

Design Technology

Our Approach to Teaching and Learning in DT

Activate: revisit, focus, create curiosity

Build: connect, make meaning, model, explain,

Use: apply, guide, support,

Review: question, articulate, respond & adapt

Values: Learn · Care · Challenge · Lead

Vision: Shaping the Future · Making Memories · Ready for Life

Our Curriculum Vision:

Throughout our curriculum, we ensure learning happens through learning opportunities to activate, build and use. We want them to feel valued; to learn more; remember more; and to deepen their understanding - empowering them to become lifelong learners.

Our Curriculum Design

We have placed a strong emphasis on the organisation and sequencing of each National Curriculum Programme of Study. We build bodies of knowledge and understanding through the lens of each subject. This is not about rote learning of isolated facts but valuing a subject's integrity; explicitly teaching and weaving together the core skills, knowledge and concepts of each subject.



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DT Intent

At Lyndhurst Primary School, our intent is to deliver an inspiring, rigorous and practical Design & Technology curriculum which has a vital role in contributing to a balanced curriculum and creating the problem solvers of the future. It is a subject that encourages children to 'learn to think' creatively to solve practical problems both as individuals and through teamwork.

<u>Our learning in D & T is built on four key concepts:</u>

- design
- make
- evaluate
- technical knowledge

DT Intent

We follow the Kapow Design and Technology scheme of work and our curriculum map for DT. We have carefully selected units to ensure gradual progression towards the National curriculum end of key stage attainment targets and to cover all of the four strands shown below in enough detail.

•Design

•Make

•Evaluate

•Technical knowledge

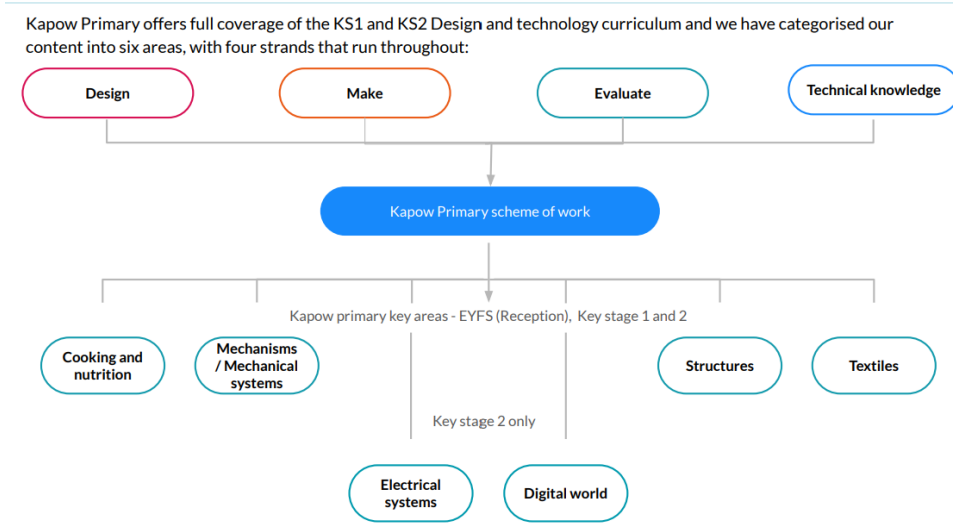
Cooking and nutrition is given a particular focus and we have made this one of our key areas that pupils revisit throughout their time in primary school:

•Cooking and nutrition

•Mechanisms/ Mechanical systems

•Structures

•Textiles





Our scheme has a clear progression of skills and knowledge within these strands and key areas across each year group. Our Progression of skills shows the skills and knowledge that are taught within each year group and how these skills develop to ensure that attainment targets are securely met by the end of each key stage.

DT Curriculum Structure

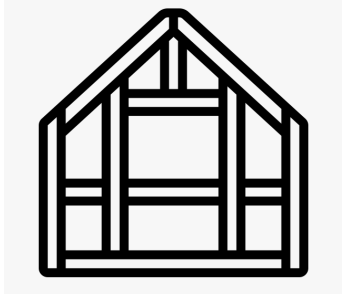
- Design
- Make
- Evaluate
- Technical Knowledge



Cooking & Nutrition



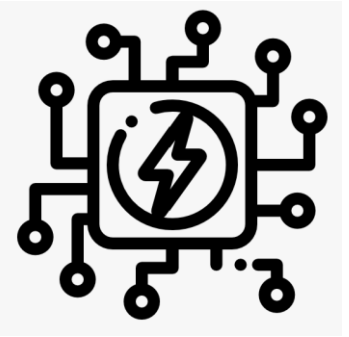
Mechanisms



Structures

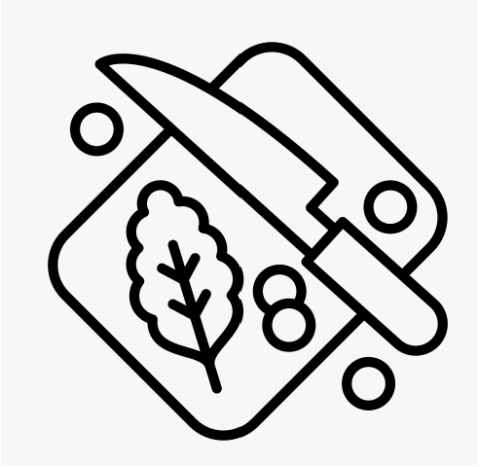


Textiles



Electrical Systems (KS2)

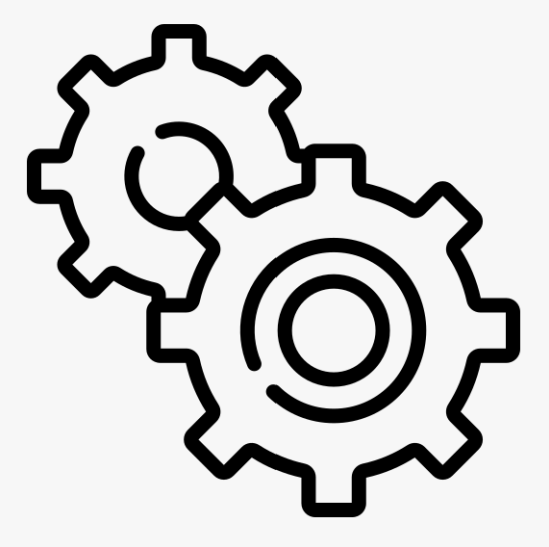
Cooking and Nutrition



- **Cooking and Nutrition is where children are taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.**
- Cooking and Nutrition in EYFS, children explore the differences between fruits and vegetables using their senses (taste, texture, smell etc.). In Nursery, the children will learn some different foods and read the story 'The Very Hungry Caterpillar. In Reception, they listen to the story 'The best pumpkin soup' and discuss the key ingredients the characters used before developing a class-based vegetable soup recipe.
- In KS1, there are opportunities for children to learn food preparation skills and greater emphasis on taste testing, ingredient choices and resulting in making a healthy wrap whilst considering religious beliefs.
- In KS2, there are opportunities for children to learn about seasonal foods and create a seasonal food tart. To work in groups to adapt an existing biscuit recipe for a giant, whilst taking into account the cost of the ingredients and other expenses against a set budget. In Year 5, they will discover the farm to fork process, understand the key welfare issues for rearing cattle and compare the nutritional value of existing sauces and develop a healthier recipe. In Year 6, children will develop a three-course menu focused on three key ingredients, as part of a paired challenge to develop the best class recipes. Explore each key ingredient's farm to fork process.

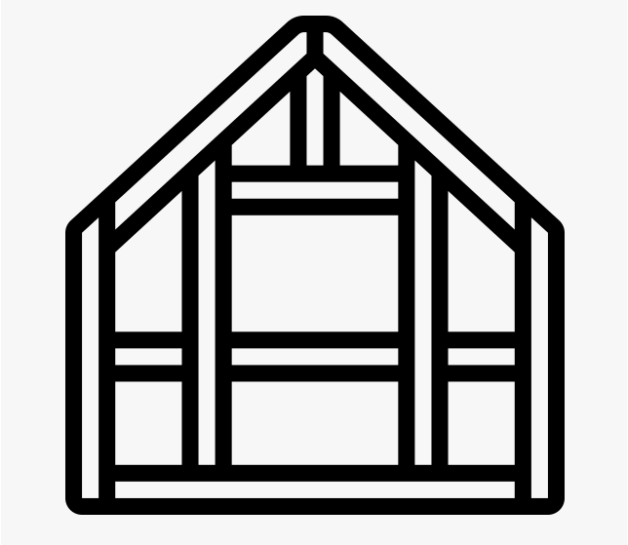


Mechanisms



- **Mechanisms is exploring how mechanisms work and use mechanical systems such as levers, wheels, cams, gears and pulleys in products children design themselves with these DT schemes of work for KS1 and KS2. Your class will design and make purposeful products, then bring them to life with moving parts!**
- In KS1, children will explore slider mechanisms and the movement they output to design, make and evaluate a moving storybook from a range of templates. They will also design and create a functional fairground wheel, learning how different components fit together so that the wheel rotates and the structure stands freely.
- In KS2, children will build on their knowledge from KS1 and explore pneumatic systems, then apply this understanding to design and make a pneumatic toy including thumbnail sketches and exploded diagrams. They develop design criteria to meet a design brief by creating items for an interactive display. Using technical knowledge they build a mechanical system of cams, followers and axles to create an automata toy.

Structures



A structure is a 3D shape made from different materials and parts.

Structures are designed and made to be strong, stable and sturdy.
This means that they will not break or fall over easily.
There are two main types of structures:
•frame structures
•shell structures

- In EYFS, pupils explore and learn about various types of permanent and temporary join. They are encouraged to tinker using a combination of materials and joining techniques in the junk modelling area. children explore what is meant by 'waterproof', 'floating' and 'sinking', then experiment and make predictions with various materials to carry out a series of tests. They learn about the different features of boats and ships before investigating their shape and structures to build their own.
- In KS1, learn how to design and construct a windmill for a client to live in and explore various types of windmill, how they work and their key features. Children also explore stability and methods to strengthen structures, to understand Baby Bear's chair weaknesses and develop an improved solution for him to use.
- In KS2, children will identify and learn about the key features of a castle, before designing and making a recycled-material castle (structure). They will also test and analyse various types of bridge to determine their strength and stability. Explore material properties and sources, before marking, sawing and assembling a wooden truss bridge.

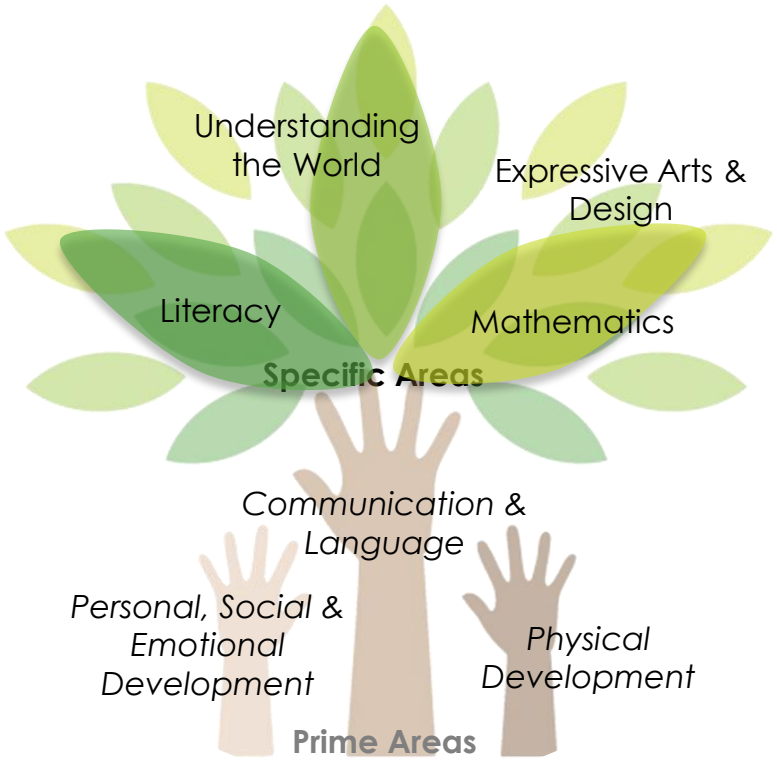
Textiles

- **Textiles made from fibres, classified as either natural or manufactured. Fibres are twisted into yarns before being made into woven, knitted or bonded fabrics.**
- In EYFS, pupils develop and practise threading and weaving techniques using various materials and objects. They look at the history of the bookmark from Victorian times versus modern-day styles. The pupils apply their knowledge and skills to design and sew their own bookmarks.
- In KS1, children explore methods of joining fabric and design and make a character-based hand puppet using a preferred joining technique, before decorating. They also learn how to sew a running stitch ready to design, make and decorate a pouch using a template.
- In KS2, children will analyse and evaluate a range of existing fastenings, then devise a list of design criteria to design, generate templates and make a fabric book sleeve. Children will also use a combination of textiles skills such as attaching fastenings, appliqué and decorative stitches, children design, assemble and decorate a bag for a chosen purpose.



DT
through an EYFS lens

In Nursery and Reception, we provide the foundations for lifelong learners in these 7 areas of learning as outlined in the Early Years Foundation Stage Statutory Framework.



EYFS Area of Learning: Understanding the World.

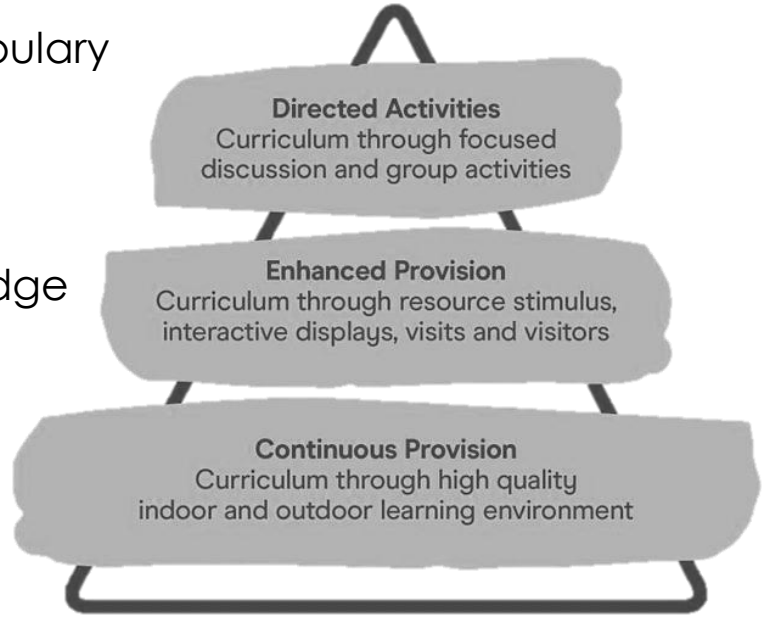
Similarly to arts and design, the EYFS framework is focused on children's opportunities to experiment with tools, materials and concepts. Observation and exploration are essential, and children should be supported in developing their vocabulary and interaction when discussing their designs and creations.

The subsection Creating with Materials expects children for their ELG to:

- 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.

In EYFS we encourage:

- Ownership of appropriate vocabulary
- Exploration of how things are designed, made and improved.
- Using a variety of tools whilst developing appropriate knowledge and skills
- Problem solving
- Risk taking when creating
- Learning from challenges



DT in EYFS

How could we decide?

Which is the best choice?

What do you need?

What might happen if…?

How can we find out about…?

I wonder why…?

I wonder how…?

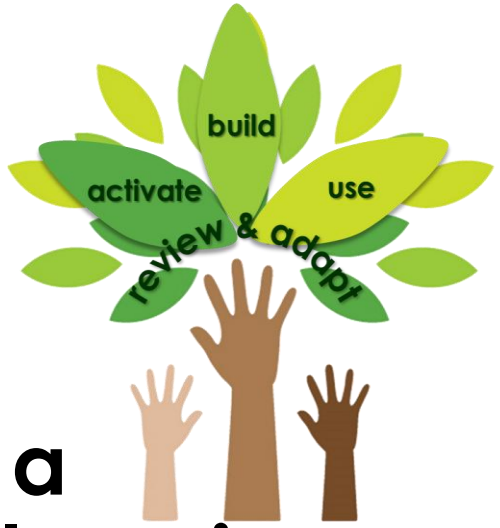
Tell me about…

What do you think?

- Trial and error
- Using equipment and resources to create
- Exploring moving toys
- Experimenting with structures and mechanisms
- Experimenting with different materials
- Identify & solve problems
- Join and assemble materials
- Sharing creations
- Textures
- Snack time
  - Food tasting
  - Healthy diet
- Sharing their creative journey
- Different tools



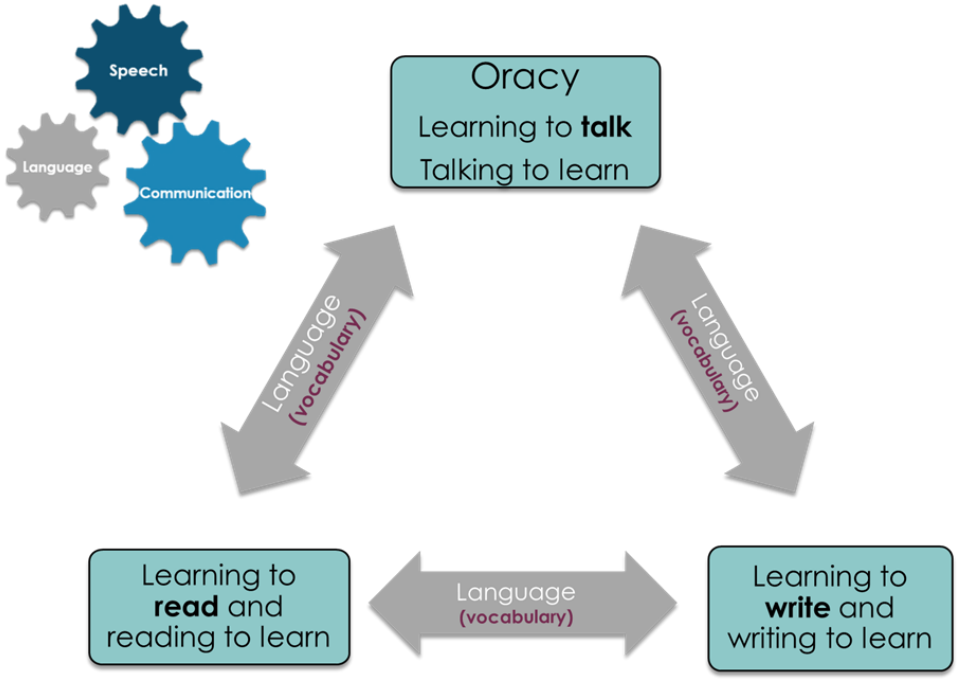
	Autumn		Spring		Summer		DT Long-term Plan End of phase outcomes:
	1	2	1	2	1	2	
N							• safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; • share their creations, explaining the process they have used; • make use of props and materials when role playing characters in narratives and stories.
R		**Structures: Junk modelling** What is a join?	**Textiles: Bookmarks** Q: What is threading and weaving?		**Cooking and nutrition: Soup** Q: What is a recipe?		
1		**Mechanisms: Matching slider game** Q: How do sliding mechanisms work?		**Textiles: Puppets.** Q: How do you join fabrics together?		**Cooking and nutrition: 6 lessons** Q: What does 'design' mean?	• 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 ICT • 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 • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria • 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. • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.
2		**Mechanisms: Fairground wheel** Q: How do wheels move?		**Textiles: Pouches** Q: What is a pouch?		**Cooking and nutrition: 6 lessons** Q: What is a balanced diet?	
3		**Structures: Constructing a castle** Q: How do you make a 3D shape using nets?		**Textiles: Cross-stitch and appliqué** Q: What is cross stitch and applique?		**Cooking and nutrition** Q: How do you eat seasonally?	• use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose and 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 • 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 • 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 • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages) • understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors) • apply their understanding of computing to program, monitor and control their products. • understand and apply the principles of a healthy and varied diet • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
4		**Structure: Pavilions** Q: What is meant by cladding?		**Textiles: Fastenings** Q: What are the types of fastenings used in textile designs?		**Cooking and nutrition** Q: How do you adapt a recipe using additional ingredients?	
5		**Mechanical systems: Pop-up book** Q: How can layers and spacers be used in a pop-up book?		**Textiles: Stuffed Toys** Q: What is an appendage?		**Cooking and nutrition: Developing a recipe** Q: How can recipes be adapted to suit nutritional needs and dietary requirements?	
6		**Structures: Playgrounds** Q: What is an effective and ineffective structure?		**Textiles: Bags** Q: What can be used as decorative features?		**Cooking and nutrition: Come dine with me** Q: How do you ensure you have the correct quantities of an ingredient?	



Literacy as a vehicle for learning

At Lyndhurst Primary School, we recognise and value Literacy as a vehicle for learning. Our learners apply their literacy skills differently from subject to subject.

With this awareness, we teach in a way which develops children's literacy skills whilst appropriately facilitating learning in each subject.



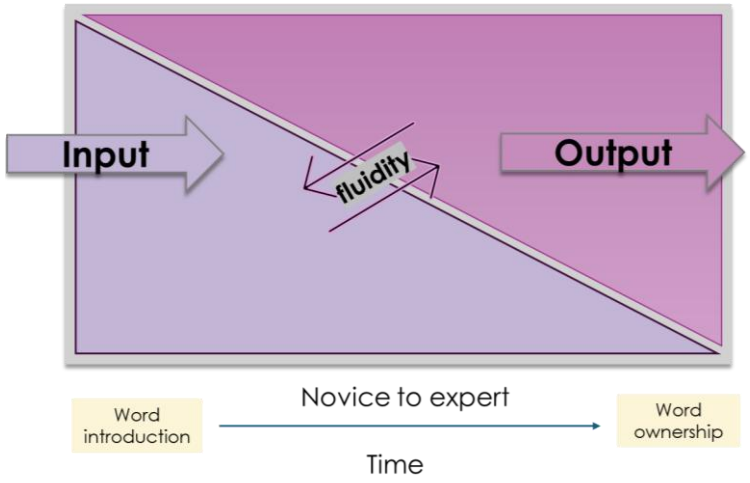
Literacy:
- The ability to read, write, create, speak and listen in a way that lets us communicate effectively and make sense of the world.

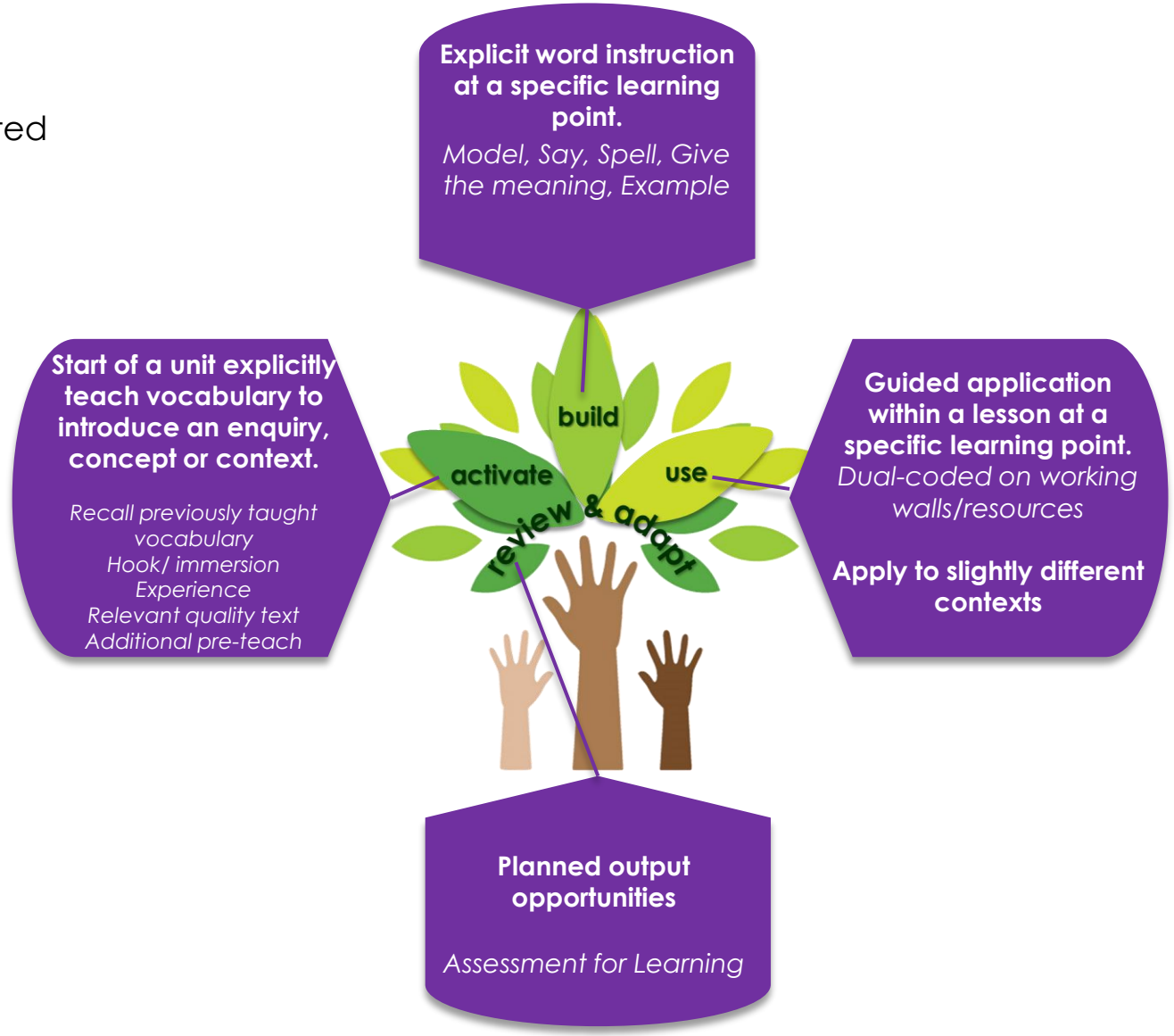
National Literacy Trust

Vocabulary for Learning

Vocabulary is chosen with a view to building bodies of knowledge and with an awareness of some children's limited exposure to certain vocabulary and language structures.

Key vocabulary is planned for through a two-phase approach:





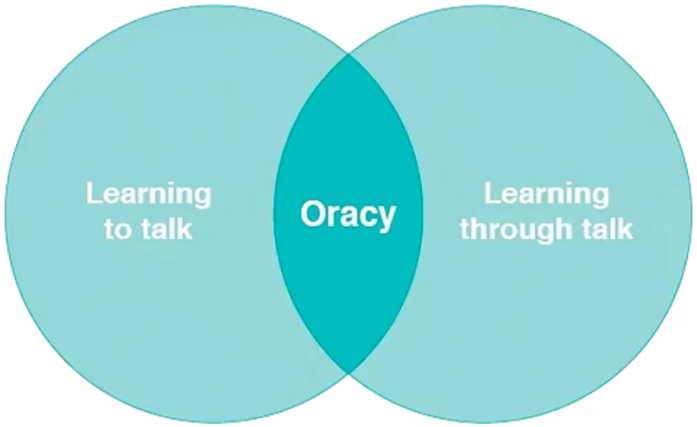
Oracy

As an essential part of literacy, oracy can be seen as both learning *to* and *through* talk.

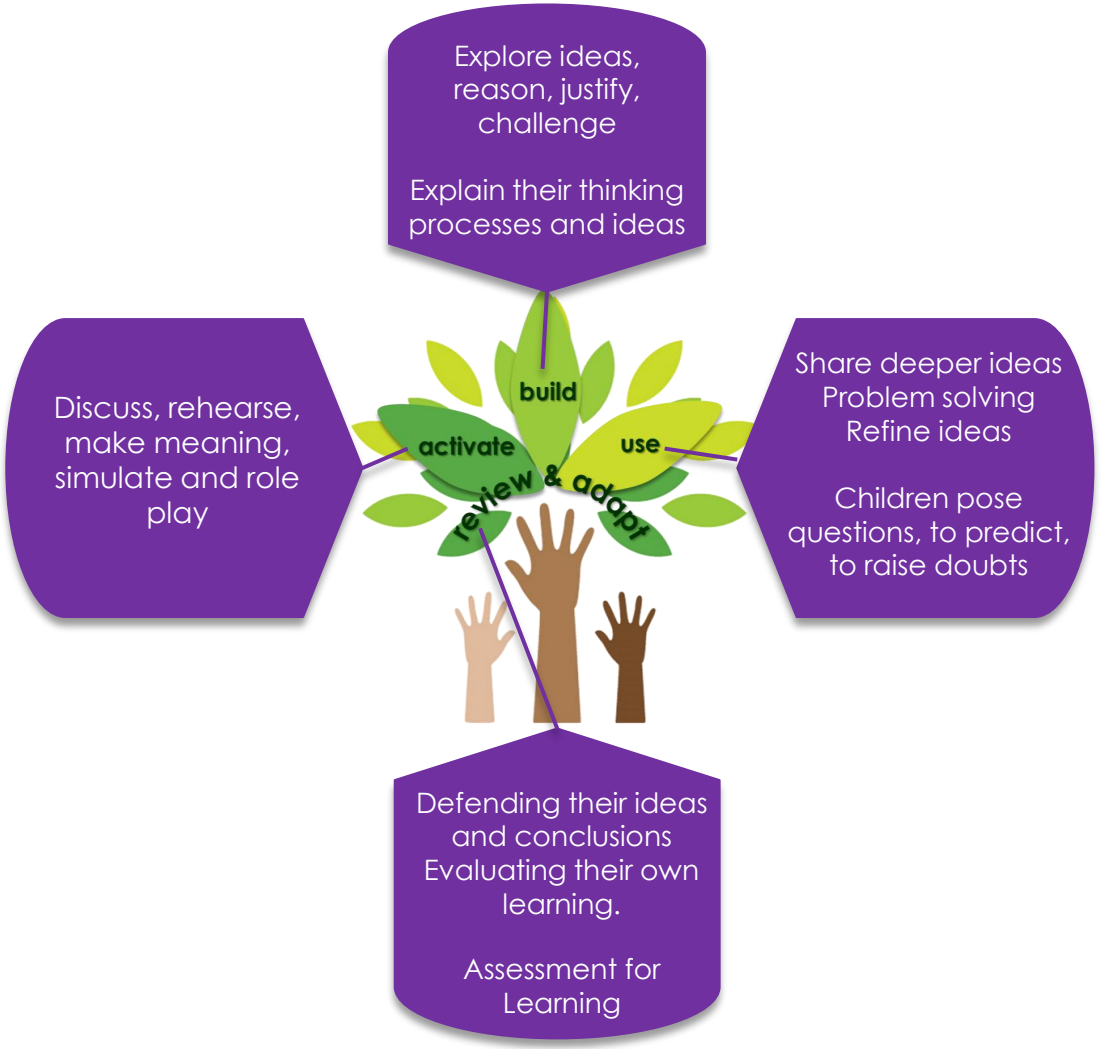
It is *through* talk that children have the opportunity to develop and share their understanding, through interactions with both teachers and peers.

Oracy supports all children, with additional benefits to those learners who may have limited exposure to certain vocabulary and language structures.

In DT, we encourage all our children to

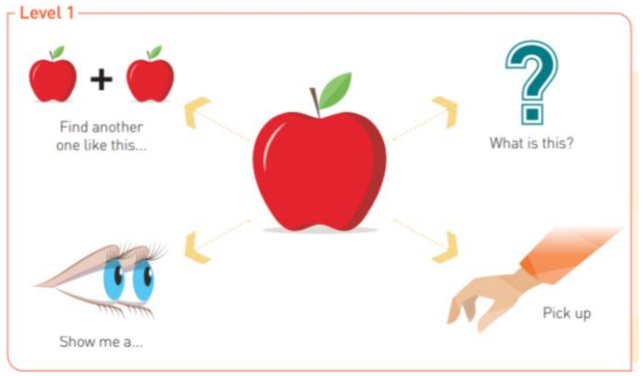


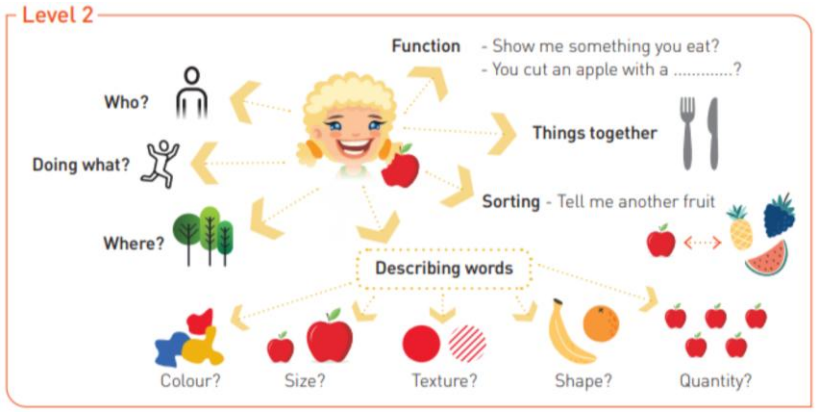
Here are some examples of when we might use oracy for learning:



Blank's Levels of Questioning

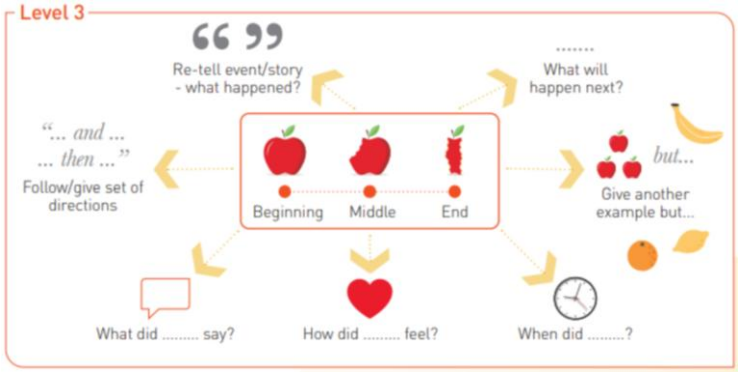
1. Locate & identify – children should be able to locate and identify key words, phrases, information and evidence required to respond to a question.





2. Describe – children should be able to provide a description from what they have read.

3. Explain – children should be able to provide an explanation when responding to a question.



As part of the *Early Language Support for Every Child* (ELSEC) program, we ensure our questioning supports the development of children's **receptive and expressive language** and associated understanding in all subjects.



4. Justify & reason – children should be able to provide evidence to support their responses.



Assessment



Our Design and Technology subject leader has identified key 'Ready-to-progress' statements of the crucial knowledge and skills for each unit.

Teachers then use these statements to formatively assess the intended curriculum, making adaptations to short, medium and long-term learning plans whilst also informing transition points.

Evidence of designs and photographs of finished products are evident in books in Key stage 1 and folders in Key stage 2. children are actively encouraged to evaluate their work throughout amd make adaptions where necessary.

Learning Environment:



The classroom provides a welcoming and stimulating atmosphere that promotes development through:

- Access to diverse materials to support their leanring.
- Flexible working areas that support both individual and group activities.
- Visual inspiration through images, prototypes and examples.
- Organised and accessible resources to encourage independence and responsibility.
- A collective display of progression throughout the school in the main corridor.