The DT Curriculum

C1: Disciplinary Knowledge
We want children to be excited to design and create. Out of the box thinking is needed for DT as well as key understandings of the specific skills that will get you to the end goal. Each DT unit will have a skill focus e.g. sewing with different stitches to create a cushion. Where relevant, products created will have a purpose e.g. make a meal for visitors, build a birdhouse to sell.

C2: Substantive Knowledge
We look to ensure substantive knowledge is taught and learned in a carefully planned progression. We make links back to previous relevant knowledge and make this explicit to the children in the elicitation exercises we carry out at the outset of each unit.

C3: Botheredness & Purpose
Wherever possible, we aim to narrow the focus of a topic and go deep- this to generate purpose, for example blocking the DT unit over a set period, allowing pupils to dig deep and fully immerse themselves in the creative process. Making the unit relevant to their lives; giving them an actual purpose to create/design.

C4: Spirituality
Spirituality is a vein that runs through the curriculum from start to finish and our values inform the way we work.
We look to identify opportunities for spiritual reflection and growth both at the planning stage (see spiritual opportunities identified on the Knowledge Organisers) and throughout the teaching of the units.

C5: Threads
Wherever possible we plan for units of work to deliver one of our core threads as well as the subject specific objectives. For example our Beat the Flood unit in Y3/4 will have the pupils looking at the impact of global warming on the planet and how they can work to help devise new ideas to fight off the consequences; thus tapping into our Eco Curriculum thread.

Teaching methods used in DT

Lessons/ units will/ may include the following strategies:-

Re 'Engagement':

We aim, wherever possible, for DT lessons to be practical and hands on. We look to encourage pupils to explore and experiment with different ideas when creating prototypes, models, recipes etc.

E2.Establish a learning culture- growth mindset & learning powers

- Wonderful mistakes should be seen as positive building blocks for learning. Everyone in class to be interested in, even excited by mistakes as an opportunity for learning to take place. 'My Wonderful Mistake' Exit cards- children write as they go out. Talk about mistakes as **F**irst Attempt **I**n **L**earning. Teachers share their mistakes. (see E5). Discuss real life examples of designers and their failures e.g. Dyson hoovers - how many designs and prototypes were their before the success?

- Any response is a good response—work with pupil responses as the raw material for learning in a lesson as opposed to looking for the correct response.

- Open it up- give tasks for pupils which have no one answer/ where there is no ceiling to the learning/ where there is lots of scope for discussing the learning process and celebrating effort and ideas rather than correct answers.

E3: High expectations & formative intervention

We want to inspire SEN and vulnerable children to develop a passion and see a purpose for DT. We respond to their needs when planning and delivering lessons. If pupil(s) is/are struggling to understand the learning we support them through:-

- Peer support- pupil works with another pupil on the concept they are struggling with

- Adult support - adult modelling and adjusting the learning to suit the needs of the pupil, but ensuring that the objectives are still being met

- Practical—approach the learning again from a more practical and/or concrete angle. Make sure there is time for plenty of practice of the skill(s). Give pupils lots of opportunities to hone their skills.

E4.Engaging activities to start unit/ lesson:

Pupils need to see a purpose for their DT unit. Starting the unit with something a bit different can capture their attention and get their imaginations flying. Problem solving situations can be a great way to get a unit going.

- Stimulus- look at objects/ pictures/ video- discuss

- Visitor - Someone to come in and present the learning challenge.

- Stories—pupils are give scenarios to solve e.g. Beat the Flood - Can you design a structure to withstand the flood on your island? Can you make sure that your design can meet the needs of the island? - hospital/shopping/transport etc.

E5.Quality of Teacher Questions (ref also techniques to develop MASTERY)
To ensure that our pupils think carefully about their design choices, teachers need to be using a range of questioning techniques to challenge their thinking.

- Keep it challenging

- Can you develop on that? What do you mean by..? How does that help? Does anyone have a question to ask about that?

- Asking for reasons and evidence (forming an argument/ assumptions/ reasons/ evidence) Why do you think..? How do we know that? What are your reasons for…? Do you have evidence of..? Can you justify your opinion?

- Asking why--- why has this been designed this way? What are the pros/cons of this design?

E8: Working together, talking
It is important for pupils to see themselves as not only designers, but art critics as well. The conversation between a designer and a 'critic' can lead to a better understanding of the reasons behind the design/recipe etc. Pupils can develop their personal values and opinions through this way of working.

- Develop it—one pupil gives their response- then another is asked to qualify or build on their response- then a third is asked to qualify the response further and so on

- Snow-balling- individual pupils develop an idea/ response--- then join with a partner to share their responses—then pair joins with a group etc etc

E9: Engaging with Challenge
Pupils need to face challenges across all aspects of life. In DT, pupils will come across areas that they find difficult e.g. adapting a design, restructuring a prototype. They will need to persevere with this skill and learn how to develop it as they progress through the school.

- Embrace difficulty- encourage children to embrace difficult tasks and mistakes and to persevere. eg 'It's great that you're finding that tricky- it means you are learning.'.

- The pit—talk to pupils in terms of the learning pit—describing the place we find ourselves in when we don't know how to do something/ when the learning is a challenge—display pictures of the pit.

E10: Organisation

You may find in a DT lesson that the teacher is working with specific individuals/groups while the rest of the class are working independently on a skill. These groups may rotate during the lesson or across a unit, depending on the needs.

- Flexible groups— groups decided daily or within a lesson- based on ongoing evaluation of learning.

- No set seating plan- given flexible grouping- pupils have no set places in the classroom or at least no set group to work in.

E11- How can we help our vulnerable/SEND learners with this?

Engaging students in the learning process increases their attention and focus and moves them to more critical thinking. However for some vulnerable learners or those with SEND, their needs provide additional barriers to engaging with learning. Therefore it is important for teachers to adapt and use strategies to promote engagement, such as;

- Offer a range of sensory resources that the pupil can use supportively to maintain an appropriate arousal level for learning. These resources should be individually selected to help the pupil:
  - become more alert,
  - remain focussed or
  - become calmer.

  This approach could form part of a wider sensory diet. These resources could include but are not limited to:

  - Wobble cushion
  - Wobble stool
  - Stretchy resistance chair band
  - Fidget resources
  - Theraputty
  - Movement breaks
  - Standing desks
- Offer a visual task timeline as part of a task slicing approach
- Offer frequent and planned refresh/refocus breaks built into a visual timeline
- Use of a table top timer to show how long the child has to work for
- Develop self-monitoring and regulation skills as part of a whole class approach through Zones of Regulation
- Adults and pupils need to be aware of their arousal levels and be able to respond positively and re-adjust their emotions to allow them to be an active, engaged learner
- Record instructions using a voice-recording device for the pupil to play back as required
- Ask the child to explain in their own words what they are learning/their task
- Break larger tasks into small steps and offer a motivator for successful completion of each one.
- Keep focused activities short and intersperse with child-led activity

∉   Offer a privacy board to limit visual stimuli/distractions

Re: Thinking

Pupils need to be able to think outside of the box when it comes to creative design. Providing them plenty of opportunities for this, will allow pupils to develop and feel more secure in this way of working.

T1: Generating thinking/ P4C

- **Which one is better?** Provide pupils with two or more examples of the learning and they discuss which one is better and why.

- **Would You Rather?**—Give pupils a choice- would you rather live in this shelter (showing examples of designs) or this shelter?

- **Statements-** Generate responses to a statement and discuss—eg This prototype will be more popular with the intended audience than the previous ones.

T2: Thinking about thinking- metacognition

*See 'Think' resources where you see a ***

- **What happened in your head?-** analyse what happened in your head when solving problem/ considering idea—did you visualise it? Did you hear a voice? Something else?

T3: How can we help our vulnerable/SEND learners with this?

• Offer additional thinking time to formulate responses and act upon instructions. To support this warning of the question/response is useful

• Limit concurrent processing demands

• Offer short, personalised instructions in the correct task sequence

• Increase general visual support to aid recall and support thinking. This can be in the form of word webs, picture cues; visual task timelines, story maps and graphic organisers

• Limit movement between instructions and beginning the task so that the pupil can begin work immediately. The pupil could sit at their table with resources ready during the lesson introduction to limit the interruption of thinking

Re Clarity of Learning:

CL1: Know their starting points

- Elicitation - Have a go at the focus skill of the unit at the start. What do we need to improve? What can we already do?

- Immersion –before trying to elicit prior knowledge, immerse pupils in the topic- eg visitor in/ resources layed out/ trip out

- Structured observations- useful where pupils need to develop a particular skill eg sewing skills, food preparation, different joining techniques.

CL2: Be clear about the end point and the big picture

- Sharing the learning intention- needs to be clear and unambiguous. Careful to separate clearly the task instructions from the learning intention; provide examples alongside the learning intention to ensure they are fully understood.

- WAGOLL- Final pieces as well as the journey in the DT book shown to pupils throughout the unit.

CL3: Be clear about the steps to get there

- Excellent examples- best generated from previous work by pupils. Carry out pre-mortems on these pieces. V good use if compare against a not so excellent but still excellent example- decide with pupils why is one even better.

- Comparing examples- examples of 'products' that could be compared:- in DT, compare previous WAGOLLs to current pieces made.

- Higher level success criteria—often real success depends on more subtle, higher level principles being adhered to—How does your product meet the needs of the audience? Does it exceed the needs? If so, how?

- **CL4-** How can we help our vulnerable/SEND learners with this?

- Evidence and research shows that supporting high quality teaching improves outcomes for pupils with SEND. The EEF 'Five-a-day Principle' of High Quality Teaching benefits for SEND demonstrates offers five specific approaches below that are well-evidenced as having a positive impact. These strategies should be use daily and flexibly in response to individual needs, as the starting point for classroom teaching for all pupils, including those with SEND. These strategies can be applied and adapted to all subjects within the National Curriculum and Early Years Foundation Stage.

	Outcome	Aims	Examples
1. **Explicit Instruction**	Teacher-led approaches with a focus on clear explanations,	Use clear and succinct language when explaining things to pupils,	*Diagrams, images or tables on a mini-whiteboard. Teaching skills and concepts in small steps.*

	modeling and frequent checks for understanding. This is then followed by guided practice, before independent practice.	checking their understanding frequently. Use dual coding to aid students' understanding of new content. Model how to complete a task before expecting pupils to work independently.	*Use examples and non-examples.* *Use clear and unambiguous language.* *Anticipate and plan for common misconceptions.* *Highlight essential content and remove distracting information.* *Simulations or virtual experiments to support hands-on practical work.* *Curiosity cube.* *Object association - making links*
2. **Cognitive and metacognitive strategies**	Managing cognitive load is crucial if new content is to be transferred into students' long-term memory. Provide opportunities for students to plan, monitor and evaluate their own learning	Support pupils to recall previously learned content, before they move on to new content. Help pupils to organise their thinking by 'chunking' the content into smaller steps. Ask metacognitive questions that support pupils to plan, monitor and evaluate their own learning. Think about the learning environment and potential sensory overwhelm, reduce overload and use resources/equipment to meet identified sensory need. Reduce language. Keep instructions as short as possible. Break them into small steps and give one at a time.	*Low stakes quizzing* *Incorporate phrases such as "My turn, your turn", providing opportunities for low stakes recall of knowledge.* *Learning is broken down into a series of very short but engaging tasks.* *Task slicing.* *The pupil can record (draw and/or write) their ideas on post it notes and 'park' them for later.* *Limit copying. Give the pupil their own table top copy to highlight/interact with.* *Limit movement between instructions and beginning the task so that the pupil can begin work immediately.* *Show what 'finished' looks like. Include top down models and working examples.* *Precision Teaching.* *Support for organisation-timelines, diary, equipment, days.* *Using Pupil Interests* *Flash cards* *Memory matching*

3. **Scaffolding**	When students are working on a written task, provide a supportive tool or resource such as a writing frame or a partially completed example. Aim to provide less support of this nature throughout the course of the lesson, week or term.	Use scaffolding in a way that reduces pupils' reliance on adult support, lessening scaffolds over time. Provide scaffolds in a non-stigmatising way (i.e. providing them for a small group or pair, rather than only for 1 pupil)	*Interactive, multisensory and reflect early learning experiences.* *Role Play.* *Stem sentences/parrot responses* *Continuous Provision learning* *Market place - pupils sharing learning and picking up learning*
		Visual Visual scaffolds may support a pupil to know what equipment they need, the steps they need to take or what their work should look like.	*A task planner.* *A list of the steps a pupil needs to take.* *Model examples of work* *Images that support vocabulary learning.* *Checklists.* *Visualisers to improve the quality of explanation and modeling.* *Visuals to support vocabulary.* *Manipulatives and tools on hand to support retention.*
		Verbal Providing a verbal scaffold may involve reteaching a tricky concept to a group of pupils, or using questioning to identify and address any misconceptions.	*"Let's look at this together..."* *"What have you done before, that will help you with this task?"* *"Don't forget, your work needs to include..."* *Model thinking whilst reading – 'Think out loud'*
		Written A written scaffold will typically be provided for a pupil to support them with an independent written task. It could be the notes made on the whiteboard during class discussion; it could even be the child's own previous work	*A word bank.* *A writing frame.* *Sentence starters.* *Clearly identifying how much the child is expected to write using markers on a page.*

		used to support their recall.	
4. **Flexible Grouping**	Allocate groups temporarily, based on current level of mastery. This could, for example, be a group that comes together to get some additional spelling instruction based on current need, before re-joining the main class.	Work with several different pupils, forming temporary groups when several pupils have the same current difficulty. Promote peer tutoring, facilitating pupils learning from one another. Interventions should be carefully targeted through identification and assessment of need. The intensity of intervention (from universal to targeted to specialist) should increase with need.	*Peer feedback and a peer buddy to check work with - Talk partners.* *My turn/your turn activities so that the pupil can work collaboratively with another to complete a task.* *Use talk partners to model new activities and offer pre-teaching to make the unfamiliar feel familiar.*
5. **Using Technology**	Technology can be used by a teacher to model worked examples; it can be used by a student to help them to learn, to practice and to record their learning. For instance, you might use a class visualiser to share students' work or to jointly rework an incorrect model.	Utilise technology as part of the delivery of interventions. Support pupils to use technology to record their learning.	*Speech-to-text software.* *Voice recording device to aid memory or to record their ideas for writing and check back.* *E-books and audio books.* *Voice recording devices to record whole class instructions and give to individuals who need to hear them several times.* *Opportunity to record learning via different methods - word processing, powerpoint, story frames, video.*

Re Pupil autonomy:

PA1: Pupils exploring their own ideas and questions

It is extremely important for pupils to see themselves as creative thinking learners. Their initial designs may not amount to much, but could be the starting point for a product that could change the market. Pupils celebrate the differences and uniquenesses of themselves and others.

- Immersion- before asking them what they know, pupils immersed in the topic / provided with experience to stimulate their interest/ ideas/ existing knowledge.

- Plan to the space-- - pupils generate own ideas re what activities would like to undertake to achieve skills—based on what can do/ what available in different parts of the classroom/ school/ local environ.

PA2: Pupil self-evaluation

We want pupils to understand the steps they need to take in order to further develop their skills for future use. Evaluating and assessing their own learning is key to this.

- Self evaluation prompts -use standard prompts for self evaluation e.g. 'I created this piece because…' 'I was inspired by…'

- The 3 minute pause—chance to stop , reflect on concepts and ideas that have just been introduced, make connections to prior knowledge or experiences and seek clarification-----possible prompts:-I changed my attitude about..….I became more aware of…..I was surprised about..…I felt… .I related to..…I empathized with…..This reminds me…..I can adapt….

- Brain dumps- pupils given 3 minutes to stop and reflect on concepts and ideas just introduced and make links to previous knowledge.

PA4: Pupil to pupil Feedback

Remember feedback needs to be kind, specific, helpful

- Peer Evaluation of work--- partners mark work or one group marks another's. Can result in more work being produced- cos can't take part if don't do the work.

- Two Stars and a Wish– Pupils give each other 2 things they liked and one thing to improve

PA5: How can we help our vulnerable/SEND learners with this?

Top tips to help with executive function in class

Working memory

Use short instructions and keep information brief. Don't overload the child with too much information at a time.

Use visual reminders and checklists e.g. use colours, cartoons with speech bubbles.

Encourage jottings or notes to reduce the load on their memory & use highlighters.

Give them extra time to process information and think about what they see or hear.

Use of a voice recording device such as: Talking Tin, for the pupil to record their ideas for writing and check back;

Organisation

Visual/itemised timetables/kit lists/routines; chronological 'to do' lists.

Checking in with an adult at the start/end of the day.

Timetabled personal organisation time.

Colour-coding / transparent pencil case etc.

Short, timed tasks using a sand-timer.

Ensure equipment is well organised and clearly labelled; (object of reference, pictures, words);

Use of personal timeline- now and next board, colour coded timetable.

A task planner.

A list of the steps a pupil needs to take.

Monitoring and self-evaluation

Give clear tasks with progression built in.

Use of rating scales and solution-focussed questions

Traffic light system, smiley face symbols.

Checklists.

Planning to do a task

Learning common routines. "What do you need to do this task?" "What are the steps (beginning, middle, end)?" What does 'finished' look like?"

Work with an adult or peer to help them with the first part of a task.

Offer a visual task timeline as part of a task slicing approach

Model examples of work

Images that support vocabulary learning.

A word bank.

A writing frame.

Sentence starters.

Thinking and focussing

Set up situations where the child can succeed, by starting with tasks that are easy for them.

Introduce small 'thinking' tasks within the bigger task (e.g. "Let's stop and think about what kind of picture you're going to draw").

Gradually extend the length of tasks.

Use simple verbal or non-verbal reminders, possibly a code word to remind them to focus.

Shift and cognitive flexibility

Use visual timetables.

Give verbal/visual notice of upcoming changes in tasks or routines.

Consistent routines for beginnings and endings.

Treat transitions as a separate activity; one to prepare and plan for, e.g. spend time talking about changing from one activity to another.

Clearly identifying how much the child is expected to write using markers on a page.

Re Proof of learning:
PL1: All student response systems

All student response systems will mean you engage pupils better; keep track of where pupils are at in their learning during a lesson and not allow anyone to slip through the learning net.

'If *the habit is for children to put their hands up to answer a question, you end up with a two tier classroom – with some pupils getting worse and some children getting better.' D Wiliam 2013*

Imperative: We rarely use hands up unless 'asking' a question.

- Talk partners- again the pupils need to be trained in use of. Change talk partners weekly- on rolling basis. Pupils need to discuss/ decide what makes a good talk partner and review their perf as talk partners . Create cards to show how expected to behave as talk partners

- Hand signals- thumbs up down or sideways// 5 finger scale of understanding. When doing this ask a question that is cognitive rather than about a feeling (latter being v unreliable) –ie use thumbs as way of voting for which of three answers they think it correct.

- Class polls --Find different ways of taking a class poll in answer to a question about an issue or matter of opinion. Pupils could vote with their feet by going to different corners of the classroom or use cards/ stand up or sit down or even hands up!

PL2: Picking up on and responding to needs quickly:

- Support the skill- provide the pupils who need it with a resource to support them- for example step by step guide on how to thread a needle/create a specific stitch.

- Simplify the skill- Change the task for the group who are struggling to make the learning more accessible for them.

- Repetition/ practise/ over-learning- provide those struggling with further opportunities to repeat and over-learn the skill/ concept.

PL4: Retrieval Practice
Important to transfer information to long-term memory. Important to be able to access and recall information from long-term memory with ease and accuracy. We need to engage actively and deliberately in retrieving information from long-term memory. https://www.retrievalpractice.org/strategies/2018/9/28/retrieval-grids

- End of unit quizzes -Google Forms, Google Jamboard, Kahoot-

https://kahoot.com/; Mentimeter https://www.mentimeter.com/; Carousel-https://www.carousel-learning.com/; Quizizz https://quizizz.com/?lng=en; Quizlet-https://quizlet.com/en-gb; Get Plickers- https://get.plickers.com/

- Heard the Word vocab elicitation - at start of unit and then revisited at the end
- Elicitations (with specific questions to respond to) at start of unit and then revisited at the end

PL5: How can we help our vulnerable/SEND learners with this?

Proving learning is particularly challenging for vulnerable children and those with SEND because they tend to show their learning in very individual ways. The challenge is therefore how to demonstrate both how and why progress is taking place.

Some children may find the organisation to record their learning challenging. Therefore some ideas to support organisation include;

- *Use post it notes – one idea per post it notes, then write each one as a discrete sentence*
- *Talking tin (pupil records one idea/sentence at a time)*
- *Colourful semantics approach*
- *'Hold a sentence' activities.*
- *Practitioner modeled sentence stems.*

Technology can be used to record their learning and reduce barriers and empower reluctant writers. Examples may include;

- *Speech-to-text software.*
- *Voice recording device to aid memory or to record their ideas for writing and check back.*
- *E-books and audio books.*
- *Voice recording devices to record whole class instructions and give to individuals who need to hear them several times.*
- *Opportunity to record learning via different methods - word processing, powerpoint, story frames, video, photograph.*

When letter formation/independent writing is not the focus, adults may scribe for the child, recording their learning and showing their understanding.