Carr Hill Community Primary School

Opportunities for Developing Design and Technology in the Early Years Foundation Stage

Communication and Language

Opportunities for design and technology in 'Development Matters' non-statutory guidance for EYFS	Examples of how to support this	Notes on effective design and technology practice
Children in reception will be learning to:		**Overview:** Through design and technology, children listen carefully to **instructions** and follow them accurately when using tools and practising techniques. When responding to questioning, children **explain how** their own and others' products work, say **who** they think they are for and **what purposes** they fulfil. They develop **technical vocabulary** and learn how to express their ideas for what they want to design and make. **Tips on effective practice:** • Use the correct technical terms specific for tools and materials. • Sort and store materials into different categories based on their properties e.g. optical properties such as opaque, translucent and transparent. This may be changed at different times, so you may then have materials that can bend, be folded etc. • Provide a range of non-fiction books related to machines, vehicles, buildings etc. • Graphical instructions such as building block instructions can be used to help graphical communication.
• Learn new vocabulary. • Ask questions to find out more and to check they understand what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Engage in non-fiction books.	• Identify new vocabulary before planning activities, for example, changes in materials: 'dissolving', 'drying', 'evaporating'. • Discuss which category the word is in, for example: "A cabbage is a kind of vegetable. It's a bit like a sprout but much bigger". • Show genuine interest in knowing more: "This looks amazing, I need to know more about this." Think out loud, ask questions to check your understanding; make sure children can answer who, where and when questions before you move on to why and 'how do you know' questions. • Build upon their incidental talk: "Your tower is definitely the tallest I've seen all week. Do you think you'll make it any higher?" Suggestion: ask open questions - "How did you make that? Why does the wheel move so easily? What will happen if you do that?" • Read aloud books to children that will extend their knowledge of the world and illustrate a current topic.	

Personal, Social and Emotional Development

Opportunities for design and technology in 'Development Matters' non-statutory guidance for EYFS	Examples of how to support this	Notes on effective design and technology practice
3 & 4-year-olds will be learning to:		**Overview:** Design and technology is **ultimately about people** and making things better for people. As a result there are many issues to explore **empathy**, **values** and **needs** of users. Design and technology also provides unique opportunities for children to develop their **self confidence** and **self awareness**, manage their feelings and make relationships. **Tips on effective practice:** • Provide opportunities for children to work collaboratively on design and make tasks. • Try giving different jobs to the children in the team. Different high-vis jackets can help to distinguish roles. • Begin with simple tools that can be used one-handed (e.g. sandpaper block) and allow them to experience a range of tools, and those that require 2 hands too (e.g. twist drill). • Including some aspects of (low) risk situations can help develop self-esteem. Use a hammer to drive a nail under supervision. Consider holding the nail with a strip of cardboard keeps fingers away. • Have children understand risks and what we do to reduce them, for example, wearing goggles. This will help to develop self-care. • When designing and/or making things for other people, ask the children what they think the user would like/need. • Get children to empathise with users e.g. if a dinosaur with short arms can't do his shoe laces, how would he feel?
• Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen, or one which is suggested to them.	• Respond to children's increasing independence and sense of responsibility. As the year proceeds, increase the range of resources and challenges, outdoors and inside. One example of this might be starting the year with light hammers, plastic golf tees and playdough. This equipment will offer children a safe experience of hammering. Wait until the children are ready to follow instructions and use tools safely. Then you could introduce hammers with short handles, nails with large heads, and soft blocks of wood. • Widen the range of activities that children feel confident to take part in, outdoors and inside. Model inviting new activities that encourage children to come over and join in, such as folding paper to make animals, sewing or weaving.	
Children in reception will be learning to:		
• Show resilience and perseverance in the face of challenge. • Manage their own needs.	• Help them to develop problem-solving skills by talking through how they, you and others resolved a problem or difficulty. Show that mistakes are an important part of learning and going back is trial and error not failure. • Narrate your own decisions about healthy foods, highlighting the importance of eating plenty of fruits and vegetables.	

Physical Development

Opportunities for design and technology in 'Development Matters' non-statutory guidance for EYFS	Examples of how to support this	Notes on effective design and technology practice
Birth to three – babies, toddlers and young children will be learning to:		**Overview:** Design and technology activities can significantly help **with fine and gross motor experiences** in children. Opportunities for **sensory** explorations and **co-ordination** can be achieved through a number of tasks and play. Using small tools, with feedback and support from adults, allow children to develop **proficiency, control and confidence**. Ensure you have a range of tools as they employ muscles in different ways (twisting, pushing and pulling) and can develop gross motor skills such as hammering and sawing. **Tips on effective practice:** • Using small tools help to develop precision • Exploring different fastenings such as zips, press-studs, Velcro, toggles, nuts and bolts on product handling collections. • Wooden boards with holes in can accommodate a number of different fixings such as hex nuts, screws and nails. Where possible introduce tools too such as allen keys, stubby screwdrivers and hammers. • Consider soft surfaces for using hammers and nails, for example, polystyrene and cork can make the process easier. Golf tees provide a larger surface area to hit than many nails. • Can you set up a workshop area with wood, sandpaper and saw? Clamps and jigs can hold items in place as children cut and assemble.
• Build independently with a range of appropriate resources. • Develop manipulation and control. • Explore different materials and tools. • Use large and small motor skills to do things independently, for example manage buttons and zips, and pour drinks.	• Include lots of opportunities for children to move freely and explore their surroundings like a slope, a large hole, puddles or a sandpit. • Provide different types of paper for children to tear, make marks on and print on. • Provide lots of different things for young children to grasp, hold and explore, like clay, finger paint, spoons, brushes, shells. • Encourage them to dress and undress independently. Be patient, do not rush and take time to talk about what they are doing and why: "It's a bit cold and wet today – what do we need to wear to keep warm and dry?"	
3 & 4-year-olds will be learning to:		
• Continue to develop their movement, balancing, riding (scooters, trikes and bikes) and ball skills • Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel. • Use one-handed tools and equipment, for example, making snips in paper with scissors. •	• Encourage children to transfer physical skills learnt in one context to another one. Suggestion: children might first learn to hammer in pegs to mark their Forest school boundary, using a mallet. Then, they are ready to learn how to use hammers and nails at the woodwork bench. • Explain why safety is an important factor in handling tools, and moving equipment and materials. Have clear and sensible rules for everybody to follow. • You can begin by showing children how to use onehanded tools (scissors and hammers, for example) and then guide them with hand-over-hand help. Gradually reduce the help you are giving and allow the child to use the tool independently. • Encourage children to pick up small objects like individual gravel stones or tiny bits of chalk to draw with.	
Children in reception will be learning to:		

• Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons.	• Offer children activities to develop and further refine their small motor skills. Suggestions:
	  ○ threading and sewing,
	  ○ woodwork,
	  ○ pouring,
	  ○ stirring,
	  ○ making models with junk materials, construction kits and malleable materials like clay.
	• Regularly review the equipment for children to develop their small motor skills. Is it appropriate for the different levels of skill and confidence of children in the class? Is it challenging for the most dexterous children?	

Mathematics

Opportunities for design and technology in 'Development Matters' non-statutory guidance for EYFS	Examples of how to support this	Notes on effective design and technology practice
Birth to three – babies, toddlers and young children will be learning to:		**Overview:** This area of learning enables children to explore and further their understanding of **shapes,spatial awareness and measure**. Developing a **risk-taking** approach is also key and should help to embed a **growth mindset** which is vital for D&T. **Tips on effective practice:** • Ensure construction materials and kits feature a range of different shaped items. • Manipulation of different materials such as plasticine, sheet materials such as cardinto different shapes. • Use a range of units of measure, both standard and non-standard. • Set challenges that require measures e.g. a bridge that needs to hold 3 cups ofsand. • Provide opportunities to use their developing skills in measures when creatingproducts as well as using estimation and comparison. • Show how to weigh ingredients when following a recipe. • Get children to predict when creating objects and experiment with making small adjustments e.g. moving axle positions, wheel sizes and testing e.g. see which goes furthest/fastest. • Disassembling packaging can be a good way to explore 2D and 3D shapes. • Get children to estimate lengths of screws and/or nails needed, which spanner is required for the nut?
• Combine objects like stacking blocks and cups. Put objects inside others and take them out again. • Compare amounts, saying 'lots', 'more' or 'same'. • Build with a range of resources. • Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy'.	• Encourage babies and young toddlers to play freely with a wide range of objects - toddlers engage spontaneously in mathematics during nearly half ofevery minute of free play. Suggestions: when appropriate, sensitively join in and comment on: ○ interestingly shaped objects like vegetables, wooden pegs, spoons,pans, corks, cones, balls ○ pots and pans, boxes and objects to put in them, shape sorters ○ stacking cups: hiding one, building them into a tower, nesting themand lining them up. • Draw attention to changes in amounts, for example, by adding more bricks toa tower, or eating things up. • Provide blocks and boxes to play freely with and build with, indoors and outside. • Use the language of size and weight in everyday contexts. Provide objectswith marked differences in size to play freely with. Suggestions: dolls' andadult chairs, tiny and big bears, shoes, cups and bowls, blocks and containers.	
• **& 4-year-olds will be learning to:**		
• Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. • Select shapes appropriately: flat surfaces for building, atriangular prism for a roof etc. • Combine shapes to make new ones - an arch, a bigger triangleetc. • Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc.	• Encourage children to talk informally about shape properties using words like'sharp corner', 'pointy' or 'curvy'. Talk about shapes as you play with them: "We need a piece with a straight edge." • Provide a variety of construction materials like blocks and interlocking bricks.Provide den-making materials. Allow children to play freely with these materials, outdoors and inside. When appropriate, talk about the shapes andhow their properties suit the purpose. • Provide shapes that combine to make other shapes, such as pattern blocks and interlocking shapes, for children to play freely with. When appropriate,discuss the different designs that children make. • Occasionally suggest challenges, so that children build increasingly more complex constructions. • Use tidy-up time to match blocks to silhouettes or fit things in containers, describing and naming shapes. Suggestion: "Where does this triangular one /cylinder /cuboid go?" • Provide patterns from different cultures, such as fabrics. • Provide a range of natural and everyday objects and materials, as well as blocks and shapes, for children to play with freely and to make patterns with.When appropriate, encourage children to continue patterns and spot mistakes.	
• **Children in reception will be learning to:**		
• Select, rotate and manipulate shapes in order to developspatial reasoning skills. • Compose and decompose shapes so that children recognise ashape can have other shapes within it, just as numbers can. • Continue, copy and create repeating patterns. • Compare length, weight and capacity.	• Provide high-quality pattern and building sets, including pattern blocks, tangrams, building blocks and magnetic construction tiles, as well as found materials. • Challenge children to copy increasingly complex 2D pictures and patterns with these 3D resources, guided by knowledge of learning trajectories: "I betyou can't add an arch to that," or "Maybe tomorrow someone will build a staircase." • Investigate how shapes can be combined to make new shapes: for example, two triangles can be put together to make a square. Encourage children to predict what shapes they will make when paper is folded. Wonder aloud how many different ways there are to make a hexagon with pattern blocks. • Find 2D shapes within 3D shapes, including through printing or shadow play. • Make patterns with varying rules (including AB, ABB and ABBC) and objects and invite children to continue the pattern. • Make a deliberate mistake and discuss how to fix it. • Model comparative language using 'than' and encourage children to use this vocabulary. For example: "This is heavier than that." • Ask children to make and test predictions. "What if we pour the jugful intothe teapot? Which holds more?"	

Literacy	Opportunities for design and technology in 'Development Matters' non-statutory guidance for EYFS	Examples of how to support this	Notes on effective design and technology practice
	Birth to three – babies, toddlers and young children will be learning to:		**Overview:** Communication is a key aspect in design and technology. Ensure there are numerous opportunities for children to **discuss their creations** and those made by other people. Discussion throughout the process of creation allows early opportunities for an iterative approach and **analytical thinking**. The technical and practical nature of designing and making helps to ensure that writing activities meet the needs and interests of all children. As part of the EYFS curriculum that many children find accessible, enjoyable and motivational, design and technology provides contexts for children to communicate about what they have made and designed.
	• Develop play around favourite stories using props. • Enjoy drawing freely.	• Provide a wide range of stimulating equipment to encourage children's mark-making • Themed book areas can build on children's interests	
	3 & 4-year-olds will be learning to:		
	• Use some of their print and letter knowledge in their early writing.	• Motivate children to write by providing opportunities in a wide range of ways. Suggestions: clipboards outdoors, chalks for paving stones, boards and notepads in the home corner. Children enjoy having a range of pencils, crayons, chalks and pens to choose from. Apps on tablets enable children to mix marks, photos and video to express meanings and tell their own stories.	**Tips on effective practice:** • Get children to write about what they have designed and made through captions, labels, simple descriptions and explanations. • Provide non-fiction books relating to machines, buildings, products, factories and more. • Label design and technology resources in the classroom.

Understanding the World

Opportunities for design and technology in 'Development Matters' non-statutory guidance for EYFS	Examples of how to support this	Notes on effective design and technology practice
Birth to three – babies, toddlers and young children will be learning to:		**Overview:** This area of learning enables children to learn about products and environments that have been **designed and made by people**. Children think about how a range of everyday and less familiar products are used in places such as schools and homes. They select and use these products for particular purposes and investigate and evaluate them using a range of questioning techniques. They talk about **features of** their indoor and outdoor **environment**. To support their learning in design and technology, it is essential that **children explore the built or design and made world**. **Tips on effective practice:** • Children need frequent opportunities to explore existing products. • Ensure they explore products designed for different users and purposes. Having a product handling collection is useful. • Make sure that existing product collections include those made from textiles, food and construction materials. They can feature everyday (but unusual) items and some with moving parts e.g. hand whisk. • Encourage children to ask questions about who the products are for and what they do. • Ask them to think about the materials that have been used and how the products have been made. • Encourage them to say what they like or dislike about the design of the products. • Ask children to talk about how the products look, feel and smell and explain how they work. • Material handling collections allow for children to handle materials and suggest what they may be useful for, based on their properties. • In handling collections, feature materials with different properties e.g. opaque, translucent and transparent plastics, magnetic and non-magnetic metals, stretchy, rough, smooth and soft fabrics. • Children need frequent opportunities to explore aspects of the designed and made world through the indoor and outdoor environment. • Go on a hunt around the classroom for products of a similar type e.g. those made from textiles or have a strong structure. • Explore the built environment outdoors including play equipment and class visits. • Provide opportunities for children to disassemble items. • Explore materials and where they come from – wood from trees, sawdust when sanded. • Have recycling bins in your class and get children to sort into different materials. • Extend 'important members of society' to other professions such as plumbers and architects.
• Explore materials with different properties. • Explore natural materials, indoors and outside.	• Provide open-ended play materials inside and outdoors. Suggestion: Treasure Baskets for repeated exploration of textures, sounds, smells and tastes. • Offer lots of different textures for exploration with fingers, feet and whole body. Suggestions: wet and dry sand, water, paint and playdough.	
3 & 4-year-olds will be learning to:		

• Use all their senses in hands on exploration of natural materials.
• Explore collections of materials with similar and/or different properties.
• Talk about what they see, using a wide vocabulary.
• Explore how things work.
• Explore and talk about different forces they can feel.
• Talk about the differences between materials and changes they notice.
	• Make collections of natural materials to investigate and talk about. Suggestions:
	  ○ contrasting pieces of bark
	  ○ different types of leaves and seeds
	  ○ different types of rocks
	  ○ different shells and pebbles from the beach
	• Provide equipment to support these investigations. Suggestions: magnifying glasses or a tablet with a magnifying app.
	• Provide mechanical equipment for children to play with and investigate. Suggestions:
	  ○ wind-up toys
	  ○ pulleys
	  ○ sets of cogs with pegs and boards.
	• Draw children's attention to forces. Suggestions: -
	  ○ how the water pushes up when they try to push a plastic boat under it
	  ○ how they can stretch elastic, snap a twig, but can't bend a metal rod
	  ○ magnetic attraction and repulsion
	• Explore how different materials sink and float.
	• Explore how you can shine light through some materials, but not others. Investigate shadows
	• Plan and introduce new vocabulary related to the exploration, and encourage children to use it.	

Children in reception will be learning to:		
• Explore the natural world around them.	• Create opportunities to discuss how we care for the natural world around us. • Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water.	

Expressive arts and design

Opportunities for design and technology in 'Development Matters' non-statutory guidance for EYFS	Examples of how to support this	Notes on effective design and technology practice
Birth to three – babies, toddlers and young children will be learning to:		**Overview:** This is the area of learning where D&T – related aspects can really be explored. The area focuses on children's creative development and mentions the need for a wide-range of materials, tools and other resources. This provides opportunities for children's learning in D&T to draw on the 'arts' when they are designing and making. It is equally important to be aware of the distinctive nature of D&T so that children receive a genuine design and technological experience. For D&T, the children and adult would be discussing different **users**, the **purpose** of their product and **how it works** (function). It D&T we often mention ***'Something for Somebody for Some purpose'*** with teachers. Children should be using a variety of materials and engage in imaginative role-play where they create and use indoor and outdoor environments based on the designed and made world.
• Start to make marks intentionally. • Explore paint, using fingers and other parts of their bodies as well as brushes and other tools. • Explore different materials, using all their senses to investigate them. Manipulate and play with different materials. • Use their imagination as they consider what they can do with different materials. • Make simple models which express their ideas.	• Use tablets or computers • Introduce colour names • Stimulate young children's interest in modelling. • Suggestions: provide a wide range of found materials ('junk') as well as blocks, clay, soft wood, card, offcuts of fabrics and materials with different textures. Provide appropriate tools and joining methods for the materials offered. • Encourage young children to explore materials/ resources finding out what they are/what they can do, and decide how they want to use them.	
3 & 4-year-olds will be learning to:		**Tips on effective practice:** • Children's learning In D&T should include planned, purposeful play and both child-initiated and adult-led activities. • Encourage children to think about what their product is for e.g. fruit drink for a party. • Ask them to say who their product is for e.g. coat for Teddy. • Function – make sure that children have opportunities to create products that have to work in some way in order to be successful e.g. using a construction kit, make a wall strong and stable enough for Humpty Dumpty. • Aesthetics – ask children to think about the appearance, finish and texture of the product e.g. decorative effects used on a simple felt bag to suit the user. • Children should have freedom to select media and materials from an appropriate range. • Using the senses, as appropriate, they should explore the simple working characteristics of materials including food, textiles and construction materials. • They need frequent opportunities to play with and explore a range of large and small construction kits that use different forms of joining e.g. magnetic, slot-together, stacking etc. • They should also frequently explore materials that can be used to make things, such as felt, cardboard, softwood, plastics etc • Construction kits should enable children to build towers, walls, frameworks and shell structures. • Encourage children to think how they can stop their structures from falling over and how to make them stronger. • Construction materials should sometimes include moving parts such as wheels, levers and hinges. • Designing should not necessarily entail drawing, but children may retrospectively draw what they have made. • Designing includes physically arranging and re-arranging materials and components and orally communicating what they are doing and have done. • Designing is typically intuitive i.e. children design as they make.

• Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.
• Join different materials and explore different textures.
	• Provide lots of flexible and open-ended resources for children's imaginative play.
	• Offer opportunities to explore scale. Suggestions: -
	  ○ long strips of wallpaper
	  ○ child size boxes
	  ○ different surfaces to work on e.g. paving, floor, tabletop or easel
	• Listen and understand what children want to create before offering suggestions.
	• Invite artists, musicians and craftspeople into the setting, to widen the range of ideas which children can draw on.
	• Suggestions: glue and masking tape for sticking pieces of scrap materials onto old cardboard boxes, hammers and nails, glue guns, paperclips and fasteners.
	• Help children to develop their drawing and modelmaking. Encourage them to develop their own creative ideas. Spend sustained time alongside them. Show interest in the meanings children give to their drawings and models. Talk together about these meanings.	

Children in reception will be learning to:		
• Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills.	• Teach children different techniques for joining materials, such as how to use adhesive tape and different sorts of glue. • Provide a range of materials and tools and teach children to use them with care and precision. Promote independence, taking care not to introduce too many new things at once.	