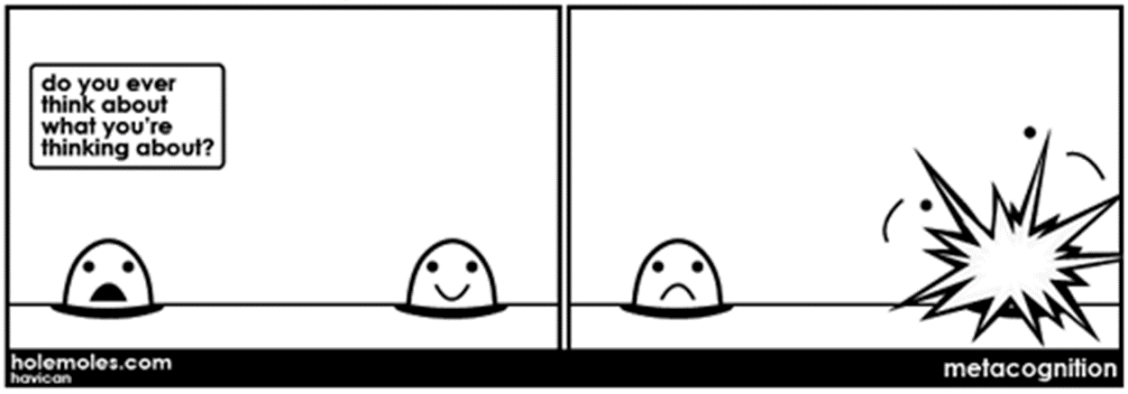
Metacognition

Metacognition is the awareness and understanding of one's own thought processes. Thinking about thinking. Metacognition refers to learners' automatic awareness of their own knowledge and their ability to understand, control, and manipulate their own cognitive processes. Metacognitive skills are important not only in school, but throughout life. As part of our investigation into metacognition, we are examining the characteristics of a metacognitive classroom. Please also see the summary 'introduction to metacognition'. This document examines 6 of the many characteristics of metacognitive classrooms that can be used as a vehicle for accelerating learning and developing pupil's metacognitive skills.



Characteristics of the metacognitive classroom:

- Challenging tasks
- Modelling thinking
- Thinking diagrams
- Language for thinking
- Time to think
- Thinking aloud
- Sustained dialogue about thinking
- Joint thinking
- Making connections
- Purposeful planning of how to use time
- Rich in self-evaluation, peer evaluation and teacher feedback
- Explicit teaching and evaluation of learning strategies
- Opportunities to test out and evaluate learning strategies
- Awareness and appreciation of different learning approaches and styles
- Choice, access to resources, independence in deciding how to present answers
- Purposeful planning of how to approach tasks
- Engagement in goal setting, developing success criteria, planning actions of how to achieve goals
- Growth mindsets
- Knowledge and understanding of the brain, memory and learning
- Understanding and awareness of what metacognition is and how it helps you to achieve goals
- Creative problem solving

Modelling the thought process & thinking aloud

Effective think-alouds involve **demonstrating whilst voicing aloud all your thought processes**. Not just 'how' to do something, but the internal narrative that matches the demonstration. Think-alouds show pupils how you have arrived at decisions, reasons for actions, insights into how to complete the task successfully, pitfalls to avoid, how to correct mistakes… etc. They should show your thinking very clearly – allowing the pupil to see the metacognitive processes at work.

Pupils often believe, incorrectly, that an expert's thinking is always assured, linear, correct and unswerving. When they gaze on their teacher as she completes a quadratic equation, they can't see that, inside her head, she is rapidly entertaining and discarding possible ways to factor, isolate the coefficients, and such. All they see is the teacher flawlessly executing yet another difficult problem. Pupils ask themselves : "How can I possibly do this?"

Example of a think-aloud

The following is of a teacher who has begun a watercolour painting unit. She knows her pupils need to learn how to stretch their watercolour paper correctly in order to have a satisfactory result with their end product. She begins by naming all the materials she will need for the task, including the paper, art tape, clean water and two sponges, and a board for mounting paper. Next she talks through the process:

> *"The first thing I need to do is check to make sure I have the side of the paper I want to use facing up. I can paint on either side, but I like to use the rougher side of the paper because it seems to hold my paint better. I can run my hand over both sides of the paper to figure out which side is rougher. The paper needs to soak in water for a few minutes, so I am going to place it in the pan and set the timer for three minutes. That way I won't forget. In the pan, I put tepid water, which means water that is around room temperature. Hot water can ruin the paper. While it is soaking, I'll cut the strips of tape I'll need to mount the paper on the board. I have to make sure that the tape isn't shorter than the length of each side. If it is the paper will dry funny, and I'll have a big bubble in it."*

After the timer rings, the teacher continues:

> *"I'm going to be careful as I lift the paper, because I want as much water as possible to drain off. I can't put a sopping wet paper in the board because it will take forever to dry."*

The demonstration and think aloud continues…

This demonstration includes not only the sequence of steps but the insights into how to decide when it's time to go on to the next step. The teacher carefully notes the errors to avoid when completing the task.

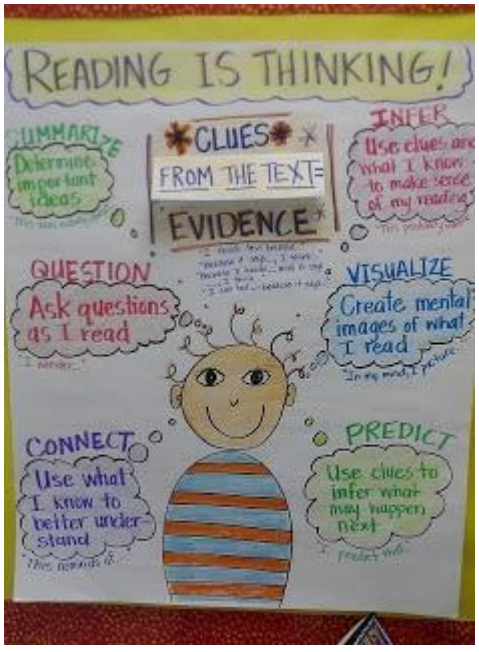
Duffy (2009) refers to think-alouds as "letting the pupils in on a secret" to successfully completing a task.

Advice about how to conduct an effective think-aloud:

- ***Keep the focus of the think-aloud brief.*** It can be easy to get carried away and turn the think around into a rambling monologue with every thought that wonders through your head. Think carefully about what you are sharing. Choose a short piece of text, a single mathematical problem, or part of a process. It is better to deliver a short, but effective think-aloud than one that serves only to confuse the learner with too many details.
- ***Pay attention to your own thinking processes as you design your think-aloud.*** This is really very difficult when you are an expert at something. Nathan and Petroshino (2003) state that "well-developed subject matter knowledge can lead people to assume that learning should follow the structure of the subject-matter domain rather than the learning needs and developmental profiles of novices" – a phenomenon they call the "expert blind spot". In other words, it can be difficult to retrace your own learning footsteps to recall a time when this information was new to you.
- ***Find your authentic voice when you think aloud.*** This approach requires lots of 'I' statements, which can feel contrived when you begin. As teachers, it seems more comfortable to tell students information, using lots of "you" statements. The problem with "you" statements is that our instruction reverts to direct explanation, rather than making expert thinking transparent. Resist adopting an overly academic voice.
- ***Think like the expert you are.*** Keeping a think-aloud authentic doesn't mean you have to check your expertise at the door. Effective think-alouds give you the opportunity to think like a mathematician, scientist, artist, historian, athlete, or literary critic you are, in front of your pupils.
- ***Name your cognitive and metacognitive processes.*** Labelling is essential if pupils are to build their own metacognitive awareness. E.g. "Ok, that didn't work, so I have to try a different formula" (problem solve), "Wow, that's something I didn't know until just now, reading this article" (acquire new information), "I know I usually understand the article better if I have a good look at the title and the photographs first" (regulating learning).

The above advice and examples have been taken from 'Better learning through structured teaching: A framework for the gradual release of responsibility', by Douglas Fisher and Nancy Frey.

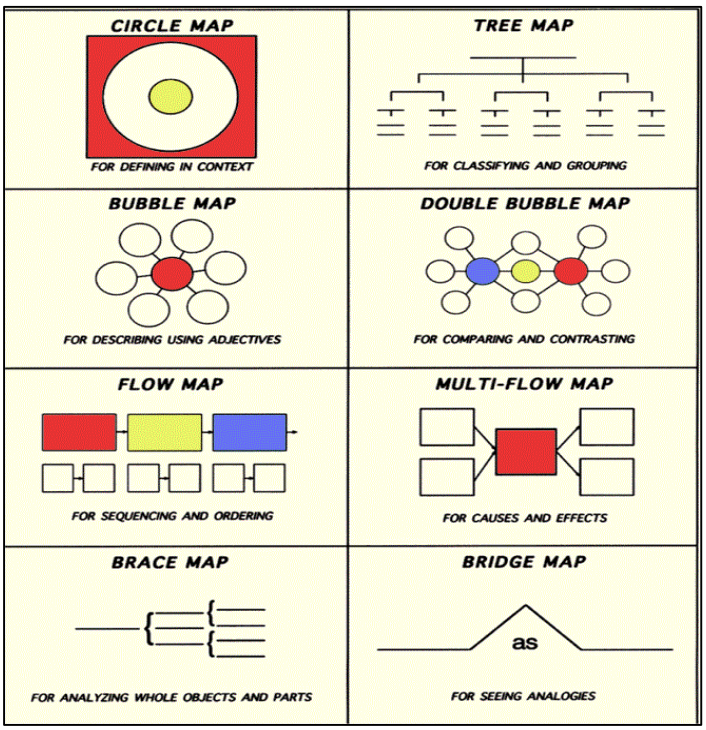
Comprehension and reading



Think alouds can be really helpful in supporting pupils to access a text. It lets the pupil see the thought processes that are happening as the teacher reads. For example, what inferences they are making, what they are visualising, how they cope with tricky words, what they do if they don't understand the sentence or the text is complex, how they question and connect information, etc.

As well as helping pupils to access the text in order to complete the learning activity for the day, a think aloud helps to equip pupils for future encounters with texts.

Thinking diagrams and strategies to promote thinking in context



Thinking maps **should <u>not</u> be taught in isolation,** but should be selected to meet the needs of particular task within a topic.

Discussion should take place as to **why this thinking map is appropriate** for the task (whilst also drawing pupils' attention to other strategies that could be used).

It is important to **explicitly teach this as a 'strategy for learning'** and **evaluate its usefulness at the end.**

The above diagram shows 8 thinking maps. More information about these thinking maps can be found in 'Student successes with thinking maps' by David N. Hyerle and Larry Alper (2nd Edition).

Thinking maps support pupils to think in more breadth and/or detail than may otherwise be achieved. Cognition is limited by language and vice versa. For many lower ability and disadvantaged pupils having the right language is a barrier to achieving success. "Thinking maps can offer an approach which helps more focused language to develop. Maps allow for interactions between listening, speaking, reading and writing within a language of thinking that bridges visual-spatial and verbal representations. Consequently, they profoundly change both the language used within the classroom and the language demands of the classroom. This change allows students who struggle with listening, speaking, reading, or writing, or who previously could only stand on the side-lines, to get into the game." (Hyerle & Alper).

Thinking maps can change the way teachers talk to pupils and the way pupils talk to themselves and each other. Pupils can he heard using words such as 'think, clarify, sequence, analogy, and brainstorm'.

For example:

Nick, a Year 6 pupil with a learning disability shared a Double Bubble Map be made to compare and contrast the main characters in two books he read during independent reading time. He not only read the words and phrases on his map to his classmates; he also elaborated upon each idea by offering details and examples from the two books he read. For example, when discussing the similarities of the characters regarding the making of new friends, Nick explained that Robinson met a native person on his island, while Cody met a person in the woods. Both found new friends to help them survive while they were stranded in isolated environments – Robinson on an island and Cody in the arctic forest of Alaska. Nick recalled key facts about each character, and what is more impressive is that making the map help him to remember, integrate, and understand the books at a deep level. Talking from the map allowed him to share what he knew in nicely

organised and coherent discourse. Nick notes that he never would have remembered all those details if he hadn't constructed that kind of map. He went on to explain that the Double Bubble and Tree maps help him more than other Thinking Maps because they specify ways of thinking he previously found difficult. (Extract from Hyerle and Alper).

It is important that pupils learn not only to use the maps but to evaluate their use of them. This helps them to see this as a strategy that they can apply to different types of activity and learning challenges.

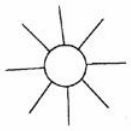
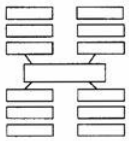
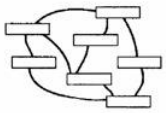
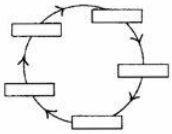
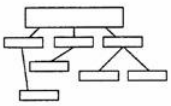
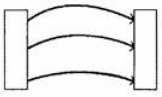
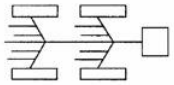
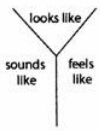
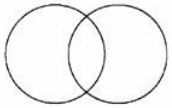
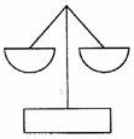
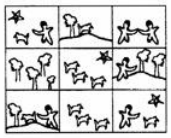
Thinking maps help pupils to reflect on their own thinking: thus engaging in metacognition. They support internal dialogue whilst a pupil is working and help to mediate thinking between individuals in the classroom. Not only do the maps foster pupils' increased awareness of their individual cognitive and metacognitive style, but they allow the teacher to glimpse pupils' metacognition, thus enabling them to assess areas of strength and weaknesses to support accelerated learning.

In addition to thinking maps, other tools can be used to help pupils to think in greater breadth or detail, help them connect learning, organise their thoughts and share their ideas with others.

For example:

- Brainstorming
- Mind mapping
- Post it note activities
- Logo visual thinking
- Techniques such as What Went Well and Even Better If
- Questioning each other
- Putting statements on a scale of 0-10
- Categorising : such as Venn diagrams

Making Thinking Visual with Graphic Organisers

KEY PURPOSE OF THE ORGANISER	SAMPLE GRAPHIC ORGANISERS		
Recalling, grouping, classifying, summarising ideas	 Spider diagram	 Affinity/cluster web	 Concept map
Sequencing events, ordering ideas	 Cycle circle	 Flow chart	 Twister
Showing causal links (cause and effect)	 Futures wheel	 Bridge	 Fishbone
Deeper analysis—dissecting an idea into specific components and exploring different attributes	 Y chart	 T chart	 Venn diagram
Planning and decision making or reviewing	 Scales	 Comic strip	 ECG graph

Purposeful planning and task analysis

In order to be able to work independently, students need to be able to analyse any task or learning challenge they have been set.

Task information can be:

- Plentiful or scarce
- Familiar or unfamiliar
- Reliable or unreliable
- Interesting or not
- Organised or disorganised

Task knowledge informs the person of the range of possible acceptable outcomes, knowledge about task difficulty, and mental or tangible resources for its completion.

How can you help pupils to develop the metacognitive thinking skills that will enable them to break down a task so that they thoroughly understand it? How can you help them to develop the skills to analyse a task, decipher it, break it into chunks, etc? How can you help them develop the metacognitive skills necessary to enable them to tackle tasks more independently? *It's not just about this task but all future tasks as well.*

Supporting pupils to develop these skills may include strategies such as teacher questioning, modelling and thinking aloud whilst demonstrating. Pupils may work collaboratively to support each other through the thinking process. Differentiated approaches may be given such as scaffolding, TA or teacher support, different levels of task complexity, familiar or unfamiliar tasks or contexts, structured or unstructured, length of instructions, etc. This allows pupils to increase in confidence and skill level in task analysis and purposeful planning.

Useful questions for pupils to consider:

1. What is the goal to be achieved?

2. What is the nature of the task? Have you tackled anything similar to this before?

3. Can you identify key words, phrases or actions?

4. Do you have a clear understanding of the task? Does it make sense? Do you need to re-read sections, discuss the text or ask questions to clarify your understanding?

5. Can you break the goal into chunks? Does it have clear sections? Is there a sequence that needs to be followed?

6. Are all parts of the task equal or are some more important than others?

7. What should you do first?

8. What skills do you have that could be useful this lesson?

9. What might hinder your thinking?

10. When have you had to think like this before?

11. What do you already know that might be useful?

12. What resources will you need to complete the task?

13. How much time do you think different elements of the task will take? How will you use your time effectively?

14. How do you know what you are aiming for? Have you seen what a 'good one looks like'?

15. How will you know if you have been successful? Is there are mark scheme?

16. What is the success criteria?

Models of 'what a good one looks like'

Seeing examples of either previous pupils' work or commercially produced products can be useful in helping pupils to see what they are trying to achieve. From a metacognitive perspective it is important that pupils make the connection as to the reason they are looking at these examples. How is it useful to look at examples of previous work or commercial products? How can you use these examples? How should you approach looking at the examples?

The teacher should consider the skills that a pupil needs in order for them to be able to use models of good practice to aid them in their own work. Just showing them the model and talking about the model does not go far enough. Pupils need help in how to examine the models and then explore what this means to them as a learner.

Pupils also need to see this as a strategy they can use in the future. So if they are faced with a task they don't understand, one strategy that can help them is to look at some existing products.

Success criteria

Pupils creating their own success criteria can be a powerful way to help them to build a really clear picture of what they are trying to achieve. Success criteria is also very useful for helping to keep pupils on track as the task progresses – if they use it! Whether it is success criteria they have created or have been provided with, it is important that pupils recognise the significance of success criteria in the learning process.

e.g. Not all pupils will see the criteria as being important, not all pupils will understand the criteria, not all pupils will refer to the criteria as the task progresses, not all pupils will take corrective action during the task if they feel they are not on track to meet the criteria, not all pupils will use the criteria at the end to check their work against or to consider how they could have improved the outcomes. From a metacognitive perspective it is these skills that the teacher is trying to develop so that success criteria becomes a tool to aid pupils in their learning.

Identifying what you know and what you don't know

Another strategy that pupils may find useful in task analysis is to identify what they already know about the task / context / knowledge / skill and how that might help them in completing today's challenge. Making connections is also important for later recall and cementing any new concepts into memory. What would they like to know? What questions do they already have? Where might they find the answers to these questions?

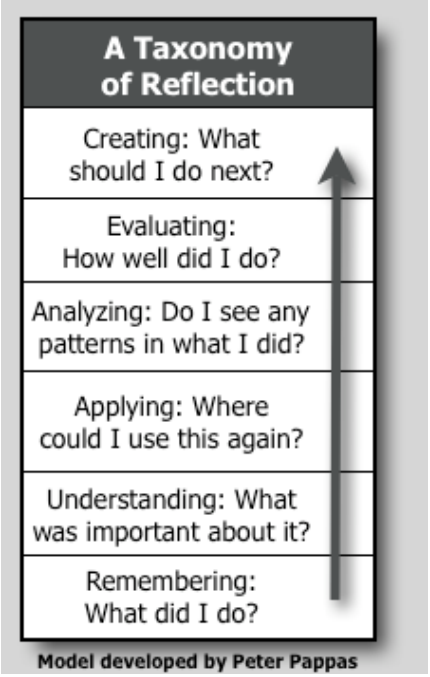
Choice

In order to be able to plan, a pupil must be given choices and freedoms. For example, they may be given the opportunity to decide how to present their answers. Should it be an essay, a report a presentation, a booklet, a video, a series of cards, a poster etc? Will it be mainly text, include diagrams, have pictures? They need to be able to consider the pros and cons of different methods and match the format to the task requirements, audience and context. When pupils are always told what the outcome will be they are not building skills of independence.

What about the choice of equipment? Or how long each part of the task will take? Or where they will work? Do they have a choice in terms of what task they will complete?

Do they have the opportunity to get into difficulties and find their way out or, is it tightly structured by the teacher with no chance of failure?

Developing skills of reflection



Pupils are able to reflect on their learning with various degrees of sophistication, not necessarily age related. Some older pupils find it almost impossible to be reflective (as do some adults) whilst others will be highly reflective. Teachers need to scaffold, model and support the development of reflection. It is not sufficient simply to provide the opportunity to be reflective.

When asking reflective questions, such as 'What was the most difficult part of the lesson?' some pupils will respond, 'All of it'. With the aid of examples, sentence starters, more specific questions and prompting by the teacher, these pupils go on to being able to give more specific and discerning answers. For example, they are able to state a specific question they had difficulty with or describe part of the activity they had trouble understanding. *If you don't regularly use reflection activities in your classroom, be prepared for some pupils to find it difficult. You will have to persevere!*

Metacognitive reflection includes not only an **evaluation of the quality of work** produced, but also **the approach they have taken**. It needs to focus on them as **learners**. Pupils need to **understand that learners can increase their effectiveness and efficiency**, that learning in itself is a skill set that they can develop. **Being reflective is a way to examine and eventually enhance their learning prowess as well as being able to achieve higher quality end products**.

An example below looks at how reflection can move pupils along a journey to consider not just the quality of their work but also their approach and what it means to them as a learner.

Evaluating the product of my learning	Considering my learning approach	Thinking about me as a learner
To what extent I have met the success criteria? Can I identify where in my work I have met the success criteria? How would I rate the quality of the work against the criteria? How does my work compare with the models of good work we reviewed or that of my peers? What improvements could I make? Do you think there are any success criteria that should have been stated that weren't?	Did I understand the criteria? Did I ask any questions that helped me to have a better understanding of the success criteria? Did I have a really good picture before starting the task as to what I was trying to achieve? How did I use the success criteria or mark scheme?	Why is success criteria or the mark scheme important to learners? Why do I need to have a really clear picture of what I am aiming for before I begin? Why is it important to use the success criteria before the task starts / as the work progresses / at the end of a task? What advice would I give to other learners about using success criteria effectively? Could I have made better use of the success criteria before / during / after completing the task?

EVENT/ACTIVITY - e.g. What happened? What was the sequence of events? What role did I play? What tasks did I perform?

REFLECTION/ANALYSIS - What have I learnt from this experience/activity? What issues or questions did it raise for me?

UNDERPINNING KNOWLEDGE AND UNDERSTANDING - What knowledge/theory helps me to understand this event/activity? How does the learning link to other subjects or previous learning? What will it help me with in the future?

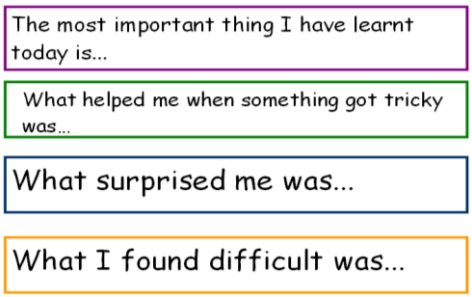
ISSUES FOR FUTURE DEVELOPMENT AND LEARNING - What else do I need to know to increase my understanding? How can my knowledge /practice be improved? Are there any unresolved issues, e.g. what I am still unsure of?

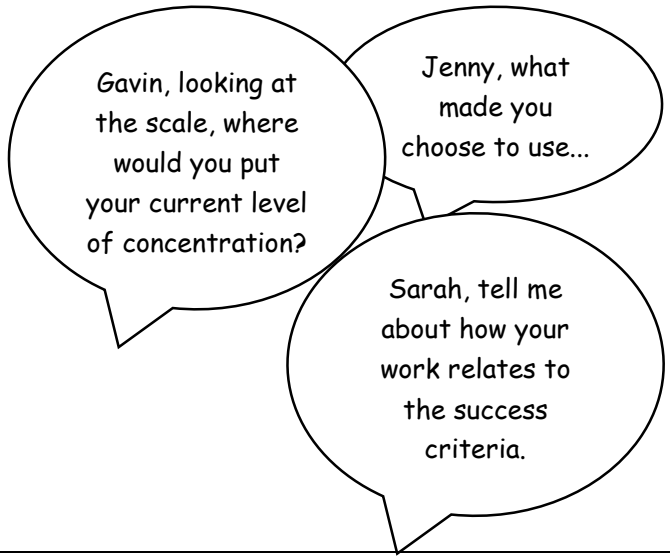
Other examples of questions that help to consider the three aspects of the reflection…

Evaluating the product of my learning	Considering my learning approach	Thinking about me as a learner
Today I have learnt…	What did you do first? How did you break the task down?	I feel happy about…
The most important part of the learning was…	The skills I have used today are…	How is my work different today?
The key words from the lesson are…	The most difficult part of the lesson today was…	I need to practice… This will help me to…
The lesson today links to other subjects through…	The part of the lesson that went really well was…	How has my work progressed? What has helped me to make this progress?
This lesson is important because…	Did your group work well together? What contribution to the group did you make?	What I need to do next time is…
In the wider world, this learning applies to…	Did I focus today? What was the level of my concentration?	My confidence level is… because…
Sum up this lesson in one sentence.	What learning strategies did I use?	A question I should have asked was…
I am not sure about…	What resources did I use?	How could I improve how I worked as a part of a team? Why is it important for the team to work well?
I need to remember…	Explain the steps for completing the task.	Was the learning strategy you used the right one? Would you choose a different strategy next time?
	What kinds of question did you ask in the lesson?	Did you choose the right resources for the task? Would you make any changes to the resources? Why are choosing the right resources important for this task?
	What did you do if you were stuck?	Did you spend enough time on each part of the task? What impact did this have on the outcome? How would you change your approach?
	How did you record your answers?	Did you start at the right place? Did you break the task down? Why is it important to break the task into chunks?
	What choices did you make in today's lesson?	

When? Where? How long? With whom? Why?

It is important to give pupils the opportunity to reflect at different points along their learning journey. Sometimes reflection may be at the end of a unit of work, at the end of a task or at the end of a lesson. Reflection time may also be carried out mid-point in a lesson or at the start of a lesson, for example to consider how yesterday's lesson can be used to help them make better progress in today's lesson.



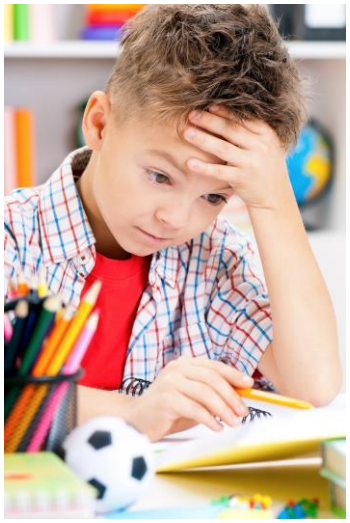


The length of time for reflection may vary depending on what is being evaluated and the depth of the evaluation being sought. Ensure you give sufficient thinking time, not just time for answering the question or prompt.

Reflection can be one-to-one at any point during a lesson through careful questioning and prompting by the teacher.

Reflection can be an individual, a group activity or a whole class exercise. It is important to think creatively about how reflections skills can be developed and for the class teacher to make professional judgements about how reflection can aid learning in their subject.

Opportunities to test out and evaluate learning strategies



When was the last time you **explicitly taught** a pupil a **learning strategy**? Did you consider alternative approaches with them? Did you evaluate how effective it was as a strategy after the task had been completed? Why did you teach this strategy at this particular time? How did it relate to your subject? How proficient would the pupil be if asked to use this strategy again?

Learning strategies are used by students to help them understand information and solve problems. A learning strategy is a person's approach to learning and using information. Students who do not know or use good learning strategies often learn passively and ultimately fail in school. Learning strategy instruction focuses on making the students more active learners by teaching them how to learn and how to use what they have learned to solve problems and be successful.

e.g. There are multiple strategies that could be deployed to help pupils achieve a study skill such as note taking. There are lots of different ways to 'make notes' and lots of ways 'note taking' could be evaluated. What does 'good' note taking look like and why? Pupils need to be aware of the different forms of note taking and strategies they could use when someone asks them to make notes. They need to be skilled in a variety of forms so that they can independently select and use strategies for any challenge they face. When was the last time you asked pupils to make notes and did you help them to improve their skills of note taking at the time? Did you ask pupils to evaluate their note taking strategy at the end? Did you ask pupils to compare their note taking strategy with a partner? Did you ask them to think about why note taking skills are important?

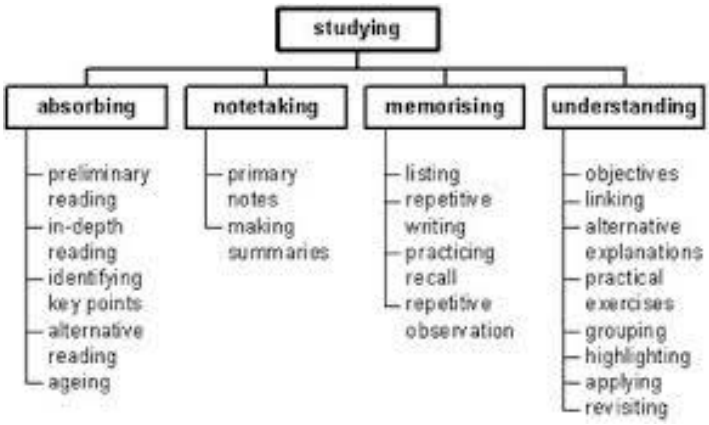
It is important that these skills are not taught in isolation but embedded into the curriculum so that pupils can see their immediate use and the benefits of particular strategies.

Consider a homework that requires pupils to learn some key words and definitions. Spending time before the homework begins on different ways in which pupils could learn the key words and definitions is vital. Asking pupils – what strategy would you use? Have you used this strategy before? Was the strategy successful? How does it compare to the strategy I have just suggested? How long do you think you will need? When will you learn these words? How many times will you look at them during the week? Then, after the homework, the pupils consider how effective their strategy was. Did they spend long enough? Would they make changes to the strategy? How could they have made their learning more effective? How does their strategy compare to the strategy of others? Was it a new strategy they were trying? Although it may seem a lot of additional lesson time – building up these skills will make pupils more effective at the learning process and ultimately accelerate the rate of learning! If we want more progress and higher attainment we can't just keep doing 'more of the same' we have to help learners be more effective and efficient. We need to help them see that they can improve their attainment in a variety of ways by considering the skills of learning.

Too often we take pupil skills for granted. Are there groups of pupils in your class that would benefit from additional support before / during / after a lesson specifically looking at the learning strategy they used in context? It is often our most disadvantaged pupils that use the most ineffective or inefficient learning strategies and it is these pupils that often don't believe they can change their ability in a subject. They don't see that 'learning' is something you can 'learn'.

Examples:

- How to learn a set of key words and definitions
- How to summarise a page of text
- How to pick out the key words in a question
- How to use inference and deduction
- How to take notes
- How to answer a question fully
- How to listen to a lecture
- How to categorise objects
- How to write an explanation
- How to skim or scan text



It can help to consider the learning strategies in strands:

One strand **addresses how students acquire information**. It includes strategies for learning how to paraphrase critical information, picture information to promote understanding and remembering, ask questions and make predictions about text information, and identify unknown words in text, etc.

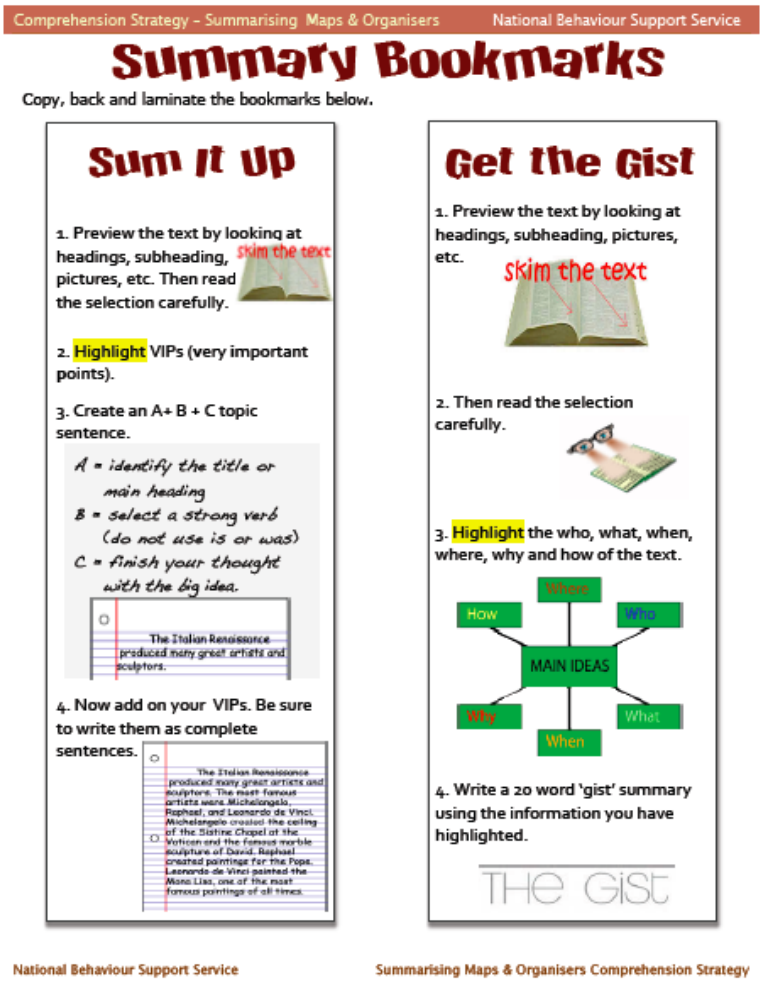
A second strand **helps students study information once they acquire it**. It includes strategies for developing mnemonics and other devices to aid memorisation of facts as well as strategies for learning new vocabulary. These strategies help prepare students for tests, etc.

A third strand **helps students express themselves**. It includes strategies to help students write sentences and paragraphs, monitor their work for errors, share their ideas, contribute to group work, and confidently approach and take tests, etc.

How can you help pupils to develop an understanding of learning strategies, get them to see this as a skill they can develop and become more independent at selecting and applying learning strategies to any task set?

How can you help pupils to develop learning skills: e.g. modelling, scaffolding, examples, displays, prompts, demonstrations, think-alouds?

What learning strategies would be particularly important in your subject?



Growth mindsets and seeing themselves as "agents of their own thinking"

"It's not the reality that shapes us, but the lens that shapes the reality." If we can change the lens with which some children look at themselves as learners and learning, we can change their capacity for achievement. Possibilities can become realities.

In summary: Pupils with a fixed mindset believe that intelligence is fixed and cannot be changed. For example, they see themselves as either 'good at…maths' or 'not good at…maths' and this is not something they have any control over. They were just born that way. Both high and low ability pupils may display a fixed mindset. For example, higher ability pupils might be more reluctant to challenge themselves, fearful of not being successful. This would rock their belief about being 'good at…maths'. Pupils with a fixed mindset often give up easily when faced with challenges. They don't tend to like feedback and see it more as a criticism. Negative feedback would tend to have a demotivating effect. They are often the pupils who want to get 10/10 and everything right with no corrections. They often believe that you should not have to try or work hard, and if you do, it's because you are not 'very good at…maths'.

Whereas, growth mindset pupils tend to love challenge, thrive on feedback, are always looking for ways to improve, are very reflective and more resilient. This is because they believe that intelligence is not fixed and that they can improve their knowledge, skills and understanding. They believe that results come from hard work. They are more likely to believe that their effectiveness and efficiency as a learner can be improved. We want more growth mindset pupils!

How could you ensure a growth mindset culture in your classroom? How could you help pupils to see that they are able to grow and develop as learners?

The most effective way to create a growth mindset culture and to change the mindset of pupils is to start at a whole school level. Pupils need to understand the terms 'growth' and 'fixed' mindsets and be supported to consider which their dominant mindset is. This is the first step towards change. It is also more effective at a whole school or year group level to examine role models and characteristics of a growth mindset, such as resilience, perseverance, dealing with setbacks, thriving on challenge, aspirations, and learning from mistakes. It is also important to consider the reward system used in school and if this reinforces a growth or fixed mind set approach.

Having said all that, there are plenty of actions you can take in the classroom to encourage pupils to have a growth mindset.

What strategies can you use to develop growth mindsets? Ideas you might like to try:

Whole school / department or year group:

- ☐ Learn all you can about growth and fixed mindsets – especially read Carol Dweck's book.
- ☐ Ensure all colleagues understand the growth and fixed mindset model.
- ☐ Create a vision of developing a 'growth mindset culture' and the characteristics you value. Share this with pupils.
- ☐ Support colleagues in developing growth mindset attitudes and classrooms – provide training, conduct action research, try out new ways of working, have mindset workshops, observe each with a focus on mindset development.
- ☐ Review use of praise and feedback.
- ☐ Reinforce examples of where success has been achieved through hard work and perseverance in your rewards system, in displays of work, in sharing and valuing this in class.
- ☐ Ensure there is a wealth of opportunity for pupils to take on new challenges in the curriculum.
- ☐ Have whole school displays which celebrate perseverance.
- ☐ Hold assemblies which focus on overcoming obstacles, examples of when famous people have demonstrated a 'growth mindset'.
- ☐ Ensure parents understand the growth mindset approach.

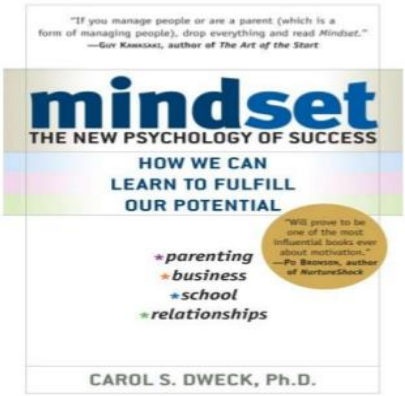
Developing a growth mindset classroom

- ☐ Be a role model of a growth mindset approach. Look for examples within your everyday teaching where the growth mindset characteristics can be highlighted.
- ☐ Teach children explicitly about how the brain develops and how they are in the driving seat of their learning and development.
- ☐ Use books and opportunities that are already in the curriculum to look at characters / real people / situations in which a growth mindset have proved a positive approach to have.
- ☐ Make sure all children know a range of strategies they can use before they have to seek assistance from the teacher.
- ☐ Ensure tasks are sufficiently challenging for pupils and well matched to ability in order to provide stretch.
- ☐ Ensure pupils understand the importance of challenge as part of learning. Ensure that there is plenty of classroom talk and discussion regarding challenge. Looking into the use tools such as the learning pit and the wobble board (see James Nottingham's resources on the web and in publications).
- ☐ Teach the 5 Rs for learning (ALPS) – resilience, responsibility, resourcefulness, reasoning and reflectivity – reflexivity.
- ☐ Get pupils to create posters of themselves, celebrating how they have shown one of the 5 Rs of learning in your subject.
- ☐ Provide opportunities and develop strategies and techniques which can be applied for problem solving, mind mapping, action planning, etc
- ☐ Provide opportunities to promote positive psychology. See Shawn Achor on TED talks.

Using and developing feedback and praise, including time for reflection

- ☐ Ensure praise and feedback reinforces growth mindsets.
- ☐ Ensure pupils regularly review and carry out post analysis of work. Make sure they improve work in light of feedback and review.
- ☐ Develop self-assessment and peer assessment techniques.
- ☐ Use plenty of modelling and critique lessons so that pupils understand how marking and feedback are an important part of learning.
- ☐ Displays showing first drafts and celebrating improvements that have been made.
- ☐ Provide lots of opportunity for self and peer assessment and promote the *value* of review.
- ☐ Ensure there is time for pupils to reflect on – effort, strategies used, processes employed, persistence in the face of difficulties, techniques they have used when stuck in order to move forward, how and why they have learnt something, how and why they have improved, choices and decisions they have made, etc.

Carol Dweck, Professor of Psychology and author of Mindset



Focusing on positivity:

A positive state is proven to increase creativity, resilience, intelligence, energy levels and leads to increased productivity, accuracy, speed and as a result outcomes rise compared to negative, neutral or stressed states. One reason for this is that dopamine which floods the system when positive, making you happier and turning on all the learning functions in the brain which in turn makes you more adaptable. See Shawn Achor on Ted Talks.

Read the book by Carol Dweck. http://mindsetonline.com/whatisit/about/index.html