Design Technology Policy

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Reviewer	Lisa Beveridge

Part of OUR LADY OF LOURDES CATHOLIC MULTI-ACADEMY TRUST

Contents

Our Mission Statement

At St Joseph's we pride ourselves on our mission statement: 'Growing in Love, in the Spirit of Christ, for the benefit of all'.

We feel our Mission statement 'Growing in Love, in the Spirit of Christ, for the benefit of all' reflects all we stand for as a community. We put the example of Christ at the centre of all we do to help us grow socially, academically, spiritually, morally and physically in our learning and our friendships. We do this for ourselves as well as for the members of the school, parish, local, national and international communities in which we live.

Our Vision

At St Joseph's, our mission is to nurture a compassionate Catholic community inspired by the life and teachings of Jesus Christ, embracing every individual and all aspects of our school life. Guided by His message of love and forgiveness, our pupils, staff, parents, and governors work together to uphold and strengthen the school's Catholic ethos.

We are committed to offering a stimulating and well-balanced curriculum that reflects our values, while supporting each child in reaching their fullest potential. At St Joseph's, every person is valued, and we encourage mutual respect for one another and for the world around us.

Statement of Intent

At St Joseph's, our wider aim across all subjects is that learning is meaningful, memorable and relevant to the life experiences of our students. We therefore use Kapow Design and Technology scheme of work (combined with Art and Design) to fit the wide diversity of our pupils and provide them with learning opportunities we feel is meaningful to them. Through this scheme of work, 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. Through Kapow, we aim to build an awareness of the impact of design technology on our lives and encourage pupils to become resourceful, enterprising citizens who will have the skills to contribute to future design enhancements. Kapow's Design Technology scheme of work enables pupils to meet the end of key stage attainment targets in the national curriculum and the aims also align with those in the national curriculum.

Equal Opportunity Statement

The Governors and Staff at St Joseph's believe that all people are entitled to equal opportunities, respect, and consideration regardless of race, colour, creed, gender, disability, or personal circumstances. Therefore, we are opposed to any form of prejudice or discrimination which denies people this equality. This principle applies to both adults and children in our school.

At St Jospeh's School, we have a responsibility to meet the entitlement of all children as outlined in the School Inclusion and SEND Policy. Teachers provide any adaptations necessary to learning opportunities which will engage and interest pupils, matched to the needs of the children. Attention should be given to the accessibility of language; physical adaptations; use of support (where available) and use of materials, to support or challenge children. Resources should be used carefully and modified, explained or presented in another format e.g. audio/visual where necessary. Kapow provides differentiated guidance for every lesson to ensure that lessons can be accessed by all pupils.

Consideration should also be given to challenging and supporting the most able pupils by providing them with opportunities to discuss their work and extend their talents through investigation or problem solving activities. Differentiation, methods of assessment for learning (self and peer assessment) is built into planning by Kapow to show what children understand and are able to do. Children with provision maps will have their needs met according to specific outcomes outlined in the plans completed by class teachers.

The curriculum will give equal opportunities to children of all backgrounds and ethnicity both boys and girls. Classroom organisation will be used positively to encourage pupils to work together co-operatively and collaboratively. Pupils will be taught to value the opinions of others especially if they are different from their own.

After the implementation of Kapow's scheme pupils should leave school equip with a range of skills to enable them to succeed in their secondary education and be innovative and resourceful members of society. We aim for all children at st Joseph's to have the opportunity to use their creativity and imagination to design, make and evaluate products to solve real and relevant problems. We encourage them to take risks, become resourceful, be innovative and enterprising.

Rational

At St Joseph Primary and Nursery school we recognise that Design Technology is about providing children with a real-life context for learning. As an inspiring and practical subject, we intend to prepare children to deal with an ever-changing technological world, encouraging them to become creative and resourceful problem solvers, working both independently and as members of a team. We teach them to be inspired by real world opportunities and relevant problems, identifying needs and developing a range of ideas and solutions in a variety of contexts.

Aims and Objectives

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, diet and seasonality. The National curriculum organises the Design and technology attainment targets under five subheadings or strands:

- Design
- Make
- Evaluate
- Technical knowledge
- Cooking and nutrition

Kapow Primary's Design and technology scheme has a clear progression of skills and knowledge within these five strands across each year group.

Our National curriculum mapping shows which of our units cover each of the National curriculum attainment targets as well as each of the five strands. Our Progression of skills shows the skills 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.

Through Kapow Primary's Design and technology scheme, pupils respond to design briefs and scenarios that require consideration of the needs of others, developing their skills in six key areas:

· Mechanisms
· Structures
· Textiles
· Cooking and nutrition (Food)
· Electrical systems (KS2)
· Digital world (KS2)

Each of our key areas follows 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. The Kapow Primary scheme is a spiral curriculum, with key areas revisited again and again with increasing 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. Differentiated guidance is available for every lesson to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils' learning are available when required.

Strong subject knowledge is vital for staff to be able to deliver a highly effective and robust Design and technology curriculum. Each unit of lessons includes multiple teacher videos to develop subject knowledge and support ongoing CPD. Kapow has been created with the

understanding that many teachers do not feel confident delivering the full Design and technology curriculum and every effort has been made to ensure that they feel supported to deliver lessons of a high standard that ensure pupil progression.

Impact The impact of Kapow Primary's scheme can be constantly monitored through both formative and summative assessment opportunities. Each lesson includes guidance to support teachers in assessing pupils against the learning objectives. Furthermore, each unit has a unit quiz and knowledge catcher which can be used at the start and/ or end of the unit.

Design Technology in the Classroom

Kapow provides lesson plans whereby, 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 the lessons are engaging and appeal to those with a Design & Technology variety of learning styles. Differentiated guidance is available for every lesson to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils learning are available when required. Strong subject knowledge is vital for staff to be able to deliver a highly effective and robust Design Technology curriculum. Each unit of lessons includes teacher videos to develop subject knowledge and support ongoing CPD.

Use of Knowledge Organisers

Each DT unit of work has a Knowledge Organiser that details the key vocabulary and factual information that is to be learnt by children by the end of each unit of work. These also allow the children to reflect back upon previous learning linked to the unit of work. Knowledge Organisers are used to share the expectations and key skills of each unit of work with the children.

Vocabulary Development

As with any curriculum subject, using and understanding technical vocabulary is important and children's interest in vocabulary should be developed by making them aware that some words have several possible pronunciations and spellings. They should be encouraged to identify these in the resources they use. It is expected that correct terms and words will always be used and that, as the children's' level of understanding grows, the teacher will introduce increasingly complex and technical vocabulary. It is important that the children are expected to extend their vocabulary and that this vocabulary caters for the more able. To help with children's access to and understanding of specific vocabulary, the children now have Knowledge Organisers stuck in their books. These contain the key vocabulary and their definitions for that unit of work. These are referred to at the start of key lessons, to review prior learning and to recap on specific vocabulary for that lesson. Children are encouraged to use these as spelling aids as they work through the unit of work.

Curriculum coverage and progression of skills

Throughout the school, DT is taught through units of work and is based on the national curriculum. 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, diet and seasonality.

The national curriculum organises the design and technology attainment targets under five subheadings or strands:

- Design
- Make
- Evaluate
- Technical knowledge
- Cooking and nutrition

Kapow's Design and Technology scheme has a clear progression of skills and knowledge within these five strands across each year group. It has a national curriculum mapping document that shows which unit covers each of the national curriculum attainment targets as well as each of the five strands. It also contains a progression of skills document that shows the skills 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. At St Joseph's, Design Technology is timetabled to take place once every term and the Kapow combined Art and Design and Design Technology scheme of work is used. This is to enable both Art and Design and Design Technology to be taught in a comprehensive and robust way but, in a way that will fit into the St Joseph's Primary and Nursery School timetable and maximise the use of specific tools and resources needed for both subjects. Impact We use a range of strategies to assess what skills and knowledge the children have attained each term including the following:

- work Scrutiny;
- pupil voice;
- regular feedback from subject leaders;
- regular formative feedback for children in lessons;
- post assessments at the end of each unit of work completed by children

Programmes of Study

How is the subject taught

DT is taught termly using the Kapow scheme. Skills are built upon as the children progress through school. Focused lessons are taught to ensure particular skills are learnt before being used as part of a larger project.

Process of Teaching

Teaching and Learning Our Kapow Primary scheme of work fulfils the statutory requirements outlined in the national curriculum. The national curriculum Programme of study for Design and Technology 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.

Kapow Primary's Design and Technology scheme identifies five key strands which run throughout:

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

The six key areas are revisited each year, with Electrical systems and Digital world beginning in KS2. The key areas enable all teachers to see prior and future learning to make it explicit to our pupils. It is easy to see, at a glance, how the unit being taught fits into the wider learning journey.

Cooking and Nutrition - Where food comes from, balanced diet, preparation and cooking skills. Kitchen hygiene and safety. Following recipes.

Mechanisms/Mechanical Systems - Mimic natural movements using mechanisms such as cams, followers, levers and sliders.

Structures - Material functional and aesthetic properties, strength and stability, stiffen and reinforce structures.

Textiles - Fastening, sewing, decorative and functional fabric techniques including cross stitch, blanket stitch and appliqué.

Electrical Systems - Operational series circuits, circuit components, circuit diagrams and symbols, combined to create various electrical products.

Digital World - Program products to monitor and control, develop designs and virtual models using 2D and 3D CAD software.

The Design Process
The Design and technology National Curriculum outlines the three main stages of the design process: design, make and evaluate. Each Kapow Primary unit follows these stages, to form a full project. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical and technical understanding, required for each strand.

Design:
- Research
- Design criteria (e.g. tailoring to an audience/user).
- Idea generation (e.g. annotated sketches). • Idea development (e.g. templates, pattern pieces.).
- Models and prototypes (both virtual and physical).
- Cross-sectional and exploded diagrams.
- Innovative, fit-for-purpose and functional product solutions to design problems.

Make:
- Select and use appropriate tools and equipment.
- Understand and select materials and components (including ingredients) based on their aesthetic and functional properties.
- Carry out practical tasks with increasing accuracy and precision.
- Understand the importance of, and follow the health and safety rules

Evaluate:
- Explore existing products.
- Evaluate against a list of design criteria.
- Evaluate, investigate and analyse existing products.
- Evaluate their own and others' ideas.
- Understand how key events and individuals have helped to shape the world of D&T.
- Consider feedback to make improvements.

Feedback

Feedback should be given in a timely manner, have an impact upon the pupils' learning and be in line with the Feedback Policy. It is expected that written and verbal feedback is only given for the benefit of the pupils, one lesson per week should be recorded using the whole class feedback sheets.

Children should assess their learning at the end of each lesson using the topic pages, then whilst marking the work, teachers should all assess the child's learning, as well as highlighting the LO green or orange. Each lesson should open with general feedback from the previous lesson.

Assessment and Monitoring

Pupils are assessed against the expected end of age-phase outcomes from the Religious Education Directory. Each component will open with a title page which lists the expected end of age-phase outcomes for that component. The page will have opportunities for pupil self-assessment and teacher assessment. Children will assess their knowledge at the end of each lesson, then a teacher will assess the child's knowledge at the end of each lesson.

	Understand	Discern	Respond
	The following list gives an indication of the ways in which these skills develop through the use of 'driver words and phrases' that are applied progressively as pupils move through the different age-phases of the curriculum content:		
Driver words and phrases	• Recognise... texts, beliefs, rites, ways of life. • Name... • Remember... • Recall... • Retell... • Describe... • Make links... • Explain... • Show understanding... • Interpret within a historical context...	• Play with possibilities, asking 'what if?' questions. • Say what they wonder about. • Recognise similarities and differences. • Point out what is the same and what is different. • Express a point of view or a preference. • Listen to different viewpoints. • Support a preference with reasons. • Explain differences. • Construct arguments. • Weigh strengths and weaknesses. • Arrive at justified conclusions. • Recognise complexity with reference to different interpretations and historical context.	• Talk about their own feelings and experiences. • Respond personally to questions that are difficult to answer. • Make links between their own feelings and beliefs and their behaviour or way of life. • Compare their own and other peoples' responses. • Explain differences of belief and ways of life with reference to religious commitments. • Critically reflect on their own beliefs and ways of life in response to dialogue with others. • Respond with integrity to personal conclusions about questions of value and meaning.

Driver words and phrases are used to direct the children's thinking and outcome. The pupils must know where they are working at the end of each unit: working towards expectations, working within expectations, working at expectation, or working above expectations.

Children's existing knowledge of the topic and the key related knowledge from previous year groups, is checked at the beginning of each unit. Children's knowledge and skills are continually assessed and developed by the teacher during lessons, in accordance with the lesson's success criteria. Assessment quizzes and knowledge catchers are used for every unit of work. Assessment grids will be completed at the end of each unit so teachers understand which children are secure with the knowledge and can demonstrate the skills necessary for each unit. The children review the identified 'key' knowledge (sticky knowledge), as part of the assessment process. This indicates which key knowledge statements require further consolidation.

The Role of the Design Technology Leader

The subject leader will monitor the teaching and learning of Design and Technology across the school; ensuring a high quality, broad and stimulating curriculum. They will also support and facilitate opportunities that support the continued professional development of teachers in the teaching and learning of Design and Technology. A range of good-quality materials and tools, which enable teachers to resource and teach the subject effectively, will be maintained by the subject leader.