



Teaching and Learning policy

This policy will be reviewed in full on a yearly basis.

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Next review date: May 2026

This policy is reviewed by the Teaching and Learning committee.

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Introduction

At Merton Abbey Primary School, we have high aspirations and ambitions for our children and there is a driving determination to ensure that all pupils and adults reach their full potential. We believe in life-long learning for our whole community. We believe that learning should be challenging, engaging, rewarding and enjoyable for everyone.

Through our teaching, the school environment and partnerships, we aim to equip children with the skills, knowledge and understanding necessary to be able to make informed choices; preparing them for the future.

We provide high quality teaching and learning experiences that enable all children to reach their full potential.

What does research tell us about effective teaching and learning?

- a) Learning is a change in long-term memory. If nothing has been remembered, nothing has been learned.**

Implications:

1. Children need to commit important facts to long-term memory e.g. number bonds, phonics and times tables.
2. A child can understand something perfectly in one lesson on it, but they may not have learned it. Performance is not the same as learning.
3. Regular reviews or tests of what have been taught help to move content into long-term memory.

- b) People can only consciously attend to a handful of stimuli at a time. Teachers must ensure that children focus on what is to be learned and overcome competing demands on their attention.**

Implications:

1. Teachers must limit distractions, both visual (such as classroom distractions) and audible (such as music, external noise or speaking by peers and teachers) to allow children to concentrate on key stimuli.
2. Explanations and instructions should be concise use as few words as possible.
3. Limit text on slides: use visuals, complementing them with spoken description (dual coding).
4. Use questions to guide attention to key ideas.
5. Experiential activities like learning songs, watching films and playing games may attract attention but usually only to surface characteristics such as the rhythm of the song rather than the words. When these activities are used, teachers need to check that children recall the learning in future lessons.

- c) Working memory (the focus of conscious thinking) is limited. Teachers must ensure children focus on a few chunks at a time.**

Implications:

1. If children's working memories are overwhelmed, it is hard for them to learn.
2. Teachers need to present new material using small steps to avoid overloading working memory and to reduce the cognitive load.
3. When asking questions, provide children with wait time to think about the answer before responding.
4. Offer worked examples and completion problems (partial worked examples which children can complete) to allow children to focus on how problems can be solved and focus on one step at a time.
5. Use working walls to record information children will need but have not yet committed to long-term memory.

d) Memory is the residue of thought. Children transfer information into their long-term memory when they think hard about its meaning.

Implications:

1. Teaching must identify what children should think about during each point of the lesson.
2. Children need to think hard about the meaning of what is to be learned.
3. Ensure that all children are thinking about key ideas e.g. through questioning.
4. Lessons should consistently put significant cognitive load on children and push them to think and work hard.

e) Prior knowledge determines what children can learn. Children make sense of new information by reference to what they already know: new information enters long-term memory by connecting to existing knowledge.

Implications:

1. Ensure that children have the foundational knowledge needed for the subject or topics e.g. times tables.
2. Teach important vocabulary or ideas at the start of a unit of work.
3. Ensure lessons build on preceding lessons.
4. Check children's prior knowledge at the start of unit or lesson through a quiz or questions.
5. Help children to activate and retrieve relevant knowledge early in the teaching sequence and make connections between new information and existing knowledge explicit.

f) Deliberate practice* is essential to closing the knowing-doing gap. Deliberate practice focusses on mastering the 'small steps' of a complex task, so that recall and transfer become automatic.

Implications:

1. Once teachers identify the small steps that lead to the more complex tasks (Principle c), they need to design deliberate practice so pupils can master each of the small steps.

The activities that help you to get better at a skill often don't look like the skill itself:

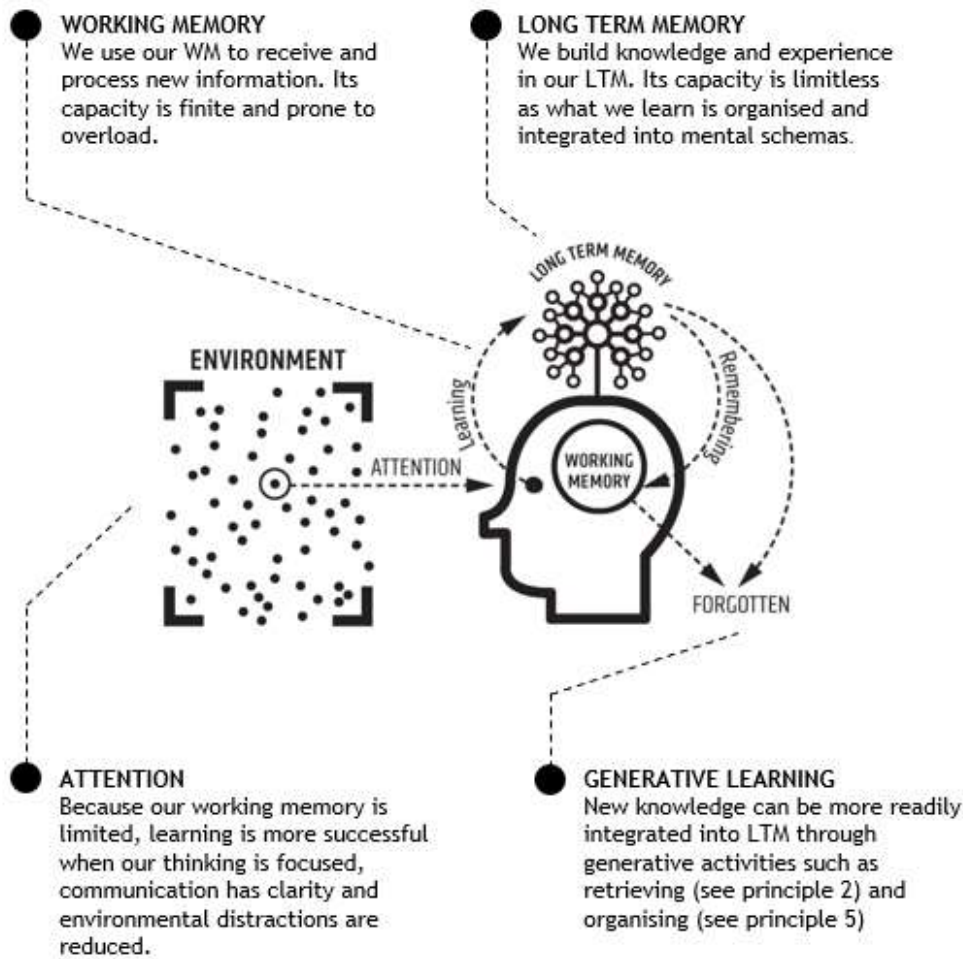
Becoming a better essay writer doesn't involve writing essays all the time. For example, when learning a new grammar skill, children should spend a series of lessons practising a new skill. Students will begin by being taught the fronted adverbial explicitly, then practising it verbally and in written form, editing errors in passages, completing writing exercises that integrate the fronted adverbial with other skills that have been taught previously. Eventually, students consistently punctuate fronted adverbials accurately in their own extended writing without prompting.

2. Deliberate practice must be designed so that pupils' think intentionally about the small steps until they are automatic.

*Deliberate practice refers to a special type of practice that is purposeful and systematic. While regular practice might include mindless repetitions, deliberate practice requires focused attention and is conducted with the specific goal of improving performance.

HOW WE LEARN

Below is a simplified model of the learning process:

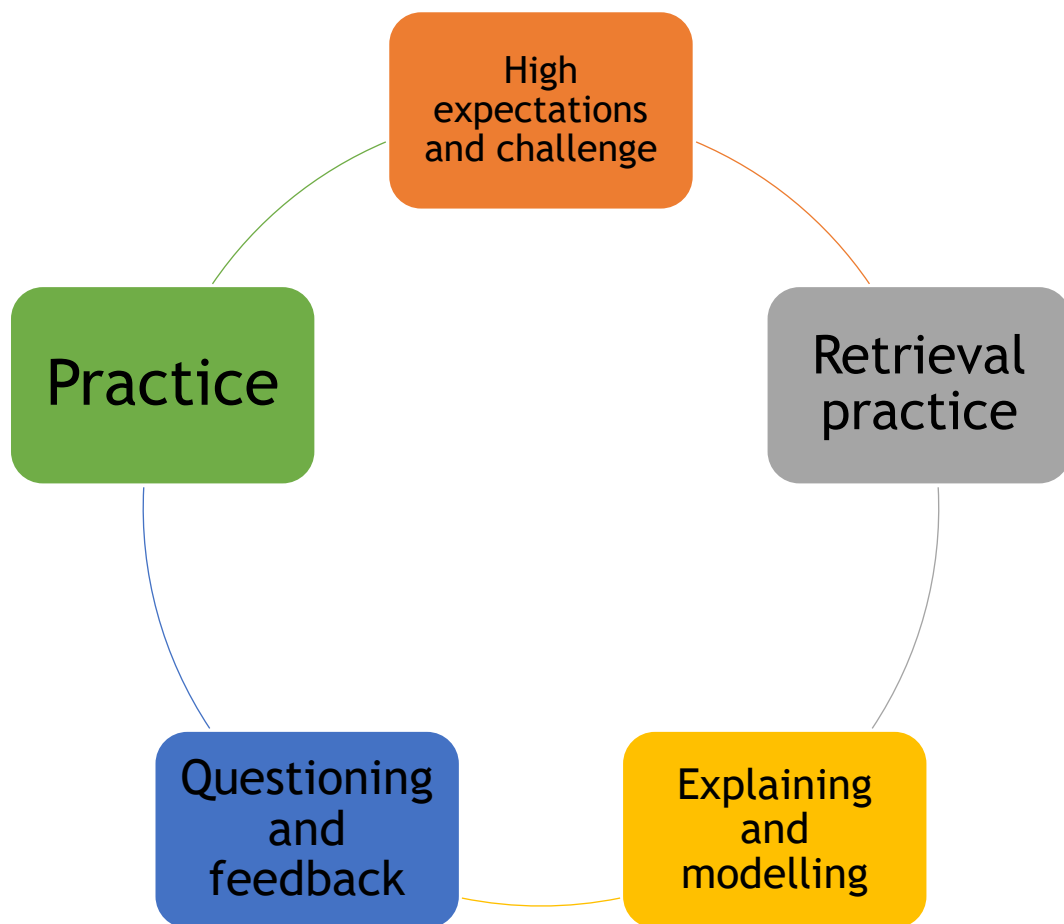


A classroom where children feel safe, secure, valued and successful is fundamental to successful learning. Our teaching and learning approach is centred on **Inclusive Quality First Teaching**.

We believe that all children should be pushed to think and work hard. Effective teachers do this through consistently putting significant cognitive load on children through regular rounds of thinking, reading, discussing and writing throughout lessons.

We believe in 5 key foundations of effective inclusive teaching and learning. Aside from foundation number 1, not all foundations will be evident in all lessons although in the majority of lessons, foundations 2-5 will be the main lesson structure.

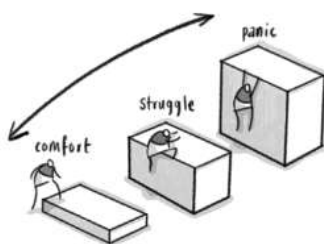
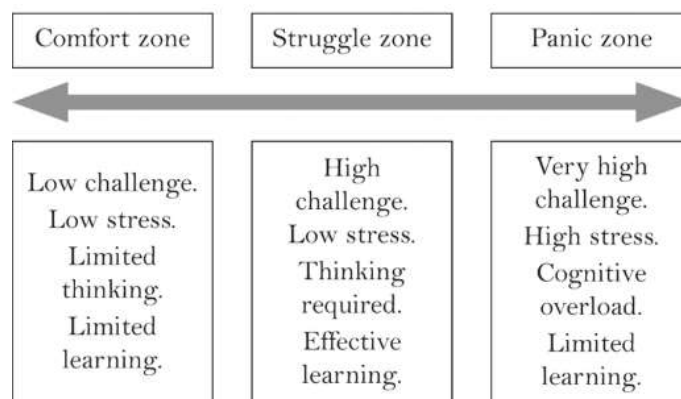
The 5 foundations of effective teaching and learning at Merton Abbey Primary School.



Built upon on a firm foundation of proactive behaviour strategies (managing routines and relationships) and reactive behaviour strategies (managing behaviour).

1. High expectations and challenge (TS 1 and 7)

Challenge is the provision of difficult work that causes children to think deeply and engage in 'healthy struggle'.



Challenging learning intentions and success criteria

We believe that effective teaching is focused on a **single, challenging learning intention** and clear success criteria. *'Starting with the end in mind'*

'If you don't know where you're going, you'll probably end up somewhere else.'

Laurence Peter

- **Learning intentions** tell us what we are going to learn (knowledge and skills).
- **Activities** determine how we will learn and demonstrate our learning.
- **Success criteria** tells us how we will know if we have succeeded.

We ensure that children understand what they are learning and why. We explain how the current learning is linked to the previous and future learning.

At Merton Abbey, all learning intentions are shared with children in 1 of 2 ways:

1. **'We are learning to...'** or **'We are learning how to...'** e.g. 'We are learning to use capital letters correctly' or 'We are learning how to calculate the area of different triangles'. These should also be the titles of the children's learning in their books.
2. **A learning question:** These are used in science, geography, history and RE to help generate interest, motivate children and guide learning towards an end goal.

Learning intentions should be separate from the context within the skills will be taught. So, *'We are learning to write a set of instructions about making a sandwich'* should be *'We are learning to write instructions'*. This is because:

1. Once the skill is revealed in its 'clean' form, the success criteria, or breakdown of mini-skills, become *process* (not *content*) based.
2. If the context (the sandwich) is included, children often see the skill as non-transferrable, relating only to the context in hand, so that next time the skill is revisited, in a different context, children don't make links and in effect have to start again.
 - Learning intentions tend to be either **open or closed**.
 - Closed learning intentions, such as specific maths skills, always have compulsory elements for the learning intention to be fulfilled (e.g. every step of a calculation must be followed to attain the learning intention). If the success criteria have been achieved, with accuracy, the learning intention will be achieved.

Example:

Learning intention:	We are learning how to calculate the area of different triangles.
Success criteria	Remember to: <ul style="list-style-type: none"> • Identify and measure the base and height; • Multiply the base by the height and divide by 2; • Record the units in squares.

Success criteria are planned by teachers. Research indicates that it is more powerful if pupils are fully involved in the process of identifying and generating the success criteria (Co-constructed success criteria).

Some successful strategies to co-construct success criteria are included within appendix 1.

Teach to the top

Every class is a mixed prior-attaining class. Our challenge is to ensure that we pitch material so that everyone is challenged and supported to make good progress. Rather than pitching to the middle or letting the least confident students' difficulties lower expectations for everyone, teaching to the top implies a default approach where the highest attaining, most confident students drive the overall pitch and depth of learning.

- Identify the highest attainers- we do not use the term 'high ability' as ability can be misunderstood as a fixed characteristic. Our assessment system ensures that teachers are aware of our highest attaining children.
- Teach so the highest attainers are always challenged- we plan and teach so that the conceptual depth and sophistication of the material or the degree of practical difficulty are always demanding for our highest attaining students. This is supported by the questions, tasks and problems we set. We aim for these students to never feel that they are being held back or that the work is too easy. This high challenge benefits everyone.
- Vary modes of guided and independent practice- it is vital that high challenge is not viewed as constant struggle. Everyone needs practice, including high attainers. Less confident students will need more guided practice; more confident students can move rapidly to independent practice.

Pitch it up

Alongside high expectations of behaviour, high expectations of the standards students should reach are vital. If we don't expect students to reach a certain standard, they probably won't. To make sure we have the highest expectations appropriate for our students, it helps to pitch it up.

- Aim for depth before speed. Learning is not a race. Getting to the end more quickly can lead to shallow learning. We aim for to develop depth learning which means: giving students a wider range of problems to explore within a topic; aiming for deeper levels of

analysis or sophistication in writing or providing explanations; applying knowledge to unfamiliar scenarios to test depth of understanding.

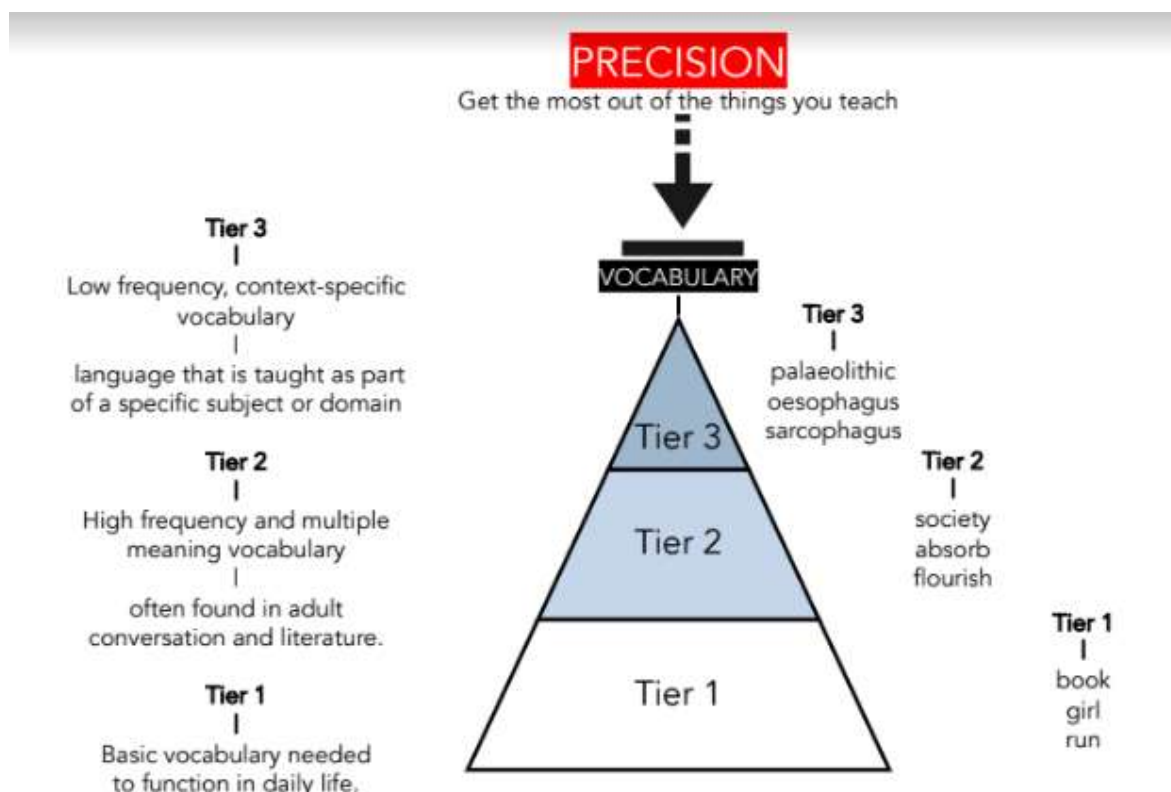
- Expect sophistication, accuracy and precision- Set a higher bar for expected standards. Insist that students produce a higher level of accuracy and precision in their work appropriate for their age or stage e.g. insisting on using correct formal terminology; expressing ideas in a more focused logical manners; sing more appropriate formal speech codes; drawing graphs and diagrams with more precision. (See say it again better and right is right)
- Eliminate mediocrity- We need to review our lessons from the perspective of ‘thinking’. Do our task require students to think hard about the meaning of concepts? Can tasks be easily done without much recall or cognitive processing e.g. Is that grid-fill, word search or poster activity possible without really remembering or understanding much? (see section 5 on practice)

Classroom environment

When goals are ambitious and demands are high, learners must feel safe to have a go and take a risk, without feeling pressured or controlled. This requires an environment of trust and a complex balance of asking a lot but still being okay if you only get part of it. An whether learners succeed or fail, it matters how they account for it: attributing either success or failure to things they can change (such as how hard they worked or the strategies they used) is more adaptive for future success than attributing results to things that are out of their control (like luck, ‘ability’ or not having been taught it).

Sharing ambitious vocabulary (linked to principle 3: Explanation and modelling):

Technical, specific and expressive vocabulary help to master deep subject knowledge and understanding when shared with children. This vocabulary can be classified as Tier 1, Tier 2 or Tier 3 vocabulary.

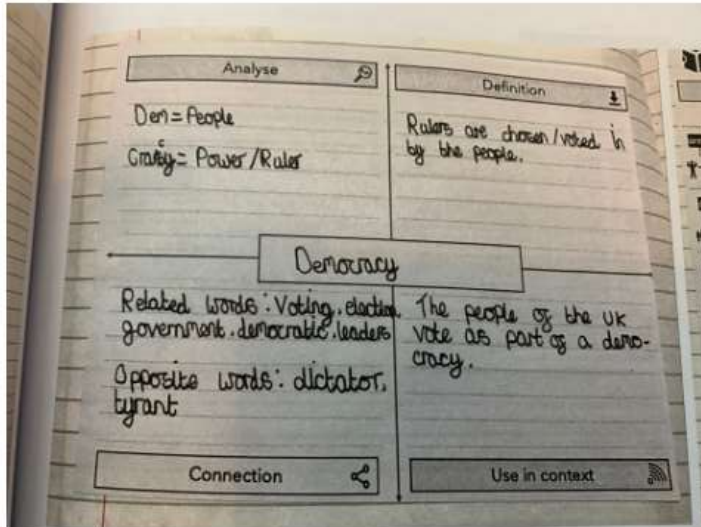


Teachers share these with children at the beginning and during lessons to enable children to understand the meaning of these key vocabulary. Vocabulary is best learned when connected to the sequence of learning.

New vocabulary can be taught using the following process:

- Decode and define
- Use and apply in context
- Associate and link with connected words
- Deconstruct (etymology, morphology)

Teachers can use a Frayer model to support new language acquisition using etymology (the study of the history of words), morphology (the study of the internal structure of words such as prefixes and suffixes) and non-examples.



A useful website for etymology is <https://www.etymonline.com/>

Responding to children's answers (linked to principle 4: Questioning and feedback):

We want our students to be able to confidently articulate and communicate their opinions and knowledge across all subjects verbally, as well as through their writing.

Get students to shape their verbal answers:

- Sentences- no single word answers, use full sentences
- Hand away from mouth- be confident with your response
- Articulate- don't mumble or hesitate
- Project- a loud, clear response that everyone in the class can hear
- Eye contact- try to maintain this with teachers and peers

Say it again better

Sometimes when teachers ask a question (either using Cold Calling, Think, Pair, Share or checking for understanding) a child's first responses may not always be complete sentences or well thought out. A second opportunity allows them to finesse their answers, adding, depth, accuracy and sophistication. When pupils offer short, half-formed or partially incorrect answers, we say 'Thanks, that's great. Now let's say it again better. Try again but make sure you add in X and link it to idea Y'. Finally, teachers respond to the improved response.

Right is Right

When responding to answers, teachers should hold out for answers that are ‘all the way right’ e.g. ‘You are almost there, what else I am looking for?’

Classroom interactions are also part of setting high expectations for our pupils and help to encourage active participation for all. (see section 4 on questioning and feedback)

Encourage children to speak in complete sentences and to use precise language

Children need to talk and to experience a varied diet of spoken language to support their thinking. Talk is the foundation of learning. We are sure to model the use of formal language and expect the children to express their own thinking using formal language too.

Please also refer to our presentation policy.

2. Retrieval practice (TS 2, 3 and 6)

Retrieval/embedding learning

At Merton Abbey we recognise learning as a change in long term memory (principle a). We aim to ensure that all children know more (including how to do things) and remember more. The importance of embedding learning rests on the insight from cognitive load theory that memory is not just a storage facility for facts that could just as easily be looked up: the schemas that we use to organise knowledge in memory are the very things we use to think with and to connect new learning to (Sweller, 1994).

We are also aware that the brain places higher importance on repeated information-retrieval practice strengthens the memory trace and cognitive recall.

Daily review

Daily review allows children to re-activate recently acquired knowledge using the ‘testing effect’ in readiness to build on it during the lesson. It could be learning from the previous day or from a previous unit. This involves setting a question or task that makes all of the pupils think about ideas they’ve encountered before, related to today’s lessons, so they can start to make new links; to continue to build their schema. Research shows that this is the single most effective way to increase long-term retrieval strength: the ability to recall information or procedures after a delay (Adesope et al., 2017). Different techniques include:

- ✓ Straightforward factual recall questions e.g. What were the three types of triangle we learned about yesterday? What are the four layers of the rainforest?
- ✓ Multiple choice questions based on previous learning. This is more effective than asking ‘Does everyone remember what we learned yesterday?’

Weekly and monthly review

There is extensive research that shows that students secure stronger long-term recall if they engage in retrieval practice with a set of ideas after some time has passed. It is also to ensure that children can form ever more well-connected networks of ideas-more extensive schemata.

Examples of retrieval practice used at Merton Abbey Primary:

- ✓ **Flashback 4:** This is when children are given 4 arithmetic questions daily based on learning from earlier in the term or from the previous year.
- ✓ **Self-quizzing**

- ✓ **Multiple choice questions (MCQ):** A MCQ should contain a question and the correct answer and distractors as well as other plausible options. MCQs are an effective form of low stakes quizzing. Children should be given a MCQ on the key sticky knowledge to see what has been learnt/recalled. This quiz, or a close variant of it, could be revisited a couple of months later, or six months later to ensure the information moves into the long-term memory. Stick to one correct option for younger students and it is helpful to include the option of 'I don't know yet.' This links to the growth mindset approach of not knowing...yet and encourages student to be honest and avoid guessing. Watch out though for students who only ever choose this option.
- ✓ **Summarising**
- ✓ **Two things:** This involves asking the children to retrieve two things from the last lesson or previous topic etc. This can be used at any point of the lesson for example before beginning independent practice.
- ✓ **Brain dump:** This is the ultimate low effort, high impact classroom activity as it simply involves asking the children to write down everything they can remember about a topic. Instead of writing everything down, children could be asked to brain dump verbally to a partner. This is the most challenging and effortful form of retrieval but the most effective because not support is provided.
- ✓ **Cops and Robbers:** Children use two columns labelled 'Cops' and 'Robbers'. The 'Cops' column is for the children to write as much as they can from memory about a specific topic or previously covered material- similar to a brain dump. Once children have completed this, the children move around the class to look at their peers' work, swapping and sharing their ideas and content. This can then be added to the 'Robbers' column. This could be scaffolded for younger children by giving prompts and headings.
- ✓ **Expand and elaborate:** The teacher provides a series of facts or statements linked to previous taught content. The children then have to expand on that statement using their own knowledge from memory. The statement acts as a prompt, but the children are encouraged to elaborate and include as much detail as possible. This will need to be modelled before implementation into a classroom. Examples include:
 1. Henry VIII had six wives.
 2. The Sun is the centre of the Solar System.
 3. There are 7 continents in the world.
- ✓ **Label it:** The children are given a diagram which needs to be labelled e.g. a diagram of the Water Cycle.
- ✓ **List it:** The children are asked to list as many terms as possible linked to the heading e.g. in French the children could be asked to list as many French words as they can remember linked to school. List as many key words/facts/causes connected to our topic
- ✓ **Misconceptions retrieval:** The teacher gives the children a misconception and the children have to rewrite, correct or improve the original statement. For example: Amphibians and reptiles are the same.
- ✓ **Picture prompt:** This works well with younger children and involves providing the children with an icon/image which will be a prompt and cue for the children to write what they can from memory.
- ✓ **Retrieval Rockets:** This strategy works particularly well with younger children including in EYFS. This involves a rocket with a specific number of stages to launch such as 5. For the rocket to take off, children will need to recall 5 key facts. This could be carried out individually or collaboratively as a class or group.
- ✓ **Retrieval Tennis:** This is a verbal retrieval task completed in pairs. The children use the chosen topic and take it in turns to recall facts/information that is relevant to the topic. They cannot repeat themselves or say something that their partner has already said.
- ✓ **Retrieval relay race:** 2 or 4 boxes. In the first box, write down all you can remember about the topic. In the 2nd box, another child must write down all they can remember but they can't repeat anything the first child wrote down. Can continue for up to 4 children.

For further examples of retrieval practice see 'Retrieval Practice: Resource guide' by Kate Jones.

Top tips for effective retrieval practice:

- Involve everyone- this is very important as we need to know if all the learners in our class are making progress and can recall information from long-term memory
- Vary the retrieval diet
- Ensure time for feedback and reflection
- Make the level of challenge desirable- We should allow opportunities for retrieval success and this can also boost confidence and motivation but there must be retrieval challenge and effort too
- Make it a classroom routine- retrieval practice should be taking place every lesson. If students know this and it becomes the norm it will also increase the likelihood of it being perceived as low stakes rather than high stakes
- Keep it generative- Sherrington (2019) explains that, 'Students need to explore their memory to check what they know and understand; this means removing cue-cards, prompts, scaffolds and cheat-sheets; it means closing the books and thinking for themselves.'
- Low effort, high impact should be the mantra

3. Explaining and modelling (TS 1, 2, 3 and 4)

Explaining

The most effective, inclusive instruction involves concise, appropriate (age relevant), engaging explanations that are just right for the students: neither too short nor too long; neither too complex nor too simple.

Learning aims/ the wider picture

Effective teachers share learning aims with their pupils in ways to help them understand what success looks like. They also help students to understand why a particular activity is taking place and how current learning fits into a wider structure. Why are we learning this and why now? How does this follow on/relate to prior learning? How will this lesson/learning help us in the future/later in the unit?

Presenting new material using small steps

To effectively deal with the limitations of the working memory and to avoid cognitive overload, we need to break down our concepts and procedures (like multi-stage maths problems or writing) into small steps or chunks that can be practised.

For example, when learning a new dance, we don't try to learn a whole dance routine from start to finish; we learn the first step and then the second, rehearsing each one. Then we add a third or fourth and maybe practice steps one to four before adding step five.

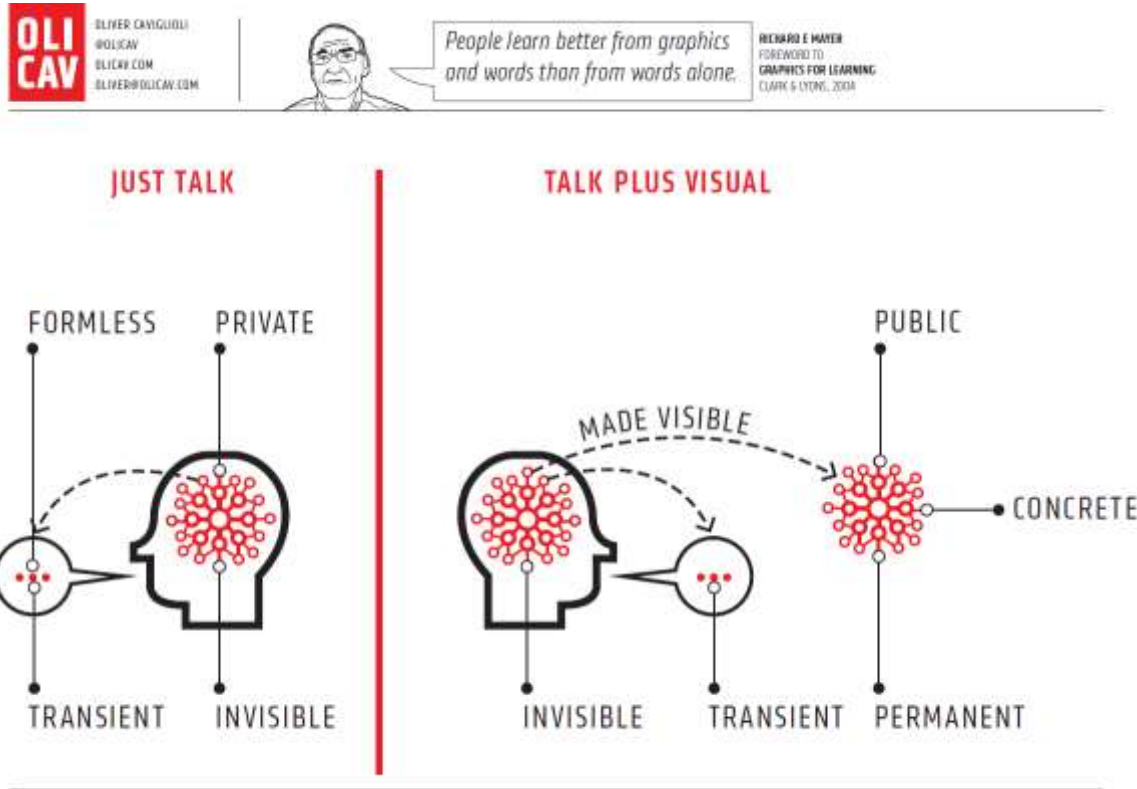
Using prior knowledge 'We learn in the context of what we already know.'

New learning is always tethered to something children already know about (principle e) For example, when teaching children how to use an adverbial phrase, we start by reactivating their

knowledge of adverbs. Another example is when teaching children how to divide fractions by a whole number, we start by asking them to recall how to divide whole numbers.

Dual coding

Dual coding theory is about linking verbal descriptions to a well-judged image which avoids overloading working memory and helps make the learning more concrete and permanent. Just teacher talk on its own is more transient.

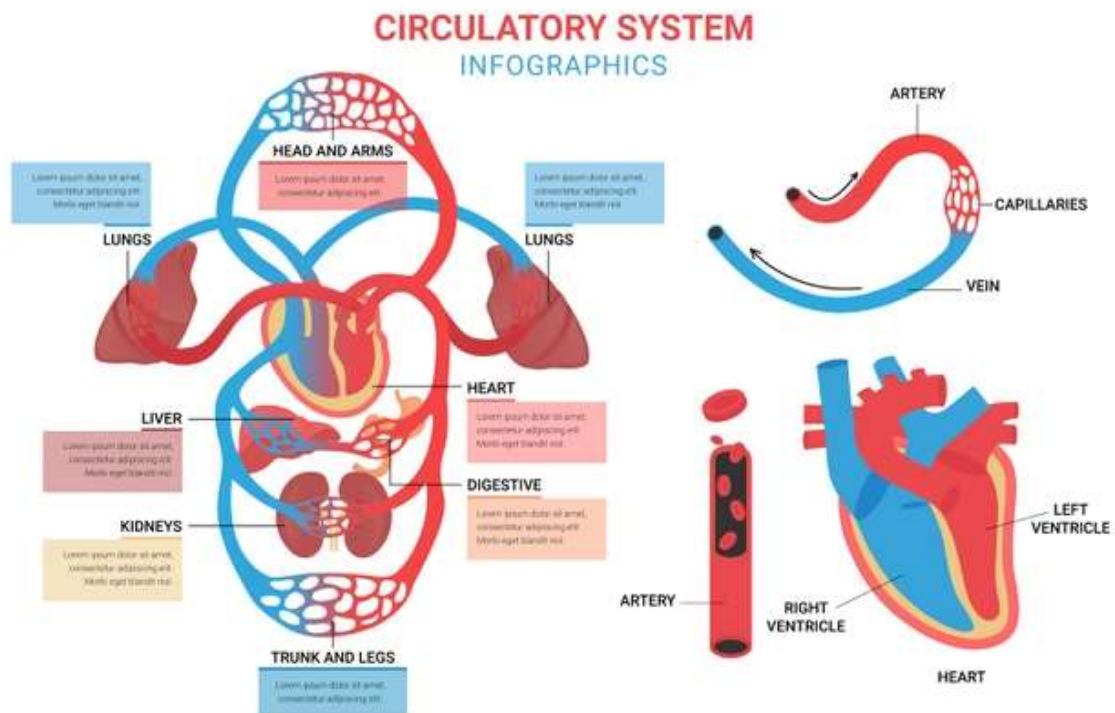


To support this, teachers should avoid having long written explanations next to the image as reading and listening to the same words makes it harder to take on board the learning as it increases the cognitive load. In addition, when using labelled images, labels should be part of the diagram to avoid splitting attention.

This is a good example of a labelled diagram.



Dual coding also involves using infographics, diagrams and sketch notes etc.



Using examples

One of the ways teachers explain new ideas is with the use of examples. Examples can make the abstract concrete and support conceptual understanding if used appropriately (Booth et al., 2017; Braithwaite & Goldstone, 2015). Examples supply content to the theory-building and schema-developing processes that are necessary for new knowledge to be connected, classified and stored. Also necessary for these processes are **non-examples** and borderline cases: the exceptions and hard cases that define the boundaries of a rule or definition. For learners to construct strong schemas, they need to understand the limits between what does and does not count as an example.

Anticipating misconceptions

In many subjects there are several errors or misconceptions that crop up repeatedly. These misconceptions need to be identified using curriculum knowledge and assessment. Teachers then plan opportunities to teach students about them directly and prepare questions and other resources that explore the misconceptions. When presenting misconceptions, children are sometimes asked to identify mistakes and misconceptions.

The 3Cs: Categorise, compare and contrast

A useful way to explain new concepts/learning is to frame the concepts using Shimamura's 3Cs: **categorise, compare and contrast**. These help children to attend and relate learning to previous learning.

Categorise: Define, select and organise. It is useful to present ideas in ways that engage children in understanding the defining characteristics of different categories and then organising examples according to the definitions: different categories of materials, living things, energy sources, art movements etc. More generally, common categories are advantages and disadvantages or positive or negative effects.

Compare: Look for similarities and differences. Features of different examples are often better understood by comparing them than studying them in isolation e.g. a range of beliefs or exemplars of writing, in terms of quality or style.

In presenting ideas, set up two or more examples. Engage children in looking for and describing similarities and differences.

Contrast: Emphasise differences, alternatives and conflicts. Contrasting is a more specific aspect of comparison, emphasising differences in order to form a deeper understanding of each of the alternatives. Key questions to use include:

- Which example is more effective?
- Which idea explains what we see more successfully?
- How are these perspectives different? Can they both be right?

Where appropriate, ask children to rank examples in terms of accuracy, quality and effectiveness so that they have to explore their different features.

Modelling

To demonstrate our learning aims properly, effective teachers give examples of problems and tasks through a range of modelling techniques.

'By making the implicit explicit, teachers are supporting students to form their own mental models, gaining confidence with the decisions they make.'

'Rosenshine's principles in action' Tom Sherrington

Effective strategies include:

I do, we do, you do

This is a useful strategy for new learning e.g. multiplying 3-digit numbers by 1-digit numbers or the different types of teeth. The teacher models and explains the new learning in the 'I do' section. During this section the teacher will explicitly talk through what they are doing but also, crucially, why they are doing what they are doing. Then the pupils have a chance to practise the new learning and prepare for independent learning (we do/Guided practice). This could involve partially completed examples or if it is a knowledge-based lesson, this could involve children applying their new learning in a different context. This will help the teacher to assess whether children have understood the new learning. Finally, they practice on their own or apply their new learning to a new situation in independent practice (I do). This ensures that all children are able to feel supported and ultimately successful.

Physical representations of completed tasks

Exemplars that can be used as scaffolds, such as a model opening paragraph of story. These can also be used to set the standard for the children's own work. Teachers can also share the challenges they face and what they found difficult.

Live modelling

Explicit narration of our thought processes when thinking through how to solve problems, undertake a creative activity or write an effective paragraph. This is important as it helps support pupils in developing their capacity for metacognition and self-regulation. It is also useful to model mistakes when live modelling as this shows children what it's like to encounter problems and strategies to overcome them.

In both of these types of modelling, children benefit from listening to the adults' actions and thought processes.

Conceptual models

Such as the ones we need to form to understand multiplicative reasoning (arrays etc.). This includes the use of physical manipulatives- blocks, shapes, place value counters- when learning about numbers and fractions in maths.

Error analysis

Such as making corrections to a paragraph or maths work.

Worked examples

One of the key ideas from Cognitive Load Theory is that novices learn more successfully from studying a series of completed worked examples of problems or tasks than they do if asked to problem-solve independently. This is because the cognitive load is reduced if we learn the overall method separately from trying to apply it to a particular question. Once we know the method, it is easier to apply it successfully. Teachers should make sure that they provide enough worked examples. The backward fading technique provides a good model for moving from guided to independent practice through worked examples.

Key steps:

1. Fully worked to introduce the method or ideas-live modelled;
2. Another fully worked example for reinforcement;
3. Partially worked example for students to finish off;
4. Cued start for student completion;
5. Completed independently.

18% of £65

$$\frac{18}{100} \times 65$$

$$= 0.18 \times 65$$

$$= \text{£}11.70$$

37% of £120

$$\frac{37}{100} \times 120$$

$$= 0.37 \times 120$$

$$= \text{£}44.40$$

68% of £1050

$$\frac{68}{100} \times 1050$$

$$= ? \times ?$$

$$= ?$$

4. Questioning and feedback (TS 5 and 6)

We ask questions to:

- Check understanding and identify misconceptions;
- Promote student thinking;
- Develop children's abilities to express themselves clearly (oracy)

At Merton Abbey, questioning is a highly interactive, dynamic and responsive process which can be summarised as *ask more questions to more students in more depth*.

A key technique for questioning is 'No hands up, except to ask a question' because while there are many confident students that can be relied on to enthusiastically raise their hands, provide and explain correct responses, there are also some students who are more than happy to let their peers answer and respond on their behalf. This is not inclusive teaching as some students are not participating fully.

Effective strategies include:

Checking for understanding

In every lesson it is essential to check for understanding of the whole class regularly after any **exposition or giving of instructions**. *We cannot assume that the answers of a few volunteers are representative of the class*. Obtaining a whole class response provides quick feedback about the success of the learning and allows for responsive teaching. It is also useful to identify individuals who need further input and can help direct subsequent questions.

Whiteboards are essential for this strategy as they allow for responses to multiple-choice questions as well as practice sentences, calculations and diagrams. We set the question, give some response time and then, on cue- '1, 2, 3, show me!'- children all show their answers at once. A simple 'A, B, C, D = 1, 2, 3, 4' show fingers also works well. Other methods of checking for understanding are: cold calling on a representative sample of students and circulating around the classroom to observe student work. A good question to ask here is '**What have you understood?**' rather than 'Have you understood?'

A process might be (steps 3 and 4 could be adapted/omitted):

- Cold call and ask the question (thinking time could be given before cold calling)
- Probe with a short dialogue using probing and process questions e.g. What other reasons could there be? Which of these features is the most important? What would happen next?
- Follow up with more checking dialogues: after 1 student has responded, select another student and repeat the process. They should answer the same question of a developed version and repeat for a third student. Can the students build on the previous responses?
- Explore differences and details: Which answer is more accurate, appropriate or sophisticated?
- Re-teach, defer or move on. Have students understood to a sufficient depth? Can the majority of students answer the questions? If you feel most have, move on. If not then we need to re-teach. You may also decide to defer to the next lesson.

'Two things' is also a useful technique for this as is asking children to summarise the learning so far.

Thinking time

Giving children extended thinking time to think before answering produces more thoughtful answers.

Think, pair, share

Pupils need space to think and air their initial responses to questions. This strategy prevents silences, and it prevents 'forest of hands' with students straining to get picked, or a culture of shouting out answers from taking hold. When using this technique, effective teachers give pupils a specific time-cued task for example, to decide on four main points in order of importance, in 2 minutes. Then ask them to share in pairs and then, on time, bring the back together with our stop signal. Effective teachers then engage with cold-call questioning, asking them to report back what their four points were.

Key parts of the routine:

- Select a person A or B (or whatever you want to call them) and announce whose turn it is first and switch halfway through or ask the listening person to feedback what their partner said.
- Ensure that students know how to share ideas with each other e.g. look at each other, nod or respond to ideas to show active listening.
- Teachers need to circulate during the discussion to pick up any misconceptions or to identify pairs to cold call.

Cold calling

This strategy is useful for ensuring that all pupils are engaging in the lesson. No hands up. Teachers ask questions, give some thinking time, select someone to respond, respond to the answers and select another child. This is an inclusive process and should be the default mode for most questions. Asking students to answer is a warm invitation to participate.

David, what were you thinking? Yusuf, did you have an answer? Yasmin, which three did you pick?

An example might run like this:

Ask the question: *Ok, everyone let's see. What's a good way to work out 12×17 ?*

Give thinking time: (No hands up, no calling out; scan the room as they think, keeping the focus)

Select someone to respond: *Right, so Kelly what were you thinking? (warm, invitational). "I think it's 204."*

Respond to the answers: *Yes, that's the right answer. What was your method? "I did 10×17 and then 2×17 and added them up"*

Select and another student: *Great. And Abdi what about you. What method did you use? "I did 10×12 makes 120 7×12 is 84 and then add them for 204". Well done - how does that compare to Kelly's answer?*

Key points about cold calling:

- Use student names as cold calling should be warm and part of a safe and inclusive classroom culture.
- Ask another question: Make a point of returning to a student you have recently asked to respond, so the class knows they cannot switch off and should stay focused throughout the lesson.
- Keep it positive: It should never appear that we are trying to catch students out. Although students are being held to account with this technique, it should never be used

to humiliate or embarrass. Cold calling is a great opportunity to provide genuine praise and encouragement to students or even interest, for example saying to a student, 'I'm really interested in what you might have to say on this topic.'

- Make time for wait time.
- Make it the norm in your classroom.
- Always follow up with process and probing questions to find out more about what they know, beyond what they say initially.
- Use 'say it again better' (see principle 1) if student's answers require reframing.
- Bring other students in after hearing a response: Do you agree? What was your answer? Say it back to me. Can you explain it differently?
- Seek feedback on your cold calling: Another useful idea is to ask an observer to give you feedback on your cold calling questioning- perhaps you aren't providing enough thinking time or are targeting the same students without realising it, as you suspect they will have the correct answer.

Cold call adaptations to build confidence

Pre-Call: This is when you tell one or more students that you will ask them to respond after you've given an explanation, read a passage or watched a video. Ok, John and Sabrina, after the video, I'd like you to summarise the key points for us. This gives them that extra bit of notice to prepare. Other students know they too could be cold called afterwards but John and Sabrina get some prep time.

Batched Cold-Call: This is when you tee up a number of students to answer in one go. *Right, now I've explained my examples, I'd love to hear your versions. I'll start with Michael, then Daisy, then Samuel.* You then ask them one by one. It gives Michael and especially Daisy and Samuel a heads up. They can get ready. Any sense of 'gotcha' is removed entirely. It also helps the teacher plan to spread questions.

Rehearse and Affirm: This is where, first, you have given all students an opportunity to share their answers non-verbally through a means you can see: whiteboards (Show me!); on their books as you circulate in a classroom; on a quizzing application or form where you see individual answers. You select answers that are correct or interesting and then cold call the students to ask them to expand. *Robyn, what a great answer. Could you explain how you came to that conclusion? Jason, well done, B is the correct answer. How did you know that?*

This technique has the effect of giving Robyn and Jason confidence in their understanding before they give their answer publicly. They already know they are right. It's a technique that is great for the less confident students; you build them up by asking them to explain their good ideas or correct answers you've already seen - rather than them having feel it's a risk offering answers at the point when they are still unsure.

What to do if students are wrong or don't know

This is something you can anticipate and prepare. It helps to have some scripts that help you create that culture where error and uncertainty are normalised. *That's a good effort James but not quite right. Let's try again... what was your first step?*

I can see what you're thinking Maya but that's a different question.

Let's look at it again together...

No, you're not there yet but tell me what you were thinking?

Responding to "I don't know"

1. Give the child the answer and ask them to explain how you got there.
2. Give them two options and get them to explain which one they agree with the most.

3. Remind them of the facts and use talk partners.
4. Always go back to students who say 'I don't know'.

No opt out

Students should feel safe in answering when unsure but, if they don't know or get things wrong, they should be given the opportunity to gain confidence by consolidating correct or secure answers.

1. Ask a question to the whole class and cold call. Don't accept hands up or calling out. Give some thinking time. Select a student to respond, making it feel like a warm invitation to participate- not a *gotcha*, trying to catch them out.
2. Explore don't know responses by asking follow up questions and giving prompts. Try to establish whether they don't know, having tried to work it out; or whether they are simply putting up a defence.
3. Provide the correct answer- either:
 - a) Ask other students to provide an answer or to share their ideas. If you get a good answer, move to step 4. I, after asking 3-4 students, nobody you asked knows the answer, ask for a volunteer: does anyone know?
 - b) Simply give the answer yourself. Tell the class directly.
4. Go back and check for understanding- This is the key to No opt out. Having obtained a good answer, check that all students who answered with 'I don't know' no do know and understand. This might include asking them to:
 - Repeat the definition or meaning of a word
 - Re-explain the concept or procedure
 - Repeat the instructions.

This allows them to rehearse their thinking and practice using vocabulary; a preliminary step in supporting long-term learning.

5. Break the 'Don't know' defensive habit- Once a routine is established, students learn that a 'don't know' reponse is never the end of the process; they will be expected to engage with what follows:

What's 19x9? Michael? Don't know.

OK...John? I have 10x19 is 190; take away 19, gives me 171.

Thanks. So, Michael...what is 19x9? Michael responds. He isn't allowed to opt out.

The way a teacher handles error and uncertainty has a huge bearing on students' willingness to contribute when they are uncertain. Make it normal, low key, unremarkable and focus on the reframing their thinking towards securing understanding. Consolidate, rehearse, use repetition - build confidence.

When questioning, avoid asking 'Guess what's in my head questions?' as this slows learning. If children have no prior knowledge of the learning, it is best to just tell them. Closed questions are useful to assess learning after teaching but only if the whole class respond.

Three types of question:

1. Subject specific questions i.e. ones that relate to the content and vocabulary being taught, 'What was different about the Palaeolithic and Mesolithic times, Martha?'
2. Administrative or process questions i.e. ones that help pupils participate, 'Do you have a pen?'
3. Self-regulation questions i.e. ones that coach and scaffold, 'What part of this word (you already know) would help you work out the meaning of the new word?'

Questioning to promote student thinking

We believe that questioning should promote children's thinking and we want all children to think deeply about what they are learning (principle d). All children should engage in probing questioning following explain and modelling.

Effective strategies for this are:

Probing/ Process questions

After receiving an answer to a question, it is useful to get pupils to elaborate on ideas and we prompt them to do this, rather than letting them say something and then moving on. *Probing questions* help to develop children's understanding by creating links between ideas, rehearsing explanations and connecting concrete and abstract ideas.

Key **probing** questions might include:

- Why?
- What's the connection between A and B?
- What else could you add?
- Is that always true or just in this case?
- Is there another example?
- Are you sure?
- What are the main reasons?
- What would be the most important factor?
- Is there another way you could explain it?
- In what ways is that similar or different to the previous example?

Process questions encourage metacognitive talk in the classroom. Key process questions might include:

- How do you know?
- How did you work it out?
- What method did you use?
- Why did you put them in that order?
- What made you think of that?
- Why do you think that would work?

Socratic questioning is useful to challenge the accuracy and completeness of thinking. There are 6 levels:

1. **Clarifying:** Why do you say/think that? What do you already know about that? That's a really interesting point- could you explain further?
2. **Challenging and probing about assumptions:** Is this always the case? Do you agree or disagree with this? What is that response based on?
3. **Demanding evidence:** Why do you say/think that? Can you give me an example of that? How do you know this? Can you support that statement with evidence?
4. **Looking at alternative viewpoints and perspectives:** What is the counterargument for...? Can/Did anyone see this another way? What are the advantages and disadvantages of this? Is there another explanation?
5. **Exploring implications and consequences:** But if...happened, what else would result? How does...affect...?
6. **Questioning the question:** Why do you think I asked that question? Have you got any questions about my original question? Why was that question important? Which of your questions turned out to be most useful?

Blooms Taxonomy- See Appendix 2.

Hands up for asking or ideas

When Cold Calling is the norm for teacher questioning, ‘hands up’ becomes available as a signal for when a student wants to make a contribution of any kind such as asking questions, offering ideas or making spontaneous observations.

1. Establish the expectations: If you have a question, an idea or want some help, raise your hand. If you raise your hand, I will assume that you have a question, an idea or want some help.
2. Welcome the input and reinforce the expectation. During a lesson, if a student raises their hand, welcome their input while reinforcing the expectations around it: Jason raises a hand *‘Thank you Jason, what’s your question-or do you need some help?’* If this happens while you are Cold Calling, reinforce the opposite: *‘Thanks Jason, but we’re giving everyone time to think; I’ll select someone to answer in a minute.’*
3. Answer the question. If the question feeds directly into the material at hand, either answer it directly: *‘Great question, Jason. The reason is...’* Or use a probing question to see if the student can answer their own question: *‘Can you see the connection here? Why was this step needed?’* If the question is potential distracting: *‘Great question, Jason. I’ll come back to that in just a while.’* Then make sure you do.
4. Or engage with ideas. In order to support deeper learning, it is helpful to explore ideas, beyond simply airing them. *‘Daisy, a great idea. Why do you think that?’ Sam- that’s really interesting. ‘What effect would that have?’ ‘Zaina- nice idea. Do you think that would work in practice?’*
5. Engage others and check for understanding. Ideally, students’ questions and ideas should benefit everyone in the class. To ensure everyone is involved, use Check for Understanding techniques, sampling the room to check that others have heard and understood. *‘Clara- what do you think of Daisy’s ideas? Would you agree with that?’* Reinforce the expectation that students’ contributions flow from having listened to what other students have already said.

Pose, Pause, Pounce, Bounce

1. Ask a good question
2. Give think time to ensure greater depth of answer: make wait time transparent and use talk partners.
3. Get them to say what they heard, not what they said. Then...

Querying

It is useful to engage pupils in questioning each other’s ideas, asking, ‘What do you think of that?’, ‘Are they right?’ and ‘Do you agree?’ Another useful technique for this is; **‘Listen. Then ABC’**.

- A - I agree with you because...
- B - I want to build on what you said...
- C - I’d like to challenge your thinking...

Circulating during independent work

Once an orderly and productive work environment is established, teachers assess during independent work through the use of intentional circulating:

- ✓ checking in;
- ✓ doing individual conferencing;
- ✓ holding children accountable for their work;

- ✓ providing guidance etc. in 30 second bursts.

Peer and self-assessment

Children need regular opportunities to assess their own work, and that of others. This requires that children are clear about the success criteria and what success looks like. We give children opportunities to mark their own work in maths and to edit and improve their first draft of written work. Giving feedback is clearly modelled using visualisers and anonymous work and children are helped to give feedback which is specific, kind and helpful.

End of lesson assessments

All independent work is assessed at the end of the lesson to ensure that the new learning has been understood. Feedback is given to individuals or groups and future lessons are adapted in response to these assessments. A useful strategy for this is the use of an **exit ticket**. Each child has a small piece of paper to write the answer on. This could be anonymous. The teacher asks a question which is recorded on the paper and handed in at the end of the lesson. The teacher can then read through the responses to assess understanding and address any misconceptions in the next lesson. This is particularly effective when teaching new concepts especially when children are required to know specific definitions. It can also be used to consolidate learning. The question could be written on the paper or on the board.

Feedback

Children will receive feedback in many ways:

- Verbal feedback during a lesson
- Written feedback during or after a lesson
- As part of a whole class feedback session

However children receive feedback, it should fulfil one of these three principles:

1. Clarification- what is right and what needs correcting
2. Motivation- Success and recognition
3. Sophistication- Connecting, comparing, contrasting and deconstructing what students know and can do

5. Practice (TS 2, 3 and 6)

Independent practice is where children connect, explain, attempt and apply their learning. It is key in helping children to make sense of their learning and to aid retention of new learning. To help with this, children should have to think hard. Children should be authors of their own learning and we aim for children to be creators rather than consumers so we try to avoid only relying on worksheets.

Effective techniques include:

Guided Practice

Guided practice occurs after the initial explaining and modelling. It will involve a short task using the new idea or skill (such as multiplying 2 x 2 digits using short multiplication or different types of volcanoes) This could also take the form of a 'thinking question' to ensure that children fully understand the new learning, such as a True or False question in maths. The modelled examples or key information are kept in view as students engage in the practice.

During guided practice, teachers circulate looking for success. As well as identifying success, teachers highlight key elements of weak performance or errors in understanding. When these are common to the class, teachers stop the class to address or remodel key elements. If the children are achieving success with the learning, teachers extend the practice to include a wider range of examples or more challenging content.

Independent Practice

Following the teacher's assessment during Guided Practice, pupils can engage in Independent Practice. This could involve setting tasks that use the same material featured during Guided Practice for example a straightforward repeat or near identical questions and activities to those that were modelled. It could be an extension of those activities with increasing levels of challenge as pupils' fluency develops. It could also involve children applying their learning to a new context or involve generative activities in which they have to organise their work.

Tasks must present an appropriate level of difficulty for each student: hard enough to move them forward, but not so hard that they cannot cope, given the existing knowledge and resources they can draw on. This independent work is the route to mastery (see principle d) Independent learning must also promote deep rather than just surface-level thinking (Hattie, 2012), focusing on abstraction, generalisation and the connectedness and flexibility of ideas rather than just reproduction of facts or procedures.

We try to avoid using pre-prepared worksheets too often as **'Completion of prepared materials does not allow children to interrogate the connect, struggle with it and make sense of it on their own terms'** Mary Myatt 'Back on Track'

We also believe that Independent learning needs to **'Privilege thinking over task completion'** Mary Myatt

Sufficient time in lessons should be given for children to engage in rigorous and challenging work.

The 3Cs: Categorise, compare and contrast

Shimamura's 3Cs are also useful for selecting independent tasks (when learning new knowledge or a new concept) to help children demonstrate their learning. These 3Cs are effective because they help children acquire new knowledge by integrating new information with what they already know.

'Developing links that relate new information with existing knowledge is important as the new information itself' Shimamura, 2020

Examples:

Questions related to COVID-19 could be: 'What is a virus?' (categorise); How is COVID-19 similar to other viruses? (compare) or 'How are viruses different from bacteria? (contrast)





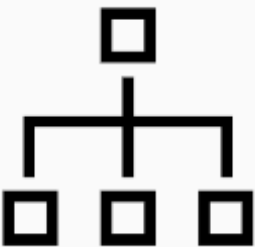
- When learning about flowering plants, children could use prior learning on non-flowering plants to contrast the 2 types of flowers.
- When learning about the 5 types of vertebrates, children could complete a characteristics table to classify the vertebrates.
- After learning about 2 different regions in Europe e.g. The Lake District and the Tatra mountains, children could complete a Venn diagram to compare and contrast the two regions.

Generative learning activities

In **Learning as a Generative Activity**, Mayer relays the SOI model of memory. This model suggests that learning occurs by the mind going through three processes: **selection, organisation and integration**. Students need to actively self-generate information in working

memory, not simply restating what has been learned but reframing it in their own terms. The more often students self-generate material, ‘the better it will be established as a long-lasting memory’.

Logan Fiorella and Richard E. Mayer share evidence-based learning strategies that promote understanding.

	<p>Summarise Pupils select the content you have taught, organise it with scaffolds (e.g. knowledge notes) or self-select ways to represent knowledge. Single sentences or sentence with stems helps to refine the content and show what the pupil knows and can recall. Where appropriate, short punchy sentences convey information without detracting from the content. Diary entries used in history and geography increase the load on the working memory and don’t always offer the outcome for the effort.</p>
	<p>Structured discussion and imagining Pupils rehearse your explanations using previous and new vocabulary. Written and oral sentence stems help to reduce the load on the working memory. Pupils imagine and orally rehearse known content and then check against worked examples.</p>
	<p>Retrieval and recall Pupils recall and redraw diagrams and explanations using worked, partial or non-examples, depending on the fluency of knowledge. This will be facilitated through direct instruction, guided practice and independent practice.</p>
	<p>Retrieval through- ‘Just Two Things’ Books closed and by yourself, write down two things that summarise the learning so far. Useful to retrieve and remember the content being learnt. Share this with your partner. What is similar, what is different? Which are important? Why? Integrate- how does this connect with what I already know?</p>
	<p>Explain through drawing or mapping Organisational drawings show relationships, such as the difference between Roman soldiers and Iron age warriors. An explanative drawing elaborates and presents cause, effect and consequences of actions, such as the cause of the Roman invasion of Britain, the effect on tribes and communities as well as the consequence of the invasion on Iron age people. Mapping connects ideas together comparing relationships. Decorative or representational drawings give less value than organisational (mapping and drawing) and explanative drawings (cause effect and consequence diagrams such as fishbone diagrams)</p>



Self-testing or low threat quizzing

For younger pupils these are in the form of written or spoken instructions. Links to summarising as pupils can be asked to write and explain all they know about a subject they have studied. Structured and cumulative quizzing revisits content again and again. It demands retrieval and integration with existing knowledge.

Scaffolding complex tasks

We recognise that complex tasks often require scaffolding: beginning with a simplified or limited version of the task to make it manageable. This often requires some differentiation, as different learners may begin with different levels of readiness and different capacity for learning new material. A knowledge of individual students' needs, including SEND, comes into play here.

However, one of the defining characteristics of great teachers is that they require all students to achieve success (Hattie, 2012).

The key is that scaffolds are temporary; they support the development of a cognitive process but are withdrawn so that pupils don't become reliant on them. This is a form of guided practice before the independent work. A real-life example of scaffolding is the use of stabilisers for learning to ride a bike. Examples include:

1. Writing frames- Examples of this could be providing opening sentences when answering questions on a book or in science.
2. Using concrete resources in maths lessons to develop conceptual understanding.
3. Anticipating errors and misconceptions- An important part of modelling and explaining is to anticipate common errors and to explicitly challenge misconceptions. A form of scaffolding is to tackle these things head-on, highlighting potential pitfalls and supporting students in checking their own work. Examples include keeping place value aligned in subtraction, multiplication and division or attending to the BIDMAS order of operations. In writing, pupils can be provided with a checklist of common errors- full stops, capital letters, correct use of apostrophes- which pupils use initially and gradually stop relying on as they internalise the conventions.
4. Providing worksheets for children to record their learning in maths lessons (if recording in books would hamper mathematical thinking)
5. Knowledge notes which can help students recall key words and information.

Scaffolding provides a gentler entry, but the destination remains the same. Lower-attainers may take longer and need more help, but the job of teachers is to 'disrupt the bell curve', not just to preserve it (William, 2018).

Practising procedures until they are fluent and accurate

Our teachers ensure that pupils practise any procedures that are regularly required to be fluent and accurate. A large body of psychological research shows that 'overlearning' (continuing to practise after performance has reached a specified standard) can be important for producing learning that is durable and flexible (Soderstrom & Bjork, 2015). Knowledge or schemas that are required for future learning must be secure and readily retrievable e.g. times tables, number bonds and phonics. Forgetting is normal but can be slowed or prevented by periodic revisiting and review (see daily and weekly review below)

Great teachers ensure that pupils practise until learning is fluent, automatic and secure.

References:

'The thinking school' Dr Kulvarn Atwal

'Rosenshine's principles in action' Tom Sherrington

'Making every lesson count' Shaun Allison and Andy Tharby

'Embedding formative assessment' Dylan Wiliam and Siobhan Leahy

'Teaching Walkthrus 1 and 2' Tom Sherrington and Oliver Caviglioli

'Great teaching toolkit' Rob Coe et al

Other relevant policies:

Curriculum policy, Assessment policy, SEND policy, EYFS policy, Behaviour policy, Feedback policy

Appendix 1: Success criteria

Benefits of success criteria

Once the learner has the success criteria, they have a framework for formative dialogue- with peers or adults- which enable them to:

1. Know what the learning intention means;
2. Know the steps involved with a closed learning intention (e.g. to find the percentages of whole numbers) or the elements of a particular writing form (e.g. a newspaper report);
3. Know the possible ingredients for an open learning intention (e.g. a ghost story opening);
4. Identify where success has been achieved where help might be needed;
5. Be clearer about where improvements can be made;
6. Discuss strategies for improvement;
7. Reflect on progress.

Strategies for co-constructing success criteria

1. Give them a good finished example of the work they will be doing (writing/mathematics/art/PE video etc.) and ask what features they can see/what the thing consists of;
2. Show 2 contrasting pieces of finished work as above and ask which is best and why. The analysis via talking partners will generate the success criteria, by focusing on what the poorer example could include to be as good as the better example;
3. Get them to do one example first (if a repeating exercise or skill for which the finished product does not reveal the success criteria) then tell you what steps they followed or needed to include);
4. Demonstrate how to create the finished product by doing everything wrong, so that the pupils have to correct you, thus creating the success criteria;
5. Have 'sloppy success criteria', with an incorrect piece, which need to be put right;
6. Demonstrate, possibly with a visualiser, with talk partners deciding what the elements/steps consist of as they watch you.

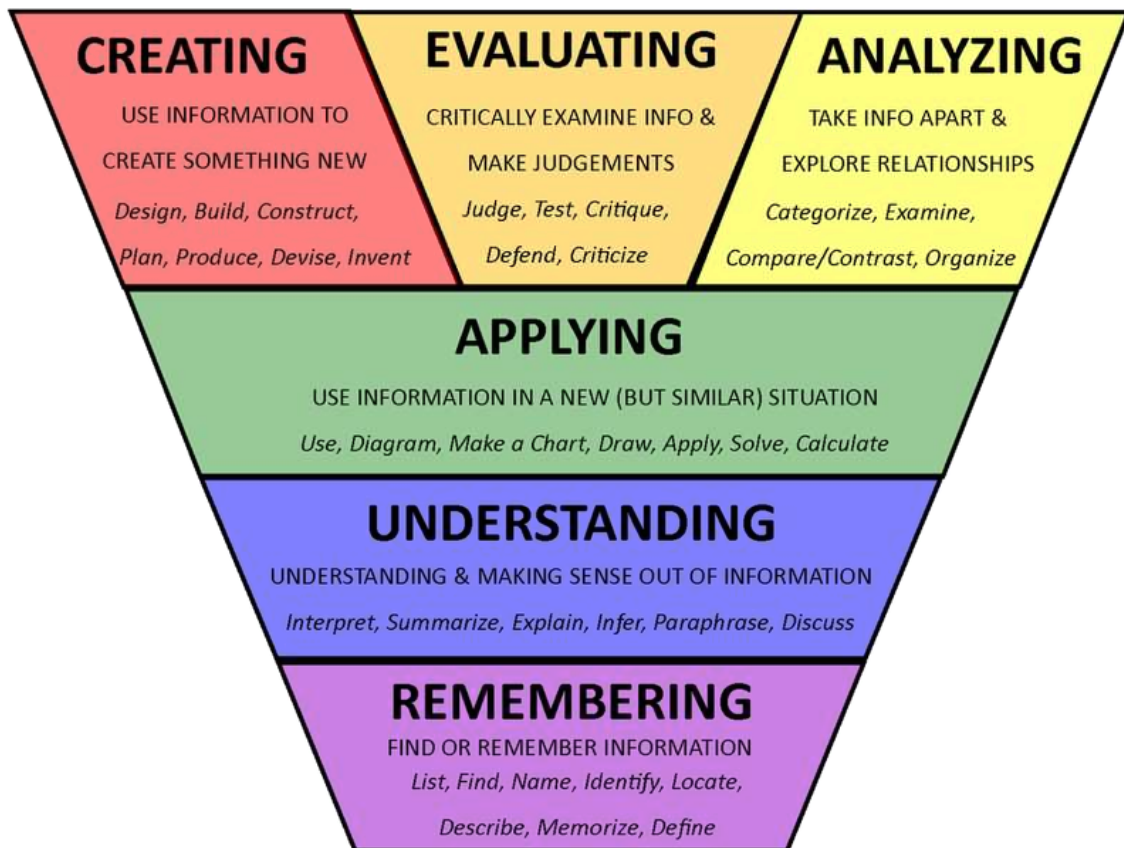
Appendix 2: Lesson Evaluation Toolkit- Typical features of high-quality inclusive teaching

This is an aide-memoir is not intended to be used as a checklist.

Elements	Structural features	Notes
Managing routines and relationships (proactive)	<ul style="list-style-type: none"> • Teacher is assertive and clear about expectations of behaviour • Assertive command x3 • Narrating the positive • Signal, pause, insist • Time limits and expectations • Clear routines are embedded 	
Managing behaviour (reactive)	<ul style="list-style-type: none"> • Follows the school's behaviour policy with fidelity • Positive framing • Non-verbal interventions • Calm and always the adult 	
High expectations and challenge	<ul style="list-style-type: none"> • Challenging learning intention for all • Students are aware of what success looks like • Students are exposed to ambitious tier 2 and tier 3 vocabulary and are clear on their meaning • High expectations of children's oral responses- say it again better, right is right, responding in full sentences 	
Retrieval Practice	<ul style="list-style-type: none"> • Retrieval Practice is a regular part of the classroom culture and accessible by all • A wide range of approaches are used including generative activities • Questions are based on the last lesson, last unit or previous units 	
Explanation and modelling	<ul style="list-style-type: none"> • Learning aims and the wider picture are shared with students at their own level • The teacher's subject knowledge is secure • Explanations and visuals are used to stimulate interest • New material is presented using small steps • New learning is tethered to prior learning • Interactive- include frequent checks of understanding • Dual coding is used to provide clear explanations • I do, we do, you do is used to support learning 	

	<ul style="list-style-type: none"> • Live modelling and use of good examples set high standards 	
Questioning and feedback	<ul style="list-style-type: none"> • Cold calling is the default method for asking questions • Think, pair, share is used regularly • Checks of understanding are used throughout the lesson • Thinking time is provided • Probing and process questions encourage children to explain their reasoning • Wrong answers are welcome and used sensitivity to push learning forward • Questions enable students to think hard during lessons • Peer and self-assessment are used regularly 	
Practice	<ul style="list-style-type: none"> • Guided Practice is used to bridge the gap between explanations and independent practice • Independent practice tasks encourage children to think and move learning forward and into the LTM- the 3Cs and generative learning • Tasks are scaffolded effectively to enable children to access the learning • Procedures are practised until they are fluent and accurate 	

Appendix 3: Blooms Taxonomy



Ineffective questioning techniques:

- **Getting students to guess:** This often happens with new vocabulary. For example, asking ‘Who can tell me what ‘evolution’ means?’ or ‘What is the formula for calculating the area of a rectangle?’ when you have yet to teach it. It is a waste of time; we are far better telling the class rather than asking them to guess what you are thinking.
- **Asking an open question before teaching the knowledge needed to answer it.**
- **The same kind of question all of the time.**
- **Too many questions at once.**
- **Asking a question and answering it yourself.**
- **Only questioning the high achievers.**

(G Brown and Wragg, 1993)

LEVEL 1 - REMEMBERING		LEVEL 2 - UNDERSTANDING		LEVEL 3 - APPLYING	
Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.		Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.		Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	
Key Words	Questions	Key Words	Questions	Key Words	Questions
choose define find how label list match name omit recall relate select show spell tell what when where which who why	What is ...? Where is ...? How did ___ happen? Why did ...? When did ...? How would you show ...? Who were the main ...? Which one ...? How is ...? When did ___ happen? How would you explain ...? How would you describe ...? Can you recall ...? Can you select ...? Can you list the three ...? Who was ...?	classify compare contrast demonstrate explain extend illustrate infer interpret outline relate rephrase show summarize translate	How would you classify ...? How would you compare ...? How would you contrast ...? State in your own words ...? Rephrase the meaning ...? What facts or ideas show ...? What is the main idea of ...? Which statements support ...? Explain what is happening ...? What is meant ...? What can you say about ...? Which is the best answer ...? How would you summarize ...?	apply build choose construct develop experiment with identify interview make use of model organize plan select solve utilize	How would you use ...? What examples can you find to ...? How would you solve ___ using what you've learned ...? How would you organize ___ to show ...? How would you show your understanding of ...? What approach would you use to ...? How would you apply what you learned to develop ...? What other way would you plan to ...? What would result if ...? Can you make use of the facts to ...? What elements would you choose to change ...? What facts would you select to show ...? What questions would you ask in an interview with ...?

LEVEL 4 - ANALYZING		LEVEL 5 - EVALUATING		LEVEL 6 - CREATING	
Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.		Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.		Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	
Key Words	Questions	Key Words	Questions	Key Words	Questions
analyze assume categorize classify compare conclusion contrast discover dissect distinguish divide examine function inference inspect list motive relationships simplify survey take part in test for theme	What are the parts of ...? How is ___ related to ...? Why do you think ...? What is the theme ...? What motive is there ...? Can you list the parts ...? What inference can you make ...? What conclusions can you draw? How would you classify...? How would you categorize...? Can you identify ...? What evidence can you find ...? What is the relationship ...? Can you distinguish between ...? What is the function of ...? What ideas justify ...?	agree appraise assess award choose compare conclude criteria criticize decide deduct defend determine disprove dispute estimate evaluate explain importance influence interpret judge justify measure opinion perceive prioritize prove rate recommend select support value	Do you agree with the actions...? with the outcome...? What is your opinion of ...? How would you prove/disprove ? Assess the value /importance of? Would it be better if ...? Why did they (the character) choose ...? What would you recommend...? How would you rate the ...? What would you cite to defend the actions ...? How could you determine...? What choices ...? How would you prioritize ...? What judgment can you make ...? Based on what you know, how would you explain ...? What information would you use to support the view...? How would you justify ...? What data was used to make the conclusion...? What was it better that ...? How would you compare the ideas ...? people ...?	adapt build change choose combine compile compose construct create design develop discuss elaborate estimate formulate happen imagine improve invent make up maximize minimize modify original originate plan predict propose solution solve suppose test theory	What changes would you make to solve ...? How would you improve ...? What would happen if ...? Can you elaborate on the reason ...? Can you propose an alternative...? Can you invent ...? How would you adapt ___ to create a different ...? How could you change (modify) the plot (plan) ...? What could be done to minimize/max ...? What way would you design ...? What could be combined to improve (change) ...? Suppose you could___what would you do ...? How would you test ...? Can you formulate a theory for ...? Can you predict the outcome if ...? How would you estimate the results for ...? What facts can you compile ...? Construct a model that would change ...? Think of an original way for the ...?

Blooms Taxonomy Using Questions for Learning

name define recall describe identify

1 I Remember...

- What...?
- Where does... come from?
- Where...?
- Can you describe...?
- When...?
- Where does it say...?
- Why...?
- Who...?
- Do you remember...?
- What does... look like?
- How...?
- What is it called?
- Which...?
- What do you know about...?
- When did it happen?

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interpret predict recall describe identify

2 I Understand...

- What...?
- Can you give a reason for...?
- Why did this happen?

- Can you explain what happened?
- Where does it say...?
- How is... feeling?
- When...?
- Which word tells you...?
- Who...?
- What is going to happen in the next sequence?
- Can you give a reason for..?
- Which word tells you...?
- What does this mean?
- Why...?
- What are the key features?
- How can you compare....?
- What is the main idea?

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use demonstrate relate transfer knowledge show

3 I Can Apply...

- Can you think of something similar?
- What could you use this for?
- Which facts can you use to show that ...?

- Which elements can you change?
- Can you use any of these sentences in your own writing?
- Can you think of another story/ situation that is similar?
- How can you organise the information to share it with someone else?
- How can you use what you have learnt?
- Can you demonstrate...?
- What would you have done in the same situation?
- What might happen..?

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Blooms Taxonomy Using Questions for Learning

infer select investigate classify examine

4 I Can Analyse...

- what evidence can you find?
- How could you group/
- Can you investigate the differences...?
- Can you infer what happened?
- What is the relationship between... and ...?
- What makes you think...?
- Can you select the important

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- Can you investigate the differences...?
- Can you infer what happened?
- What is the relationship between... and ...?
- What makes you think...?
- Can you select the important information?
- Can you examine the motives?
- Can you see a pattern?
- What makes you think that?
- Which information backs up your opinion?
- Is there a common theme?

Blooms Taxonomy Using Questions for Learning

assess judge compare criticise recommend

5 I Can Evaluate...

- What would you recommend?
- How would you rate it?
- What did you find out?

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- How can you decide whether it worked or not?
- How does it compare to...?
- What would your points for improvement be?
- What made this successful? Why?
- Would it be better if..?
- What was less successful?
- Can you summarise the main points?
- What judgements have you made?
- What would you do differently?
- What went well?

Blooms Taxonomy Using Questions for Learning

plan design compose imagine construct

6 I Can Create...

- Which parts can you improve?
- What would you do differently next time?
- Is there anything you would remove?
- Can you make changes to get around the problem?

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- Could you alter the plan/story?
- Can you write a report on what you have found out?
- Can you think of a better way to...?
- Could you design a new way to...?
- What would you have done to...?
- What is your opinion? What evidence supports your view?
- Can you write your own?
- What would you add?
- Is there a test you can design to find the answer?
- How this affected your views?

Appendix 4: Question matrix

	Is? / Does? Present	Has? / Did? / Was? Past	Can? Possibility	Should? Opinion	Would? / Could? Probability	Will? Prediction	Might? Imagination
What? Event							
Where? Place							
When? Time							
Which? Choice							
Who? Person							
Why? Reason							
How? Meaning							