Design and Technology Policy

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Design and Technology Policy

Vision

At CPS, develop the skills to creatively design and make products that solve real and relevant problems. Children have the opportunity to showcase their creativity and use problem solving skills through a range of challenges. They work both as individuals and in teams to develop ideas and designs, evaluating their product throughout with resilience and a growth mind-set.

The ambition is that children will understand the processes of designing: from planning to making, evaluating and refinement. During the teaching of design and technology, a wide range of new skills will be acquired as children work with a range of materials, including woodwork, sewing and cooking. It also draws upon the knowledge of other subjects, such as Mathematics, science, ICT and art. Children will also develop the life skills and knowledge associated with healthy living, food nutrition and cookery, refining and substituting ingredients to improve dishes.

At CPS, children will be exposed to a wide range of designers from a range of diverse backgrounds.

Rationale

At CPS, the starting point for Design and Technology is the National Curriculum.

Early Years Foundation Stage

In EYFS our children have continuous access to a variety of different construction and making areas where they can access and select materials and independently make and evaluate their skills. At CPS, through expressive Arts and Design, the development of children's artistic and cultural awareness supports their imagination and creativity. Children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

Food and nutrition is taught continuously, but one specific food block termly including a whole year topic "Where does food come from".

We encourage the development of skills, knowledge and understanding that help EYFS children make sense of their world. We relate this development to the objectives set out in the "Early Years Foundation Stage" Framework, which underpins the curriculum planning for children aged from birth to five. 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 materials safely and with increasing control. We enhance the learning environment with resources that encourage exploration, observation, problem solving, critical thinking, discussion and decision-making. These child-led activities take place both indoors

and outdoors, and are designed to arouse the children's interest and curiosity. Throughout the Foundation Stage, activities and opportunities are planned where children can learn through talk, play and their own life experiences. Children in the Foundation Stage will experience a variety of activities including:

- Choosing and exploring a variety of materials such as fabric, card, paper, wood, boxes etc.
- Learning how to use scissors safely and correctly.
- Exploring a variety of joining techniques such as PVA glue, Pritt stick, masking tape, elastic bands, sellotape, treasury tags, split pins, paper clips and string to join materials together.
- Taking part in both cooking and non-cook food activities, learning about the importance of food hygiene.
- Having opportunities to explore creating models using a wide range of construction kits that fit together in a variety of different ways.
- Having opportunities to talk about and explain how they will/have made their model and to discuss what they like/dislike about it.
- Folding and shaping paper in order to create a range of structures.

Key Stage 1 and 2

For Key Stage 1 and 2, the Kapow scheme of work is used. Our children are exposed to a range of design and make projects throughout their primary school years using an iterative approach in which children are encouraged to improve their designs throughout the process.

In Key Stage 1, learning takes placed through play and an understanding of the world around them, while in Key Stage 2, we build on the basic skills and knowledge, to challenge creativity and develop ideas and designs.

Children work through a progressive curriculum focussing on cooking and nutrition, mechanisms, structures, textiles and electrical systems.

The CPS Design and Technology curriculum ensures that all children:

- 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.

Statement from the 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.

Intent:

At CPS we intend to build a Design and Technology curriculum which develops learning and results in the acquisition of knowledge and skills. Children will know more, remember more and understand more.

We intend to design a Design and Technology curriculum with appropriate subject knowledge, skills and understanding as set out in the National Curriculum Design and Technology Programmes of study, to fulfil the duties of the NC whereby schools must provide a balanced and broadly-based curriculum which promotes the spiritual, moral, cultural, mental and physical development of pupils and prepares them for the opportunities and responsibilities and experiences for later life.

At CPS, we aim to inspire pupils to be innovative and creative thinkers who have an appreciation for the product design cycle through ideation, creation, and evaluation. We want pupils to develop the confidence to take risks, through drafting design concepts, modelling and testing and to be reflective learners who evaluate their work and the work of others. We aim to build an awareness of the impact of design and technology on our lives and encourage pupils to become resourceful, enterprising citizens who will have the skills to contribute to future design advancements.

Aims:

- Children will have clear enjoyment and confidence in design and technology that they will then apply to other areas of the curriculum.
- Children will ultimately know more, remember more and understand more about Design Technology, demonstrating this knowledge when using tools or skills in other areas of the curriculum and in opportunities out of school.
- The large majority of children will achieve age related expectations in Design Technology.
- As designers, children will develop skills and attributes they can use beyond school and into adulthood.

Implementation:

The Design and Technology National Curriculum outlines the three main stages of the design process: design, make and evaluate. Each stage of the design process is underpinned by technical knowledge, which encompasses the contextual, historical, and technical understanding required for each strand. Cooking and nutrition has a separate section with a focus on specific principles, skills and techniques in food, including where food comes from and seasonality.

The National Curriculum organises the Design and Technology attainment targets under five subheadings:

- Design
- Make
- Evaluate
- Technical Knowledge
- Cooking and Nutrition

Our children respond to design briefs and scenarios that requite consideration of the needs of others, developing their skills in six key areas:

- Mechanisms
- Structures
- Textiles
- Cooking and nutrition
- Electrical systems
- Digital world

Each of these key areas follow the design process (design, make and evaluate) and has a particular theme and focus from the technical knowledge or cooking and nutrition section of the curriculum. We teach a spiral curriculum, with key areas revisited again and again with increased complexity, allowing pupils to revisit and build on their previous learning.

Lessons incorporate a range of teaching strategies from independent tasks, paired and group work including practical hands-on, computer based and inventive tasks. This variety means that lessons are engaging and appeal to those with a variety of learning styles. Knowledge organisers for each unit support children in building a foundation of factual knowledge by encouraging recall of facts and vocabulary.

Impact:

Our children enjoy and value Design and Technology and know why they are doing things, not just how. Children will understand and appreciate the value of Design and Technology in the context of their personal wellbeing and the creative and cultural industries and their many career opportunities. Progress in Design and Technology is demonstrated through regularly reviewing and scrutinising children's work, to ensure that progression of skills is taking place and a quiz and knowledge catcher at the start/end of each unit.

The expected impact of Design and Technology at CPS is that children will:

- Understand the functional and aesthetic properties of a range of materials and resources.
- Understand how to use and combine tools to carry out different processes for shaping, decorating and manufacturing products.
- Build and apply a repertoire of skills, knowledge and understanding to produce high quality, innovative outcomes, including models, prototypes, CAD and products to fulfil the needs of users, clients and scenarios.
- Understand and apply the principles of healthy eating, diets and recipes, including key processes, food groups and cooking equipment.
- Have an appreciation for key individuals, inventions and events in history and of today that impact our world.
- Recognise where our decisions can impact the wider world in terms of community, social and environmental issues.
- Self-evaluate and reflect on learning at different stages and identify areas to improve.
- Meet the end of key stage expectations outlined in the National Curriculum for Design and Technology.

The contribution of Design and Technology to other subjects:

English

Design and Technology contributes to the teaching of English by providing valuable opportunities to reinforce prior learning. The evaluation of products requires 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.

Mathematics

In Design and Technology, children learn to measure and use equipment correctly, generate nets of shapes in order to create packaging and weigh and measure accurately. They will also learn about size and shape and make "real" use of their mathematical knowledge in order to be creative and practical in their designs and modelling.

Science

Science helps in Design and Technology, looking at and drawing electrical circuits. It also helps children to think about using materials to create structures, which can withstand a force.

Computing

Computing enhances the teaching of design and technology, wherever appropriate, in all key stages. Children may use software to enhance their skills in designing and making things. Younger children are able to use simple software to enhance their learning. Older children use a computing control program to control mechanisms and to get them to move in different ways, either in a virtual world or via an infrared connection to working models. The children also use computing to collect information and to present their designs through a range of design and presentation software.

Resources:

There are sufficient resources for all Design and Technology teaching units in the school. We keep some of these in a central store and some in year group assigned resources boxes. The library contains a good supply of topic books to support children's individual research. The internet provides a rich wealth of information and resources.

Health and Safety:

Pupils are made aware that there are hazards associated with DT activities. They are taught how to use materials and equipment safely and correctly eg. glue guns, batteries and bulbs, staplers and about food hygiene before handling food products to reduce the risks to themselves and others. Risk assessments are available for staff to read before activities.

Inclusion:

At CPS, we teach Design and Technology to all children, whatever their ability and individual needs. Design and Technology implements the school curriculum policy of providing a broad and balanced education to all children.

Through our Design and Technology teaching, we provide learning opportunities that enable all pupils to make progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this.

Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style and differentiation – so that we can take some additional or different action to enable the child to learn more effectively. Intervention through School Action and School Action Plus will lead to the creation of an Individual Education Plan (IEP) for children with special educational needs. The IEP may include, as appropriate, specific targets relating to Design and Technology.

We enable pupils to have access to the full range of activities involved in learning Design and Technology. Where children are to participate in Food Technology, for example, where kitchen

equipment would be used, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

The role of the Design and Technology Lead

The Design and Technology Lead has the responsibility of overseeing Design and Technology within the school, including:

- Formulating and updating the policy where appropriate.
- Ensuring staff are aware of the content of the policy and that it matches classroom practice.
- Liaising with the subject's link governor
- Ensuring appropriate resources are available and regularly updating them according to need.
- Disseminating information on Design and Technology to both staff and pupils.
- Supporting staff with Design and Technology where required.
- Attending Design and Technology subject meetings and training events where appropriate.
- Offering Design and Technology Inset sessions and promoting Design and Technology within the school.