Design and Technology

Intent, Implementation and Impact

Intent

At Smallthorne Academy we intend to build a Design 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 technology curriculum with appropriate subject knowledge, skills and understanding as set out in the National Curriculum Design 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. To achieve this, we use Chris Quigley Curriculum Companion for Design and Technology.

* Curriculum breadth is shaped by our curriculum drivers, cultural capital, subject topics and our ambition for pupils to study the best of what has been thought and said by many generations of academics and scholars.

* Threshold concepts tie together the subject topics into meaningful schema. The same concepts are explored in a wide breadth of topics. Through this 'forwards-and-backwards engineering' of the curriculum, pupils return to the same concepts over and over, and gradually build understanding of them

For each of the threshold concepts three milestones, each of which includes the procedural and semantic knowledge pupils need to understand the threshold concepts, provide a progression model.

Milestone 1=Year 1 & Year 2.

Milestone 2= Year 3 & Year 4

Milestone 3= Year 5 & Year 6

* Knowledge categories in each subject give pupils a way of expressing their understanding of the threshold concepts.

* Knowledge webs help pupils to relate each topic to previously studied topics and to form strong, meaningful schema.

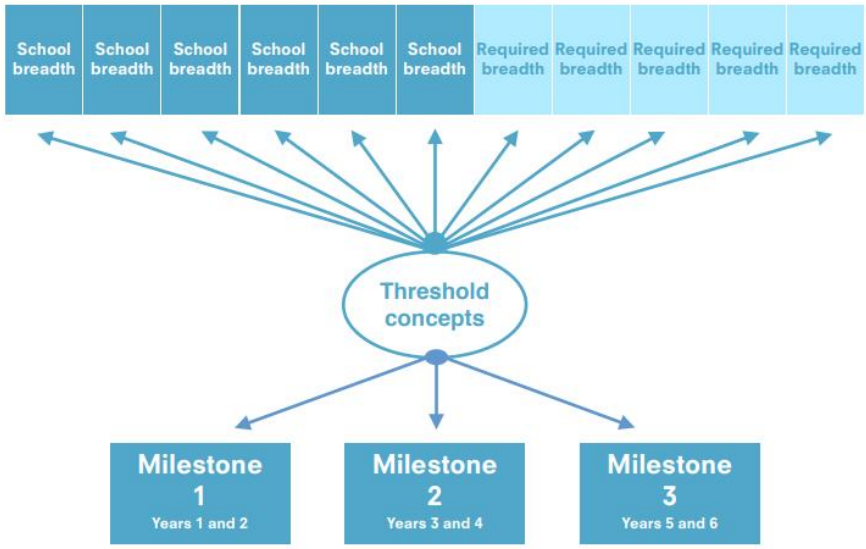
*Cognitive science tell us that working memory is limited and that cognitive load is too high if pupils are rushed through content. This limits the acquisition of long-term memory. Cognitive science also tells us that in order for pupils to become creative thinkers, or have a greater depth of understanding, they must first master the basics, which takes time.

* Within each milestone, pupils gradually progress in their procedural fluency and semantic strength through three cognitive domains: basic, advancing and deep. The goal for pupils is to display sustained mastery at the advancing stage of understanding by the end of each milestone and for the most able to have a greater depth of understanding at the deep stage. The time-scale for sustained mastery or greater depth is, therefore, two years of study.

*As part of our progression model we use a different pedagogical style in each of the cognitive domains of basic, advancing and deep. We use direct instruction in the basic domain and problem-based discovery in the deep domain.

*Also as part of our progression model we use POP tasks (Proof of Progress) which shows our curriculum expectations in each cognitive domain.

Diagram of curriculum intent model



Implementation

- Our curriculum design is based on evidence that interleaving helps pupils to discriminate between topics and aids long-term retention. • Retrieval of previously learned content is frequent and regular, which increases both storage and retrieval strength.
- Our Chris Quigley Curriculum Companion ensures coverage in line with the National Curriculum. The Design Technology National Curriculum and EYFS is planned for and covered in full within the EYFS, KS1and KS2 academy curriculum.
- Whilst the EYFS and National Curriculum forms the foundation of our curriculum, we make sure that children learn additional skills, knowledge and understanding and enhance our curriculum as and when necessary.
- Delivery of design and technology projects with a clear structure. Year 1 & 2 cover what is D&T, Structures, Mechanisms, Food Preparation. Year 3 & 4 cover What is D&T, Control, Circuits, Levers, Pneumatics, Structures, Food preparation. Year 5 & 6 cover AI, Electricity, structures, Pulleys, gears, cams, food preparation.
- Each project will follow: THINK (Design) MAKE BREAK REPEAT cycle
- A range of skills will be taught ensuring that children are aware of health and safety issues relatedto the tasks undertaken
- Clear and appropriate cross curricular links to underpin learning in multi areas across the curriculumgiving the children opportunities to learn life skills and apply skills to 'hands on' situations in a purposeful context e.g. using maths skills to measure.
- Independent learning: In design technology children may well be asked to solve problems anddevelop their learning independently. This allows the children to have ownership over their curriculum and lead their own learning in Design Technology.
- Collaborative learning: In design and technology children may well be asked to work as part of ateam learning to support and help one another towards a challenging, yet rewarding goal.



Curriculum Impact

Our aim is for children will have clear enjoyment and confidence in design and technology that they will then applyto other areas of the curriculum.
Because learning is a change to long-term memory, it is impossible to see impact in the short term. We look at the practices taking place to determine whether they are appropriate, related to our goals and likely to produce results in the long run.

We set POP tasks (Proof of Progress Tasks) and compare children's work over time. Ongoing formative assessment takes place during lessons and support is instant, ensuring children are supported and challenged appropriately.

We use lesson observations to see if the pedagogical style matches our depth expectations. Design and Technology is monitored via photographic evidence.

Children in Early Years are assessed within Development Matters and Early Learning Goals andtheir progress is tracked. Age related expectation levels are reported to parents at the end of the Reception year.