**National Curriculum:**

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 disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

**Aims**

The national curriculum for art and design aims to ensure that all pupils:

* Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
* Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
* Critique, evaluate and test their ideas and products and the work of others
* Understand and apply the principles of nutrition and learn how to cook.

**EYFS**

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| **Vocabulary****By the end of EYFS they will be able touse the words:** | **Outcomes for the end of EYFS. Children will be able to:** |
| CutJoinFastenSecureStraightCurvedWords relating to texture and feel such as furry, smooth, hard, soft etc.Words related to the look of materials shiny, dull, colourful,function PaintDrawModelFormSticky tapeGlue stickRunny gluePencilScissorsClay toolsRolling pinCuttersCollageSelect / chooseColour - the names of the primary and some secondary and tertiary colours | * Children should be able to use a range of vocabulary of textures when creating i.e. rough, smooth, bobbly, fuzzy, and adults will expect them to use the appropriate descriptive vocabulary in expanded descriptive sentences relating to what they have created i.e. I have made a collage of a brown, fuzzy, hairy bear.
* children should be able to describe the effect they are wishing to achieve when working with creative materials.
* Children should be using a widening vocabulary to show that they are cutting, joining, and selecting equipment.
* Children should now be confidently explaining the choices they have made about selecting certain materials and media for their properties i.e. runny glue, sellotape, shiny paper, tissue paper etc.
* Children should be able to share effective practice with other children, enabling them to achieve success.
* Children should be able to verbalise what they see when the properties of the media that they are using changes i.e. when colours change during mixing or when glue dries, clay hardens etc.
* Cut and join successfully when using a variety of different media i.e. paper, boxes, dough/clay.

**Early Learning Goals:****Creating with materials** **Children at the expected level of development will:*** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
* Share their creations, explaining the process they have used.
* Make use of props and materials when role playing characters in narratives and stories.
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**Key stage 1**

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).

**Pupils should be taught:**

**Design**

* Design purposeful, functional, appealing products for themselves and other users based on design criteria.
* Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

**Make**

* Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].
* Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.

**Evaluate**

* Explore and evaluate a range of existing products.
* Evaluate their ideas and products against design criteria.

**Technical knowledge**

* Build structures, exploring how they can be made stronger, stiffer and more stable.
* Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

**Key stage 2**

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, school, leisure, culture, enterprise, industry and the wider environment].

**Pupils should be taught:**

**Design**

* Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.
* Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

**Make**

* Select from 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.

**Evaluate**

* Investigate and analyse a range of existing products.
* Evaluate their ideas 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.

**Cycle A , Autumn Term 2**

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| **EYFS & Year 1** | **Lesson 1****Hedgehog box** | **Lesson 2****Exploring sliders and movement**  | **Lesson 3** **Design**  | **Lesson 4** **Construction**  | **Lesson 5****Testing and evaluation**  |
| Autumn: Hibernation boxesMoving story box | Flash back to Art: | Flash back to Art: | Flash back to Art: | Flash back to Art: | Flash back to Art: |
| I will be able to design and make a hibernation box.I will understand what hibernation needs and why some animals hibernate. | I will be able to explore making mechanisms | I will be able to design a moving storybook. | I will be able to construct a moving picture. | I will be able to evaluate my finished product. |
| Key questions:What might a hedgehog like inside their box?How will they get in / outHow will it stay warm? What natural resources can we use from our school?  | Key questions:How do you think the car moves along the street scene. What might be behind the image that makes the car move? How do you think the rabbit moves up and down in the hat?What might be behind the image that makes the rabbit move?  | Key questions:How will you tell the part of the story through a picture?What movement might there be in that part of the story?Where might that part of the story be set? What would the background look like?How will we put our design on paper?What details might we want to record on our design?What is it that we are making?Who is it for, or who will use it?What will it do?Why will people want to have it? | Key questions:What bit do you like best and why?What was easy to make and why?What was hard to make and why?If you did it again, would you do anything differently?Did you find cardboard easy to work with or would you have liked to have used a different material?If something isn’t working as well as it should be, do you know why? | Key questions:What bit of the finished product did they like best and why?Was the product easy to make and why?Was the product hard to make and why?If they were to make the product again, would they do anything differently?Was cardboard easy to work with or would they have liked to use a different material?If something is not working as well as it should, do they know why? |
|  | Key Vocabulary:Autumn / seasonWeather / leavesFrost / coldBrown / crunchyWet / hibernateHibernation / dormouseHedgehog / black bearbumble bee / tortoisefrog / fish | Key Vocabulary:slidersmechanisms | Key Vocabulary:Adapt / designdesign criteria / inputmechanism / modelsliders / template | Key Vocabulary:designdesign criteriainputmechanismmodelsliderstemplate | Key Vocabulary:assembledesigndesign criteriasliderstemplatetest |

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| **Year 2 and Year 3** | **Lesson 1****Pivots, Lavers and Linkages** | **Lesson 2****Making Linkages** | **Lesson 3 / 4****Designing my monster** | **Lesson 5 / 6****Making my monster**  |
| **Making a moving monster**  | Flash back to Art:Who was Willam Morris?Why was he famous? What did you like about his art?  | Flash back to Art:What is a sketch? How can we use lines to form the basis of a drawing?  | Flash back to Art:How would you explain shade? How can you add shade to a drawing?  | Flash back to Art:What is tone? How can you add tone to a drawing? What is texture? |
| I will be able to look at objects and understand how they move. | I will be able to look at objects and understand how they move. | I will be able to explore different design options. | I will be able to make a moving monster. |
| Key questions:What is a mechanism?What is an input and an output?What is a lever?What is a linkage?What are levers and linkages used for?Can you identify a lever or a linkage?Can you name any products that use levers and linkages?What is a pivot? | Key questions:What is a linkage?What are levers and linkages used for?Can you identify a lever or a linkage?Can you name any products that use levers and linkages?What is a pivot? | Key questions:What are levers and linkages?What are pivots used for in linkages?What products use levers and linkages?What are design criteria?Why is it important to use design criteria?What materials can you use to make your monsters? | Key questions:What length/width of the card strip made for the strongest linkage?Did the children reinforce the individual levers to make the linkage stronger?Did the thickness of the card make a difference in how sturdy the linkage was? |
|  | Key Vocabulary:axledesign criteriainputlinkagemechanicaloutputpivotwheel | Key Vocabulary:inputlinkagemechanicaloutputpivot | Key Vocabulary:design criteriainputlinkagemechanicaloutputpivotsurvey | Key Vocabulary:design criteriaevaluationlinkagemechanicalpivot |

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| **Year 4, Year 5 and Year 6** | **Lesson 1****Design a new playground**  | **Lesson 2-4****Building structures** **Swings / Slide / Climbing frame**  | **Lesson 5****Perfecting Structures**  | **Lesson 6****Perfecting structures** |
| Structure – Playgrounds  | Flash back to Art:What is Calligraphy? | Flash back to Art:What is a Geometric Pattern? | Flash back to Art:Name different techniques you can use when creating a clay sculpture.  | Flash back to Art:What are the key features of Islamic art?  |
| I will be able to design a playground with a variety of structures. | I will be able to build a range of structures. | I will be able to improve and add detail to structures. | I will be able to create a surrounding landscape. |
| Main teaching:Sketch 3 different types of apparatusSwingsSlideClimbing frame | Key questions:Can you identify the structures used in the models?Which materials have been used? Why?Which tools have been used to cut, shape or join the materials?Did any of the miniature models stand out to you more than others? Why was this?How do you feel about the quality of the models? | Key questions:Where are you going to add cladding to your structures? Why?Which materials are you going to use? Why?Which tools will you use to cut/shape/join the materials? | Key questions:Why is it important to consider landscape design for outdoor spaces?What positive or negative impact can it have on users?Can you think of landscape features you like or do not like? Why? |
|  | Key Vocabulary:apparatusdesign criteriaequipmentlandscape featuresplan viewplayground | Key Vocabulary:mark outmodifyprototypereinforceuser | Key Vocabulary:claddingdoweljelutongreinforcestructure | Key Vocabulary:design criterianatural materialsprototypeuser |