


Meadowside Community Primary & Nursery School

A Member of **The Challenge Academy Trust**

Design Technology Curriculum Policy

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'Where Learners Grow'

DT Curriculum Intent

1. Language Development

Our curriculum aims to be talk and vocabulary rich to help counter inequality, widen access to learning and improve life opportunities [1]. Therefore, Language Development is key to the curriculum at Meadowside. Research has shown a language and communication deficit for some pupils, particularly pupils from low-income households. Our school has a higher level of deprivation among our pupils (see IDACI rating) and therefore language development is key to the educational success of our pupils. If we are to achieve our mission statement, ensuring that they fully access their next steps in education and go on to engage in the wider world work and to build a better future individually, locally and for the wider world, then language development must be central. Our curriculum aims to be talk and vocabulary rich to help counter inequality, widen access to learning and improve life opportunities. Talk can also foster empathy and understanding contributing to the development of our attitudes and values shown below.

- **Teaching of Oracy** is key to this language development. 'Great speakers are made, not born' (Gaunt and Stott) [2]. We aim to employ strategies throughout the curriculum to develop the physical, linguistic, cognitive and social and emotional aspects of learning.
- **'Dialogic teaching** harnesses the power of talk to engage interest, stimulate thinking, advance understanding, expand ideas, and build and evaluate arguments, empowering students for lifelong learning and democratic engagement.' (Alexander) [3]
- **Vocabulary Development** "By closing the vocabulary gap for children within our classroom with their peers, we can offer them the vital academic tools for school success, alongside the capability to communicate with confidence in the world beyond the school gates" (Quigley) [1]. Vocabulary development is pivotal to our curriculum and it is planned, sequenced and explicitly taught.
- **Reading** Dickenson et al [4] suggests that "reading offers our children the opportunity to hear new vocabulary items embedded in varied grammatical sentences. Books written for children use well-formed, relatively short sentences that are rich in varied vocabulary. Furthermore, books often use the same words in diverse grammatical constructions, offering implicit lessons in how words are used. The texts of books tend to have more low-frequency words than does spoken language [5] and books encourage use of a wider range of words than would occur in everyday conversations. Senechal and her colleagues [6], consistently finds that "parent reports of shared reading were a robust predictor of children's receptive and expressive vocabulary" (page 179). "

2. Knowledge

- The teaching of **knowledge** is central to our curriculum. Throughout the curriculum, both substantive and disciplinary knowledge is specifically chosen and deliberately sequenced to ensure retention over time. The teaching of knowledge is spaced and revisited in order to have long term impact, in line with the research of Foot-Seymour and Wiseheart [7]: 'If the goal is for students to retain as much information as possible, teachers need to be aware of **cognitive strategies** like the spacing effect so they can make small changes to their teaching practice to help students become more successful.'
- The curriculum is organised to enable children to build webs of knowledge (**schemas**), with explicit links being drawn between new and existing knowledge [8].
- According to Blooms, the teaching of knowledge underpins **critical thinking** and a child's ability to go deeper in their learning [9]. When knowledge is secure and links have been made, children are encouraged to take this knowledge deeper and apply this critically in different situations. Oracy development then allows children to express their thinking and views.

[1] The Vocabulary Gap, Chris Quigley

[2] Transforming Teaching and Learning Through Talk, Amy Gaunt and Alice Stott

[3] <http://robinaalexander.org.uk/dialogical-teaching> (July 2020)

[4] How Reading Books Fosters Language Development and the World (November 2011)

[5] Beginning Literacy and Language: Young Children Learning at Home and School, D.K. Dickenson and P.O. Tabors (2001)

[6] A model of the concurrent and longitudinal relations between home literacy, M Senechal in Handbook for early Literacy Research, S.B Neuman and D. K. Dickinson (2011)

[7] Judging the credibility of websites: an effectiveness trial of the spacing effect in the elementary classroom, Foot-Seymour and Wiseheart (2022).

3. Skills

- **Cognitive and Meta cognitive strategies** are used by staff in delivering the curriculum, as we believe that the children need to know how best they learn in order to improve learner agency. Therefore, ideas such as cognitive load, working memory etc. are taught throughout the curriculum so that they can develop this understanding.
- While the teaching of disciplinary knowledge is key to progress in subjects, children require the opportunity to turn this knowledge to **practice and apply** skills. Our Curriculum planning ensures that these opportunities are embedded for all children.

4. Attitudes and Values

Personal

- Developing **growth mindset** [10]. Rather than simply praising success, we praise effort and persistence. We believe the best thing to do is to teach children to love challenges, be intrigued by mistakes, enjoy effort and keep on learning. For children who find work easy we make sure they encounter more difficult tasks. Our children recognise that effort, persistence and good teaching are what help them improve.
- Developing **intrinsic motivation** and **self-efficacy** [11]. Throughout the curriculum we aim for the children to see themselves as readers, writers, mathematicians, artists, musicians etc. We want their motivation for them to work in this way to be down to their understanding of themselves and the potential they have.
- We recognise the responsibility we have for the **physical development** and the **well-being** of our pupils. Our approach to our curriculum aims to build self-esteem, a respect for self and others, kindness and resilience, with staff modelling across the curriculum how to deal with challenge and adversity. We also have a role to ensure that pupils learn about what they can do to maintain positive mental health, what affects their mental health, how they can help reduce the stigma surrounding mental health issues, and where they can go if they need help and support. British Values permeate through the curriculum.
- Both the teaching of oracy and knowledge underpin the children's ability in **critical thinking** [9].

Local, Societal and Global

- As an Inclusion Quality Mark flagship school, **inclusivity** is key to our culture as a school. Within the curriculum, we aim to celebrate difference and **diversity**.
- **Sustainability** is one of the key themes that is going to prepare our children for life in the future. Key questions about sustainability form central parts of our curriculum.
- The **Rights Respecting** agenda plays a key role in school life at Meadowside and provides a strong ethos to foster purposeful learning attitudes and positive relationships. This initiative underpins the school's aims to provide a values-led curriculum. The children learn about their own responsibilities, through learning about their own rights and the rights of others, as set out by the United Nations Convention Rights of the Child (UNCRC).

5. Developing a love of DT

Within our Design Technology Curriculum, we want to foster an enjoyment of the subject and love of learning about DT. We want to ensure that the children have the key skills necessary to research, design, make and evaluate projects equipping them for the next stage of learning and also for life in the 21st century.

At Meadowside, through quality first teaching, we apply a progressive model of D.T. teaching, through which children develop a systematic and critical framework for the knowledge of design and the impact of design in daily life and the wider world. Our curriculum lends itself to broaden student's knowledge and cultural capital as well as increasing engagement through practical schemes.

[8] Making Kids Cleverer, David Didau

[9] Taxonomy of Educational Objectives, BS Blooms (1965)

[10] Mindset, How you can Fulfil Your Poptential, Dr Carol S Dweck (2006)

[11] Toward a Psychology of Human Agency, Bandura, A (2006)

We aim to develop our students' curiosity of design and the understanding of it, encouraging and exposing the children to the endless possibilities and 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.

We aim for all our children to explore different ways of looking at the design process, using the key skills of evaluation, planning and making. We believe that the teaching of the D.T. process, where the children evaluate existing products, plan, make and evaluate their own product, also fosters skills and allows the children to become resourceful, resilient and innovative which can be used both now and in their adult futures to make a difference in the world. Through studying the rigorous D.T. curriculum we aim for the children to be engaged and inspired to develop a love of creativity in the real world

Implementation

Our Design Technology curriculum is planned and sequenced so that new knowledge and skills build on what has been taught before. We recognise that new learning is fragile, so our approach is generative and sticky, enabling our pupils to make links between new and existing knowledge to aid long term retention. Learning is sequenced to ensure that there are opportunities for spaced learning and links between curriculum areas are explicit allowing children to build a detailed schema for design and also across other subjects, particularly science.

In Key Stage 1 and 2, Design Technology is taught termly through 5 stand-alone hour long lessons and a 'DT Day' that allows a longer session focused on construction evaluation and redesign. Additional STEM opportunities are planned throughout the year for the enrichment of our curriculum particularly in British DT Week.

Within the curriculum, the key knowledge and skills for each year group can be seen in our progression maps. These have then been broken down into topics in our long and medium-term planning, which class teachers then use to plan progressive and engaging lessons. Our medium-term planning ensures each session follows a sequence of learning that is sequenced using the 5 step DT process:

- Research
- Teach Skills
- Design
- Create
- Evaluate

All of our DT projects have purpose and are specifically designed to have real life application and purpose.

1. Language development

Within DT, oracy opportunities are planned into the curriculum that allow children to develop the physical, linguistic, cognitive and social and emotional aspects of learning. Opportunities are planned that allow children to debate, present, explain, discuss key aspects of design and the design processes.

Dialogical teaching empowers students to challenge each other's views, expand ideas and build and evaluate arguments. We want the children to challenge each other's views that will lead them to a deeper understanding of the topics we are teaching. Group and paired work is planned in and central to our teaching of DT.

Development of vocabulary in DT is vital in them closing the vocabulary gap to their peers from more affluent areas. Vocabulary is explicitly planned, taught and assessed, ensuring a thorough grasp of new language. New vocabulary is collected during a topic so that these can then be referred back to in the subsequent lessons to promote sticky learning and to scaffold all children in retaining key language and information.

Reading is a crucial part of the development of vocabulary and of language development. Where appropriate, high quality texts and extracts of these texts are planned into our DT curriculum and support a deeper understanding of new vocabulary within context.

2. Knowledge

Our approach throughout the curriculum is generative, enabling pupils to make links between new and existing knowledge to aid retention. By the end of year 6, pupils will have a broad understanding of the Design Process. Development of both disciplinary and substantive knowledge is well sequenced to ensure that children know and remember more. This is shown within our progression maps for DT.

New knowledge is organised in such a way that ensures cognitive strategies, such as spaced repetition, are well thought through and planned. Following our whole school model for high quality teaching and learning (Appendix 1), we ensure that teaching strategies allow the children to learn more and remember more. The curriculum is organised to enable children to build webs of knowledge (schemas), with explicit links being drawn between new and existing knowledge. These links are highlighted within medium term plans to ensure that staff explicitly make these links when planning lessons.

When knowledge is secure and links have been made, children are encouraged to take this knowledge deeper and apply this critically in different situations. Assessments are made using open ended assessment tasks that allow children to take learning deeper, demonstrating their critical thinking skills. We use an iterative process in all of our DT topics allowing the children to demonstrate this critical thinking and evaluation.

Low stakes quizzes are planned into Medium Term planning and used regularly to ensure that knowledge is remembered and retained. These form part of our assessment for learning in DT.

3. Skills

While the teaching of disciplinary knowledge is key to progress in subjects, children require the opportunity to turn this knowledge to practice and apply skills. Our Curriculum planning ensures that these opportunities are embedded for all children. Skills that are taught in DT are progressive and highlighted on our curriculum grid.

4. Attitudes and values

To develop the children's growth mindset, rather than simply praising success, we praise effort and persistence. We believe learning should be a challenge and within DT, our children are allowed to make mistakes and learn from them. In DT, we want learning to be challenging and encourage the children to take risks. Our approach to our curriculum aims to build self-esteem, a respect for self and others, kindness and resilience, with staff modelling across the curriculum how to deal with challenge and adversity. Therefore all design briefs attempt to ensure the children overcome real life problems.

From EYFS through to KS2, we give the children opportunities to be designers and discuss the design skills that they are using to investigate and explore. We want children to celebrate the successes of making items for real life purposes.

Local, Societal and Global

- As an Inclusion Quality Mark flagship school, **inclusivity** is key to our culture as a school. Within the curriculum, we aim to celebrate difference and diversity. Key designers from a range of backgrounds are celebrated from a range of backgrounds and children are encouraged to find out more about them. Strategies are used (As highlighted below) to ensure that all children can make good progress in DT. British DT Week will be a focus point across the school each year to promote the importance and potential of DT to our pupils. Our DT curriculum aims to promote diversity. In our STEM week, we

encourage pupils to discover more about famous designers and designers from a variety of cultural backgrounds.

- **Sustainability** is one of the key themes that is going to prepare our children for life in the future. Key questions about sustainability form central parts of our DT curriculum. This is particularly evident in the food technology units as children analyse the carbon footprint and sustainability of meals alongside their work in year 6.
- Teachers apply a range of strategies within lessons to enable the children to become invested in their education. We believe that it is vitally important for children to develop their own opinions and voice about design and technology.

5. Developing a love of DT

Children often find joy in their discoveries in DT. Giving them opportunities to ask questions and explore their findings is key to this. Creativity and a chance to explore and take risks is crucial to the teaching of DT at Meadowside/

Additional enrichment opportunities are provided during STEM week. Opportunities to further explore DT and careers linked to STEM. Links are made with other STEM subjects that allow the practical application of DT in other areas.

Assessment

The monitoring cycle is set out by the senior leadership team at the beginning of each academic year. Monitoring includes book looks, lesson visits, learning walks, pupil/staff voice surveys and guidance days. All monitoring undertaken serves to improve our practice, with the aim of bettering the outcomes for our pupils.

Formative assessment is an integral part of daily lessons and is first and foremost the essence of helping making our pupils make instant progress in their design knowledge and in their skills. This is done through a mixture of high-level questioning, discussion, Oracy activities and written work.

We use live marking and feedback to enable teachers to target next steps for pupils effectively. Opportunities for children to review and improve their learning are embedded into each lesson. Children are given the opportunity to evaluate their own work, and that of their peers. During and on completion of a piece of work, the teacher responds, identifying areas for development. Children's work is valued, celebrated and displayed around the class and school.

At the end of each term, a written report is given to parents that show whether a child is achieving the required standard in DT, and these are discussed with parents with strategies to move learning forward being discussed.

Each unit is assessed to show whether a child is at age related levels, exceeding, meeting and not yet met. These provide a 'snapshot in time' of pupils' understanding related to age related expectations; help us to analyse current trends and also hone in on vulnerable groups that might require further support. If a child is working below, specific areas are fed back to parents and also highlighted in the assessments so that future teachers know what areas need more work to ensure a solid foundation to new learning.

Tracking of key groups allows for a better structure to learning and allows the DT subject coordinator to adapt the curriculum where needed.

Where there is a specific area of learning that a significant group needs reinforcing, this will be done in the "Catch up week" on the timetable.

SEND and Inclusion

At Meadowside we have high expectations of all our pupils. However, we recognise that for some pupils, additional support is needed to ensure they can access tasks and so that they can retain key learning. Tasks are adapted or scaffolded in such a way so as to ensure that they are provided suitable challenges that focus on the learning in design technology and remove any barriers for learning that stop learning in DT. Teachers use their pupil passports and appropriate assessments to help inform their planning. This way, a person-centered approach ensures progress is made and makes their learning a personalised experience.

At Meadowside, we want all learning to support independence wherever possible. Teachers will plan lessons so that pupils with SEND are able to successfully access the key content of the DT curriculum and ensure that no ceiling is placed on their learning and what they can achieve. Promoting independence, we allow the children to feel a sense of equality and belonging in their classroom environment.

Where appropriate, the following strategies could be used for pupils with SEND:

Task Adaptation

- Opportunities for overlearning key knowledge.
- Technology used for recording information. Video recording of work if writing is an issue/use of speechnotes programme or Clicker 7/a scribe/dictation tool on iPad.
- Web based learning for practice and learning of key knowledge.
- Use of concrete resources
- Voice recordings of step by step instructions
- Voice recordings of responses.
- Screen shots and photographs
- Voice recordings
- Peer support for mathematical skills

Scaffolding

- Modeling of work specifically for a small group of children.
- Vocab mats highlighting specific vocabulary for a task
- Broken down instructions for a task.
- Sentence stems from board/worksheet
- Task organiser
- Use of concrete resources
- Further questioning
- Additional focused explanations
- Precision teaching of key knowledge.
- Additional oracy opportunities.
- Peer support.

Additional strategies for pupils will be highlighted as a part of the SEND strategy meetings and in consultation with other professionals. These form part of a child's pupil passport and support teachers in removing barriers for learning.

Where a child struggles with key aspects of learning, it is crucial that we highlight what is key knowledge for a child to move on with their learning. Progression maps highlight which knowledge is the basis for other knowledge later on within the DT curriculum. Staff therefore provide time for overlearning of this key knowledge where it is deemed appropriate for these children. Support and CPD is given to staff to ensure they

have a good understanding of what learning is key to move on. These children are discussed regularly with the SENCo.

Higher Attainers

Opportunities for higher attainers to take learning deeper are planned throughout the curriculum. Open ended tasks and high quality first teaching ensure that learning is taken deeper. Enrichment opportunities are planned throughout the year. Opportunities for children to explore careers in STEM are planned into the curriculum and accessed where appropriate. Visiting speakers, particularly those from similar backgrounds to our pupils are encouraged to come in and support classes in delivering key areas of DT.

We work closely with the high school to encourage our children to attend Coder Dojo. Opportunities to also use the Fab Lab are explored and included in our extra curricular activities. During transition in year 5 and 6 STEM projects are planned by the high school and our higher attaining pupils attend.

CPD for staff

CPD is planned for staff throughout the year and opportunities are planned into our yearly training in line with our school development plan. Staff are encouraged to also complete their own research. Medium term planning includes "Mastery For Teaching" recapping subject knowledge that will be needed to take learning deeper in DT. Where appropriate, staff will also find this out by asking questions to staff.

Monitoring of DT

The monitoring cycle is set out by the senior leadership team at the beginning of each academic year. Monitoring includes book looks, lesson visits, learning walks, pupil/staff voice surveys and guidance days (completed in conjunction with SIL). All monitoring undertaken serves to improve our practice, with the aim of bettering the outcomes for our pupils. The DT subject lead has 1 half day per half term to meet with the curriculum coordinator and discuss progress.

Transition to KS3

At Meadowside, we work closely with our feeder secondary schools to ensure a quality of provision that gives our pupils firm foundations for year 6. Pupils in Year 5 and 6 regularly access DT transition lessons at the high school that allow them to show the knowledge that they have learnt and to ensure that learning in KS3 successfully builds on the foundations laid at KS2. Our local feeder school is a STEM ambassador school. Therefore, we work closely with them to provide additional opportunities for more able pupils. Coder Dojo is advertised to all of our pupils and they are supported to attend.

Impact

At Meadowside, we ensure that all students are exposed to rich learning experiences that:

- Enable all students to make good progress in their design knowledge, skills and vocabulary from whatever the students starting point may have been. We define good progress as knowing more and remembering more. It is the widening of knowledge, skills, understanding and behaviours.
- Children have self-efficacy and see themselves as designers. They take an interest in the aspects of design which enable our children to analyse the things around them.
- We aim to inspire our children to become the next generation of designers, engineers and environmentalists who love, look after and respect themselves, their communities and the world around them.
- Our pupils experience a language rich DT experience which enables them to apply their knowledge as articulate citizens of the future discussing research, knowledge and developments.
- for our pupils to be resilient when designing, learning from the process..
- for pupils leaving us to be well prepared for the next stage in their lives, particularly for the further study of DT at KS3.

Appendix 1

