SPECIALIST EDUCATION SERVICES

Design and Technology Policy and Practice

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1 RATIONALE

This document should be read in conjunction with the Curriculum Statement, which outlines specific issues underpinning the Curriculum approach at SES.

The very nature and purpose of the holistic provision at our establishments means that the focus is always on the 'whole child'. This is amplified in the range of documentation, policy and practice that reflects our philosophy of '24hr' learning, coupled with our "no limits' positive psychology.

The intensity of work in this respect, with both the child and where possible, family, is beyond what any child in a mainstream setting, and in many other specialist settings, would experience because of the very purpose and nature of practice at SES.

This document sets out the policy and principles that underpin the whole process of learning across the twenty-four hour learning experience available.

2 CURRICULUM INTENT

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, students 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. Students 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.

Therefore the intent of our Design and Technology curriculum is to:

- fire children's curiosity and imagination, moving and inspiring them with how others have approached the design and make task
- develop knowledge and understanding of materials and components; systems and control; and structures;
- develop their capability, through combining their designing and making skills with knowledge and understanding to design and make products;
- nurture creativity and innovation through designing and making;
- help children grow in confidence through developing a range of practical skills and working with a variety of materials in a technological setting.
- encourage the development and communication of evaluation of processes, products and the effects of design and technological activities, including those from other times and cultures.
- develop the ability to identify, select and use resources appropriate for the task.
- explore values about and attitudes to the made world and how we live, work and interact within it;
- develop a critical understanding of technological processes, products and their manufacture, and how they contribute to our society;

- To enable the generating of a design proposal, by exploring ideas, which can be developed into a realistic, appropriate and achievable design.

This can be an extremely useful process for children with SEMH in so far as it responds to and connects with their desire to make, build, create and design, and to be in control of the world around them, something so often denied them because of their particular circumstances. It responds to the 'How?' and 'Why?' questions so readily asked. It engages them with insight, knowledge and a perspective on food preparation, (a particularly sensitive but critical subject), they may not have had previously.

Many of the students coming to our establishments may well have had difficult experiences with Design and Technology, either in the way it has been taught or in the way they have received the teaching. Their low self esteem and poor self image as learners, coupled with their learned avoidance behaviours often used for self protection against the risk of failure, mean that they may never have experienced the excitement and satisfaction of success in Design and Technology.

Our aim is to provide experiences that will improve the child's self esteem allowing him to develop confidence and at the same time enjoy success in areas of endeavour specific to the subject.

> *What is design? It's where you stand with a foot in two worlds - the world of technology and the world of people and human purposes - and you try to bring the two together.*
>
> Mitchell Kapor: Computing pioneer and software designer

3   THE IMPLEMENTATION OF DESIGN AND TECHNOLOGY

3.1   PLANNING FOR DT EXPERIENCES

The teaching of DT provides opportunities for students to experience and explore DT in a variety of contexts.

DT schemes of learning are highly personalised and derived from our underpinning DT knowledge sequences, in order to support them in future pathways.

Our DT knowledge sequences are guided by the National Curriculum Framework for DT. As a non-core subject, it is arranged in steps from 1- 9. Age related expectations are indicated on the knowledge sequence. Each step is equivalent to the corresponding year group, e.g. step 3 is year 3.

The knowledge sequences for DT have the following outline:

Designing and Evaluating (KS1-3, Steps 1-9)
- Design Process – Generating Ideas
- 3D Drawing and Computer Aided Design

- Evaluating

Manufacturing (KS1-3, Steps 1-9)
- Using Tools and Techniques
- Measuring and Marking
- Techniques
- Finishing Techniques
- Materials
- Health and Safety
- Technical Knowledge

Textiles
- Designing
- Making
- Evaluating
- Technical Knowledge

The students personalised DT pathway builds on their previous learning, and knowledge is strengthened, broadened and deepened over time. This approach allows teachers to identify gaps in learning and provide opportunities that will allow them to recover and catch up over time.

Each scheme of learning provides the planning, including knowledge and objectives, for a unit of learning. A scheme of learning will relate to the SES knowledge sequence, as well as, where applicable, to the requirements of any examination syllabus chosen in KS4. They are intrinsically flexible; it is useful to use a variety of approaches and teaching strategies covering the same core unit to develop a variety of skills.

A scheme of learning may be designed to be revisited as many times as is judged necessary across all year groups and key stages. Schemes of learning are designed primarily to be enjoyable, to offer the chance of success, to enrich and enthuse the experience of each individual and to offer the opportunity of development across the experience of DT.

Design and Technology describes a way of working in which students investigate a need or respond to an opportunity to make or modify something. They will use their knowledge and understanding to devise a method or solution, realise it practically and evaluate the end product and decisions taken during the process. This draws on knowledge and skills from other subjects within the whole curriculum.

Activities will develop students' enterprise and their ability to work as members of a team. They will encourage them to work to deadlines, keep to budgets and reconcile conflicting requirements, such as quality, speed and cost. It is anticipated that students will acquire a range of skills and work with a variety of materials.

Students will be given opportunities to undertake design and make assignments using a problem solving approach both on an individual and, eventually, a group basis. Thus technology offers an approach to overcoming difficulties through analysing the key elements of a task and researching for solutions. This is particularly relevant for children with emotional and behavioural difficulties as this

skill also promotes development in other areas, e.g. social development and understanding how various elements contribute to possible solutions.

Activities will involve:

- Research skills.
- Problem solving.
- Decision-making.
- Collaborative exercises.
- Economic Awareness.
- Discussing ideas, work and planned stages.
- Evaluating ideas and developments.
- Planning strategies.
- Videos, speakers and visits.
- Using information technology.
- Practical investigation.
- Opportunities to consolidate previously acquired knowledge and skills.

Activities will encourage students to feel confident in Design and Technology and should enable students to develop personal qualities and attitudes:

- Creativity
- Enterprise
- Flexibility
- Imagination
- Independence
- Initiative
- Invention
- Motivation
- Perseverance
- Reliability

3.2 TEACHING AND LEARNING STYLES

Key elements of teaching methods in Design and Technology are:

- knowledge imparted by the teacher,
- fieldwork in the form of visits to museum and relevant sites,
- creative activities related to elements of the topic,
- question and answer,
- individual and group enquiries,
- use of a range of media presentation,
- use of ICT/media,
- use of a variety of printed and textual material,
- discussion and debate,
- use of real machinery/photographs,

Approaches to learning will to a greater or lesser extent involve an enquiry method:

- asking questions and possibly forming hypotheses,

- planning investigations,
- finding, collecting and recording information,
- analysing and interpreting information,
- drawing conclusions,
- evaluating and organising information.
- researching, conducting surveys

Activities that enhance student skills and experience are:

- discussion and debate with the teacher
- writing including narrative, analysis, explanation and description
- communication/presentation of findings in a variety of ways to the class group or a wider audience
- tasks which develop knowledge, skills and understanding;
- activities should be balanced between activities which are short in duration and those which have scope for development over an extended period;
- activities should, where appropriate, use students' own interests or questions;
- activities should, where appropriate, involve both independent and co-operative work;
- activities should encourage students to become confident in the use of a range of media and equipment;
- activities should encourage students to become confident in the use of a range of information technology;
- activities that incorporate on going assessment/self appraisal.

3.3   EQUAL OPPORTUNITIES

SES is committed to ensuring that all students are treated with equality of regard.

This will involve:

- Providing equality of opportunity in the DT curriculum in an attempt to maximise the potential of each individual pupil.
- Treating as of equal value the different needs, interests and abilities of individual students.
- Through their experience of DT pupils should have respect for others and that all should be treated as equals.

In pursuing this policy with regard to individual students, there are four categories of difference between groups of students, in which it is generally acknowledged that 'treatment as equals' may be problematic and for which it is therefore important to have specific policies. These are:

- Racial/Cultural differences
- Social-class differences
- Ability differences
- Gender differences

3.3.1 Racial/Cultural Differences

It is vital that staff avoid any racial bias or stereotyping with respect to the particular individuals who are from ethnic-minority backgrounds and that they are alert to and willing to challenge any such discrimination or stereotyping by students.

3.3.2 Gender Differences

Equal opportunities in terms of participation are carefully considered, however, issues of prejudiced attitudes and stereotyping towards the opposite sex can be in existence and can potentially be magnified in our environments, especially given the contextual background and past experiences of our young people.

Staff should therefore be aware of this and should be willing to challenge any such discrimination or stereotyping by students. Furthermore such risks can be mitigated through planned teaching strategies.

3.3.3 Social Class Differences

Staff should be aware of making assumptions about student's levels of knowledge and opportunities for acquisition of knowledge whatever their background.

3.3.4 Ability Differences

SES establishments are resourced such that students receive a highly individualised curriculum based on their Portfolio of Achievement and Needs. Implicit in this is a response to differing levels of ability.

It is also important that protected characteristics as defined in the SES Equality and Diversity Policy are considered when planning and implementing teaching practice to ensure equal opportunities. This policy should therefore be read in conjunction with the SES Equality and Diversity Policy and Practice document and the DfE guidance around our equality duty.

3.4 DESIGN AND TECHNOLOGY AS A CROSS CURRICULAR SUBJECT

It is important to stress the inter-relationship of design and technology with many other areas of the curriculum and with aspects of learning, communication and social functioning beyond the Learning Centre day. At each establishment every aspect of its operation is viewed as a potential vehicle for building upon children's knowledge, understanding and skills. All staff need to be skilled at finding unobtrusive ways of supporting cross-curricular links through taking advantage of the total living experience without this intruding on the naturalness of domestic living.

Design and Technology contributes to the Learning Centre curriculum by preparing all young people to participate in a rapidly changing technological world. It enables them to understand how to think and intervene creatively to improve the world, combining their knowledge with understanding of aesthetics and function. It helps students to become discriminating and informed users of products, and to contribute to their home life and the community. As they develop systems and

make products that enhance the quality of life, Design and Technology broadens their understanding of industrial production and commercial practices. Students learn to become autonomous and creative problems solvers both as individuals and in working with others. Learning when designing and making is enhanced through the practical application of Computing. Students learn to recognise needs, wants and opportunities and respond to these by producing a range ideas and products which they can critically reflect on and evaluate from a variety of perspectives, including use, production, marketing, environmental, cultural and aesthetic. They achieve this by considering the Design and Technology that exists both now and in the past and by considering it uses and effects.

Design and Technology supports, amongst other things:

- Use of language across the curriculum.
- Other National Curriculum subjects
- Key Skills
- Creativity and innovation
- Thinking and problem solving skills
- Enquiry and evaluation skills

3.4.1 Learning Outside the Classroom

SES supports and endorses the Learning Outside the Classroom initiative as its principles and philosophy match the SES Vision Statement. We believe that every young person should experience the world beyond the classroom as an essential part of learning and personal development, whatever their age, ability or circumstances.

The use of places other than the classroom for teaching and learning often provide the most memorable learning experiences and help us to make sense of the world around us by making links between feelings and learning. They stay with us into adulthood and affect our behaviour, lifestyle and work. They influence our values and the decisions we make. They allow us to transfer learning experienced outside to the classroom and vice versa.

3.5 PRESENTATION OF WORK

At SES we believe presentation of work is a vital aspect creating a positive and stimulating environment and in enhancing student motivation and self esteem. Presentation of work can take a wide variety of forms ranging from:

- Written format,
- Recording (oral and photographic)
- Displays
- Through use of computing and digital media
- Through use of witness statement created by pupils and adults.

Adults at SES are expected to make a professional judgement with regards to each individual pupil's aptitude and ability in terms of facilitating presentation of work. We seek to continually implement our 'No Limits' thinking in the way we facilitate the presentation of work ensuring feedback is given to support young people's continual progress in in this area.

3.6   PROGRESSION IN DESIGN AND TECHNOLOGY

Progression includes:

- An increase in knowledge, skills and understanding.
- Moving from familiar to unfamiliar contexts.
- Meeting needs which demand more complex or difficult solutions.
- Students' awareness of their growing Design and Technology capability.

By using the framework of the key elements it is intended that students will develop and consolidate these skills in relation to their appropriate study units.

- a gradual extension of content, increasing complexity, greater awareness and understanding
- improving skill and precision in practical and intellectual tasks.

To allow for progression planning should reflect:

- a steady acquisition of new skills and knowledge
- consolidation of skills and knowledge in a range of relevant contexts
- opportunities for students to apply skills, knowledge and understanding in a range of relevant contexts.
- use of materials/texts and sources which are familiar and unfamiliar and which increase in complexity as abilities develop.
- use of ICT in open and closed research work as well as design work.

3.7   DIFFERENTIATION

Students at our establishments will clearly differ in ability and teaching should take account of this by providing a range of learning situations and approaches. In addition the philosophy of SES is such that personalised learning is a cornerstone.

Differentiation is a process not a single event. This process involves recognising the variety of individual needs within a group, planning to meet those needs, providing appropriate delivery and evaluating the effectiveness of the activities in order to maximise the achievements of individual students.

Design and Technology provides wide opportunities for differentiation by:

- Input
- Resource
- Task
- Support
- Outcome
- Response

In planning for our students the following factors should be considered:

- activities should build on what our students already know and can do.
- our students need immediate and regular encouragements, praise and reward.

- the activities should be broad enough to allow scope for development and not prevent more able students from extending their learning.
- the work should be pitched at the age, maturity and ability of the group.
- tasks should be differentiated according to individual student needs.
- consider the balance between group activities and individual differentiated tasks for specific students.

Differentiation should involve:

- Providing a range of equipment appropriate for different students
- Using a variety of teaching methods to elicit a particular response
- Organising the groups in different ways appropriate to particular objectives
- Setting open-ended tasks so that students can respond at their level
- Issuing different 'challenges' to different students
- Providing extension work for students with greater ability
- Allowing time for individual diagnosis, teaching and feedback

The method of assessment and reporting should provide feedback that is appropriate to students of differing abilities. It should aid their future learning by providing knowledge but should also give them support and encouragement. More specifically, the teacher should consider:

- resources reading levels and ease of use.
- availability of a range of media/software.
- availability of a range of support equipment.
- provision of a variety of tasks to cover the main content area.
- take account of time available to support individuals/group.
- other adult/student support.
- student/student support, e.g. pairing.
- various ways of praising achievement.

3.8   ASSESSMENT AND RECORDING

Assessment is part of an ongoing process that informs future planning and subsequent learning. All assessments should take account of:

- Knowledge, skills and understanding acquired
- The contexts of the activity
- The purpose of the activity

Effective day-to-day assessment:

- is embedded in planning, teaching and learning
- requires a shared understanding of learning objectives and success criteria between teacher and learner
- draws on evidence of learners' achievement and progress from a wide range of contexts within and beyond the classroom
- values information that teachers retain in their heads, as well as concrete evidence produced by learners
- is based on evidence generated in the course of continuous teaching and learning, engagement with learners through observation, discussion,

questioning, and review and analysis of work
- helps to shape and refine future teaching and learning, and to personalise the experience of individual learners
- provides the basis for discussions with learners themselves, their parents/carers and with other professionals about their strengths, areas for development and future learning targets
- is the foundation upon which periodic assessment can be based
- recognises and celebrates learners' progress in the light of their previous performance and motivates them to improve further
- promotes independence and self-motivation
- develops the capacity for peer and self-assessment among learners.

Assessment is a continuous process and testing and accreditation are built in at various stages of a students development.

Any system of evaluation and assessment should:

- Identify what has been taught and learnt
- Monitor students progress in each
- Monitor students progress in cross-curricular elements
- Establish students' needs as a basis for further planning and teaching.

Student involvement in the assessment and evaluation process is critical.

Evidence can be gleaned from:
- Observing
- Questioning and listening
- Discussion
- Written work, audio and video tape recording, drawings, charts, etc.
- Specific assessments tied to curriculum materials.

3.8.1 The marking of students work

Teachers' responses to students' work should be positive, encouraging, sympathetic, honest and appropriate. Marking should be completed in a pragmatic way, as appropriate to the needs of the student and whenever possible completed in their presence. Further areas of study can then be negotiated with the student.

- Students should be made aware of the assessment criteria being employed, particularly before tackling new situations and subsequently when marking work
- Students should, as a result of the interaction, be aware of the next steps in their learning
- It is sometimes useful for students to respond to each others work

3.8.2 Record Keeping

Records are kept in the form long term planning (Curriculum Overview), Medium Term Planning (Unit Objectives), Short Term planning (detailed planning of learning episodes) A record of progress is evident in the on-going

feedback (Verbal and Written) between adult and pupil. Where appropriate, an evidence base is collated for each episode of learning, that take various forms; e.g. files, exercise books, scrap book and digital media.

3.8.3 Individual Programmes

- The Portfolio of Achievement and Needs of each student will inform the global priority targets to be addressed for the child.
- More detailed educational objectives will be identified by Learning Centre staff and students, and negotiated targets reached.
- Targets set will be specific, measurable, attainable, realistic and time related.
- Targets will always be compatible with the requirements of the National Curriculum and/or Portfolio of Achievement and Needs

3.9 EVIDENCE FOR LEARNING

Every student has a unique and personalised learning journey that is based on their individual needs and starting point. Evidence of Learning enables Learning Centre staff to capture and create a rich, comprehensive picture and narrative that details learning and progress for each student. The subject knowledge sequences are available to track and record professional judgements on progress, alongside the students personalised EHCP and LCEP outcomes, and broader PAN targets

4 IMPACT

Design and technology contributes to students' enjoyment through the opportunities it gives them to actively develop products in response to other people's needs or wants. Students are given the confidence to challenge assumptions as they research ideas and engage with the world beyond school in order to produce solutions that are relevant to real needs. Design and technology develops a sense of achievement in students when their product takes shape and when they are able to create practical solutions, products and systems that improve the quality of life for one person or for many.

Students learn the principles of food hygiene and safety through the study of food technology. They also learn the hygienic procedures to follow when preparing, cooking and storing food. The study of food technology develops students' understanding of the relationship between food, good health, growth and energy balance throughout life. Students develop the ability to make informed choices about food for healthy eating. They also develop the practical capability to prepare and cook a variety of dishes and meals to achieve a healthy diet.

The satisfaction that students gain from developing products in all material areas contributes towards their self-esteem and sense of wellbeing. When designing and making they learn that good design addresses ergonomic and health and safety issues in the home and the workplace. They also learn to engage with healthy and safety issues that relate to practical activities; for example the importance of dust extraction.

When planning, organising and carrying out practical activities, students are guided and advised in order to remain safe. They learn how to recognise risk, and to take

responsibility for themselves and others as they use tools and equipment to develop products. As they choose which hand or machine tools and other equipment to use, students are advised to think clearly about what they should do to use these items safely.

Design and technology is about applying knowledge of materials and processes to the design of products, and generating practical solutions that are relevant and fit for purpose. It's also about solving technical problems, responding creatively to briefs, and developing proposals in a range of material areas. The skills that students develop in these processes are highly valued by employers. When students analyse products they learn about economic and industrial issues. This lays the foundation for becoming economically aware.

Design and technology provides many opportunities for students to present their ideas about their own and other people's products, and to engage in collaborative problem-solving activities. For example, students work as team members or leaders to analyse commercial products and solutions, and to make value judgements about them. Some of the products that students design and make will contribute positively to their home or school environment.

Accreditation in Design and Technology is available for individual students through either GCSE or Entry Level, depending on ability and interest. Due to our personalised approach to learning, chronological age is not seen as a barrier to accreditation opportunities.

5   SMSC AND BRITISH VALUES IN DESIGN AND TECHNOLOGY

At SES we believe the development of SMSC and promotion of British Values, should be embedded within all areas of teaching and learning across both the school and residential setting. This policy should be read in conjunction with the Spiritual, Moral, Cultural and Social Policy and Practice document and the British Values Policy and Practice Document.

5.1   SMSC

At SES we develop SMSC in many aspects of the curriculum through ensuring opportunities for SMSC development are extensive and frequent. These opportunities are reflected in planning documents as well as in outcomes for pupils.

Examples of SMSC development within Design and Technology are:

Spiritual

- Young people are introduced to the concepts of great design and technological advances and wonder at the impact of this work in the real world.
- Young people's work becomes a spiritual encounter as it develops from the initial learning of skills.
- Young people experience admiration and respect for their peer's work when they witness progress and achievement.
- Young people are encouraged to explore their creativity and imagination visually, developing their skills using design principles and build techniques.

Moral

- Young people are to incorporate mutual respect and consideration for the historic design of others.
- Young people are to demonstrate compassion when commenting on peer's artwork understanding the impact of their remarks.
- Young people to develop understanding and opinions about issue concerned around the application of technology in a local, national and global context.

Social

- Young people, where appropriate, are to work in pairs or small groups to design and build works that have a social impact.
- Young people are encouraged to discuss their ideas, share thoughts and constructive advice within group discussions.
- Young people are encouraged to consider the impact of design and technology on society.
- Young people's work is celebrated at regular intervals with clear recognition during weekly celebrations and termly commendations.

Cultural

- Young people are encouraged to appreciate that all cultures have play a role within the historical development of design and technological advance.
- Young people develop their knowledge of design and technology from the past and present.
- Young people are taught to reflect on the cultural context in which works have been produced.

5.2   BRITISH VALUES

Promotion of British Values is an integral part of life at SES. We believe that the promotion of such values should be inherent in teaching and learning as well as the wider community.

Examples of the promotion of British values within Design and Technology are:

Rule of Law

- Young people have the opportunity to study regulatory bodies, the roles of local authorities and local education authorities.
- Young people receive clear explanations and real life stories to emphasize the importance of the rule of law linked to Design and Technology.
- Young people to understand the importance of rules that are consistently reinforced during D&T sessions and in our expectations.
- Young people are taught the reasons behind laws, that they protect us, and the consequences when laws are broken in an D&T context.

Democracy

- Young people have the opportunity to have their voices heard throughout all D&T sessions.
- Young people are encouraged to think for themselves deciding on a response to an D&T task set by the teacher.
- Young person's feedback, views and opinions are requested and considered throughout the study of D&T.
- Young people have a great amount of input into how they learn and what Design and Technology experiences they would like to try.

Individual Liberty

- Young people to engage in the positive culture ensuring a safe workshop environment where choice and freedom are encouraged.
- Young people are encouraged to choose design techniques that support their ability to make and that provide a challenge for them.
- Young people will often have a choice of design and technology activities they can engage in roles they can carry out during sessions.
- Young people offered to join a range of clubs which they have the freedom to choose from, based on their design and technology interests.

Mutual respect for and tolerance of those with different faiths and beliefs and those without faith

- Young people taught to respect the rights of others from different faiths and beliefs and those without faith and the works they have created.
- Young people to discuss the differences between people with regard to faiths and beliefs from a design and technology context.
- Young people to reflect the adult's role modeling of mutual respect for others during D&T sessions.
- Young people to interact with members of different faiths or religions and encouraged to share knowledge of design and Technology to enhance learning.