



Teaching & Learning Policy

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| The status of the policy: | Final |
| Purpose: | The purpose of the policy is to describe what Quality First Teaching (QFT) will 'look like' at Birch Hill Primary School and achieve consistency of excellent practice across the whole school. The policy is central to the core purpose of the school and as such is the cornerstone of many other school policies. |
| Consultation: | Draft to staff & governors |
| Links with other policies: | <ul style="list-style-type: none">• Whole school vision statement• Equality of Opportunity Policy• SEND Policy• Assessment, Recording and Reporting Policy• Home Learning Policy• Behaviour & Anti Bullying• English & Maths Policies• Handwriting & Presentation Policy• Marking & Feedback Policy• Monitoring & Evaluation schedule |
| Monitoring and evaluation: | Monitoring of this policy is the responsibility of the FGB. Its is delegated to the Deputy Head Teacher, who is also the Lead for LEARN |
| Date established by governing body: | March 2022 |
| Date for full implementation: | Aril 2022 |
| Date for review: | September 2025 |

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Our Aims

At Birch Hill we aim for every part of a child’s day to be a meaningful and engaging learning experience. We want all children to be fully involved in their learning and leave school with a love for learning and a passion to develop as life-long learners.

We review this policy regularly to ensure it is up to date with the latest research about effective teaching and refer to various organisations including Chartered College of Teaching (CCT) and Education Endowment Foundation (EEF). We also refer to a range of leading experts in the field (see book list and the appendix for further reading).

Introduction

Research (Hattie 2011) shows that the most important factor on children's learning is the 'teacher estimate of [the child] achievement. At Birch Hill all teachers (and adults) have the highest expectation of all children and the class teacher is the lead person responsible for all of their children's needs.

Teaching & Learning is a highly complex process and the two processes are intimately related to one another. High quality learning stems from high quality teaching, which, we believe can be summarised by three important elements;

1. excellent subject knowledge
2. a thorough understanding of pedagogy
3. how children learn and high quality relationships within the class

Effective learning

Effective learning takes place when children are motivated and engaged in their own learning and when their physiological and emotional needs are met and they feel safe; when they are able to contribute to the learning process; when they understand what they need to do to improve; when the teaching is interactive, engaging and meaningful; when it is well supported and scaffolded to meet their individual needs; when children *learn about learning* and can be independent in their ability to reflect on what they have done.

It is important to recognise that children learn in different ways and bring their own experiences, both enthusiasms and interests, as well as worries and anxieties, and their cultural heritage to the classroom. All of these can impact on their pre-disposition to learning. Recognising these is fundamental to successful high quality teaching.

In the article, What Makes Great Teaching (full article in appendix), several key aspects regarding effective teaching are explored;

1. **Content knowledge.** Teachers with strong knowledge and understanding of their subject have a greater impact on students' learning. It is also important for teachers to understand how students think about content and be able to identify common misconceptions on a topic.
2. **Quality of instruction.** This includes effective questioning and the use of assessment by teachers. Specific practices, like reviewing previous learning, providing model responses for students, giving adequate time for practice to embed skills securely and progressively introducing new learning (scaffolding), are also found to improve attainment.

Another four elements of effective teaching that have evidence showing a positive impact on learning are:

3. **Classroom climate.** This includes the quality of interaction between teachers and students as well as teacher expectations.
4. **Classroom management.** Such as the efficient use of lesson time and managing behaviour, with clear rules that are consistently enforced.
5. **Teachers' beliefs.** For example, the reasons why they adopt particular practices and their theories about learning.

6. **Professional behaviours.** This relates to professional development, supporting colleagues and communicating with parents.

Another model of effective learning outlines learning as;



Structuring the Learning Journey – structuring lessons, structuring learning

Teachers need to ensure that any lessons, or learning relates to a broader sequence of work, and are clear about what is expected at the end of the lesson and by the end unit of work. From here, lessons should be clearly structured in a way that is clear to the teacher and explicit to the learners.

High quality lessons are characterised by clear learning intentions that are understood by the children. In addition all the children know what they need to do to be successful in the lesson – known as '**success criteria**' or 'learning intentions'. In addition, there needs to be a clear purpose to the lesson, the introduction should be linked to previous learning, establish key vocabulary, and be ensure children know what they need to do to achieve.

Learning must be **differentiated** to meet the range of all children's needs and any adults should be deployed to support individuals or groups of children as necessary.

In all lessons, access to **resources, visual aids and equipment** will give the children the best opportunity to learn. This includes everything from Working Walls, apparatus in maths lessons, to whiteboards and pens, dictionaries, Word/Vocabulary Maps through to Learning Intentions & Success Criteria Grids. In addition to children, adults need to ensure they have access to the correct resources from Interactive Whiteboards, Whiteboard, Magic paper, and / or Flipcharts.

The timing and **pace** of the lesson should be managed carefully to ensure it instils in the children a desire to complete work on time and to a high standard. As such it is important that

the children understand from the outset what the shape of the lesson will be like and the direction their learning will take.

During the main part of the lesson children should be active, working independently or in small groups. The work provided should be pitched at an appropriately challenging level and meet the children's learning needs. At times, it may be appropriate for children to be given the opportunity to **'pick their own challenge'** (sometimes this is referred to as Chilli 1, 2, 3) within the lesson.

Adults should provide high quality **Modelling and Explanation** - effective learning occurs when children have exposure and experience of high quality modelling. At Birch Hill we believe this is when a teacher explains/ demonstrates 'their own thinking out loud'. This process 'shows' the children the process of transferring the thinking into the written word.

In English this can be seen in how we expect teachers to **deconstruct high quality text**. Deconstructing different texts gives children the opportunity to breakdown the structure and discuss how and what the author has used and why. It can also be seen in **Shared writing** which enables to engage children and create a piece of writing **together** – the teacher taking ideas from different children in the class to 'create' a whole class shared piece of writing. **Modelled writing** is when the teacher 'thinks out loud' while writing a single piece of writing and the children 'watch' the process. See the English policy for more information about this, and also how children plan their work, through Story Mountains, or Box-It-Up is an important aspect of the learning process as it helps the children understand the structure.

We believe the deep learning, meta-cognition occurs when children **edit and redraft** their work. This is an important process and children must be given time and opportunities to do this effectively. Once a small piece of work has been written, it should be shared 'assessed' by adults, themselves and /or their peers. Once feedback has been given and quality opportunities identified then children should be given the time to edit and redraft their work.

Sometimes it is helpful to re-direct or re-focus the lesson by the use of a **'mini-plenary'**. This is where the lesson is paused and through use of good questioning it is possible to evaluate the progress made by the children, further model what they need to do by showing them an example from another child, or enable the class to advise another child to make improvements.

The end of the lesson, or plenary has a variety of functions – however, the key purpose should be to focus on what has been learnt. The plenary should summarise learning and review the extent to which children have been successful in the task they have been set; praise children for what they have achieved; reflect on their learning and consider what they have done well and what could be improved.

In Tom Sherrington booklet **Rosenshine's Principles on Action** (2019) he gives an excellent explanation of **Rosenshine's Principles In Action** in a clear and simple way.

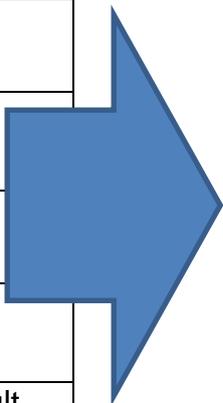
In his paper **Principles of Instruction** Rosenshine outlined 17 'instructional procedures'; (see appendix)

1. Begin a lesson with a short review of previous learning
2. Present new material in small steps with the student practice after each step
3. Limit the amount of material student receive at one time
4. Give clear and detailed instructions and explanations
5. Ask a large number of questions and check for understanding

6. Provide a high level of active practice for all students
7. Guide students as they begin to practice
8. Think aloud and model steps
9. Provide models of worked-out problems
10. Ask students to explain what they had learned
11. Check the responses of all students
12. Provide systematic feedback and corrections
13. Use more time to provide explanations
14. Provide many examples
15. Re-teach material when necessary
16. Prepare students for independent practice
17. Monitor students when they begin independent practice

From this, Sherrinton reduces them into ten principles and four strands;

| | |
|----|---------------------------------------|
| 1 | Daily Review |
| 2 | Present new material in small steps |
| 3 | Ask questions |
| 4 | Provide models |
| 5 | Guide students practice |
| 6 | Check for student understanding |
| 7 | Obtain a high success rate |
| 8 | Provide scaffolds for difficult tasks |
| 9 | Independent practice |
| 10 | Weekly and monthly review |



Sequencing concepts and modelling
 2. Present new material in small steps
 4. Provide models
 8. Provide scaffolds for difficult tasks

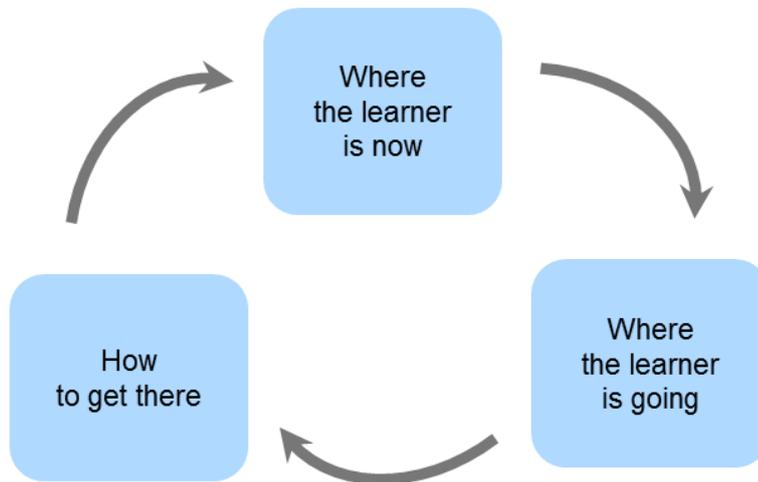
Questioning
 3. Ask questions
 6. Check for students understanding

Review material
 1. Daily review
 10. Weekly and month review

Stages of Practice
 5. Guide student practice
 7. Obtain a high success rate
 9. Independent practice

Assessment for Learning

In their book 'Inside the Black Box' Dylan Wiliam and Paul Black outline AfL as



High quality **Assessment for Learning** (AfL) strategies include five main strategies;

1. **Clarifying, sharing, and understanding learning intentions and criteria for success** – getting the students to really understand what their classroom experience will be and how their success will be measured.
2. **Engineering effective classroom discussions, activities, and learning tasks that elicit evidence of learning**
 - *Questioning* enables a student, with the help of their teacher, to find out what level they are at.
3. The teacher provides *feedback* to each student about how to improve their learning
4. **Activating learners as instructional resources for one another** – getting students involved with each other in discussions and working groups can help improve student learning. (Peers Assessment)
5. **Activating learners as owners of their own learning** – further reading on this topic: [self-regulation of learning leads to student performance improvement](#).

Learning Intentions & Success Criteria

Learning intention: the new learning that pupils will get from the next stage in their learning programme;

Success criteria: those parts of the learning activity that are essential (in helping them to achieve the learning intention).

These two elements are usually made very salient and visually accessible throughout the lesson or series of lessons. Making the learning focus clear, and scaffolding activity towards that learning, is something that all effective teachers do. However, it is often done orally, and there is evidence to suggest that making these vital elements visible throughout a lesson (or sequence of lessons) helps to focus pupils' attention on them more effectively.

Success criteria

When you use success criteria, think about when in the lesson to introduce them for best effect. This usually involves discussing them:

- Immediately before commencing the learning activity;
- After teaching the new concepts and/or skills; and
- After briefing the children about the activity. Initially, you will have to provide the pupils with

When using success criteria initially it is a good idea to explicitly model how to generate these. However, this should be a temporary phase. It is important to involve the children in generating their own success criteria before they start an activity. This is because they can more effectively access criteria that they've generated themselves, and often with greater commitment too. It's also a useful way for you to determine that they are ready for the activity; it shows that they've understood the essential points from the teaching input that has preceded the learning activity.

Effective interactions, Questioning and Dialogue

In high quality lessons the three way interactions and dialogue between the teacher and child and between the child and their peers encourages and develops their engagement, and understanding of the learning. These interactions should help children solve problems, share ideas, make decisions and reflect on their learning. They should also be used to develop a child's confidence and attitude to their learning and reinforce positive relationships.

Self and peer assessment are powerful techniques for promoting these qualities. This can be achieved through the skilful use of open and closed **questions** that encourages reflective and evaluative thinking.

Other things to think about

- Ask fewer questions
- Give pupils time to think
- Avoid 'shotgun' questioning
- Use 'no hands up'
- Use Lollipop sticks

Raise the quality of your questioning Consider the purpose of your questions. If you want to know what the pupils' knowledge is, ask a closed question (a question with one right answer). However, if you want to probe their understanding, ask an open question (one that prompts pupils to keep talking, like 'What more can you tell me?' or 'What do you mean by...?').

Think about staging your questions. Some teachers use closed questions first to put pupils into a context for thinking. Then they use open questions to probe and deepen the pupils' understanding in that context. For example, they might ask 'When was Mount St Helen's last major eruption?' followed by 'In what ways was that eruption similar to the 79AD eruption of Vesuvius?'

Think ahead, and be clear about the purpose of questioning. What are the pupils meant to be getting out of the next question?

Speaking & Listening and Oracy

Good speaking & Listening is crucial to learning. We develop this across the whole school through plenty of opportunities for drama and role play, but also simple call and response, reading aloud, standing and presenting material. We also use Pie Corbett's Talk for Writing (T4W) programme.

At Birch Hill we believe it is important that every child has the opportunity to be involved in formal theatrical performances throughout their time at school.

Teacher Role within discussion

Children need to know what 'good talk' and 'good listening' sounds and looks like. As teachers, we are in an excellent position to model this. Just as we model 'good writing' and our thought process through shared and group writing, we should also model listening and oracy skills.

Teachers are modelling all the time, so everything we say or do serves as a modelling opportunity. Many different oracy skills can be taught during every lesson, every day. Using language that we want children to use when we talk or question is most important.

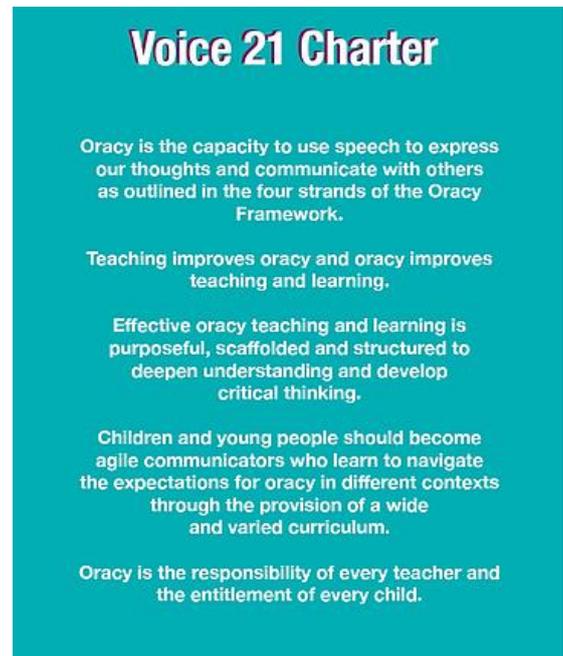
'You can also model individual skills like inviting someone into a discussion or asking clarifying questions. Flag to students your metacognitive thought process as you are doing so: "I've noticed Sean hasn't spoken yet, and I', going to invite him in now. What do you think, Sean?" or "Hang on, I'm not sure I understand. Can I just clarify, did you mean...?"'

(Transform Teaching and Learning Through Talk by Amy Gaunt and Alice Stott 2019)

Teachers are also able to model the physical, social and emotional strands of oracy. Using different tones and gestures, showing how we consider our audience are equally important and help children to learn.

Teachers should consider the amount of talk that they themselves are doing within each lesson. It is not appropriate for teachers to always 'lead from the front' if we want children to become experts in exploratory talk. They must be given the opportunity to practice without too much inference from the teacher.

During whole-class or group discussion teachers encourage and model different types of contributions and different roles. For example, teachers encourage others to challenge or summarise an idea or point. Teachers encourage children to talk to each other and not always through the teacher.



Once the discussion is underway, the teacher’s role is one of listener or observer and not always jumping in to address misconceptions, but instead waiting to see if other children will address this and in so doing learn from one another.

Vocabulary Word Gap

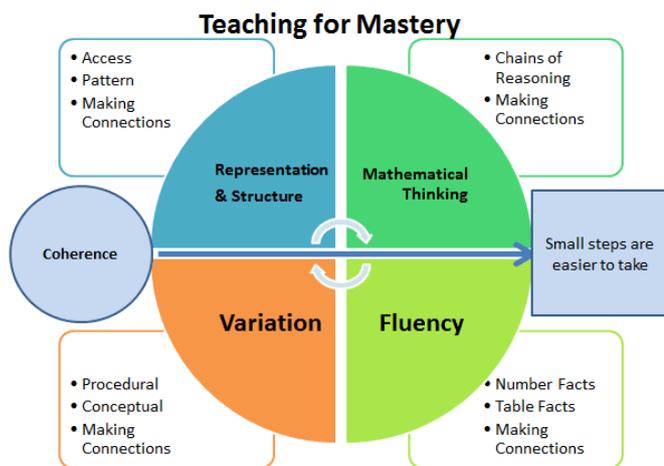
The deliberate teaching of vocabulary greatly supports the work done on developing oracy skills. At Birch Hill we believe that our classrooms should be language rich and by developing their ability to use this language through oracy we will be opening up greater opportunities for the future.

“It is no silver-bullet solution to improving all educational outcome for our children, but as E.D. Hirsch Jr, notes vocabulary size is a good proxy for school success, and therefore it proves a good place for us to start.”

(Closing the Vocabulary Word Gap by Alex Quigley)

At Birch Hill we support the acquisition of vocabulary by teaching it explicitly and giving many opportunities for it to be heard and to try it out in context. Listening is the first way that children learn language and that is why we teach listening skills as part of oracy. Opportunities for children to try out new words is as important to allow children to take ownership of the language.

Mastery (Maths)



The NCETM describe Mastery as acquiring a deep, long-term, secure and adaptable understanding of the subject. At any one point in a pupil’s journey through school, achieving mastery is taken to mean acquiring a solid enough understanding of the maths that’s been taught to enable him/her move on to more advanced material.

Coherence

Connecting new ideas to concepts that have already been understood, and ensuring that, once understood and mastered, new ideas are used again in next steps of learning, all steps being small steps

Representation and Structure

Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation

Mathematical Thinking

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others

Fluency

Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics

Variation

Varying the way a concept is initially presented to students, by giving examples that display a concept as well as those that don't display it. Also, carefully varying practice questions so that mechanical repetition is avoided, and thinking is encouraged.

Feedback (including Marking)

Feedback is a key aspect of high quality teaching and learning. The most effective feedback is immediate, in the class. When teachers use marking as feedback, this should be meaningful, directly linked to learning and manageable. Marking should initially correct 'know errors/misconceptions'. Children's work should be acknowledged and most written feedback should be recorded on the Distance Marking Sheet (see the Feedback, Marking & Presentation Policy for further guidance).

Ongoing **formative assessments** are made using levelled 'Key Objectives' statements that link to School Pupil Tracker Online and should be filled in regularly by teachers. All children have more formal summative assessments at the end of each term. The Assessment, Records and Reporting Policy has further details.

Peer & Self Assessment

Peer and Self Assessment enables children to assess each other and themselves learning and work. While this can be time consuming, it creates a very important culture that encourages children to take greater responsibility for their learning. Simple ways of doing this and evidencing it, is to use these labels in Learning Intention & Success Criteria grids and the use of **Lead Leaders**. Lead Leaders is a particular strategy where the teacher will work with a small group of children **before** the lesson – they will 'teach' the lesson to this group, who will then during the lesson help other children.

Importantly, by doing this,

- Involved in their own learning
- Children become more confident in identifying successes and areas for improvement in their own learning.
- Emphasis on thinking and talking about success and improvement.
- Creating deeper understanding as they use the success criteria in both giving and receiving feedback; and
- Giving them opportunities to communicate in language they would use naturally and understand.

Knowing your children

At Birch Hill we believe it is vital that teachers know their children well. The tracking of academic progress through day-to-day observation, discussion with children, feedback, assessments and testing are all important elements of high quality teachers' practice. We also believe that having a good understanding of the children's emotional and social context is important. In addition to the strategies above, 1:1 conferencing and additional small group interventions are important ways of knowing your children and should be recorded at least once a term.

Pupil Conference

Pupil conferencing is a discussion with the teacher and pupil about the children's learning; normally on a one-to-one basis, but can be done in a small group (1:3).

How can it benefit students?

Done effectively, pupil conferencing can be essential in allowing teachers a concentrated period of high-quality teaching time and talk with individual children. During the conference, teachers can discuss the children's progress, any misconceptions, or focus on any strategies needed. This can be invaluable when completely any summative, and formative assessments.

How to conduct an effective pupil conference

Pupil conferences can be conducted in a variety of ways. SLT may be able to provide additional time for conferencing, teachers can use their PPA time, (A – assessment), at other times it may be appropriate to use TAs and/or use curriculum 'down' time. Teachers will particularly find conferencing useful to do with children in preparation for Parent Consultations.

Conferencing can also be different with different child. It will be important to adapt your conference to the individual attributes and needs of your class.

See appendix for more information and questioning

Knowing why children don't like learning at school?

As well as know your children, it is important for teachers to understand why some children do not like learning at school. In his book of the same name, Daniel Willingham¹ suggests there are several reasons for this. John Hattie summaries Willingham's thesis as;

1. The human mind is not naturally well-suited for thinking
2. Thinking is a slow, effortful and has uncertain outcomes
3. Deliberate, conscious thinking does not guide most people's behaviours in the real world in which they have to interact
4. Our brains rely on memory, rather than thinking
5. We are motivated by knowledge gaps, but put off by knowledge chasms (we are restricted by our confidence)
6. We are unwilling to invest in any serious level of effort until we see the meaning

At Birch Hill, we also know children can find the learning process difficult because of a SEN need, or because their emotional well-being and mental health. Many of our children experience significant challenges in their lives and this can impact on their confidence and self-esteem or motivation.

Cognitive Load Theory (CLT) ²

Following the idea above further, CLT *is based around the idea that our working memory – can only deal with a limited amount of information at one time.*

The theory identifies three different forms of cognitive load:

¹ Daniel Willingham (2009) Why don't students like learning at school?

² <https://impact.chartered.college/article/shibli-cognitive-load-theory-classroom-2/>

1. **Intrinsic cognitive load:** the inherent difficulty of the material itself, which can be influenced by prior knowledge of the topic
2. **Extraneous cognitive load:** the load generated by the way the material is presented and which does not aid learning
3. **Germane cognitive load:** the elements that aid information processing and contribute to the development of 'schemas'.

CLT suggests that if the cognitive load exceeds our processing capacity, we will struggle to complete the activity successfully. In summarising CLT, De Jong (De Jong, 2010) states that 'cognitive load theory asserts that learning is hampered when working memory capacity is exceeded in a learning task'.

Working memory should be seen as short term and finite, whereas long-term memory can be seen as infinite. The aim should be to move knowledge to long-term memory because when a student is exposed to new material, they can draw on this previous knowledge and the cognitive load is reduced. However, if subject knowledge is incomplete, the student is unable to fall back on the long-term memory and the working memory becomes overloaded, leading to working memory failures. Indications of working memory failures include:

- incomplete recall
- failing to follow instructions
- place-keeping errors
- task abandonment.

At the same time, too little Cognitive Load can have a detrimental affect on the child's learning.

Key ideas to consider;

- **Break down subject content** when introducing new topics and pause regularly to check understanding.
- **Present instructions clearly** without using too many sources of information at the same time.
- **Be wary of reducing cognitive load too much** – the learning process should be manageable, but not overly fragmented.

BLP & Growth Mindset

What children learn is vital to their education, we also equally believe **how** children learn is important.

At Birch Hill we believe that teaching children life-long skills, such as *resilience*, *collaboration* and *making links* are very important to their learning. We use the work of Guy Claxton's Building Learning Power. Every classroom should display a Learning Pack which shows the learning tools. It is important that the language of BLP is used throughout the lessons and examples of how the children are using these is explained. We also use this language in feedback and reports to parents.



In addition, we also use the language of Carol Dweck's Growth Mindset. Creating an environment of continual learning throughout life encourages the acceptance of a Growth Mindset. Once we can accept that we can all get smarter, and learn, we understand that effort makes us stronger. At Birch Hill we believe that anyone who can succeed and *their* best.

Classroom and behaviour management

Effective learning can only take place in well organised classrooms and where there are high and consistent expectations of behaviour, how resources are used, how we talk and listen to each other, how books and belongings are treated, how we move about the classroom and how we respect each other's right to learn.

In addition to the whole Rights & Responsibility Charter and Behaviour policy all classes at the beginning of the year should consider together some special rules and rewards for their class.

Transitions are important and children should enter classrooms ready to learn. For young children in particular, making the distinction between moving from the outside into the classroom and making it clear how their behaviour changes so they are ready to learn needs to be made explicit.

Managing behaviour by referring to and rewarding models of good behaviour exhibited by children in the classroom is always a preferred strategy. However, where children do misbehave this should be addressed in a manner that is least disruptive to the lesson and the other children's learning. Sometimes this can be achieved outside the lesson.

The Learning Environment

Classrooms must be well organised. They should be tidy and free of unnecessary clutter. Displays should reflect, celebrate and support learning. Key vocabulary should be highlighted and clearly displayed. Working Walls should be used to support children's learning.

The atmosphere in the classroom should be purposeful and focused on the task with all children engaged in their work. There will often be a quiet working 'buzz' in the best lessons that enables children to concentrate, but also ask questions and discuss ideas when working with other children when necessary. In whole class phases to lessons all children should feel confident enough to be able to share their ideas and thoughts without feeling they will be put down by others. Posters should be displayed in every class classroom encouraging mistakes are a way of learning and should be celebrated in appropriate way.

We expect teachers to be mindful and flexible in how to group of children. We do not expect teachers to keep these groups 'fixed' for sustained period. While it may be appropriate to grouping children by ability for a particular lesson, or even part of a lesson, equally, using mixed-ability groups for a different lesson is important.

Teacher must ensure that in all lesson (unless intentionally planned), there are a range of resources easily accessible to all children, such as; dictionaries, maths resources, Learning Maps, Fact Files, laptops, etc.

The children, alongside the staff should take a shared responsibility for the classroom and corridor areas, making sure the spaces are kept clean, tidy and in good order at the beginning, during and at the end of the school day.

Working Walls

The main aim of a working display is to share children's learning, idea starters and other useful resources to support a pupil's learning by showing them the journey and steps needed to be success. Overall, their purpose is to provide a useful teaching resource in the classroom.

We use working walls for English and Maths and if useful in other subjects too. In this way, we support children's learning by displaying outcomes, modelled examples and learning steps. This provides children with a visual exemplar of the success and how their learning towards this is developed. Ideas can be shared easily and it can help pupils to work more independently, as it can act as a reminder or 'teacher'. It acts as a visual reminder.

Effective working walls should include:

- titles so children know instantly what the learning is. In KS1 characters might be used to 'talk' the children through the learning;
- should show a journey of learning of time - in other words should build as the children learn each step and not be a completed display until the work has been complete;
- should have a section that displays the vocabulary, signs or symbols relevant to the learning;
- should show examples that show 'the steps to get there' and children understand what is expected of them;
- exemplar work (could be children's work);
- should be interactive and add to by teachers and children.

Working Walls in Maths

- Title of the learning: Place Value
- Vocabulary Section: digit, order, compare
- Support for children to help them in their learning : Place Value Mat, Arrow cards,
- Clear steps in the learning: success criteria
- Combination of teacher and child examples
- Space for children to add their ideas or answers

Working Walls in English

- Title of the learning
- Vocabulary Section encouraging ambitious vocabulary and reminders of where to find ideas
- Support for children to help them in their learning : Grammar tips and examples, story structure suggestions, toolkits
- Clear steps in the learning: success criteria
- Combination of teacher and child examples
- Space for children to add their ideas or answers

Planning & Resources

All planning and resources should be written on school proformas and saved in the R:\Teachers Only[academic year] Year Group Folders.

Presentation & Written work and books

Teachers must have the highest expectation of children at all times and this is also seen in the expectation of children's work. Their books are an important part of their learning journey – for themselves, their parents, their teachers and Senior Leaders. We expect work to be presented according to the English Policy. All children start writing using a pencil and the expectation is that by the time they reach the end of the Year 4 all children will be writing in pen. At Birch Hill we celebrate this achievement by awarding a Pen Licence in Team Assembly.

Extended learning into the home

At Birch Hill we value opportunities to extend learning beyond the school day. Our Home Learning Policy sets out the detail of how we extend learning into the home. In summary, home learning is set regularly according to our policy. Home learning can be something where children are expected to work independently or on other occasions where it can be reasonably expected that a parent or other adult will help and work with them.

The termly planning that is shared with parents should also highlight opportunities for parents to extend their children's learning by, for example, suggesting visits to go on, websites to explore (including the on-line resources that the school has purchased for the children's benefit) and books to borrow from libraries.

Where other opportunities occur to extend learning into the home, but perhaps unexpectedly from the course of a lesson, these should be taken and when appropriate shared across the year group to ensure consistency of opportunity for the children. However, there are some occasions where the opportunity to extend learning is appropriate to only a particular individual or group of children. This more personalised approach should also be taken when considered beneficial to the children.

We demonstrate that home learning is valued by making sure that it is meaningful (not simply copying a worksheet to all children) and marked.

Monitoring, evaluating and developing the quality of teaching

Consistency is important in all aspects of school life. This policy sets out clear expectations that support children's learning. It should be followed as consistently across the whole as possible. It is not reasonable on colleagues if different teachers/classes/ year group do not follow this. Children will not be clear, parent can get confused.

The purpose of monitoring teaching and learning is to evaluate strengths, identify areas for development and further improve the quality of what we do. Some of this might be through the Performance Management process and at other times it might be as part of our ongoing cycle of self-evaluation linked to the School Improvement Plan (SIP).

The quality of teaching and learning is monitored and evaluated in a number of different ways (see Monitoring & Evaluation schedule). This may be through lesson observations, Learning Walks, scrutiny of planning and children's work/books and interviewing children.

This is also done in a range of different ways including; SLT, Middle Leaders, LA advisors (STEP), governors and also through Pupil Progress Meetings (PPMs) moderation meetings and Key Stage Meetings.

We use Ofsted criteria as a benchmark to evaluate standards of teaching and learning.

Appendix

Ofsted Criteria

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/843108/School_inspection_handbook_-_section_5.pdf

Outstanding (1)

- The school meets all the criteria for a good quality of education securely and consistently.

- The quality of education provided is exceptional.

In addition, the following apply.

- The school's curriculum intent and implementation are embedded securely and consistently across the school. It is evident from what teachers do that they have a firm and common understanding of the school's curriculum intent and what it means for their practice. Across all parts of the school, series of lessons contribute well to delivering the curriculum intent.

- The work given to pupils, over time and across the school, consistently matches the aims of the curriculum. It is coherently planned and sequenced towards cumulatively sufficient knowledge and skills for future learning and employment.

- Pupils' work across the curriculum is consistently of a high quality.

- Pupils consistently achieve highly, particularly the most disadvantaged. Pupils with SEND achieve exceptionally well.

In order to judge whether a school is good or requires improvement, inspectors will use a 'best fit' approach, relying on the professional judgement of the inspection team.

Good (2)

Intent

- Leaders adopt or construct a curriculum that is ambitious and designed to give all pupils, particularly disadvantaged pupils and including pupils with SEND, the knowledge and cultural capital they need to succeed in life. This is either the national curriculum or a curriculum of comparable breadth and ambition. [If this is not yet fully the case, it is clear from leaders' actions that they are in the process of bringing this about.]

- The school's curriculum is coherently planned and sequenced towards cumulatively sufficient knowledge and skills for future learning and employment. [If this is not yet fully the case, it is clear from leaders' actions that they are in the process of bringing this about.]

- The curriculum is successfully adapted, designed or developed to be ambitious and meet the needs of pupils with SEND, developing their knowledge, skills and abilities to apply what they know and can do with increasing fluency and independence. [If this is not yet fully the case, it is clear from leaders' actions that they are in the process of bringing this about.]

- Pupils study the full curriculum; it is not narrowed. In primary schools, a broad range of subjects (exemplified by the national curriculum) is taught in key stage 2 throughout each and all of Years 3 to 6. In secondary schools, the school teaches a broad range of subjects (exemplified by the national curriculum) throughout Years 7 to 9. [If this is not yet fully the case, it is

clear from leaders' actions that they are in the process of bringing this about.] The school's aim is to have the EBacc at the heart of its curriculum, in line with the DfE's ambition, 79 and good progress has been made towards this ambition.

Implementation

- Teachers have good knowledge of the subject(s) and courses they teach. Leaders provide effective support for those teaching outside their main areas of expertise.
- Teachers present subject matter clearly, promoting appropriate discussion about the subject matter being taught. They check pupils' understanding systematically, identify misconceptions accurately and provide clear, direct feedback. In so doing, they respond and adapt their teaching as necessary without unnecessarily elaborate or individualised approaches.
- Over the course of study, teaching is designed to help pupils to remember long term the content they have been taught and to integrate new knowledge into larger ideas.
- Teachers and leaders use assessment well, for example to help pupils embed and use knowledge fluently, or to check understanding and inform teaching. Leaders understand the limitations of assessment and do not use it in a way that creates unnecessary burdens on staff or pupils.
- Teachers create an environment that focuses on pupils. The textbooks and other teaching materials that teachers select – in a way that does not create unnecessary workload for staff – reflect the school's ambitious intentions for the course of study. These materials clearly support the intent of a coherently planned curriculum, sequenced towards cumulatively sufficient knowledge and skills for future learning and employment.
- The work given to pupils is demanding and matches the aims of the curriculum in being coherently planned and sequenced towards cumulatively sufficient knowledge.
- Reading is prioritised to allow pupils to access the full curriculum offer.
- A rigorous and sequential approach to the reading curriculum develops pupils' fluency, confidence and enjoyment in reading. At all stages, reading attainment is assessed and gaps are addressed quickly and effectively for all pupils. Reading books connect closely to the phonics knowledge pupils are taught when they are learning to read.
- The sharp focus on ensuring that younger children gain phonics knowledge and language comprehension necessary to read, and the skills to communicate, gives them the foundations for future learning.
- Teachers ensure that their own speaking, listening, writing and reading of English support pupils in developing their language and vocabulary well.

Impact

- Pupils develop detailed knowledge and skills across the curriculum and, as a result, achieve well. This is reflected in results from national tests and examinations that meet government expectations, or in the qualifications obtained.
- Pupils are ready for the next stage of education, employment or training. They have the knowledge and skills they need and, where relevant, they gain qualifications that allow them to go on to destinations that meet their interests and aspirations and the intention of their course of study. Pupils with SEND achieve the best possible outcomes.

- Pupils' work across the curriculum is of good quality.
- Pupils read widely and often, with fluency and comprehension appropriate to their age. They are able to apply mathematical knowledge, concepts and procedures appropriately for their age.

What Makes Great Teaching – Article³

The aim of our review was to address three deceptively simple questions:

- What makes ‘great teaching’?
- What kinds of frameworks or tools could help us to capture it?
- How could this promote better learning in schools?

The quality of teaching is by far the biggest factor within schools that can make a difference to the achievement of children and young people. In the report, we review over 200 pieces of research to identify the elements of teaching with the strongest evidence of improving attainment. The report also identifies some common practices that can be harmful to learning and have no grounding in research, and analyses different methods of evaluating teaching (Coe et al., 2014).

We define effective teaching as that which leads to improved student achievement using outcomes that matter to their future success. The research keeps coming back to this critical point: student progress is the yardstick by which teacher quality should be assessed. Some teaching approaches are supported by good evidence of their effectiveness. Examples include: challenging students to identify the reason why an activity is taking place in the lesson; asking a large number of questions and checking the responses of all students; spacing out study or practice on a given topic, with gaps in between for forgetting; and making students take tests or generate answers, even before they have been taught the material.

The report offers a ‘starter kit’ for thinking about what constitutes effective teaching. This is based on behaviours, approaches and classroom practices that are well-defined, easy to implement and show good evidence of improvements in student outcomes. Six key factors that contribute to good teaching are identified.

The two factors with the strongest evidence in improving student outcomes are:

1. Content knowledge. Teachers with strong knowledge and understanding of their subject have a greater impact on students’ learning. It is also important for teachers to understand how students think about content and be able to identify common misconceptions on a topic.
2. Quality of instruction. This includes effective questioning and the use of assessment by teachers. Specific practices, like reviewing previous learning, providing model responses for students, giving adequate time for practice to embed skills securely and progressively introducing new learning (scaffolding), are also found to improve attainment.

Another four elements of effective teaching that have fair-to-moderate evidence showing a positive impact on learning are:

3. Classroom climate. This includes the quality of interaction between teachers and students as well as teacher expectations.

4. Classroom management. Such as the efficient use of lesson time and managing behaviour, with clear rules that are consistently enforced.

5. Teachers’ beliefs. For example, the reasons why they adopt particular practices and their theories about learning.

6. Professional behaviours. This relates to professional development, supporting colleagues and communicating with parents.

³ <https://impact.chartered.college/article/coe-et-al-what-makes-great-teaching/suttontrust.com/researcharchive/great-teaching>.

- the full paper is also available at -

The following are some of the practices that the report identifies as not proven to be effective, and for which there is an almost total lack of evidence to support their use. The seven examples of strategies unsupported by evidence are:

- 1. Using praise lavishly.** For low-attaining students, praise that is meant to be encouraging and protective can actually convey a message of low expectations. The evidence shows that children whose failure generates sympathy are more likely to attribute failure to lack of ability than those who are presented with rebuke.
- 2. Allowing learners to discover key ideas for themselves.** Enthusiasm for 'discovery learning' is not supported by research evidence, which broadly favours direct instruction.
- 3. Grouping students by ability.** Evidence on the effects of grouping by ability, by allocating students either to different classes or to within-class groups, suggests that it makes very little difference to learning outcomes. It can result in teachers failing to accommodate different needs within an ability group and over-playing differences between groups, going too fast with high-ability groups and too slow with low ones.
- 4. Encouraging re-reading and highlighting to memorise key ideas.** Testing yourself, trying to generate answers and deliberately creating intervals between study to allow forgetting are all more effective approaches to memorisation than re-reading or highlighting.
- 5. Addressing low confidence and aspirations before teaching content.** Attempts to enhance motivation prior to teaching content are unlikely to succeed – and even if they do, then the impact on subsequent learning is close to zero. If the poor motivation of low-attaining students is a logical response to repeated failure, starting to get them to succeed through learning content will improve motivation and confidence.
- 6. Presenting information to students in their preferred learning style.** Despite a recent survey showing that over 90% of teachers believe individuals learn better when they receive information in their preferred learning style, the psychological evidence is clear that there are no benefits to this method.
- 7. Being active, rather than listening passively, helps you remember.** This claim is commonly presented in the form of a 'learning pyramid', which shows precise percentages of material that will be retained when different levels of activity are employed. These percentages have no empirical basis and are pure fiction.

It may seem unduly negative to focus on things that do not work, but there are a number of reasons for doing this. One is that it provides a challenge to complacency. A potential problem with lists of 'best practice' is that they can be susceptible to confirmation bias. If the list of effective practices is long enough, and contains descriptions of practices that are open to a bit of interpretation, most teachers will be able to identify something they think they are doing well. Including some examples of 'worst practice' is likely to provoke a stronger reaction, which we hope can be challenging in a constructive way.

A second reason is that many of these ineffective practices seem to be quite popular. By stopping doing things that are either ineffective or inefficient, we should allow more time to focus on things that will make more difference. The world of schools and teachers is a busy one; if we don't identify things to stop doing, we just try to cram more in to an already hectic environment.

A section of the report also reviews how we make judgements about teacher quality and questions the over-reliance on lesson observation. Given the complexity of teaching, it is surprisingly difficult for anyone watching a teacher to judge how effectively students are learning (Pianta et al., 2008).

Six approaches to teacher assessment are reviewed; three have moderate validity in signalling effectiveness:

1. classroom observations by peers, principals or external evaluators

2. 'value-added' models (assessing progress in student achievement)
3. student ratings.

Three other approaches have limited evidence:

4. principal (or head teacher) judgement
5. teacher self-reports
6. analysis of classroom artefacts and teacher portfolios.

The report argues for a formative approach to teacher evaluation, based on continuous assessment and feedback rather than results from high-stakes tests (Danielson, 2007). This will need to incorporate a range of measures, from different sources, using a variety of methods (Polikoff, 2014). A key to appropriately cautious and critical use of the different methods is to triangulate them against each other. A single source of evidence may suggest the way forward, but when it is confirmed by another independent source, it starts to become a credible guide. Currently available measures can give useful information, but we must be careful not to over-interpret.

One of the conclusions of the report is that if that we are concerned with the learning of students, we should pay greater attention to the professional development of teachers themselves (Muijs et al., 2014). Good-quality teachers are the key to an effective school and a successful education system.

Great teaching cannot be achieved by following a recipe, but there are some clear pointers in the research to approaches that are most likely to be effective, and to others, even if quite popular, that are not. Teachers need to understand why, when and how a particular approach is likely to enhance students' learning and be given time and support to embed it in their practice.

Steve Higgins is Professor of Education at Durham University and responsible for the design and core content of the EEF ['Teaching and Learning Toolkit'](#).

Rob Coe is Professor of Education at Durham University and Director of the Centre for Evaluation and Monitoring (CEM), Durham University.

Lee Elliot Major is Chief Executive of the Sutton Trust, the UK's leading foundation improving social mobility through education.

References

Coe R, Aloisi C, Higgins S, et al. (2014) What makes great teaching? Review of the underpinning research. Available at: <https://www.suttontrust.com/wp-content/uploads/2014/10/What-Makes-Great-Teaching-REPORT.pdf> (accessed 2018).

Danielson C (2007) *Enhancing Professional Practice: A Framework for Teaching*. Alexandria, VA: ASCD.

Muijs D, Kyriakides L, van der Werf G, et al. (2014) State of the art – teacher effectiveness and professional learning. *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice* 25(2): 231–256.

Pianta R, La Paro K and Hamre B (2008) *Classroom Assessment Scoring System*. Baltimore: Paul H. Brookes.

Polikoff M (2014) Does the test matter? Evaluating teachers when tests differ in their sensitivity to instruction. In: Kane T, Kerr K, and Pianta R (eds) *Designing Teacher Evaluation Systems: New Guidance from the Measures of Effective Teaching Project*. San Francisco, CA: Jossey-Bass, pp. 278–302.

Recap

- **List 3 things** you found out/learnt last lesson (on mini whiteboard).
- **Summarise** what you know about the topic in 5 bullet points – reduce to 5 words – reduce to one word.
- **Put in the words missing from a cloze** summary of learning last lesson.
- **Draw a graphic summary** of knowledge so far – diagram, steps, flowchart, mind/concept map (like a spidergram but shows links).
- **Draw a simple timeline** of events covered so far.
- **Selection of pictures/cartoons/objects** – which relates to last lesson's learning and how might the others tie in later? e.g. Work by artist or example of technique currently being studied.
- **Groups of 3**, numbered 1-3. Put up 3 statements on OHP which individuals must explain to group.
- **Label or annotate a diagram or illustration** – one word in each box. Can be half-complete for less able.
- **Tension chart** – give score out of 5 for tension at various points in a text. Plot on graph and review findings.
- **Drama activity** – freeze frame or 'living photograph' as a summary of learning so far.
- **Just a minute** – pupils on a topic without hesitation, repetition etc.
- **Acrostic** – each letter of a term begins a line. Key word begins the line. The 'poem' should reflect the qualities of the concept.

Key words

- **Match** word cards and definition cards. Can be done as card sort or snap.
- **Write dictionary definitions** or mnemonics for new terms learnt last lesson.
- **Identify the key points/terms** to feature in today's lesson from anagrams.
- **Bingo** – as teacher reads, pupils must spot word/symbol and mark card e.g. match numbers in French with digit;

match muscle with diagram of stretch in PE; match musical term and symbol.

- **Dominoes** – match symbol/image/definition and key word.
- **Pictionary** – draw the word without speaking or writing.
- **Wordsearch** containing key words or information useful in lesson – can use clues/definitions to activate prior knowledge. Similarly, crossword (www.puzzlemaker.com).
- **Break the code** to identify the 3 main points of today's lesson (a=b, b=c....).
- **Post-it notes** or stickers on foreheads – pupils work out word by asking neighbour questions which receive yes/no answers.
- **Concentration/pelmanism**. Two sets of cards face down on table – one set with words, other set a symbol or definition of same meaning. Pupils take turns to turn up two cards to find pairs and have to memorise position of cards.
- **Give groups sets of 3 words** and ask them to identify the odd one out.
- **Taboo**. Describe a word/concept/character/event to a partner without saying the taboo words.
- **Verbal tennis** – divide class into 2 groups who take turns to say a word related to the current topic. No words can be repeated. Scored as tennis.

New topic

- **60 second challenge** – write down all the terms you can think of to do with a topic.
- **Draw a picture** of current understanding of a process and redraw at end of unit e.g. Biology – digestive system or plant lifecycle.
- **Concept cartoon**. Choose from speech-bubble opinions of different characters e.g. Physics – 4 different opinions about what will happen to a rocket (pictured) that has run out of fuel.
- **In pairs, sequence the 5 factors/influences/events** – justify your choices e.g. recipe or sequence for making an object in D&T.

- **Prediction** – what will happen if we...? Why do you think this? Spend 1 minute composing a response before you reply.
- **Objects** – pupils are given a group of objects and asked to sort/imagine/describe/predict/explain/pl an activity e.g. Given 2 tennis balls must invent a warm-up exercise in PE.
- **Key question/statement snowball**– pairs discuss then share ideas with another pair, 4 join another 4, and then 8 join another 8 e.g. ‘What would you be prepared to die for?’ to introduce unit on Martin Luther King in RS or PSHE.
- **Categorising terms** – sort words into related groups, with a pile for ‘not understood yet’ e.g. words related to volcanoes in Geography as a ‘warm-up’ to activate previous knowledge. Could be done on computer by highlighting, cut and paste etc.
- **Video clip.** Class watches very short extract, then consider in pairs: What do I already know? What did I learn from the clip? What do I want to find out?
- **Painting/musical stimulus** – pupils respond to brief exposure and shape an initial response in words, drawing or orally.
- **Vocabulary** to support expression can be given.

Questions

- **Card Loops.** Cards have unrelated question and answer on either side. Pupil reads question and person with answer responds and then reads theirs e.g. Acids and alkalis in Chemistry, WW1 in History.
- **Answer teacher’s questions** without saying yes or no.
- **True or false** – hold up card/whiteboard to show whether statement on OHT is true or false.

- **In role answering** – hot-seating activity.
- **The answer is XYZ** – now write the question. N.B. The question could begin with the words ‘What is...’
- **Groups devise multiple choice** questions designed to catch out other groups.
- **‘Who wants to be a Millionaire?’** questions answered in pairs. Which pair becomes the richest?
- **Quick-fire oral quiz** to review/revisit learning.
- **Blockbusters** – pupils travel across a grid containing initial letters to answers.

Brain gym

- **Washing Line** – pupils organise themselves or pin up cards in order e.g. Maths: Write down a number containing 3 digits in any combination (decimal, fraction). Class sequences numbers in order.
- **Shades of Meaning** – useful for preparing pupils to use a wider range of vocabulary e.g. in Art, pupils order terms to describe colour, shade or texture according to the ‘strength’ or effectiveness of the term.
- **Memory Game** – show items for 20 seconds and then dictate an order in which they are recorded e.g. logos in D&T.
- **Sequencing moves** – one pupil performs a move, a second repeats it and adds another move and so on e.g. trampoline in PE, composition in Music, class story-writing in computer room.
- **Spot the difference** – one picture could contain false information e.g. Maps, diagrams of experiments, charts and graphs.
- **Conceal and describe.** Pupils sit back to back. One describes a picture or process and the other must guess what it is – or draw it.

Strategies for Questioning

| Strategy | Benefits/Gains |
|---|--|
| Consciously waiting for a student to think through an answer (before you break the silence). | Prompts depth of thought and increases levels of challenge . |
| Using a planned mix of 'conscripts' and 'volunteers'. | Enhances engagement and challenge for all. |
| 'Phone a friend'. | Encourages whole class listening. |
| 'Hot-seating'. | Encourages listening for detail and provides challenge. |
| Previewing a question in advance. | Signals the big concepts and learning of the lesson. |
| Pair rehearsal (of an answer or a question). | Encourages interaction, engagement and depth. |
| Eavesdropping and deploying specific targeted questions. | Facilitates informed differentiation. |
| 'You are not allowed to answer this in less than 15 words'. | Develops speaking and reasoning skills. |
| Deliberately asking a child whom you know will provide only a partly formed answer (when asking difficult whole class questions). | Excellent for building understanding from student-based language. |
| Staging or sequencing questions with increasing levels of challenge. | The essence of purposeful questioning, moving students from existing knowledge or experience (often unsorted or unordered knowledge) to organised understanding, where patterns and meaning have been established. |
| Using the 'no hands up' rule. | Improves engagement and challenges all students to think. |
| Providing signals to students about the kind of answer that would best fit the question being asked. | Helps students to recognise the range of possible responses and to select appropriately. |
| Snowballing (asking another student to respond to the answer of the previous student). | Checking understanding. Building on previous answer. Promoting active listening skills. Encouraging whole class involvement. |
| Computer based decision making exercises. Students have to make key decisions about actions all of which have consequences. | This is effectively 50/50 questioning with a chance to reflect if the students select the wrong answer (See History department for further information). |

Bloom's Taxonomy

Benjamin Bloom created this taxonomy for categorizing level of abstraction of questions that commonly occur in classrooms. The taxonomy provides a useful structure in which to categorise questions.

| Competence | <u>Skills Demonstrated</u> |
|----------------------|--|
| Knowledge | <ul style="list-style-type: none"> ● observation and recall of information. ● knowledge of dates, events, places. ● knowledge of major ideas. ● mastery of subject matter. ● <i>Question Cues:</i> list, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, who, when, where, etc. |
| Comprehension | <ul style="list-style-type: none"> ● understanding information. ● grasp meaning. ● translate knowledge into new context. ● interpret facts, compare, contrast. ● order, group, infer causes. ● predict consequences. ● <i>Question Cues:</i> summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend. |
| Application | <ul style="list-style-type: none"> ● use information ● use methods, concepts, theories in new situations. ● solve problems using required skills or knowledge. ● <i>Questions Cues:</i> apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover. |

| | |
|-------------------|---|
| Analysis | <ul style="list-style-type: none"> ● seeing patterns. ● organization of parts. ● recognition of hidden meanings. ● identification of components. ● <i>Question Cues:</i> analyze, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer. |
| Synthesis | <ul style="list-style-type: none"> ● use old ideas to create new ones. ● generalize from given facts. ● relate knowledge from several areas. ● predict, draw conclusions. ● <i>Question Cues:</i> combine, integrate, modify, rearrange, substitute, plan, create, design, invent, what if?, compose, formulate, prepare, generalise, rewrite. |
| Evaluation | <ul style="list-style-type: none"> ● compare and discriminate between ideas. ● assess value of theories, presentations. ● make choices based on reasoned argument. ● verify value of evidence. ● recognize subjectivity. ● <i>Question Cues</i> assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, support, conclude, compare, summarise. |

REVIEWING MATERIAL

1 Daily review



Daily review is important in helping to resurface prior learning from the last lesson. Let's not be surprised that students don't immediately remember everything. They won't! It's a powerful technique for building fluency and confidence and it's especially important if we're about to introduce new learning – to activate relevant prior learning in working memory.

10 Weekly and monthly review



QUESTIONING

3 Ask questions



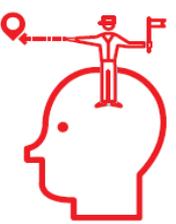
6 Check for student understanding



The main message I always stress is summarised in the mantra: ask more questions to more students in more depth. Rosenshine gives lots of great examples of the types of questions teachers can ask. He also reinforces the importance of process questions. We need ask how students worked things out, not just get answers. He is also really good on stressing that asking questions is about getting feedback to us as teachers about how well we've taught the material and about the need to check understanding to ensure misconceptions are flushed out and tackled.

STAGES OF PRACTICE

5 Guide student practice



Teachers need to be up close to students' initial attempts, making sure that they are building confidence and not making too many errors. This is a common weakness with 'less effective teachers'. Guided practice requires close supervision and feedback. High success rate – in questioning and practice – is important. Rosenshine suggests the optimum is 80%. i.e. high! Not 95-100% (too easy). He even suggests 70% is too low.

7 Obtain a high success rate



9 Independent practice



Independent, monitored practice. Successful teachers make time for students to do the things they've been taught, by themselves... when they're ready. *"Students need extensive, successful, independent practice in order for skills and knowledge to become automatic"*

4 Present new material using small steps



Small steps – with practice at each stage. We need to break down our concepts and procedures (like multi-stage maths problems or writing) into small steps so that each can be practised.

Models – including the importance of the worked-example effect to reduce cognitive load. We need to give many worked examples; too often teachers give too few.

8 Provide models



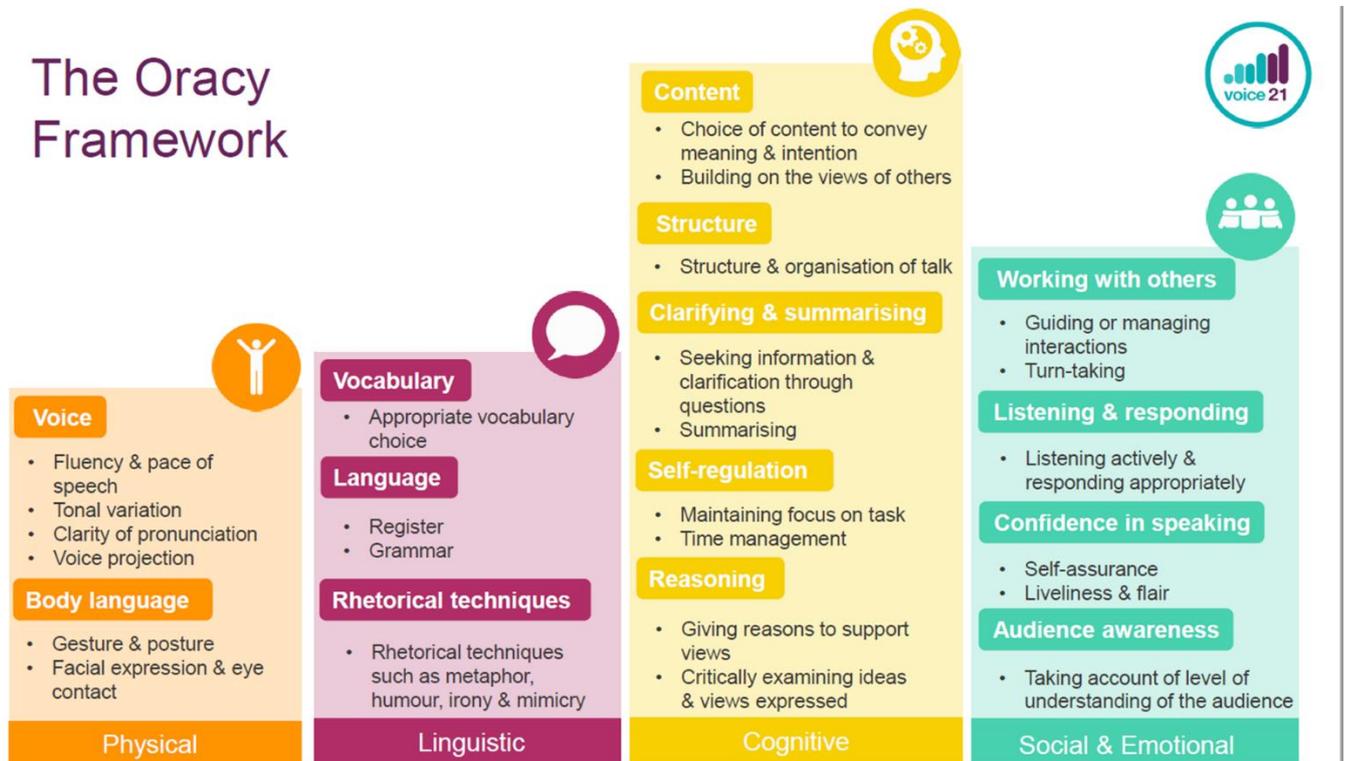
10 Provide scaffolds for difficult tasks



Scaffolding is needed to develop expertise – a form of mastery coaching, where cognitive supports are given – such as how to structure extended writing – but they are gradually withdrawn. The sequencing is key. Stabilisers on a bike are really powerful aids to the learning and confidence building – but eventually they need to come off.

Voice 21

At Birch Hill we use Voice21 Oracy Framework
<https://www.voice21.org/>



Cognitive Load Theory (CLT)

Cognitive Load Theory (CLT) has recently become 'The Next Big Thing' in teaching. Dylan William tweeted on 26 January 2017 that he had 'come to the conclusion Sweller's Cognitive Load Theory is the single most important thing for teachers to know.' This is an emphatic statement and it is important to consider the implications. As teachers, there are huge demands on our time, so when considering a new strategy it is essential to evaluate the evidence.

CLT, first researched by Sweller (Sweller, 1998) towards in the late 1980s, is based around the idea that our working memory – the part of our mind that processes what we are currently doing – can only deal with a limited amount of information at one time. Reif's (Reif, 2010) description of cognitive load is extremely useful: 'The cognitive load involved in a task is the cognitive effort (or amount of information processing) required by a person to perform this task.' There are a number of excellent resources freely available online that explain CLT (see Paas et al. (Paas et al., 2003) for a useful overview), so we will only touch on the foundations of the theory here that will be useful for the rest of the article.

The theory identifies three different forms of cognitive load:

- Intrinsic cognitive load: the inherent difficulty of the material itself, which can be influenced by prior knowledge of the topic
- Extraneous cognitive load: the load generated by the way the material is presented and which does not aid learning

- Germane cognitive load: the elements that aid information processing and contribute to the development of 'schemas'.

CLT suggests that if the cognitive load exceeds our processing capacity, we will struggle to complete the activity successfully. In summarising CLT, De Jong (De Jong, 2010) states that 'cognitive load theory asserts that learning is hampered when working memory capacity is exceeded in a learning task'.

Working memory should be seen as short term and finite, whereas long-term memory can be seen as infinite. The aim should be to move knowledge to long-term memory because when a student is exposed to new material, they can draw on this previous knowledge and the cognitive load is reduced. However, if subject knowledge is incomplete, the student is unable to fall back on the long-term memory and the working memory becomes overloaded, leading to working memory failures. According to Gathercole and Alloway (Gathercole and Alloway, 2007), indications of working memory failures include:

- incomplete recall
- failing to follow instructions
- place-keeping errors
- task abandonment.

Of course, there are many other reasons for these that are not related to CLT; however, if teachers understand how this theory applies to their classroom, they can plan their lessons in a way that takes into account cognitive load.

Reducing cognitive load

Intrinsic cognitive load can be reduced by breaking down the subject content, sequencing the delivery so that sub-tasks are taught individually before being explained together as a whole. The idea is to not overwhelm a student too early on in the introduction of new work.

Extraneous cognitive load can be reduced by the way in which instructions are presented. We make sense of new material by referencing schema or mental models of pre-existing knowledge. Lack of clarity in instruction puts too high a load on the working memory, and so too much time is spent problem-solving the instructions as opposed to new schema formation. For example, lessons that use PowerPoint with excessive writing and the teacher talking at the same time, can inadvertently generate excessive cognitive load and lead to working memory failures. Chandler and Sweller (Chandler and Sweller, 1991) write that 'Cognitive Load Theory suggests that effective instructional material facilitates learning by directing cognitive resources towards activities that are relevant to learning.'

Introducing ideas within a topic

Van Merriënboer et al. (Van Merriënboer et al., 2003) recommend using simple-to-complex sequencing to try to reduce cognitive load. They advise starting with worked-out examples (where a full solution is shown, which students then have to apply to a new question), then moving into completion assignments (where a partial solution is given and they have to complete it themselves), and then moving to conventional tasks, where they are simply given the question. This acts as a form of scaffolding, which helps students to learn independently, without necessarily needing the help of their teacher for each stage.

Renkl and Atkinson (Renkl and Atkinson, 2003) further investigated this fading form of scaffolding. They suggested that moving through activities sequentially could reduce intrinsic load, as learners will have already mastered some of the knowledge they need to work out a solution in an earlier skill stage. Therefore, their research recommends beginning with a model (a complete example), gradually removing completed steps, which the learner will have to complete independently, and finally leaving just the to-be-solved problem.

These principles can be readily applied in the classroom by beginning with a model answer, then providing a writing frame/structure with a lot of information, followed by a writing frame/structure with less information, then finally a question that learners must complete independently without a writing frame. It is worth, though, being aware of the 'expertise reversal effect' suggested by Kalyuga et al. (Kalyuga et al., 2003), whereby if you continue to provide worked-out examples for experts, their usefulness is significantly reduced. Cognitive load theorists suggest this is because worked-out examples contain information that an expert could work out for themselves, making it redundant and therefore extraneous cognitive load rather than useful germane cognitive load.

Presenting information to minimise cognitive load

Chandler and Sweller (Chandler and Sweller, 1992) found evidence of the split-attention effect. This occurs when different sources of information discussing the same topic are separated by time or space, such as a diagram with a key that corresponds to separate text next to it. When information is presented in this way, it is left to the learner to attempt to amalgamate it, which generates extraneous cognitive load. Therefore, it is recommended that if one of the sources adds nothing new, it should be eliminated. However, if it is essential to include both sources, they should ideally be physically integrated (e.g. texts and diagrams combined). This way, extraneous cognitive load is reduced and working memory capacity can be used for intrinsic and germane cognitive load instead.

A word of caution

There are, of course, issues with CLT. Reif (Reif, 2010) writes that if cognitive load is reduced too much, 'the entire learning process would consist of too many small steps – and would thus become unduly fragmented and long'. There are also issues to do with the hypothesis being unfalsifiable. Doug Holton (Holton, 2009) points out that it is difficult to measure cognitive load, and therefore difficult to generate evidence to prove the theory.

An important question, though, is whether it is useful in the classroom. Ashman (Ashman, 2017) has explained that an understanding of CLT changed his maths teaching, and offers the following four examples:

1. I don't read out my slides – avoid simultaneous oral and text presentation
2. Break it down, further – pause for practice between individual problem types (this leads directly into number 3)
3. Example-problem pairs – give a worked example alongside an almost identical question
4. Stop after five minutes – advise students never to spend more than five minutes trying to solve a homework problem

So is CLT the single most important thing for a teacher to know? Perhaps not – it is a bold claim. But, if used correctly, it can improve teacher instruction, which is an important variable in the complex classroom environment.

KEY TAKEAWAYS

- **Break down subject content** when introducing new topics and pause regularly to check understanding.
- **Present instructions clearly** without using too many sources of information at the same time.
- **Be wary of reducing cognitive load too much** – the learning process should be manageable, but not overly fragmented.

Issue 2 of *Impact* explores the science of learning: impact.chartered.college/issue/issue-2-science-of-learning.

Dominic Shibli is Senior Lecturer in the School of Education at the University of Hertfordshire. Prior to that he was Head of Science and SLE for the North Herts Teaching Alliance.

Rachel West has a BSc in psychology and has been teaching psychology for three years. She is interested in raising awareness of the ways in which psychological theory can be applied to teaching practice.

References

Ashman G (2017) Four ways cognitive load theory has changed my teaching. Available at: <https://gregashman.wordpress.com/2017/05/13/four-ways-cognitive-load-theory-has-changed-my-teaching%E2%BB%BF/> (accessed 25 July 2017).

Chandler P and Sweller J (1991) Cognitive Load Theory and the format of instruction. *Cognition and Instruction* 8(4): 293–332.

Chandler P and Sweller J (1992) The split-attention effect as a factor in the design of instruction. *British Journal of Educational Psychology* (62): 233–246.

De Jong T (2010) Cognitive Load Theory, educational research, and instructional design: Some food for thought. *Instructional Science* 38(2): 105–134.

Gathercole S and Alloway T (2007) Understanding working memory. A classroom guide. Harcourt Assessment. Available at: <https://www.mrc-cbu.cam.ac.uk/wp-content/uploads/2013/01/WM-classroom-guide.pdf> (accessed 11 July 2017).

Holton D (2009) Cognitive Load Theory: Failure? Available at: <https://edtechdev.wordpress.com/2009/11/16/cognitive-load-theory-failure/> (accessed 25 July 2017).

Kalyuga S, Ayres P, Chandler P, et al. (2003) The expertise reversal effect. *Educational Psychologist* 38(1): 23–31.

Paas F, Renkl A and Sweller J (2003) Cognitive Load Theory and instructional design: Recent developments. *Educational Psychologist* 38(1): 1–4.

Reif F (2010) *Applying Cognitive Science to Education. Thinking and Learning in Scientific and Other Complex Domains*. Cambridge, MA: The MIT Press.

Renkl A and Atkinson R (2003) Structuring the transition from example study to problem solving in cognitive skill acquisition: A cognitive load perspective. *Educational Psychologist* 38(1): 15–22.

Sweller J (1998) Cognitive load during problem solving: Effects on learning. *Cognitive Science* (12): 257–285.

Van Merriënboer J, Kirschner P and Kester L (2003) Taking the load off a learner’s mind: Instructional design for complex learning. *Educational Psychologist* 38(1): 5–13.

Reading List

| Learn | Believe | Others |
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