Rationale:

Design and Technology prepares children to take part in the development of today's rapidly changing world. Creative thinking encourages children to make positive changes to theirs and other's quality of life. The subject encourages children to become independent and creative problem-solvers, both as individuals and as part of a team. It enables them to identify needs and opportunities and to respond by developing ideas and eventually making products and systems. Through the study of Design and Technology they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industrial practices. This allows them to reflect on and evaluate present and past Design and Technology, its uses and its impacts. Design and Technology helps all children to become discriminating and informed consumers and potential innovators.

Aims:

The aims of Design and Technology are:

- *to develop creative thinking in children and enable them to talk about what they like and dislike when designing, making or exploring designs;*
- *to enable children to talk about how things work, and to draw and model their own ideas;*
- *to encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures;*
- *to explore attitudes towards the manufactured world and how we live and work within it;*
- *to develop an understanding of technological processes, products, their manufacture, and their contribution to society;*
- *to explore how products have changed and developed over time to meet greater demands and differing needs;*
- *to foster enjoyment, satisfaction and purpose in designing and making and pride in the finished product*

Spiritual, moral, social and cultural development

The teaching of design and technology offers opportunities to support the social development of our children through the way we expect them to work with each other in lessons. Group work and collaborative projects allow children to work together, and give them the chance to discuss their ideas and feelings about their own work and the work of others. Through this co-operative work, children develop respect for the talents of others and a better understanding of themselves. Following the design process allows children to challenge theirs and others' ideas, show creativity and imagination and to problem solve! By being given opportunities to experiment with a wide range of tools and resources, children also develop a respect for the environment, for their own health and safety and for that of others. Studying present and past designers and making their own designs, allows children to appreciate that constructions may take several attempts to perfect and that it is important to allow ideas to change and evolve.

Inclusion, equality and differentiation:
All children are given full access to the Design and Technology curriculum. It is recognised that in all classes there are children of differing ability. For that reason, we aim to provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We aim to ensure that every child can be successful in design and technology activities by:

- *setting common tasks that are open-ended and can have a variety of outcomes - usually decided by the children;*
- *setting tasks of increasing difficulty where learning builds upon previous experiences;*
- *providing a range of appropriate resources to support the children in the designing and making process;*
- *using adults to support the work of individual children or small groups where it is needed.*

Progression and Expectation:
At our school we want pupils to become confident and creative designers and we achieve this by recognising and planning for what becoming confident in design involves. To enable this to happen we have established a curriculum which recognises the importance of indentifying not just what we want our pupils to *know* and *do* in Design and Technology but also the outcomes we intend them to achieve through their learning.

Our medium-term plans, which we have adopted and adapted from the national scheme, give details of each unit of work. They identify learning objectives and outcomes for each unit, success criteria, key vocabulary, resources required and appropriate risk assessments. They ensure a suitable balance and distribution of work across each term, year group and Key Stage. They are adapted as necessary by the year group teachers according to circumstance. Teachers have the freedom to decide whether Design and Technology units are better taught in a weekly manner or blocked.

DESIGN AND TECHNOLOGY IN THE FOUNDATION STAGE
In Foundation Stage we relate the development of the children's Knowledge and Understanding of the World to the objectives set out in the Early Learning Goals. These support the curriculum planning for children aged three to five and in turn, this learning forms the foundations for later work in Design and Technology. These early experiences include asking questions about how things work, investigating and using a variety of construction kits, materials, tools and products, developing making skills and handling appropriate tools and construction material safely and with increasing control. We provide a wide range of indoor and outdoor experiences that encourage exploration, observation, problem solving, critical thinking and discussion.

DESIGN AND TECHNOLOGY IN KEY STAGE 1 AND 2
Through a variety of creative and practical activities, pupils are taught the knowledge, understanding and skills needed to engage in the process of designing and making. They work in a range of relevant contexts e.g., the home and school, gardens and playgrounds, the local community, industry and the wider environment, to design, make and evaluate as well as increase their technical knowledge in the following subject specific areas:

Key stage 1

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, using IT

Make
• select from and use a range of tools and equipment to perform practical tasks e.g. 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 e.g. levers, sliders, wheels and axles, in their products.

Key Stage 2

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

Technical knowledge
• apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products e.g. gears, pulleys, cams, levers and linkages
• understand and use electrical systems in their products e.g. series circuits incorporating switches, bulbs, buzzers and motors
• apply their understanding of computing to program, monitor and control their product

COOKING AND NUTRITION
At Panshanger we recognise that learning about the origins of food and how to prepare and cook it is a vital life skill. As part of their work with food, children will be taught how to cook and apply the principles of nutrition and healthy eating.

In Key Stage one children are given opportunities to use the basic principles of a healthy and varied diet to prepare dishes and understand where their food comes from. At Key stage two children learn to 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.

Connecting Design and Technology to other areas of the curriculum:
Many of our Design and Technology units provide the opportunity to use mathematical skills in real-life situations and contexts such as solving real-life problems, accurate drawing, measuring and handling data. Children explain their designs orally or on paper and later, the evaluation of their products require children to articulate their ideas and to compare and contrast their views with those of other people. Through discussion children learn to justify their own views and clarify their design ideas. Often units provide opportunities for children to use and develop scientific knowledge and understanding. There are opportunities for pupils to use their knowledge and understanding through working with a range of materials, e.g. a range of fabrics and a range of different types of paper and card, working with electrical circuits and switches and working with food products related to healthy eating.
We use computing to support Design and Technology teaching when appropriate. Children use software to enhance their skills in designing and making, and use draw-and paint programs to model ideas and make repeating patterns. They use the internet to source a range of information and gain access to images of significant designers and technological images. The

children also use computing to collect information and to present their designs as well as using programs to control and operate their products.

Assessment and reporting:
Teachers assess children's work in Design and Technology by making assessments as they observe them working during lessons. The Design and Technology subject leader keeps evidence of a selection of children's work at different ability levels in a portfolio. This demonstrates what the expected level of achievement is in Design and Technology throughout each year in the school. Teachers are expected to make termly judgements about whether children are working above, below or at the expected level for their age and stage.