



Tregolls Academy Progression of Substantive & Dicipinary Knowledge



At Tregolls Academy, we aim to develop eager, motivated and curious learners that can reflect on the past and make meaningful links to the present day.

Our DT curriculum holds our curriculum drivers at its core: **C**uriosity, **A**spiration, **R**esilience and **E**xcellence. At Tregolls Academy, we **CARE**.

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, form and function.</p> <p>Children share their creations, explaining the process they have used.</p> <p>Make use of props and materials when role playing</p>	<p>Mechanisms: Moving storybooks</p> <p>Textiles: Puppets</p> <p>Mechanisms: Wheels and axels</p> <p>Nutrition: Fruit Smoothies</p>	<p>Mechanisms: Moving monsters</p> <p>Structures: Baby Bear's Chair Cooking and</p> <p>Nutrition: A Balanced diet</p>	<p>Textiles: applique and cross stitch (Egyptian Collars) Cooking and</p> <p>Nutrition: Eating seasonally (tarts)</p> <p>Structures: Constructing a castle</p> <p>Digital World: Wearable Technology</p>	<p>Textiles: Fastenings (book sleeve)</p> <p>Cooking and Nutrition: Biscuits (Christmas)</p> <p>Mechanisms: Slingshot cars</p> <p>Structure: Mini Greenhouse</p>	<p>Mechanical: Pop-up books</p> <p>Structures: Bridges</p> <p>Cooking and nutrition: What could be healthier?</p>	<p>Electrical : Steady Hand Game Cooking and</p> <p>Nutrition: Come dine with me</p> <p>Digital: Navigating the world</p> <p>Textiles: Waistcoats</p>

EYFS

In EYFS, design and technology learning begins in 'Expressive arts and design' where children begin to explore, use and a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. In Physical Development (Moving and Handling) Children handle equipment and tools effectively.

Adapting the curriculum for pupils with SEND in design and technology

Design and technology is an essential means of creative expression that can boost self-esteem and give learners the agency needed to develop and communicate their personal ideas, observations, and creations. It lends learners opportunities to develop both individually and collaboratively, designing naturally encourages learners to problem solve, to be self-critical, to make decisions and to take risks within their learning. The encouragement of self-expression and exploration supports learners to embrace 'the happy accident' and 'learn through their mistakes'.

- Adaptive teaching takes place.
- The tools available are carefully considered for children with physical disabilities.
- Encourage a culture of experimentation, with no one right way to do something
- For sensory needs, consider when alternative materials or tools may need to be offered
- Teachers identify and break down the components of the subject curriculum into manageable chunks for pupils who find learning more difficult, particularly those with cognition and learning needs. These may be smaller 'steps' than those taken by other pupils to avoid overloading the working memory.
- A variety of additional scaffolds may be used in lessons, such vocabulary banks, additional visual stimuli or adult support.

Substantive Knowledge:

Substantive & Disciplinary Concepts						
Term 3 – Mechanisms						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Moving Storybooks <ul style="list-style-type: none"> A mechanism is the parts of an object that move together. A slider mechanism moves an object from side to side or up and down. A slider mechanism has a slider, slots, guides and an object. Bridges and guides are bits of card that purposefully restrict the movement of the slider. Wheels and axels: <ul style="list-style-type: none"> Many things that move have parts inside to help them work. Mechanisms usually limit unwanted movement. An axle allows the wheel to turn without falling off. 	Moving Monsters <ul style="list-style-type: none"> To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. To know that there is always an input and an output in a mechanism. To know that an input is the energy that is used to start something working. To know that an output is the movement that happens as a result of the input. To know that a lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers. 	Pneumatic Toys <ul style="list-style-type: none"> How mechanisms work. A mechanical system can allow us to move something more easily Mechanical systems can have more than one mechanism that moves to make them work. Mechanical systems are often hidden in products to make them look more appealing. Pneumatic systems can be found in everyday objects. Pushing air can be used to move a mechanism. Pivots can be used to create more movement in a mechanical system. A combination of mechanisms can improve a product 	Slingshot cars <ul style="list-style-type: none"> To understand that all moving things have kinetic energy. To understand that kinetic energy is the energy that something (object/person) has by being in motion. To know that air resistance is the level of drag on an object as it is forced through the air. To understand that the shape of a moving object will affect how it moves due to air resistance. 	Pop up Books <ul style="list-style-type: none"> To know that mechanisms control movement. To understand that mechanisms can be used to change one kind of motion into another. To understand how to use sliders, pivots and folds to create paper-based mechanisms. To know that a design brief is a description of what I am going to design and make. To know that designers often want to hide mechanisms to make a product more aesthetically pleasing. 	
Disciplinary Concepts						
	Moving Storybooks <ul style="list-style-type: none"> Know the terms mechanism, lever and slider Be able to create a sliding mechanism. Learn how to use levers to create a moving mechanism. Know about, investigate and create wheel mechanisms. Be able to design a picture with a moving mechanism. Know how to make a moving picture based on a design. 	Moving Monsters <ul style="list-style-type: none"> Creating a design criteria for a moving monster as a class. Designing a moving monster for a specific audience in accordance with a design criteria. Making linkages using card for levers and split pins for pivots. Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. 	Pneumatic Toys <ul style="list-style-type: none"> Know about and investigate a variety of familiar objects that use air to make them work. Know some techniques for making simple pneumatic systems. Know how to gather ideas for creating moving monsters Be able to design a monster including a moving pneumatic system. Know how to make a monster with a moving pneumatic part. 	Slingshot cars <ul style="list-style-type: none"> Designing a shape that reduces air resistance. Drawing a net to create a structure from. Choosing shapes that increase or decrease speed as a result of air resistance. Personalising a design. Measuring, marking, cutting and assembling with increasing accuracy. Making a model based on a chosen design. 	Pop up Books <ul style="list-style-type: none"> Designing a pop-up book which uses a mixture of structures and mechanisms. Naming each mechanism, input and output accurately. Storyboarding ideas for a book. Following a design brief to make a pop up book, neatly and with focus on accuracy. Making mechanisms and/or structures using sliders, pivots and folds to produce movement. 	

	<ul style="list-style-type: none"> • Know how to evaluate a finished product. <p>Wheels and axels:</p> <ul style="list-style-type: none"> • Thinking about what others might want from a design. • Beginning to recognise how products and designs in the world around us solve certain needs. • Considering who they are designing for – by identifying the user. • Stating what they intend to make and why – by identifying the purpose. • Talking about ideas with purpose and user in mind. • Talking about existing products when generating ideas. • Using basic drawing skills to communicate ideas. • Planning more than one step ahead. • Choosing between a small number of materials, ingredients or components. 	<ul style="list-style-type: none"> • Cutting and assembling components neatly. • Evaluating own designs against design criteria. 	<ul style="list-style-type: none"> • Know how to evaluate a finished product. 	<ul style="list-style-type: none"> • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance. 	<ul style="list-style-type: none"> • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. • Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement. 	
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