Key Stage 2 the children are exposed to Textiles, Mechanisms and Structures and Food units, where the skills being taught in each year group are progressive, building on prior knowledge and skills.

Intent

Good practice in DT includes:

- Using existing products to inspire pupils
- Focused tasks / demonstration opportunities for pupils to practise skills & different methods of manufacture
- Using questioning to encourage the class to contribute to the development of success criteria for design briefs
- Modelling and accurate use of technical language
- Prompting pupils to think through the problems that they might encounter & to share strategies to solve them
- Pooling of ideas and findings to support pupils critically evaluating and extending or improving the ideas

Implementation

DT projects must include **all** of the following three elements:

1) *Designing and making a product,*
2) *for somebody*
3) *and for a particular purpose.*

In each year group, the children will be presented with a problem to solve at the start of each unit. This is to encourage the children to see DT as a problem-solving subject where they need to create original ideas using specific knowledge and skills. Design briefs are then shared in a format such as, 'Design and make a _____ for _____ to _____'.

For example, the Y5 textiles unit is introduced by posing the following problem to the class for consideration:

'How can we help keep our heads warm in the cold weather?'

This is then followed up by sharing the design brief:

'Design and make a hat to keep our heads warm in cold weather.'

The Four-Stage DT Process:

In order for the children to solve the problem posed, teachers plan and deliver four stages of teaching and learning (See appendix 3).

1) **Investigate and Evaluate**

The pupils are exposed to examples of the type of product they will make and / or elements of a deconstructed model so that they can explore and observe how different parts work. This may also include taking products apart. Through discussion with the teacher and peers the children should begin to voice their understandings of how and why things work. Key vocabulary is taught at this point so that children are emerged in accurate technical language from the beginning.

2) **Focused Practical Tasks**

Children are then taught the skills they will need to use to make their products. Opportunities are provided so that pupils can practise, improve and refine their technique to encourage confidence and accuracy when working with their design in the next stage.

3) **Design and Make**

Before the children begin to design and make their product, they are involved in creating a success criteria, expanding on the original design brief to detail all the things the product must have / be able to do to be effective in meeting its purpose. The aim of this success criteria is to help the pupils understand the essential criteria they must meet when designing and making the product and it is also used in subsequent sessions when evaluating the product. (See Appendix 1)

At this stage, teachers encourage the children to use their knowledge from the two previous stages of learning to draw a labelled design of their product, including technical language. The pupils are encouraged to explain how their product works, the materials they will use and why they have made these choices to their peers and the teacher. Pupils then create their product, using their design ideas as an ongoing guide and applying the skills learnt during the focused practical tasks. The teacher will discuss how the children might add finishing techniques to their product with reference to their design ideas and criteria.

4) **Evaluate and Refine**

Pupils need to be able to test, refine and develop the products they design to check how effectively they work and make changes to improve them if they don't. Testing opportunities are provided first so pupils can assess whether or not their product meets the design brief. Pupils will use the success criteria for the project as a tool to support them in evaluating the effectiveness of their product and considering what changes could be needed. It is important that the children are then given the opportunity to modify and refine their designs and re-test. A final evaluation should then be completed in written form using the following structure (See appendices 4-6):

Key Stage 1:

Does my product do look like and do what it should? (Evaluate against the design criteria)

What worked well? What are the best parts of your design?

What challenges did you face? How did you solve them?

What would you change to improve your product?

Lower Key Stage 2:

Does your product meet the design criteria? How effective was your product in meeting the design brief when you first tested it?

What did you learn during this project? Where else could you use these new skills?

Which parts of your design worked well? Why?

What challenges did you face? How did you solve them?

Which parts of your design would you change and why?

Upper Key Stage 2:

Does your product meet the design criteria? How effective was your product in meeting the design brief when you first tested it?

Which parts of your design worked well? Why?

What challenges did you face? How did you solve them? Which parts of your design would you change and why?

What tools have you used to make your product? What were they used for?

What did you learn during this project? Where else could you use these new skills? What do you know now that you didn't know before?

Impact

The Learning Environment:

In order for our pupils to flourish, an environment should be created where children feel safe to explore and take risks within their work. Pupils should demonstrate an understanding that it is perfectly normal to feel dissatisfied with our work at times and should know how to give themselves credit for what they have achieved and move on. Pupils should be encouraged to make their own decisions about whether they want to make refinements to their work or start again. Being able to analyse their own work fairly and make good decisions is just as important as skill and technique development.

Teachers try to develop a culture of non-judgemental discussion in their classrooms through holding learning conversations. These can be done as circle time or group discussion, depending on the age group of children and should be done at key points throughout the design and make stage, as well as at the end of the project. These discussions focus on appraising the success or failure to meet the learning objectives of the work and what the next steps are to achieve success. Teachers highlight what success would look like, for example saying, 'this piece of work meets the learning objective because.'

Children are encouraged to highlight what went well and how it might be improved.

This time is also used to build confidence in pupils who may not be feeling very good about their work. This can be done by getting other pupils to talk about the work they like and why they like it. Children should be aware that in Design Technology, that it is possible that they are more confident in one element of the subject than another – even within the 4-stage design and making process, as in the wider world different

people will do different jobs e.g. when designing and making a vehicle or a piece of clothing, one person will not do all of the elements needed to produce the final product.

Children will use technical vocabulary which they will be expected to know and understand as they learn the different skills and techniques throughout their design technology journey in school. Over time, children will become more confident and reflective as they learn to analyse their work in relation to professions in the wider community, identifying the key skills and techniques used.

Assessing DT:

Learning ladders are used by the teachers and the children to assess each learning objective as they move through the four-stage process. (See appendix 2)

Effective assessment in DT should be formative, with assessment taking place at each stage of the learning process. This formative assessment should be evident in the form of 'learning conversations', where teacher comments in the DT books deepen pupils thinking and learning.

At Wood Fold, we use three attainment levels of Meeting, Exceeding or Working Towards. The End of Unit Assessment for DT (Appendix 7) informs the teacher of which children are 'Not meeting expectation', exceeding expectation' and consequently 'Meeting expectation'. Teachers assess children against three of the main skills needed to complete the design brief to an expected standard, using initials with brief notes to highlight why they might not have met the expected standard or have exceeded it. Results of these assessments demonstrate an ability to carry out skills, problem solve and a sound understanding of the DT aspect (Textiles, Structures and Mechanisms, Food Technology).

At the end of the year, teachers are asked to make a summative assessment of the children in DT, by completing the End of Year Assessment grid (Appendix 8). This grid identifies those who are working towards the expected standard, those who are showing more in- depth knowledge, and consequently those at expected. This information is passed to subject leaders who will have a secure understanding of children's DT knowledge across school.

Appendix 1 – Success Criteria

Y2 Mechanisms - Toys

Design brief	Fully meets	Partially meets	Does not meet	Comments
1.				
2.				
3.				
4.				

Appendix 2 – Learning ladder

Y2 Mechanisms - Toys

DT – Mechanisms & Structures - Toys

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

Design Brief: Design & make a moon buggy that can be pushed or pulled by a Reception child.		Me	My Teacher
EVALUATE AND REFINE	To evaluate the final product. Is it fit for purpose?		
	To be able to test the product against the design criteria and consider and make refinements to the product using your findings.		
DESIGN AND MAKE	To be able to follow the design as a guide to produce the toy.		
	To be able to produce a labelled design of the toy, including accurate use of technical vocabulary.		
FOCUSED PRACTICAL TASKS	To know how to mark out, hold, cut and join materials and components correctly and accurately.		
	To know how wheels and axles can be assembled as either fixed axles or free axles.		
	To be able to make a product that moves using construction kits.		
INVESTIGATE & EVALUATE	To know how wheeled products work, including what allows them to be pushed or pulled.		

Appendix 3 – Blank Medium-Term Plan

DT MTP **Year Group_____** **Term _____**

Problem to be solved:	**Title / Design Brief:**
Investigate & Explore/ Evaluate: •	
Focused Practical Tasks: •	
Design & Make • With the chn, refer back to the problem to be solved & the design brief & generate a success criteria for the project. •	
Evaluate & Refine **Testing opportunities (this may also be at different points in the design and make part as well as evaluating the final product) –** • Evaluate against the design criteria using the evaluation framework	
Final stage - Ask children to evaluate their finished product, communicating how it works and how it matches their design criteria, including any changes they made.	
Technical Vocabulary: **Linked to product:** **Skills:** **names of tools, equipment and materials used:**	**Resources**

Appendix 4 – KS1 Evaluation Sheet

KS1 DT Evaluation: my own thoughts about my product.

After you have finished and tested your product, say how well you think it meets your design criteria.

What was the purpose of your product?

I made a _____ for _____ to/ for_____

Design Criteria	Tick			Comments
	Fully Meets 	Partially Meets 	Does not Meet at all 	
1.				
2.				
3.				
4.				
5.				

Photo

What do you like about your product?

What did you find hard?

How could you make your product even better?

Appendix 5 – LKS2 Evaluation Sheet

LKS2 DT Evaluation: my own thoughts about my product.

After you have finished and tested your product, say how well you think it meets your design criteria.

What was the purpose of your product?

I made a _____ for _____ to/ for_____

Design Criteria	Tick			Comments
	Fully Meets 	Partially Meets 	Does not Meet at all 	
1.				
2.				
3.				
4.				
5.				

What new skills have you learnt?	What else could you make with these skills?
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Photo

What do you like about your product?

Challenges you came across	How did you put it right?

Name 2 things you would change to make your product even better.

1) _____

2) _____

Appendix 6 – UKS2 Evaluation Sheet

UKS2 DT Evaluation: my own thoughts about my product.

After you have finished and tested your product, say how well you think it meets your design criteria.

What was the purpose of your product?

I made a _____ for _____ to/ for_____

Design Criteria	Tick			Comments	Retest
	Fully Meets	Partially Meets	Does not Meet at all		
1.					
2.					
3.					
4.					
5.					

Photo

Challenges you faced.	Solution

What parts of your design worked well?

Why?

What parts of your design would you improve?

How could you improve them?

What tools have you used to make your product?

Name of tool	What it was used for

What have you learnt from doing this activity? What do you know now that you didn't know before?

Appendix 7 – End of Unit Assessment Grid

DT Assessment – Y5 Textiles

Skill	Not meeting expectation	Exceeding expectation
Use a sewing machine to create a strong seam to join pieces of fabric together.		
Use hand stitches to applique a design (lettering, pom poms, tassels, shapes, badge onto a 3D product).		
Use CAD to design and make a 3D decoration that can be sewn onto product.		

Appendix 8 – End of Year Assessment Grid

Y… Design Technology: End of Year Assessment Information

Initials of children working towards the expected standard	Initials of children who are showing some more in-depth knowledge