



WPMS DT Department

**“CREATING TOMORROW’S ROLE MODELS BY COMBINING
TRADITIONAL VALUES WITH FUTURES THINKING.”**

2023 - 2024



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Curriculum Vision Statement

The Design and Technology department at Walton Priory Middle School is dedicated to providing an inclusive curriculum that offers students the widest range of opportunities. The department is adamant that students learn best by "doing" and that they learn best when they are allowed to experiment and take design risks in a supportive and safe learning environment.

Our top priority is to help students become problem solvers who don't mind making mistakes. Additionally, we want to forge strong connections across the curriculum with subjects like Maths, science, technology, engineering, and art. Design and Technology courses should provide students with the opportunities, responsibilities, and experiences they will need to succeed in the future.



Three "I's" Documentation

Intent

The aim of the DT Department at *WPMS* is to:

- The curriculum for design and technology is intended to help students develop into self-motivated, self-assured learners who can work both independently and collaboratively.
- The main objective is to make sure that students acquire technical and practical skills in order to advance to their next Key Stage.
- Our top priority is for students to be problem solvers who don't mind making mistakes.
- Our goal is for our students to develop into obedient citizens who contribute favourably to society and the global community.



Three "I's" Documentation

Implementation

- The department is adamant that students learn best by "doing" and by being given the freedom to experiment and take risks in a supportive and safe learning environment.
- This is accomplished by creatively incorporating new technologies into the classroom while maintaining the best aspects of traditional methods.
- The desire to provide a curriculum that allows students to express their creativity through designs and produce high-quality results is at the core of this.
- It is important for students to learn about designers and their work, especially British designers. Additionally, they must learn the significance of managing limited resources when working as designers or engineers.



Impact

- Students can improvise, adapt, and solve issues.
- Instead of aiming for perfection, students feel safe and supported in making mistakes.
- To give students the tools they need to combine their design and manufacturing expertise with knowledge and understanding in order to create high-quality products that can be designed, manufactured, analysed, and evaluated.
- With their design work, children can express their own creativity and are more apt to voice their opinions in public.
- In order to cooperate with external agencies, collaborative skills are developed.
- Students frequently apply what they learn in design and technology to other subjects on the curriculum because they clearly enjoy it and feel confident doing so.
- On our department social media accounts, the department posts achievements. We celebrate the accomplishments of our students and are happy to see them succeed academically and in other areas.



Beacon Values

In Design and Technology, pupils can demonstrate the following values in various ways:

1. Respectful: Pupils can demonstrate respect by showing consideration for their peers, teacher, and others in the workshop or classroom, listening to and valuing different opinions and ideas.

2. Resilient: Resilience can be shown by not giving up easily when faced with challenges in designing or building projects, and by being willing to iterate and improve their work.

3. Resourceful: Pupils can display resourcefulness by creatively solving design and construction problems, utilizing available materials efficiently, and finding innovative solutions.

4. Responsible: Responsibility is reflected in adhering to safety guidelines and using tools and equipment safely in the workshop. It also involves taking care of materials and tools to ensure they are available for future use.

5. Collaborative: Collaboration can be demonstrated by working effectively in groups on design projects, listening to and considering the ideas of others, and contributing positively to group discussions and activities.

6. Reflective: Being reflective means evaluating their design processes and outcomes critically. Pupils can write reflections on what worked, what didn't, and how they can improve in future projects.

7. Keen to Participate: Demonstrating enthusiasm and active participation in class activities, discussions, and hands-on projects indicates a keen interest in the subject.



Health & Safety

Health and Safety Policy

The Design and Technology Department regards Health and Safety as a very important aspect of teaching in the workshop. Risk Assessments are regularly undertaken to ensure that staff and pupils have a safe working environment. This Department takes as its standard the Safety Booklet produced by The Education Authority in relation to the use of equipment and machinery. Each member of staff has a copy and should refer to it at all times and know its constraints and apply it in full.

Regular checks are made by staff and the Technology Technician - with regards to equipment such as:

1. Goggles being left with each machine and checked before use.
2. The use of machine guards and protective equipment / clothing.
3. Defective equipment being reported immediately to the Head of Department (Reports may be from staff / technician or pupils).
4. It is a requirement that the teacher checks the condition of the workshop at the end of each lesson so that the room is in good condition for the next member of staff and his/her pupils. All staff and pupils follow the procedure for ending lessons, which includes the way machines should be left in a tidy and safe condition.

All staff are aware of the location of Health and Safety booklets and information such as COSHH, risk assessments information, CLEAPSS, and in particular the Local Education Authority Safety Booklet. Staff have attended, or are in the process of attending, Health and Safety courses which lead to DATA core accreditation.

Health and Safety features as a regular component of Departmental meetings. Staff are required to read the LEA Health and Safety Document and ensure that procedures for the use of all machines are followed.

All accidents must be recorded in the school accident book.



Assessment

The Department Assessment Procedures/Records of Achievement

The departments assessment policy is in accordance with the school's mission statement and is committed to the highest standards of education for all pupils. Each project challenges the pupil and informs them and their parents of their academic progress.

Assessment procedure must be:

- Fair to all pupils.
- Be an integrated part of lessons.
- Be manageable for staff and pupils/students.
- Include academic, social, and moral learning.
- Be central to communication between teachers, pupils/students and their parents.
- Set pupil targets and identify weaknesses.
- Ensure consistent standards of monitoring and assessment.
- Clearly link learning with a criteria for success.
- Involve pupils/students as active participants.
- Be presented in a clear and understandable format.
- Support teaching and learning.
- Support and continuous evaluation of the curriculum.

Assessment and Classroom/Workshop Practice

The recording/monitoring of pupils will:

- Use a wide range of evidence collected in all areas of the Design and Technology.
- Emphasise learning processes and outcomes.
- Identify individual pupil/student strengths and weaknesses.
- Set targets for academic improvement and progress.
- Directly involve pupils/students
- Be an important part of most lessons with pupils being clearly informed of progress.
- All records of progress should be openly accessible to pupils/students and parents.
- A copy of pupil progress should be regularly updated and centrally located.



Assessment

Staff hold regular standardising sessions to ensure that all marking is to the correct level and is consistent. A section in this policy document shows in detail the marking / assessment sheets and how Levels and Programmes of Study are recorded. It is essential that regular marking takes place and grades are kept in the staff record books. Absences are to be recorded and an effort will be made to ensure pupils catch up with missed work.

Staff carry out marking on a regular basis using the departmental marking scheme / level conversion chart as the basis for all assessment in KS2 & KS3. The department grading system is displayed for pupils to see in every technology room

Assessments are to be made on a regular basis and will take two forms; regular marking and evaluation of homework / classwork and termly reports.

Pupils use the Level Record Sheets to record the grade they are working towards. This is glued in the front of their folders.

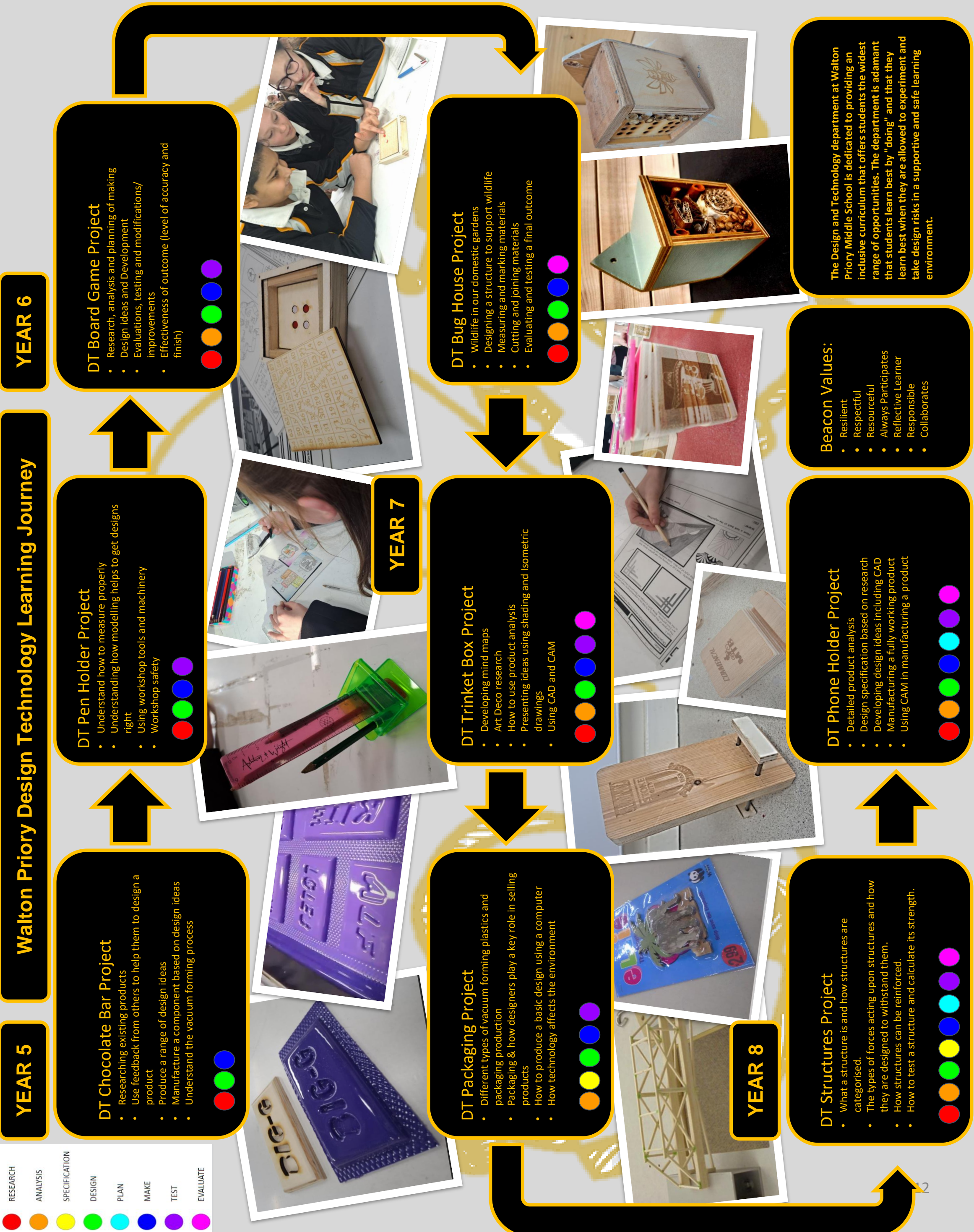


Mastery

In Key Stage 3 (KS3) design and technology, mastery typically involves students achieving a deep understanding and proficiency in various aspects of design and technology. Mastery in this subject area may include the following:

- 1. Design Thinking:** Students should be able to demonstrate a strong grasp of the design process, which includes problem identification, research, idea generation, prototyping, and evaluation.
- 2. Technical Skills:** Mastery involves proficiency in using a range of tools, equipment, and materials relevant to design and technology, such as CAD (Computer-Aided Design) software, hand tools, machinery, and different materials like wood, metal, and plastics.
- 3. Creativity and Innovation:** Students should be encouraged to think creatively and develop innovative solutions to design challenges. They should be able to come up with original design concepts and explore different approaches to problem-solving.
- 4. Critical Thinking:** Mastery also includes the ability to critically evaluate design choices, considering factors like functionality, aesthetics, sustainability, and user needs. Students should be able to justify their design decisions based on sound reasoning.
- 5. Communication Skills:** Effective communication is essential in design and technology. Mastery involves the ability to clearly communicate design ideas and concepts through sketches, technical drawings, and written explanations.
- 6. Safety:** Understanding and practising safety protocols when using tools and equipment is a crucial aspect of mastery in design and technology. Students should demonstrate a strong commitment to safety in the workshop.
- 7. Project Management:** Mastery might also involve the ability to plan and manage design projects effectively, including setting timelines, budgeting resources, and working collaboratively with others.
- 8. Real-World Applications:** Connecting design and technology concepts to real-world problems and applications is a sign of mastery. Students should be able to apply their knowledge and skills to solve practical challenges.
- 9. Reflective Practice:** Encouraging students to reflect on their design and technology projects, identify areas for improvement, and iterate on their designs is another aspect of mastery.
- 10. Assessment:** Mastery may also be demonstrated through performance in assessments, projects, and practical examinations, where students consistently achieve high levels of competence and understanding in various design and technology areas.

Remember that mastery is a gradual process, and students may progress at different rates. Teachers play a crucial role in guiding and assessing students' development toward mastery in design and technology during KS3.



- RESEARCH
- ANALYSIS
- SPECIFICATION
- DESIGN
- PLAN
- MAKE
- TEST
- EVALUATE

YEAR 5

DT Chocolate Bar Project

- Researching existing products
- Use feedback from others to help them to design a product
- Produce a range of design ideas
- Manufacture a component based on design ideas
- Understand the vacuum forming process



Walton Priory Design Technology Learning Journey

YEAR 6

DT Pen Holder Project

- Understand how to measure properly
- Understanding how modelling helps to get designs right
- Using workshop tools and machinery
- Workshop safety



DT Board Game Project

- Research, analysis and planning of making
- Design ideas and Development
- Evaluations, testing and modifications/improvements
- Effectiveness of outcome (level of accuracy and finish)



YEAR 7

DT Trinket Box Project

- Developing mind maps
- Art Deco research
- How to use product analysis
- Presenting ideas using shading and Isometric drawings
- Using CAD and CAM



DT Bug House Project

- Wildlife in our domestic gardens
- Designing a structure to support wildlife
- Measuring and marking materials
- Cutting and joining materials
- Evaluating and testing a final outcome



YEAR 8

DT Structures Project

- What a structure is and how structures are categorised.
- The types of forces acting upon structures and how they are designed to withstand them.
- How structures can be reinforced.
- How to test a structure and calculate its strength.



Beacon Values:

- Resilient
- Respectful
- Resourceful
- Always Participates
- Reflective Learner
- Responsible
- Collaborates

The Design and Technology department at Walton Priory Middle School is dedicated to providing an inclusive curriculum that offers students the widest range of opportunities. The department is adamant that students learn best by "doing" and that they learn best when they are allowed to experiment and take design risks in a supportive and safe learning environment.



DT Booklets

The projects contain much provision for differentiation. Examples are as follows:

Differentiated Brief – the brief is in three parts:

- a) what 'must' be achieved e.g. basic learning and outcomes for lower abilities
- b) what 'should' be achieved e.g. an ability to do basic calculations, understand more complex terminology and fully integrate specification points into designs and practical
- c) what 'could' be achieved e.g. undertake all extension work especially those which involve more independent work (for example 'produce your package in a foreign language').

Additional project target setting- at the end of the brief students can choose more general targets to help them stretch their own individual way of working.

Tasks- often the tasks involve practicing what has been learnt and get more difficult. An example may be the drawing exercises which require a greater level of sophistication as the tasks progress. When the students do online tasks the questions towards the end are deliberately aimed high so those who find the rest easy will be challenged e.g. 'click on Mechanical Efficiency and describe how it is worked out and do the following calculation'.

Extension work- the extension work is not just more of the same. So when used it often involves doing some independent research or a challenge. However, there are those who get ahead because they are hard workers and not necessarily higher ability. For such reasons the extensions sometimes require them to do a slightly different activity using their new skills to deal with a task. For example the vocabulary task will include matching the words with the meanings but the extension may be 'now describe the meanings for these extra words'. This requires them to look through the project and check they understand the meanings. Some pages will have two extensions, one for extending the existing work and another to challenge the more able student.

Resources - at the back of the project booklet there is a list of resources, including websites, and where to find them in the school. This is very useful for those who want to do well and need help finding information. It encourages independent learning.



DT Booklets

Because the booklets contain instruction and are whole projects the teacher needs only to turn to the correct page and go through the work with the students. In this sense teacher notes are mainly to give extra support and ensure the booklets are used to full effect. Some support companies provide teacher notes separately and for extra cost. Booklet Education projects are fully contained and do not need much by way of support. However, the following information gives a general guide for the standard pages contained within the booklets.

1. General:

- In general one or two pages are designed to last a lesson. All tasks are fully explained to enable the more independent children to get ahead.
- The best way to maximise understanding is to read through all the instructions with the children before starting.
- Most pages have extension tasks for those who need more difficult activities or to consolidate what has been covered.
- Many of the tasks are designed so they can be done in class or as homework. For flexibility the typical homework pages have not been titled as such so you can choose which ones to use.
- At the bottom of many of the pages are check boxes. They are designed to help remind the children of things which need to be done and act as an aid for a plenary. They can also be used to ring with a question mark if they are not covered. This saves the teacher time writing the same things over and over again.
- Progression: each project has similar tasks e.g. specification, design ideas etc. These are all done in a different way to help children understand the various ways to achieve the same result. For example the first booklet gives the specification by way of crossing off the unlikely points and listing which ones are left. As the booklets progress the specification will be drafted using the conclusions from a questionnaire. Likewise the design ideas pages become more open with check boxes being used for year 8 students. One point to note is that the tasks are designed to develop skills necessary for GCSE requirements. This way activities such as drafting a questionnaire or ensuring that ideas are annotated to suit a specification are not unfamiliar to students.



DT Booklets

- **SEN usage-** At present many children who struggle with writing have to copy many notes from books or off the board. This has been addressed to a certain extent because the text is provided and answers require only a sentence or two. Also it is often the case that the SEN department want material to help students with. Using the booklets means that this can be provided in advance.
- **Here are a few of the advantages:** Students who cannot write can go through the material and therefore have access to the curriculum whether or not the specialist teacher is present. EFL students can use the booklets at home to work out what is required or take them to discuss with an interpreter. Students with visual problems are more difficult to cater for. However, as the material is provided up front, each page can be enlarge to A3 or used with a magnifying glass. Because the booklets have the content provided dyslexic children have more time to look at a words. You can also print on coloured paper to help dyslexic students read the text.

2. Booklet Management.

The first lesson is best spent going through the booklet and how it is used. You may want to mention that using felt pens will show through to the next page and that students need to bring them to the next lesson without exception (I find that this is not usually the case and the booklets are cheap to produce so there is no incentive for students to loose them. Have a few copies of the booklets/page you will cover just in case).

3. Theory page:

The theory page is an introduction to the material/knowledge needed for the area of study. Although this page provides good information on its own, it is recommended that students are shown physical examples of materials and that concepts are discussed. Reading through the page with the students tends to get good results. QA interaction referring to the text and what it means is very a good way to cover the new KS3 initiative. The result of this is that most of the class tend to get full marks which is always good for self confidence.



DT Booklets

4. Theory questions:

The questions on this page are designed to help students consolidate what has been learnt. All the answers should be found within the text of the previous page. If extra information is needed it is most likely found at www.technologystudent.com. So if the students have to find answers to a quiz etc, they'll find it at this website. However, some extension work is designed to get students looking further afield (theory and questions should take approximately one lesson- this includes time spent reading it through and discussing issues with the students).

5. Surveys & Specification:

The surveys are designed to help generate the specification. Students often need help to ensure they see the connection to the specification. It is also a good opportunity to explain how restrictions on materials and so on effect specifications.

The specification pages are designed differently for each booklet and get harder as the booklets progress. Whatever the case, it is recognised that a specification is a difficult concept for the students so there is always enough guidance for students to list at least five points. They only need to look at the points raised in the instructions or previous pages. Obviously this part of the booklet will need teacher encouragement. Try to encourage good practice by asking students to give reasons for their answers.

The extension answers for more possible specifications, not in the text, can be found in the Booklet Answers (survey should take one lesson and the specification half a lesson).

6. Research:

The research comes in different forms and any design preparation; surveys, measurements and visual material gathered should be seen as evidence towards gaining a good grade. Doing these pages is seen as gathering a range of research. Especially for KS2 it is not always relevant to gather pictures of similar objects so judge their grades by the rest of their research. As the booklets progress they do require students to investigate other products. Visual research and investigating other products is a good HW.



DT Booklets

7. Drawing pages:

These are self-explanatory. The drawing exercises are designed as a starting point and to familiarise students with the drawing systems. Staff can then do more drawing work if necessary. They are also created to help the average student cope but tend to have an extension or natural progression to stretch the more able 3D thinker e.g. 'try to visualise and draw a plan view or angled writing on an oblique drawing etc. Encourage students to add colour and make materials look realistic.

8. Design:

It is recommended that students do a small practical task prior to carrying out design. Here is a list of small practical's from each booklet:

- **Pen holder-** key fob and card modelling will suffice.
- **Mechanism-** Card modelling will suffice e.g. a lever mechanism.
- **Packaging-** get them to make card slot models of the animals. And get them to produce a slot joint in wood to see how the measurements can be altered e.g. slot only on one part or the same length slot divided by two parts.
- **Structures-** get individuals to build paper bridges and straw bridges. Or get them to use a few pieces of paper to build a structure which will not collapse when a weight is dropped on it from one meter high. One challenge is to give them one piece of A4 paper and ask them to build a structure to protect a Malteser from an weight dropping onto it from ½m. if they succeed they get to eat it and an extra one.

9. Tools/safety theory:

Children often need encouragement to do the list of safety precautions on this page. The best way to get the most from this page is to do a practice practical task, in one or two lessons, prior to designing. This allows them to learn about the tools and recognise them. A simple material shaping is often all that is necessary (allow one lesson for the short practical and approximately one lesson for the tool page).



DT Booklets

10. Planning page/s:

The planning is designed to allow students to gain an appropriate NC level. Students who listen and take notes when doing the short practical prior to designing will be able to predict problems. However, the early booklets are designed mainly to help students understand the concept of planning. For such reasons they may be asked to simply work out the best order of making their product and what safety considerations may be needed. As the booklets progress the planning gets more complex and introduces timing, resources etc (depending on the type of planning activity this page can last half or a full lesson so spend time reminding them of the alternatives if things go wrong and what they need to consider etc).

11. Vocabulary pages:

This takes around half a lesson to do and can be set as a homework. If it needs to last for a whole lesson for cover then get the children to do the extension task (some booklets do not have an extension. If this is the case they can look for bold words within the text of the booklet and start a glossary). There is time to mark it in class and it gives them a chance to have the words reiterated and explained more.

As the projects progress the students find the word for the meaning and then have to find the meanings of ten extra words. This is designed to make them more active at understanding terms and meanings (this is a good homework page but can be done in class and will last around one lesson if the words are checked in class).

12. Evaluation:

The evaluations are designed to get the children into the practice of referring to the specification and checking to see if they have kept on course with the brief. Again as the projects progress the questions become more open and less guided. Whichever the case they follow the NC guidelines to ensure students can attain an appropriate grade.

13. Blank pages:

Use these for extension work and any of your own creative input.

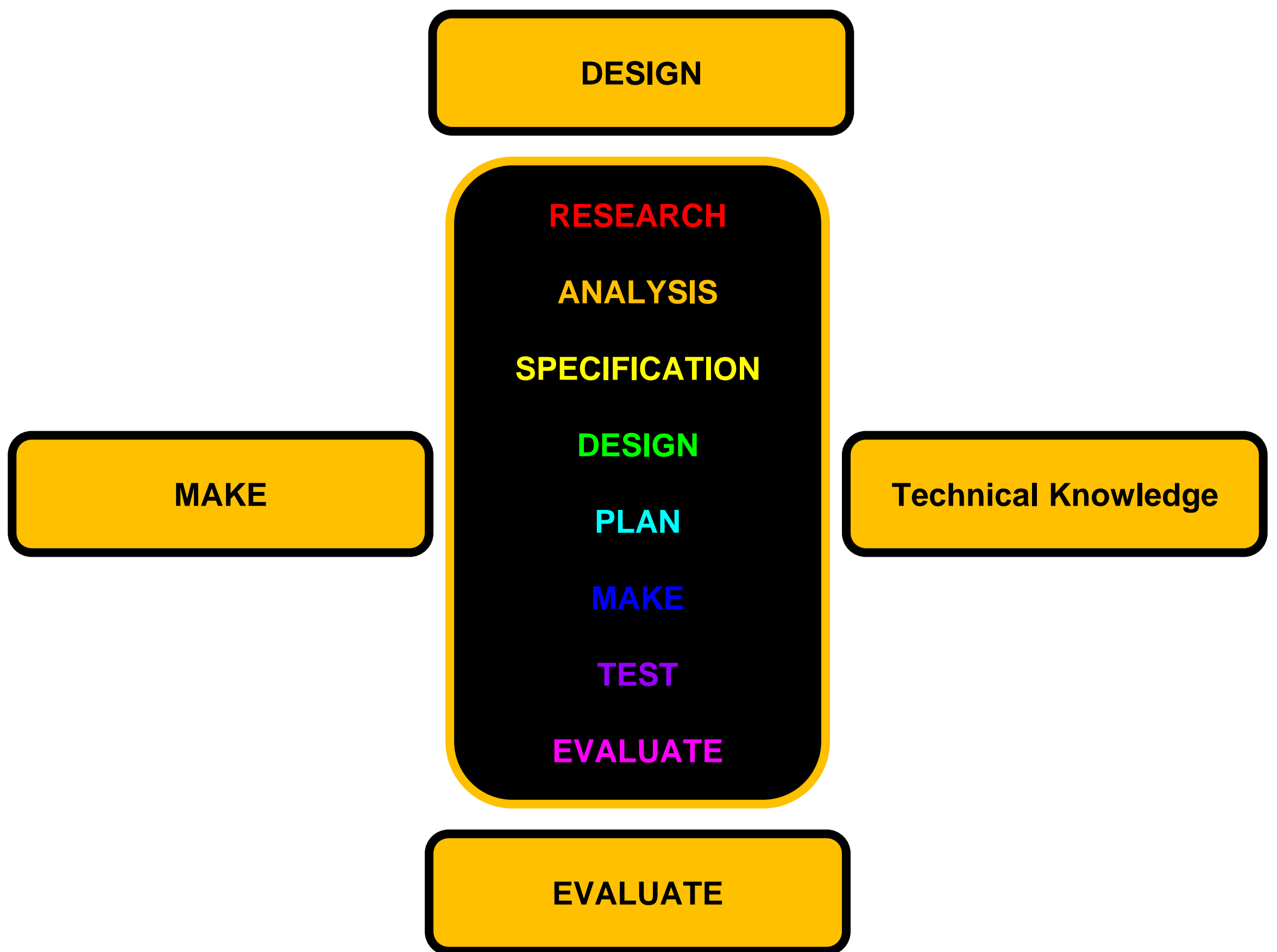


Curriculum On A Page

Year 5	DT: Chocolate bar project DT: Pen Holder project CN: CN:
Year 6	DT: Board Game project DT: Bug House project CN: CN:
Year 7	DT: Trinket Box Project DT: Packaging project CN: CN:
Year 8	DT: Structures project DT: Phone Holder project CN: CN:



DT Subject Concepts





KS2 End Points

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.



KS2 End Points

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.



KS3 End Points

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion].

When designing and making, pupils should be taught to:

Design

- use research and exploration, such as the study of different cultures, to identify and understand user needs
- identify and solve their own design problems and understand how to reformulate problems given to them
- develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations
- use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses
- develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools

Make

- select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
- select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties

Evaluate

- analyse the work of past and present professionals and others to develop and broaden their understanding
- investigate new and emerging technologies
- test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups
- understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists



KS3 End Points

Technical knowledge

- understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- understand how more advanced mechanical systems used in their products enable changes in movement and force
- understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]
- apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

- understand and apply the principles of nutrition and health
- cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet
- become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]
- understand the source, seasonality and characteristics of a broad range of ingredients.



Every child matters

Supporting less able students in design technology is essential to ensure inclusivity and provide opportunities for all students to excel and develop their skills. Here are some strategies and tips to help you support these students effectively:

- Individualized Education Plans (IEPs):** Work with the school's Special Education department to develop Individualized Education Plans for students with specific learning needs. These plans outline the student's strengths, weaknesses, and appropriate accommodations to help them succeed in design technology.
- Differentiation:** Implement differentiated instruction to cater to students with varying abilities and learning styles. Offer a range of activities with different levels of complexity to engage all students, ensuring that the less able students can participate comfortably.
- Small Group Work:** Organize small group work or one-on-one sessions with students who need extra support. This allows you to give more individualized attention and address their specific challenges.
- Scaffolding:** Provide scaffolding, which involves breaking down complex tasks into smaller, more manageable steps. This approach helps less able students grasp concepts gradually and build their skills incrementally.
- Visual Aids and Hands-on Learning:** Incorporate visual aids, diagrams, and hands-on activities to make concepts more accessible. These methods can be particularly helpful for students who struggle with abstract or theoretical aspects of design technology.
- Use of Technology:** Leverage educational technology and online resources to supplement learning. Interactive software, simulations, or virtual design tools can enhance understanding and engage less able students in a more interactive way.
- Modelling and Demonstration:** Demonstrate design processes and techniques explicitly, either through live demonstrations or pre-recorded videos. This can provide clear examples for less able students to follow.
- Encourage Collaboration:** Promote teamwork and collaboration in design projects. Pairing less able students with their more capable peers can foster a supportive learning environment and allow them to learn from their peers.
- Feedback and Encouragement:** Offer regular constructive feedback and positive reinforcement to boost the confidence and motivation of less able students. Celebrate their progress and effort, not just the end result.
- Flexible Assessments:** Design assessments that take into account the diverse needs of students. Allow for multiple ways to demonstrate understanding, such as oral presentations, visual displays, or written reports.
- Accessible Resources:** Ensure that learning materials, including textbooks and online resources, are accessible and cater to various reading levels.
- Teacher Collaboration:** Work closely with other teachers and support staff to share insights and strategies for supporting less able students across different subjects.
- Empower Self-Advocacy:** Encourage students to communicate their needs and challenges so you can provide appropriate assistance. Teach them how to advocate for themselves in a positive and constructive manner.

Remember that every student has unique strengths and challenges. Creating an inclusive and supportive environment in design technology can help less able students develop their skills, gain confidence, and ultimately succeed in their learning journey.



Every child matters

Supporting more able students in design technology is crucial to ensure they are challenged, engaged, and provided with opportunities to excel. Here are some strategies and tips to help you support these students effectively:

- Differentiated Projects:** Offer advanced and open-ended design projects that allow more able students to explore complex concepts, apply higher-order thinking skills, and delve deeper into the subject matter.
- Encourage Creativity and Innovation:** Create a classroom environment that fosters creativity and encourages students to think outside the box. Provide opportunities for more able students to come up with innovative solutions and explore new design ideas.
- Independent Study and Research:** Allow more able students to pursue independent study and research on design-related topics that interest them. Provide guidance and resources to support their exploration.
- Mentorship and Expert Support:** Connect more able students with mentors, professionals in the design industry, or experts in relevant fields. Exposure to real-world expertise can inspire and challenge them further.
- Advanced Tools and Technologies:** Offer access to advanced design tools and technologies that go beyond the standard classroom resources. This can include 3D printers, laser cutters, or specialised software.
- Promote Collaboration and Peer Learning:** Encourage more able students to collaborate with their peers, sharing ideas and knowledge. Peer learning can deepen understanding and lead to richer outcomes for everyone involved.
- Competitions and Exhibitions:** Participate in design competitions and exhibitions, where more able students can showcase their work and compete with other talented individuals. This can motivate them to strive for excellence and gain recognition.
- Encourage Reflective Practice:** Foster a culture of reflection and self-assessment. Encourage more able students to analyze their design processes, identify areas for improvement, and set challenging yet achievable goals.
- Field Trips and Guest Speakers:** Organize field trips to design studios, manufacturing plants, or museums to expose more able students to real-world design practices and inspiration. Invite guest speakers from the industry to share their experiences.
- Cross-disciplinary Projects:** Integrate design technology with other subjects, such as science, engineering, or art. More able students can benefit from the interdisciplinary approach and explore connections between different fields.
- Extended Learning Opportunities:** Provide opportunities for more able students to attend design workshops, seminars, or conferences outside of regular class time. These experiences can broaden their horizons and nurture their passion for design.
- Feedback and Encouragement:** Continuously provide constructive feedback, recognising their achievements, and challenging them to push their boundaries further.
- Flexibility and Autonomy:** Offer more able students the flexibility to take ownership of their learning. Allow them to pursue self-directed projects or propose modifications to the curriculum that align with their interests and goals.

Remember, the goal is to nurture the talents and passion of more able students in design technology while ensuring they continue to grow and develop their skills in a supportive and challenging environment.



Year KS2 Assessment Grid

	Emerging	Developing	Secure	Mastery	E.P.
Emerging	Developing	Secure	Mastery	E.P.	

D01: Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can ask questions and gather information to understand what people need in a product. I can talk about what makes a product useful and nice to look at.			I can use my research to create a list of important things a product should do. I can explain how design can make a product work well and look cool.			I can research and describe what different groups of people might need in a product. I can create a list of design criteria that a product must meet to be successful.			I can use research to find out what materials and technologies can be used to make a product better. I can evaluate and rank design criteria by importance, considering the needs of different users.			I can use my research and design criteria to develop a detailed plan for an innovative product. I can explain how my product's design features address specific user needs and preferences.			I can conduct user surveys or interviews to refine my design criteria further. I can create a complex, functional, and aesthetically appealing prototype, explaining how it meets the needs of a target audience and why certain design decisions were made.		

D02: Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can talk about my ideas with my classmates. I can draw pictures to show what I want to make.			I can explain my ideas to others and listen to their ideas too. I can draw detailed pictures with labels to show how my design will work.			I can work with my friends to make a plan for our project. I can create cross-sectional diagrams to show the inside of my design			I can use computer software to draw a simple prototype of my design. I can make exploded diagrams to show how all the parts fit together.			I can collaborate with my team to develop and improve our design ideas. I can create 3D computer-aided design (CAD) models of my product.			I can lead a discussion with my peers, considering various design possibilities. I can generate precise pattern pieces or templates for manufacturing my product and explain their purpose and use.		

M01: Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can pick the right tools for simple tasks like cutting paper or using safety scissors. I can use basic tools with guidance and supervision.			I can choose the right tools for different tasks like cutting, measuring, and joining. I can use tools such as scissors, rulers, and glue confidently and safely.			I can select and safely use more specialised tools like craft knives, pliers, and hand saws. I can accurately measure and cut materials to the required sizes.			I can choose and safely operate power tools like drills and sanders. I can use advanced hand tools for shaping and finishing materials, showing good accuracy.			I can analyse a project and select the most suitable tools and equipment for the job. I can work with complex tools and machinery to create detailed and precise cuts, shapes, and joins.			I can independently plan and use a wide range of tools and equipment for complex tasks. I can achieve high levels of accuracy and craftsmanship when working with various materials and equipment in my projects.		



Year KS2 Assessment Grid

M02: Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can choose basic materials like paper, cardboard, and fabric for simple craft projects. I can pick materials that look nice and feel good for my project.			I can explain how different materials are used in everyday items. I can select materials that match the purpose and appearance I want for my design.			I can choose materials like wood, plastic, or metal based on their strength and flexibility. I can describe the functional properties and appearance of materials I plan to use.			I can compare various materials and components, considering factors like durability and cost. I can combine different materials to create a design that is both functional and visually appealing.			I can justify my material choices by explaining how they enhance the functionality and aesthetics of my project. I can experiment with advanced materials, such as composites or specialised fabrics, to achieve specific design goals.			I can conduct detailed research to understand the properties and origins of materials, including sustainability. I can innovate by using unconventional or emerging materials and components to create cutting-edge designs		

E01: Investigate and analyse a range of existing products

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can look at different things people use and tell you what I notice. I can say what I like about some objects I see around me.			I can examine products and talk about how they are put together. I can list the features that make a product good for its job.			I can compare similar products and explain why one might be better than the other. I can sketch and label the parts of a product to understand how it works.			I can take apart a simple product and put it back together to understand its inner workings. I can analyse products and identify areas for improvement in their design or functionality.			I can investigate how different materials are used in various products and explain why. I can evaluate products in terms of their environmental impact and suggest sustainable improvements.			I can conduct in-depth research and analysis on a variety of products, considering factors like user experience and market demand. I can propose innovative redesigns of existing products, incorporating advanced features and improvements based on thorough research and analysis.		

E02: Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can talk about what I like and don't like about my own project. I can listen to what my friends think about my work.			I can make a list of things my design should do, like being strong or looking good. I can explain how I made changes to my project based on what my friends said.			I can create clear criteria for my design and compare my project to them. I can consider the opinions of my classmates and make improvements to my project based on their feedback.			I can evaluate my project's strengths and weaknesses, thinking about its function, appearance, and quality. I can gather feedback from a wider audience and use it to refine and enhance my design.			I can critically assess my design, looking at how well it meets specific criteria and the needs of its intended users. I can conduct user surveys and analyse feedback to make comprehensive improvements to my project.			I can perform detailed evaluations of my design in comparison to industry standards and user expectations. I can collaborate with experts and peers, incorporating a wide range of feedback to create a refined, high-quality final product that excels in all aspects.		



Year KS2 Assessment Grid

E03: Understand how key events and individuals in design and technology have helped shape the world

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can learn about some important people who made cool things a long time ago. I can talk about how some old inventions have made our lives better.			I can identify famous inventors and explain what they made. I can discuss how some past inventions changed the way people live and work.			I can research and tell you about the inventions of specific inventors, like Thomas Edison or Alexander Graham Bell. I can describe how these inventions affected the world at the time.			I can analyse the impact of technological advancements, like the invention of the telephone or the light bulb. I can explain how these inventions paved the way for modern technologies.			I can compare and contrast the contributions of different inventors and their innovations. I can discuss how the industrial revolution and other key events shaped the development of design and technology.			I can conduct in-depth research on the significant individuals, innovations, and events in design and technology. I can evaluate the broader implications of these developments on society, economics, and culture, recognizing their lasting impact on the world.		

TN01: Apply their understanding of how to strengthen, stiffen and reinforce more complex structures

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can make simple structures stronger by using more glue and tape. I can explain how adding extra support helps keep my project from falling apart.			I can build more complex structures using various materials like cardboard and straws. I can identify weak points in my structure and reinforce them with extra materials.			I can design structures with different shapes and sizes, like bridges and towers. I can explain how using triangles and other shapes makes my structures stronger and more stable.			I can construct complex structures, considering factors like load-bearing capacity and balance. I can demonstrate how the use of bracing, trusses, and arches can reinforce and stiffen structures.			I can analyse the specific needs of a project and select appropriate reinforcement techniques. I can experiment with innovative methods like tension cables and cantilevers to strengthen complex structures.			I can design and construct intricate and architecturally advanced structures. I can apply engineering principles to reinforce and stiffen complex structures, ensuring they meet high standards of strength and stability.		

TN02: Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can identify simple machines like levers and wheels. I can explain how these machines help make things work.			I can recognize more complex mechanical systems like gears and pulleys. I can describe how these systems can change the speed or direction of movement.			I can design and build products that use basic mechanical systems like levers and linkages. I can explain how these systems make my projects move or do things.			I can combine different mechanical systems to create more intricate designs. I can demonstrate how gears, pulleys, and cams work together to accomplish specific tasks.			I can analyse and solve problems by applying mechanical principles to my designs. I can create innovative products that incorporate complex mechanical systems to achieve advanced functionality.			I can design and construct highly sophisticated products with intricate mechanical systems. I can evaluate the efficiency and effectiveness of mechanical components and make improvements to optimise performance.		

TN03: Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can identify simple electrical components like switches, bulbs, and batteries. I can explain how these parts work together to make a simple circuit.			I can create a basic electrical circuit with a switch, bulb, and battery. I can describe how the switch controls the flow of electricity to the bulb.			I can design and build electrical circuits that include more components, such as motors or buzzers. I can explain how my electrical system creates motion or sound in my project.			I can integrate multiple electrical systems within a single product to achieve specific functions. I can troubleshoot and fix simple circuit problems when they occur.			I can analyse and plan complex electrical systems for more advanced projects. I can experiment with different configurations to achieve desired outcomes in my electrical components.			I can design and construct intricate products that incorporate advanced electrical systems. I can evaluate and optimise the efficiency and functionality of complex electrical circuits within my projects.		



Year KS2 Assessment Grid

TNO4: Apply their understanding of computing to program, monitor and control their products.

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can use basic computer programs to make simple animations or designs. I can explain how I can control some things on my computer.			I can create simple programs that make things happen on a computer or device. I can describe how programming helps control digital actions.			I can use coding to control lights or sounds in my projects. I can explain how programming and computing are like giving instructions to a machine.			I can design and write more complex code to control various aspects of my projects. I can demonstrate how coding allows me to monitor and adjust the behaviour of digital components.			I can use computing knowledge to program and control a range of interactive elements within my projects. I can analyse and modify code to achieve specific functions and responses.			I can develop intricate software applications and code to control and monitor complex devices. I can create and fine-tune computing systems that deliver precise and advanced control of my products, integrating sensors, feedback loops, and automation.		

CN01: Understand and apply the principles of a healthy and varied diet

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can name some foods that are good for me, like fruits and vegetables. I can explain why it's important to eat different foods to stay healthy.			I can create a simple meal plan that includes foods from different food groups. I can talk about why it's essential to have a balanced diet with proteins, fruits, and veggies.			I can explain the different food groups and their importance in a healthy diet. I can plan a day of meals that includes foods from each group for myself and my family.			I can analyse a recipe to understand the nutritional value of its ingredients. I can adjust recipes to make them healthier, like reducing sugar or adding more vegetables.			I can research and discuss the nutritional benefits of specific foods and ingredients. I can design and prepare a complete meal that is both nutritious and delicious, taking into consideration dietary restrictions and preferences.			I can demonstrate an in-depth understanding of the nutritional content of various foods and their impact on health. I can create personalised dietary plans for individuals or families, considering nutritional needs, taste preferences, and health goals.		

CN02: Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can help make simple dishes like sandwiches and salads. I can explain how I can mix and match ingredients to make them taste good.			I can follow a basic recipe to make dishes like scrambled eggs or a vegetable stir-fry. I can use basic cooking techniques like chopping, stirring, and mixing.			I can prepare and cook dishes like pasta with sauce or a simple omelette. I can demonstrate skills like boiling, sautéing, and baking to make these dishes.			I can create more complex savoury dishes with multiple ingredients and flavours. I can explain how different cooking methods like grilling, roasting, and simmering are used to achieve specific results.			I can explore a range of cuisines and prepare dishes from various cultures. I can adapt and modify recipes to suit different tastes and dietary requirements.			I can design and cook intricate, multi-course meals that showcase advanced cooking techniques. I can critically evaluate my dishes for flavour, presentation, and technique, aiming for professional-level culinary skills.		

CN03: Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
I can name some fruits and vegetables that grow in different seasons, like apples in the fall. I can explain that foods like bread and cheese are made in special places.			I can describe the seasons when certain foods are in season, like strawberries in the summer. I can explain that some foods, like milk, come from farms and animals.			I can identify when specific ingredients are harvested or available, such as corn in late summer. I can explain that some ingredients are grown in fields, while others come from animals or factories.			I can research and understand the concept of local and global sourcing of ingredients. I can explain how the climate and geography of different regions affect what can be grown or produced there.			I can analyse the environmental and economic impact of transporting food over long distances. I can make informed choices about buying locally sourced and seasonal ingredients to support sustainability.			I can conduct in-depth research into the supply chains and production processes of various ingredients. I can apply this knowledge to plan and create dishes that prioritise seasonality and responsible sourcing of ingredients, considering environmental and ethical factors.		



Year KS3 Assessment Grid

	Emerging	Developing	Secure	Mastery	E.P.
Emerging	Developing	Secure	Mastery	E.P.	

D01: Use research and exploration, such as the study of different cultures, to identify and understand user needs.																	
14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can look at how people from different places use things. I can say what I think people might need in a product.			I can research how people in various cultures and communities use products differently. I can make a list of things a product should do to meet the needs of different users.			I can compare the needs of different user groups by studying their customs and practices. I can explain how cultural differences can influence design choices for a product.			I can conduct surveys or interviews with people from different backgrounds to learn about their preferences. I can identify cultural and regional factors that impact how products are designed and used.			I can analyse the findings from in-depth research and user feedback to understand user needs thoroughly. I can adapt designs to suit the diverse preferences and requirements of various user groups.			I can conduct comprehensive studies of different cultures and communities to gain a deep understanding of their unique needs. I can integrate cultural sensitivity and inclusivity into my designs, creating products that serve a global audience effectively.		

D02: Identify and solve their own design problems and understand how to reformulate problems given to them.																	
14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can recognize when something needs fixing or improving. I can ask questions to understand what's wrong with a design.			I can find simple solutions to design problems, like making a broken toy work again. I can explain how I came up with my ideas to fix something.			I can identify design challenges in everyday objects and think of creative ways to solve them. I can work with a group to brainstorm and choose the best solution for a design problem.			I can analyse complex design issues and suggest multiple solutions, considering their pros and cons. I can create detailed plans for solving design problems, including sketches and materials needed.			I can lead design projects, breaking down problems into smaller tasks for a team to solve. I can use advanced tools and techniques to prototype and test different design solutions.			I can mentor others in the design process, helping them identify and solve problems effectively. I can evaluate the success of design solutions and suggest improvements for future projects.		

D03: Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations.																	
14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can describe what I want a product to do and look like. I can tell someone how a simple design should meet a need.			I can make a list of features that a product should have to solve a specific problem. I can explain why I chose those features to make my design better.			I can create detailed specifications for a product, considering how it will work, its size, and its appearance. I can compare different design ideas and choose the one that best meets the needs.			I can design products for various situations and write specifications that cover all the details. I can use computer software to create 3D models of my designs and see how they will look.			I can collaborate with a team to develop specifications for complex and innovative products. I can test prototypes of my designs and make improvements based on feedback.			I can mentor others in creating comprehensive product specifications, guiding them through the design process. I can evaluate the functionality and appeal of products against the specifications and suggest enhancements.		

D04: Use a variety of approaches [for example, biomimicry and user-centred design] to generate creative ideas and avoid stereotypical responses.																	
14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can look at nature and get ideas for my designs, like making a kite that looks like a bird. I can think about what people need and design things to help them.			I can use nature to inspire my designs, like using a leaf's shape for a cool chair. I can talk to people to find out what they want in a product and use their ideas in my design.			I can study nature and come up with unique design ideas, like making a building that's efficient like a beehive. I can do surveys or interviews to understand what users really need and design products that meet those needs in new ways.			I can explore how animals and plants work and use their principles to create innovative designs, like designing a car that moves like a cheetah. I can conduct in-depth user research and create user-centred designs that solve problems in ways that haven't been done before.			I can combine different design approaches, such as biomimicry and user-centred design, to invent groundbreaking products. I can lead a team in brainstorming and developing ideas that challenge stereotypes and conventions in design.			I can mentor others in using a variety of design approaches, helping them create innovative and user-focused designs. I can evaluate and critique designs to ensure they are truly unique and avoid stereotypical solutions.		



Year KS3 Assessment Grid

D05: Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations.

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can draw pictures of my ideas and write words to explain them. I can talk to my friends about my designs.			I can make drawings of my designs and write notes to show how they work. I can use simple computer programs to create basic digital sketches of my ideas.			I can create detailed drawings with labels and measurements to show exactly how my designs should be made. I can use 3D modelling software to make digital models of my designs that I can rotate and view from different angles.			I can make prototypes or models of my designs to test how they work in the real world. I can use mathematical equations and calculations to solve design problems and make my designs better.			I can present my design ideas to a group of people, like a class or a team, using clear and persuasive oral presentations. I can create advanced digital presentations with animations and interactive elements to showcase my designs.			I can mentor others in using a variety of methods, including sketches, plans, 3D modelling, maths, and presentations, to develop and communicate their design ideas effectively. I can review and provide constructive feedback on the design communication efforts of others, helping them improve their skills.		

M01: Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture.

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can use simple tools like scissors and glue to make things. I can follow the teacher's instructions to use equipment safely.			I can choose the right tools and equipment for my project, like using a hammer and nails for wood. I can use basic computer programs to create simple designs.			I can use more complex tools and machines, such as a sewing machine or a drill, to create my designs. I can use computer software for design and understand how to send the design to a 3D printer.			I can work with specialised tools and equipment, such as laser cutters or CNC machines, to create precise and detailed parts. I can create 3D models on a computer and use them with computer-aided manufacturing (CAM) software to produce physical objects accurately.			I can teach others how to use advanced machinery and tools safely and effectively. I can combine different manufacturing techniques, such as CNC machining and 3D printing, to create complex projects.			I can mentor my peers and provide guidance on selecting the best tools and techniques for specific design projects. I can troubleshoot and resolve issues related to computer-aided manufacturing processes, assisting others in overcoming technical challenges.		

M02: Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties.

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can pick different materials like paper and fabric to make my projects. I can see if materials are hard or soft, heavy or light.			I can choose materials and components that match the job, like using wood for a strong frame. I can learn about materials' properties, like how metal is strong and plastic is flexible.			I can use a variety of materials, including metals, plastics, and textiles, for my designs. I can explain how different materials have special properties that make them useful for different tasks.			I can select more complex materials like composite materials or alloys for specific design purposes. I can conduct experiments to test and analyse the properties of materials, such as their conductivity or strength.			I can explore advanced materials like shape-memory alloys or conductive fabrics to create innovative projects. I can lead discussions on how the properties of materials influence the design of products in various industries.			I can mentor others in choosing the right materials, components, and ingredients for their projects based on an understanding of material properties. I can assist others in conducting in-depth material research and testing to enhance their designs.		

E01: Analyse the work of past and present professionals and others to develop and broaden their understanding.

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can look at pictures of cool designs and say what I like about them. I can tell how things are different from the past to now.			I can study designs from famous designers and describe what makes them special. I can compare old inventions with new ones and say why the new ones are better.			I can research the work of designers in different fields, like fashion, technology, and architecture. I can explain how designs have changed over time and why some old designs are still good.			I can analyse the designs of professionals and explain how they use materials and shapes to create unique products. I can talk about the impact of design on our daily lives and how it shapes the world.			I can evaluate the design process of professionals and discuss how they solve complex problems in their projects. I can lead discussions on the influence of design trends and innovation in various industries.			I can mentor others in in-depth design analysis, helping them understand the concepts and principles used by professional designers. I can guide peers in researching and presenting about the work of contemporary designers and their contributions to design.		



Year KS3 Assessment Grid

E02: Investigate new and emerging technologies.

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can look at new gadgets and tell if they are different from the ones I use. I can talk about how technology has changed my life.			I can learn about new tech tools and explain what they do. I can talk about how technology affects people's jobs and hobbies.			I can research and describe upcoming technologies like virtual reality or drones. I can explain how new technologies are changing the way people work and have fun.			I can explore the principles behind emerging technologies like 3D printing or artificial intelligence. I can discuss the ethical and environmental impact of adopting new technologies.			I can analyse the potential of cutting-edge technologies and their applications in various industries. I can lead discussions on the risks and benefits of new technologies and their role in shaping the future.			I can mentor others in researching and understanding the complexities of emerging technologies. I can guide peers in critically evaluating the societal and global implications of adopting and integrating new technologies.		

E03: Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups.

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can try out my design and see if it works like I wanted it to. I can ask my friends what they think about my project and make small changes.			I can test my project and check if it meets the simple rules I made. I can talk to people who might use my design and listen to their ideas.			I can use tools to measure how well my project meets the rules and make improvements. I can gather feedback from different people and use their suggestions to make my design better.			I can test my design using advanced equipment and explain how it meets or doesn't meet the rules I set. I can conduct surveys and interviews with potential users and incorporate their feedback into my design.			I can create detailed testing plans and analyse the results to refine my project. I can lead focus groups to collect in-depth feedback from users and stakeholders, using it to make significant improvements.			I can mentor others in creating comprehensive testing and evaluation strategies. I can guide peers in conducting user-centred design processes, considering the views of a variety of interested groups.		

E04: Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can learn about new things people create with technology, like cool gadgets and toys. I can understand that technology can make our lives better and easier.			I can study how technology changes the way people live, like how smartphones or tablets have become important in our daily lives. I can explain that designers and engineers have important jobs in making things we use.			I can research how technology affects the environment and what people are doing to make it better. I can discuss the responsibilities of designers and engineers in making products that are safe and useful.			I can analyse the impact of technology on society and discuss its benefits and challenges. I can explore how ethical considerations and sustainability are part of a designer's and engineer's responsibilities.			I can lead discussions on emerging technologies and their potential influence on individuals, society, and the environment. I can explain how designers and engineers can innovate while considering the ethical and environmental impact of their work.			I can mentor others in understanding the complex relationship between technology, society, and the environment. I can guide peers in developing and advocating for responsible design and engineering practices.		

TK01: Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can choose materials that are strong or soft for my projects. I can use simple shapes to make things that work, like building a sturdy tower with blocks.			I can explain why some materials are better for different jobs, like using metal for a strong frame. I can build and test simple structures to see how they perform under different conditions.			I can explore how materials can bend, stretch, or stay still to achieve different functions. I can create and refine designs that use the properties of materials to solve complex problems.			I can use advanced materials like composites or alloys for specific purposes in my designs. I can analyse the structural elements in my projects to ensure they can withstand stress and perform effectively.			I can lead discussions on the properties of materials and how they influence design decisions in real-world applications. I can create innovative designs that push the limits of material properties and structural elements to achieve functional solutions.			I can mentor others in understanding material properties and their role in creating functional designs. I can guide peers in conducting structural analyses and ensuring that their projects are both functional and safe.		



Year KS3 Assessment Grid

TK03: Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs].

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can make things that light up and make sounds with electricity. I can understand that electricity makes things go and glow.			I can create simple electrical circuits that use batteries to make light or sound. I can explain how electricity flows through wires to make things work.			I can design projects with electrical circuits that have different inputs and outputs, like using a switch to control a light. I can understand how advanced electrical systems, like sensors, can sense things like heat or movement and make things happen.			I can explore how advanced electronics, such as microcontrollers, can be used to create complex systems with various inputs and outputs. I can write code to program electronic components and create projects that respond to different signals.			I can lead discussions on the role of advanced electrical systems in modern technology and how they affect our daily lives. I can design and build innovative projects that incorporate advanced electrical systems to achieve specific functions and reactions.			I can mentor others in designing and building projects with advanced electrical systems, guiding them in understanding and applying complex circuits and components. I can assist peers in exploring advanced applications of electrical systems and programming for creating products with diverse inputs and outputs.		

TK04: Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors] and control outputs [for example, actuators] using programmable components [for example, microcontrollers].

14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I can make simple things that light up or make sounds with electronic parts. I can understand that computers and electronics can make things move and react.			I can use basic sensors and buttons to make a project respond to my touch. I can explain how simple programs can make things turn on or off.			I can create projects that use sensors to react to changes in the environment, like turning on lights when it's dark. I can write simple code or use visual programming tools to control electronic components in my projects.			I can design and build more complex systems that respond to multiple inputs and control various outputs. I can write more advanced code to program microcontrollers and create interactive products.			I can lead discussions on the role of computing and electronics in creating smart products and their impact on our daily lives. I can design and build innovative projects that demonstrate a deep understanding of embedding intelligence in products.			I can mentor others in designing and programming intelligent products using sensors, microcontrollers, and electronic components. I can guide peers in exploring advanced applications of computing and electronics in the design and creation of responsive, programmable products.		



Year 5 Assessment Overview

DT Rotation 1	DT Rotastion 2
<p>Topic: Chocolate bar project</p> <p>Core assessment:</p> <ul style="list-style-type: none"> ● researching existing products ● use feedback from others to help them to design a product ● produce a range of design ideas ● manufacture a component based on design ideas ● understand the vacuum forming process 	<p>Topic: Pen holder project</p> <p>Core assessment:</p> <ul style="list-style-type: none"> ● different types of plastics and how they are worked, shaped and finished. ● measure and marking materials ● how modelling helps to get designs right ● about workshop tools, machinery and safety ● About workshop safety
Cooking & Nutrition Rotation 1	Cooking & Nutrition Rotation 2
<p>Topic: Basic Skills</p> <p>Core assessment:</p> <ul style="list-style-type: none"> ● explain how to use the food tech room safely ● use a peeler and use a sharp knife safely ● chop an onion ● use the hob independently ● select my own equipment and wash it properly then put it away in the correct place ● using a hob to simmer a sauce ● use a rolling pin ● put a tray in the oven safely using oven gloves 	<p>Topic: Treats</p> <p>Core assessment:</p> <ul style="list-style-type: none"> ● understand the sections of the 'Eat Well Plate' ● crush a clove of garlic ● measure using different equipment ● follow each step of a recipe ● put a tray in the oven and remove it safely ● safely and carefully use a knife ● comment on advertising of food products and create my own ● reflect on my own diet and comment on how I can make sensible changes



Year 6 Assessment Overview

DT Rotation 1	DT Rotation 2
<p>Topic: Board Game Project</p> <p>Core assessment:</p> <ul style="list-style-type: none"> ● Research existing products ● Produce a questionnaire or survey ● Write a specification based on research ● Solve a design problems using research ● Test and evaluate a products using a criteria 	<p>Topic: Bug House Project</p> <p>Core assessment:</p> <ul style="list-style-type: none"> ● understanding Health and Safety within our workshop ● understanding sustainable resources and materials ● understanding the different wood types ● understanding tools, equipment and processes
Cooking & Nutrition Rotation 1	Cooking & Nutrition Rotation 2
<p>Topic: British Classics</p> <p>Core assessment:</p> <ul style="list-style-type: none"> ● identify hazards in the food tech room ● use a peeler and use a sharp knife safely ● open a tin using a tin opener ● accurately time how long food needs to be cooked ● follow the different steps of a recipe ● use a fast boil to cook pasta ● make a roux based white sauce ● evaluate how different basic methods could be used for different recipes 	<p>Topic: Healthy Swaps</p> <p>Core assessment:</p>



Year 7 Assessment Overview

DT Rotation 1	DT Rotation 2
<p>Topic: Trinket Box Project</p> <p>Core assessment:</p> <ul style="list-style-type: none"> ● research, analysis and planning of making. ● design ideas and Development. ● evaluations, testing and modifications/improvements. ● production of effectiveness of outcome 	<p>Topic: Packaging Project</p> <p>Core assessment:</p> <ul style="list-style-type: none"> ● different types of vacuum forming plastics manufactured woods and packaging production. ● packaging (focus on vacuum forming & Nets) & how designers play a key role in selling products. ● produce a basic design using a computer. ● how technology affects the environment
Cooking & Nutrition Rotation 1	Cooking & Nutrition Rotation 2
<p>Topic:</p> <p>Core assessment:</p>	<p>Topic:</p> <p>Core assessment:</p>



Year 8 Assessment Overview

DT Rotation 1	DT Rotation 2
<p>Topic: Structures Project</p> <p>Core assessment:</p> <ul style="list-style-type: none"> • what a structure is and how structures are categorised • the types of forces acting upon structures and how they are designed to withstand them • how structures can be reinforced • how to test a structure and calculate its strength • how to contribute and work in a team 	<p>Topic: Phone Holder Project</p> <p>Core assessment:</p> <ul style="list-style-type: none"> • analysing existing products • produce a realistic, technical and measurable specification • present alternative ideas that are realistic, workable and detailed • test, evaluate, refine my ideas
Cooking & Nutrition Rotation 1	Cooking & Nutrition Rotation 2
<p>Topic:</p> <p>Core assessment:</p>	<p>Topic:</p> <p>Core assessment:</p>