How do we make mathematics teaching equitable for all pupils?

- Explore the proactive curricular, pedagogical and environmental approaches that enable all pupils, in particular pupil premium and SEND, to keep up and reach equal outcomes with their peers

- Discuss how traditional intervention approaches can result in wide attainment gaps and a tail of under-achievement for some pupils

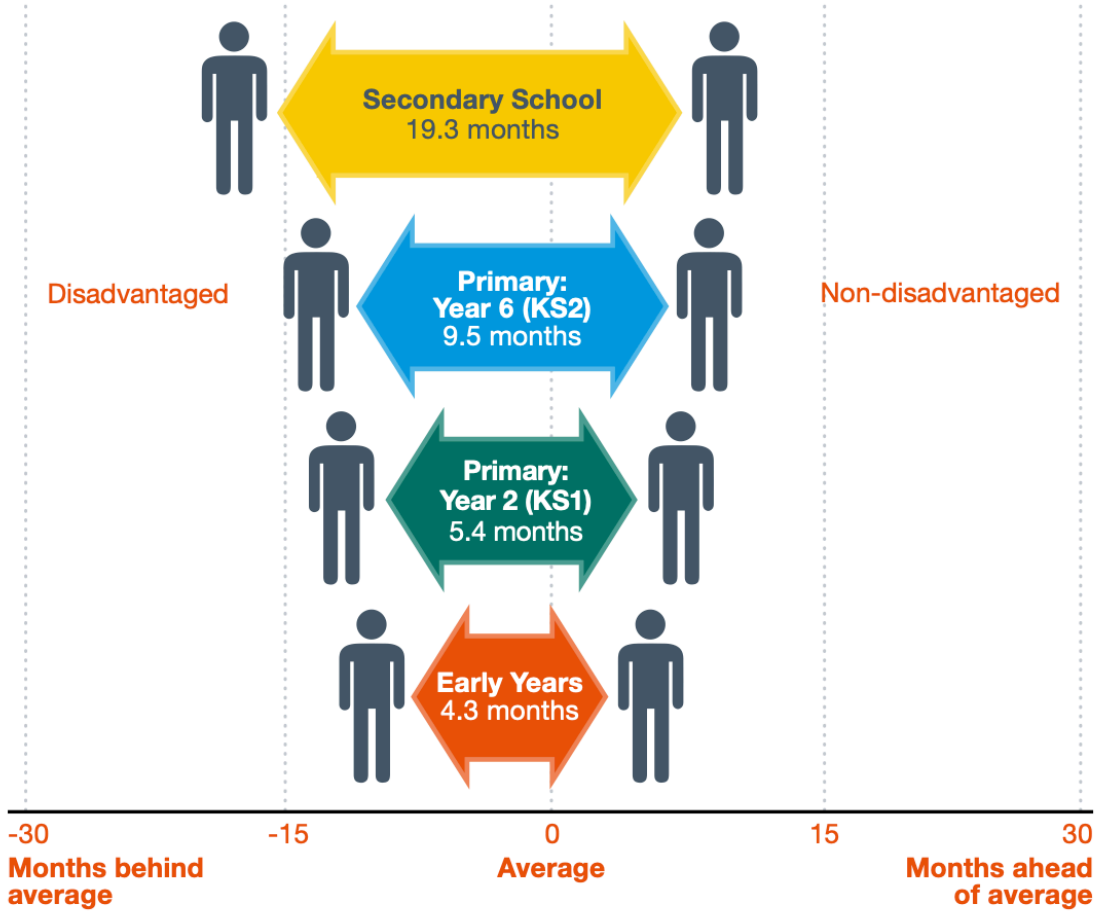
FIGURE 1:
EVIDENCE-INFORMED PRACTICE

High expectations for all

Belief all can achieve

Great teaching

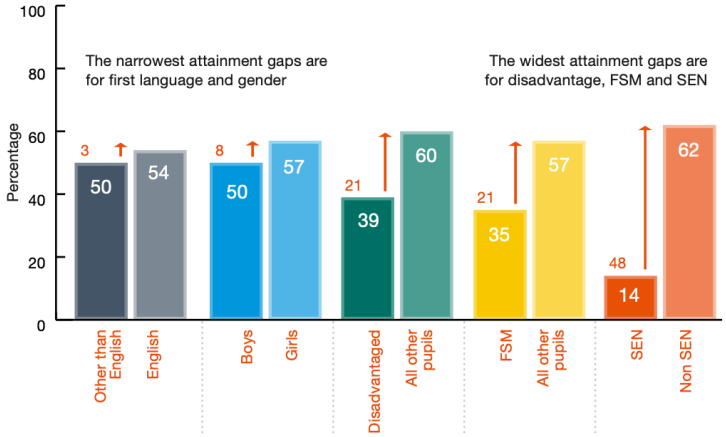
All disadvantaged pupils



'Closing the Gap? Trends in educational attainment and disadvantage', Education Policy Institute (July 2017)

Attainment gap, age 11, by different pupil characteristics:[i]

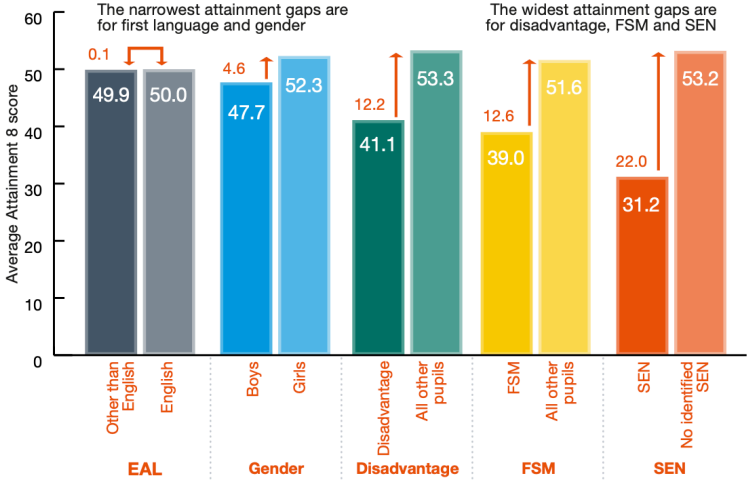
Percentage reaching the expected standard in reading, writing and mathematics for different groups England, 2016 (state-funded schools)



i. 'National curriculum assessments: key stage 2, 2016 (revised)', Department for Education (June 2017)

Attainment gap, age 16, by different pupil characteristics:[ii]

England, 2016 (state-funded schools)



ii. GCSE and equivalent results: 2015 to 2016 (provisional)', Department for Education (October 2016)
iii. 'Special educational needs in England', Department for Education (January 2017)

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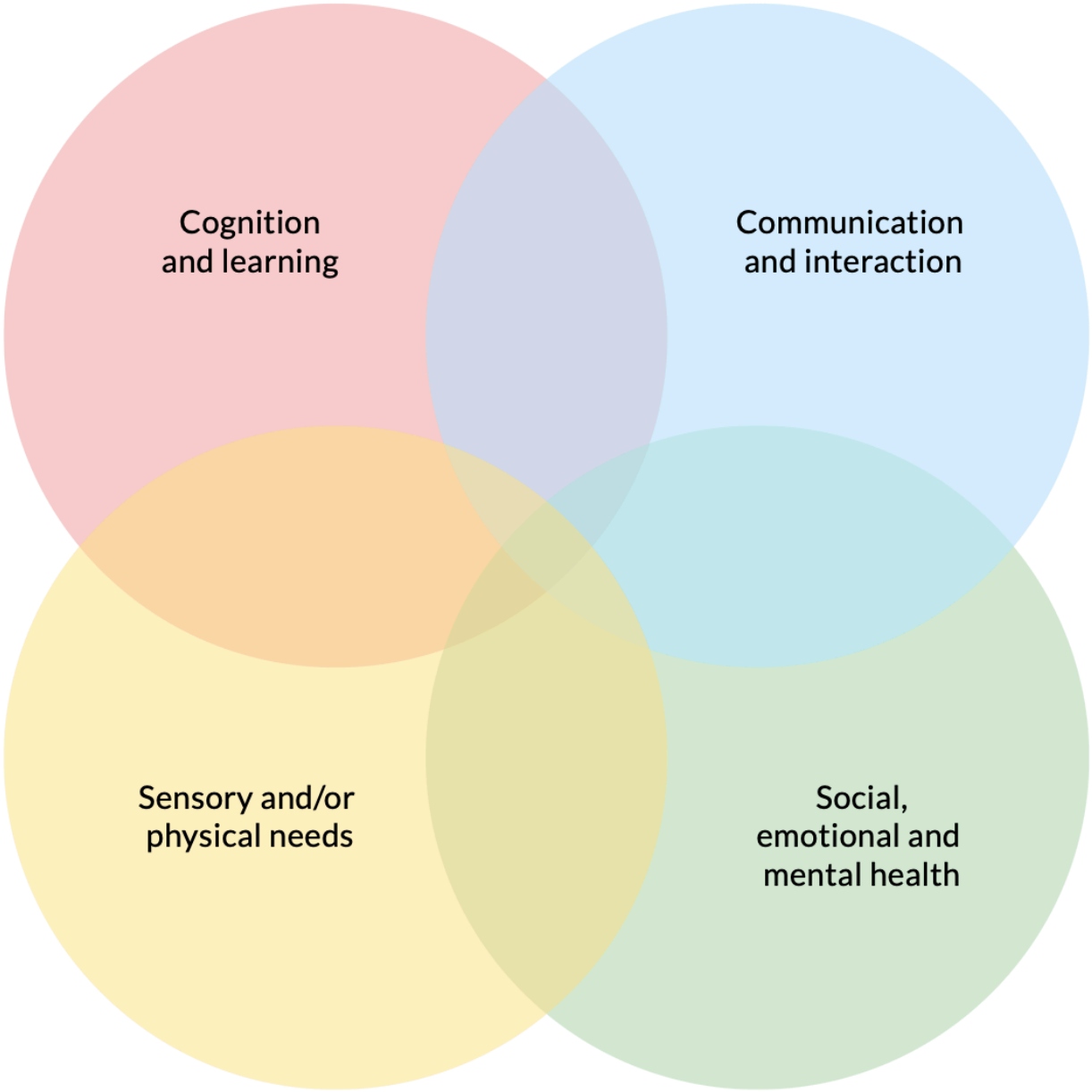
Agree?  Disagree?

"Teachers and kids should understand that there is nothing that can diagnose a student's potential.

There is nothing that can tell us what they're capable of learning and doing in the future under the right conditions"

Carol Dweck

Areas of SEND can be considered as falling under four broad areas



Recap

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SPECIAL EDUCATIONAL NEEDS IN MAINSTREAM SCHOOLS

Summary of recommendations

1 Create a positive and supportive environment for all pupils, without exception

- An inclusive school removes barriers to learning and participation, provides an education that is appropriate to pupils' needs, and promotes high standards and the fulfilment of potential for all pupils. Schools should:
- promote positive relationships, active engagement, and wellbeing for all pupils;
- ensure all pupils can access the best possible teaching; and
- adopt a positive and proactive approach to behaviour, as described in the EEF's Improving Behaviour in Schools guidance report.

2 Build an ongoing, holistic understanding of your pupils and their needs

- Schools should aim to understand individual pupil's learning needs using the graduated approach of the 'assess, plan, do, review' approach.
- Assessment should be regular and purposeful rather than a one-off event, and should seek input from parents and carers as well as the pupil themselves and specialist professionals.
- Teachers need to feel empowered and trusted to use the information they collect to make a decision about the next steps for teaching that child.

3 Ensure all pupils have access to high quality teaching

- To a great extent, good teaching for pupils with SEND is good teaching for all.
- Searching for a 'magic bullet' can distract teachers from the powerful strategies they often already possess.
- The research suggests a group of teaching strategies that teachers should consider emphasising for pupils with SEND. Teachers should develop a repertoire of these strategies they can use flexibly in response to the needs of all pupils.
  - flexible grouping;
  - cognitive and metacognitive strategies;
  - explicit instruction;
  - using technology to support pupils with SEND; and
  - scaffolding.

4 Complement high quality teaching with carefully selected small-group and one-to-one interventions

- Small-group and one-to-one interventions can be a powerful tool but must be used carefully. Ineffective use of interventions can create a barrier to the inclusion of pupils with SEND.
- High quality teaching should reduce the need for extra support, but it is likely that some pupils will require high quality, structured, targeted interventions to make progress.
- The intensity of intervention (from universal to targeted to specialist) should increase with need.
- Interventions should be carefully targeted through identification and assessment of need.
- Interventions should be applied using the principles of effective implementation described in the EEF's guidance report *Putting Evidence to Work: A School's Guide to Implementation*.

5 Work effectively with teaching assistants

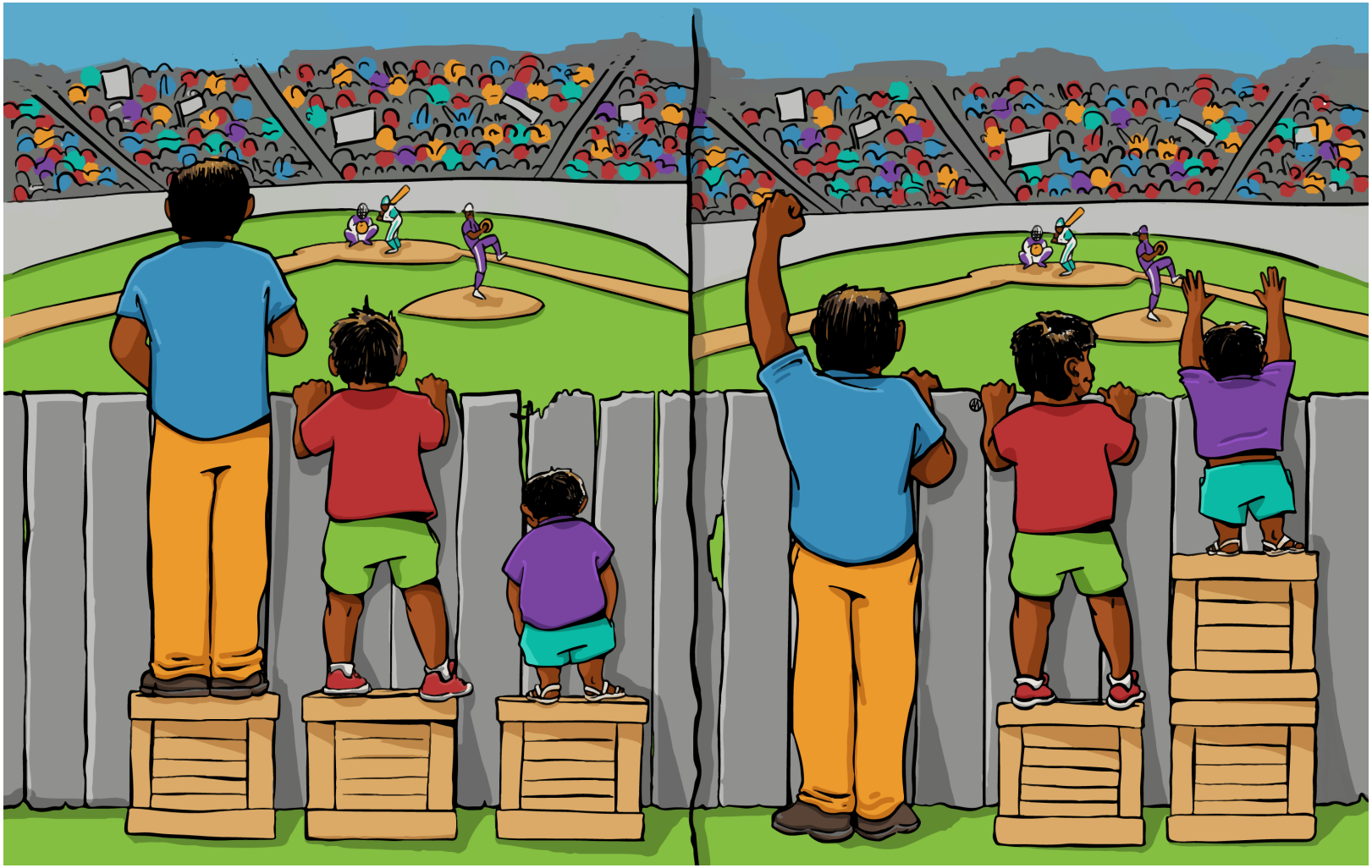
- Effective deployment of teaching assistants (TAs) is critical. School leaders should pay careful attention to the roles of TAs and ensure they have a positive impact on pupils with SEND.
- TAs should supplement, not replace, teaching from the classroom teacher.
- The EEF's guidance report *Making Best Use of Teaching Assistants* provides detailed recommendations.

Report published 20th March 2020

eef.li/send

I wonder ...

I notice ...



Equality means each individual or group of people is given the same resources or opportunities.

Equity recognizes that each person has different circumstances and allocates the exact resources and opportunities needed to reach an equal outcome.

"The route to achieving equity will not be accomplished through treating everyone equally. It will be achieved by treating everyone justly according to their circumstances."
—Paula Dressel, Race Matters Institute

Equity

Teachers and leaders should try to strike a balance between curricular approaches that enable pupils to keep up with their peers and reactive approaches that identify, help and support pupils after they have fallen behind. These reactive approaches are more likely to rely on assessment, diagnoses, personalisation and interventions.

In the English mathematics education system, emphases on reactive approaches are associated with a wide attainment spread and a long tail of under-achievement. Almost 180,000 students had to re-sit GCSE mathematics in 2019. Of these, only 22.3% achieved a standard pass (grade 4) or above.[footnote 109]

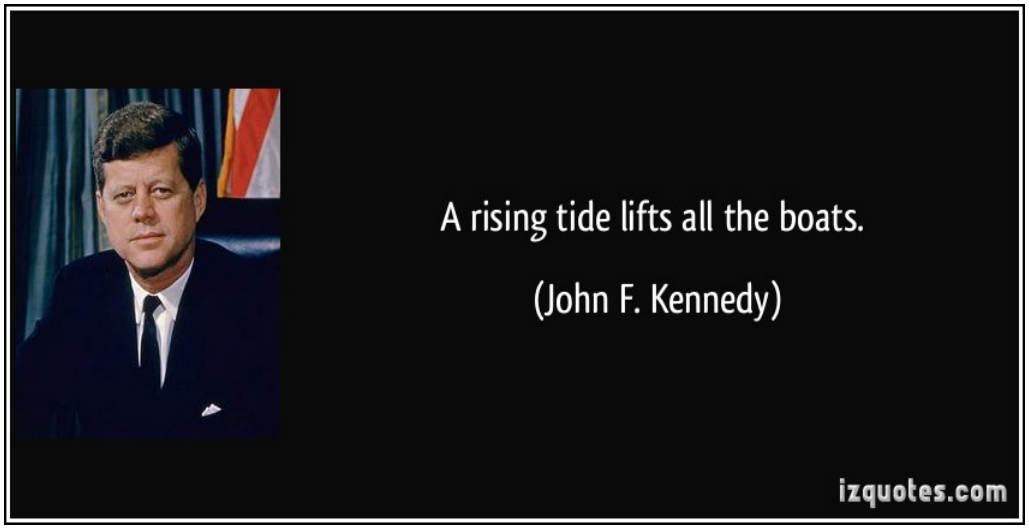
In East Asian classrooms, there appears to be little differentiation.[footnote 110] It might be assumed that this is the result of a pedagogical decision to keep pupils learning and doing the same thing. Teachers may worry that high attainers are being held back or that pupils with special educational needs and/or disabilities (SEND) are not being given enough support. However, in countries like Singapore, all groups of pupils do well. Fifty-one per cent of Singaporean pupils met the advanced international benchmark versus just 11% of English pupils. For the intermediate benchmark, described as the ability to 'apply basic mathematical knowledge in a variety of situations', only 8% of Singaporean children did not meet this standard, compared with 31% of English children.[footnote 111] The reason for this success is because a powerful curriculum and plenty of opportunities to engage in purposeful, intelligent practice lead to better outcomes for pupils.[footnote 112]

Leaders could consider this strategy as a way to promote proficiency in the subject, where pupils stay together not because higher attainers are being held back, but because lower attainers can 'keep up'.

EEF Blog: Assess, adjust, adapt – what does adaptive teaching mean to you?

We know that pupils with special educational needs and disabilities (SEND) in mainstream schools have the greatest need for high-quality teaching and this requires daily decisions regarding the school learning environment and classroom management. Such high-quality teaching – ***adjusting, adapting and assessing in the classroom*** *– is of course crucial for the progress of all pupils.*

Differentiation is an important factor to consider when adapting teaching, but in practice, ***its definition is unclear.*** *It is helpful to draw a distinction between differentiating by outcomes and differentiated support. Whilst providing focused support to children who are not making progress is recommended, creating a multitude of differentiated resources is not.*



2014 National Curriculum

*'The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be **challenged** through being offered **rich and sophisticated** problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.'*

(National curriculum in England: mathematics programmes of study)

Find the word 'differentiation'

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

(EiF 231 Good Implementation)

Adaptive Teaching (Standard 5 – Adapt teaching)

Learn that…	Learn how to…
1. Pupils are likely to learn at different rates and to require different levels and types of support from teachers to succeed. 2. Seeking to understand pupils' differences, including their different levels of prior knowledge and potential barriers to learning, is an essential part of teaching. 3. Adapting teaching in a responsive way, including by providing targeted support to pupils who are struggling, is likely to increase pupil success. 4. Adaptive teaching is less likely to be valuable if it causes the teacher to artificially create distinct tasks for different groups of pupils or to set lower expectations for particular pupils. 5. Flexibly grouping pupils within a class to provide more tailored support can be effective, but care should be taken to monitor its impact on engagement and motivation, particularly for low attaining pupils. 6. There is a common misconception that pupils have distinct and identifiable learning styles. This is not supported by evidence and	**Develop an understanding of different pupil needs, by:** • *Identifying pupils who need new content further broken down.* • *Making use of formative assessment.* • *Working closely with the Special Educational Needs Co-ordinator (SENCO) and special education professionals and the Designated Safeguarding Lead.* • *Using the SEND Code of Practice, which provides additional guidance on supporting pupils with SEND effectively.* **Provide opportunity for all pupils to experience success, by:** • *Adapting lessons, whilst maintaining high expectations for all, so that all pupils have the opportunity to meet expectations.* • *Balancing input of new content so that pupils master important concepts.* • *Making effective use of teaching assistants.* **Meet individual needs without creating unnecessary workload, by:** • *Making use of well-designed resources (e.g. textbooks).* • *Planning to connect new content with pupils' existing knowledge or providing additional pre-teaching if pupils lack critical knowledge.* • *Building in additional practice or removing unnecessary expositions.* • *Reframing questions to provide greater scaffolding or greater stretch.*
attempting to tailor lessons to learning styles is unlikely to be beneficial. 7. Pupils with special educational needs or disabilities are likely to require additional or adapted support; working closely with colleagues, families and pupils to understand barriers and identify effective strategies is essential.	• *Considering carefully whether intervening within lessons with individuals and small groups would be more efficient and effective than planning different lessons for different groups of pupils.* **Group pupils effectively, by:** • *Applying high expectations to all groups, and ensuring all pupils have access to a rich curriculum.* • *Changing groups regularly, avoiding the perception that groups are fixed.* • *Ensuring that any groups based on attainment are subject specific.*

High Expectations (Standard 1 – Set high expectations)

Learn that…	Learn how to…
1. Teachers have the ability to affect and improve the wellbeing, motivation and behaviour of their pupils. 2. Teachers are key role models, who can influence the attitudes, values and behaviours of their pupils. 3. Teacher expectations can affect pupil outcomes; setting goals that challenge and stretch pupils is essential. 4. Setting clear expectations can help communicate shared values that improve classroom and school culture.	**Communicate a belief in the academic potential of all pupils, by:** • *Using intentional and consistent language that promotes challenge and aspiration.* • *Setting tasks that stretch pupils, but which are achievable, within a challenging curriculum.* • *Creating a positive environment where making mistakes and learning from them and the need for effort and perseverance are part of the daily routine.* • *Seeking opportunities to engage parents and carers in the education of their children (e.g. proactively highlighting*

5. A cu
rela

6. High
pupi
disa

Classroom Practice (Standard 4 – Plan and teach well structured lessons)

Learn that…	Learn how to…

Including a range of types of questions in class discussions to extend and challenge pupils (e.g. by modelling new vocabulary or asking pupils to justify answers).

Category	Type 1	Type 2
Declarative 'I know that'	Facts and formulae	Relationship between facts (conceptual understanding)
Procedural 'I know how'	Methods	Relationship between facts, procedures and missing facts (principles/mechanisms)
Conditional 'I know when'	Strategies	Relationship between information, strategies and missing information (reasoning)

Inclusivity

Pupils with SEND benefit hugely from explicit, systematic instruction and systematic rehearsal of declarative and procedural knowledge.[footnote 113] The benefits of these approaches extend beyond enhanced academic attainment and proficiency. The relationship between cognitive ability and academic attainment, including in numeracy, is in fact bidirectional.[footnote 114] Therefore, educational outcomes for pupils with SEND are likely to improve if teachers use systematic instruction and rehearsal to help pupils learn planned content.[footnote 115]

This approach is particularly useful for pupils with moderate learning difficulties who have slower cognitive processing speed.[footnote 116] Systematic approaches increase the amount of content considered per unit of time. These approaches are also highly beneficial in enhancing the progress, attainment and self-esteem of disadvantaged pupils.[footnote 117] Systematic curricular approaches give pupils with SEND and disadvantaged pupils a better chance of success, of keeping up and therefore of feeling included.

High quality teaching benefits pupils with SEND

The 'Five-a-day' principle

The research underpinning the EEF's guidance report 'Special Educational Needs in Mainstream Schools' indicates that supporting high quality teaching improves outcomes for pupils with SEND. Five specific approaches—the 'Five-a-day' indicated below—are particularly well-evidenced as having a positive impact. Teachers should develop a repertoire of these strategies, which they can use daily and flexibly in response to individual needs, using them as the starting point for classroom teaching for all pupils, including those with SEND.

1 Explicit instruction

Teacher-led approaches with a focus on clear explanations, modelling and frequent checks for understanding. This is then followed by guided practice, before independent practice.

2 Cognitive and metacognitive strategies

Managing cognitive load is crucial if new content is to be transferred into students' long-term memory. Provide opportunities for students to plan, monitor and evaluate their own learning.

3 Scaffolding

When students are working on a written task, provide a supportive tool or resource such as a writing frame or a partially completed example. Aim to provide less support of this nature throughout the course of the lesson, week or term.

4 Flexible grouping

Allocate groups temporarily, based on current level of mastery. This could, for example, be a group that comes together to get some additional spelling instruction based on current need, before re-joining the main class.

5 Using technology

Technology can be used by a teacher to model worked examples; it can be used by a student to help them to learn, to practice and to record their learning. For instance, you might use a class visualiser to share students' work or to jointly rework an incorrect model.

More information about finding better ways to support pupils with SEND, including these five principles and more specialist interventions, can be found in the EEF's guidance report '*Special Educational Needs in Mainstream Schools*'.

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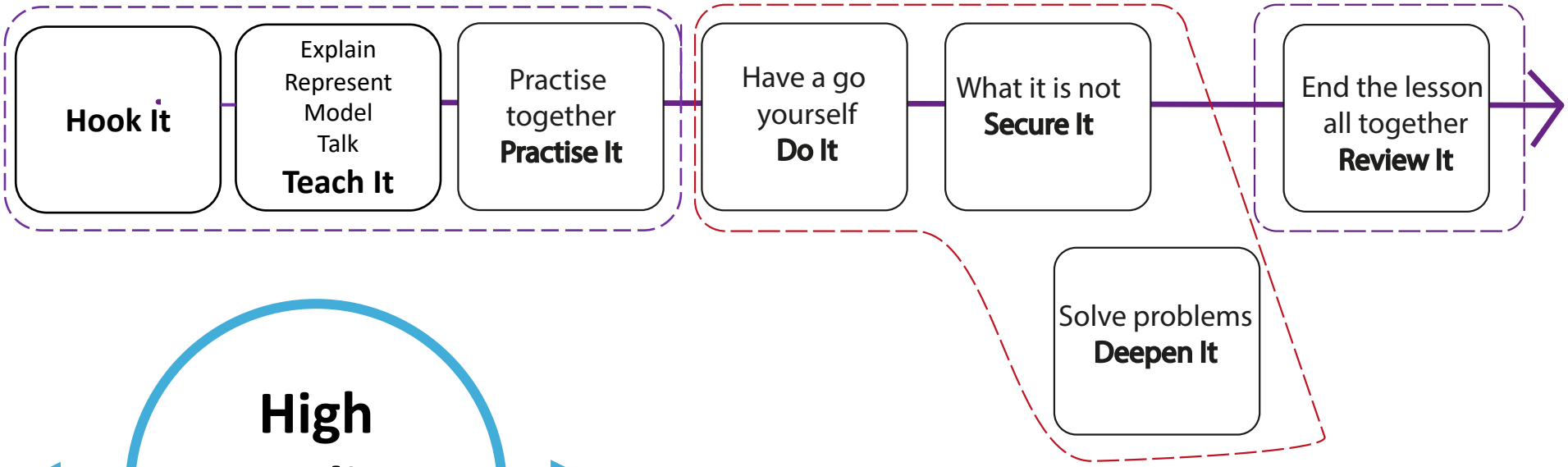
- High demands of pupil involvement and engagement with their learning
- High levels of interaction for all pupils
- Appropriate use of teacher questioning, modelling and explaining
- An emphasis on learning through dialogue, with regular opportunities for pupils to talk both individually and in groups
- An expectation that pupils will accept responsibility for their own learning and work independently
- Regular use of encouragement and authentic praise to engage and motivate pupils



High Quality Teaching

Education Endowment Foundation

Improving Mathematics in Key Stages Two and Three – Recommendations Summary

1 Use assessment to build on pupils' existing knowledge and understanding

- Assessment should be used not only to track pupils' learning but also to provide teachers with information about what pupils do and do not know
- This should inform the planning of future lessons and the focus of targeted support
- Effective feedback will be an important element of teachers' response to assessment
- Feedback should be specific and clear, encourage and support further effort, and be given sparingly.
- Teachers not only have to address misconceptions but also understand why pupils may persist with errors
- Knowledge of common misconceptions can be invaluable in planning lessons to address errors before they arise

2 Use manipulatives and representations

- Manipulatives (physical objects used to teach maths) and representations (such as number lines and graphs) can help pupils engage with mathematical ideas
- However, manipulatives and representations are just tools: how they are used is essential
- They need to be used purposefully and appropriately to have an impact
- There must be a clear rationale for using a particular manipulative or representation to teach a specific mathematical concept
- Manipulatives should be temporary; they should act as a 'scaffold' that can be removed once independence is achieved

3 Teach pupils strategies for solving problems

- If pupils lack a well-rehearsed and readily available method to solve a problem they need to draw on problem-solving strategies to make sense of the unfamiliar situation
- Select problem-solving tasks for which pupils do not have ready-made solutions
- Teach them to use and compare different approaches
- Show them how to interrogate and use their existing knowledge to solve problems
- Use worked examples to enable them to analyse the use of different strategies
- Require pupils to monitor, reflect on, and communicate their problem solving

4 Enable pupils to develop a rich network of mathematical knowledge

- Emphasise the many connections between mathematical facts, procedures, and concepts
- Ensure that pupils develop fluent recall of facts
- Teach pupils to understand procedures
- Teach pupils to consciously choose between mathematical strategies
- Build on pupils' informal understanding of sharing and proportionality to introduce procedures
- Teach pupils that fractions and decimals extend the number system beyond whole numbers
- Teach pupils to recognise and use mathematical structure

5 Develop pupils' independence and motivation

- Encourage pupils to take responsibility for, and play an active role in, their own learning
- This requires pupils to develop metacognition – the ability to independently plan, monitor and evaluate their thinking and learning
- Initially, teachers may have to model metacognition by describing their own thinking
- Provide regular opportunities for pupils to develop metacognition by encouraging them to explain their thinking to themselves and others
- Avoid doing too much too early
- Positive attitudes are important, but there is scant evidence on the most effective ways to foster them
- School leaders should ensure that all staff, including non-teaching staff, encourage enjoyment in maths for all children

6 Use tasks and resources to challenge and support pupils' mathematics

- Tasks and resources are just tools – they will not be effective if they are used inappropriately by the teacher
- Use assessment of pupils' strengths and weaknesses to inform your choice of task
- Use tasks to address pupil misconceptions
- Provide examples and non-examples of concepts
- Use stories and problems to help pupils understand mathematics
- Use tasks to build conceptual knowledge in tandem with procedural knowledge
- Technology is not a silver bullet – it has to be used judiciously and less costly resources may be just as effective

7 Use structured interventions to provide additional support

- Selection should be guided by pupil assessment
- Interventions should start early, be evidence-based and be carefully planned
- Interventions should include explicit and systematic instruction
- Even the best-designed intervention will not work if implementation is poor
- Support pupils to understand how interventions are connected to whole-class instruction
- Interventions should motivate pupils – not bore them or cause them to be anxious
- If interventions cause pupils to miss activities they enjoy, or content they need to learn, teachers should ask if the interventions are really necessary
- Avoid 'intervention fatigue'. Interventions do not always need to be time-consuming or intensive to be effective

8 Support pupils to make a successful transition between primary and secondary school

- There is a large dip in mathematical attainment and attitudes towards maths as children move from primary to secondary school
- Primary and secondary schools should develop shared understandings of curriculum, teaching and learning
- When pupils arrive in Year 7, quickly attain a good understanding of their strengths and weaknesses
- Structured intervention support may be required for Year 7 pupils who are struggling to make progress
- Carefully consider how pupils are allocated to maths classes
- Setting is likely to lead to a widening of the attainment gap between disadvantaged pupils and their peers, because the former are more likely to be assigned to lower groups

Research and analysis
Research review series: mathematics
Published 25 May 2021

Category	Type 1	Type 2
Declarative 'I know that'	Facts and formulae	Relationship between facts (conceptual understanding)
Procedural 'I know how'	Methods	Relationship between facts, procedures and missing facts (principles/mechanisms)
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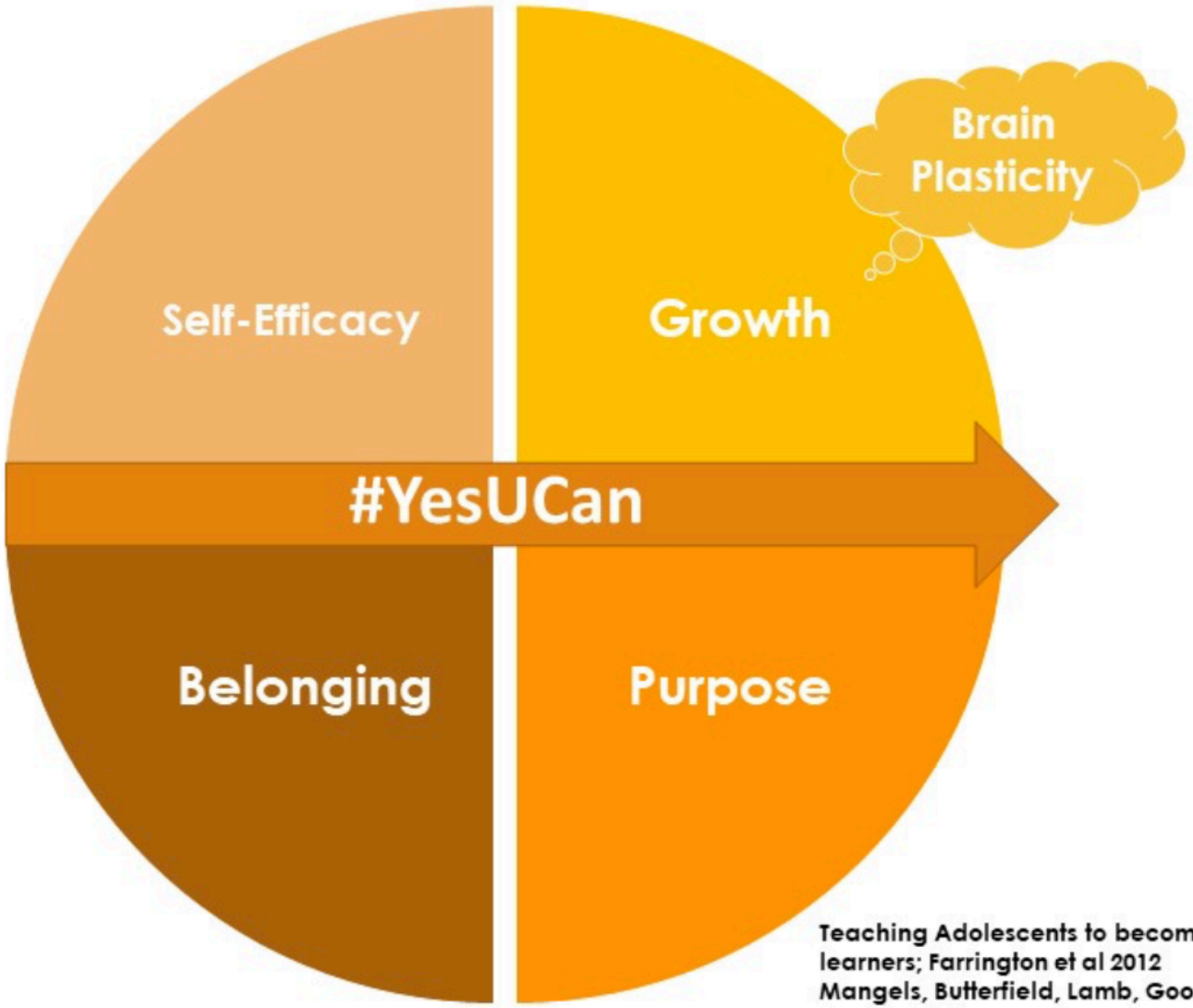
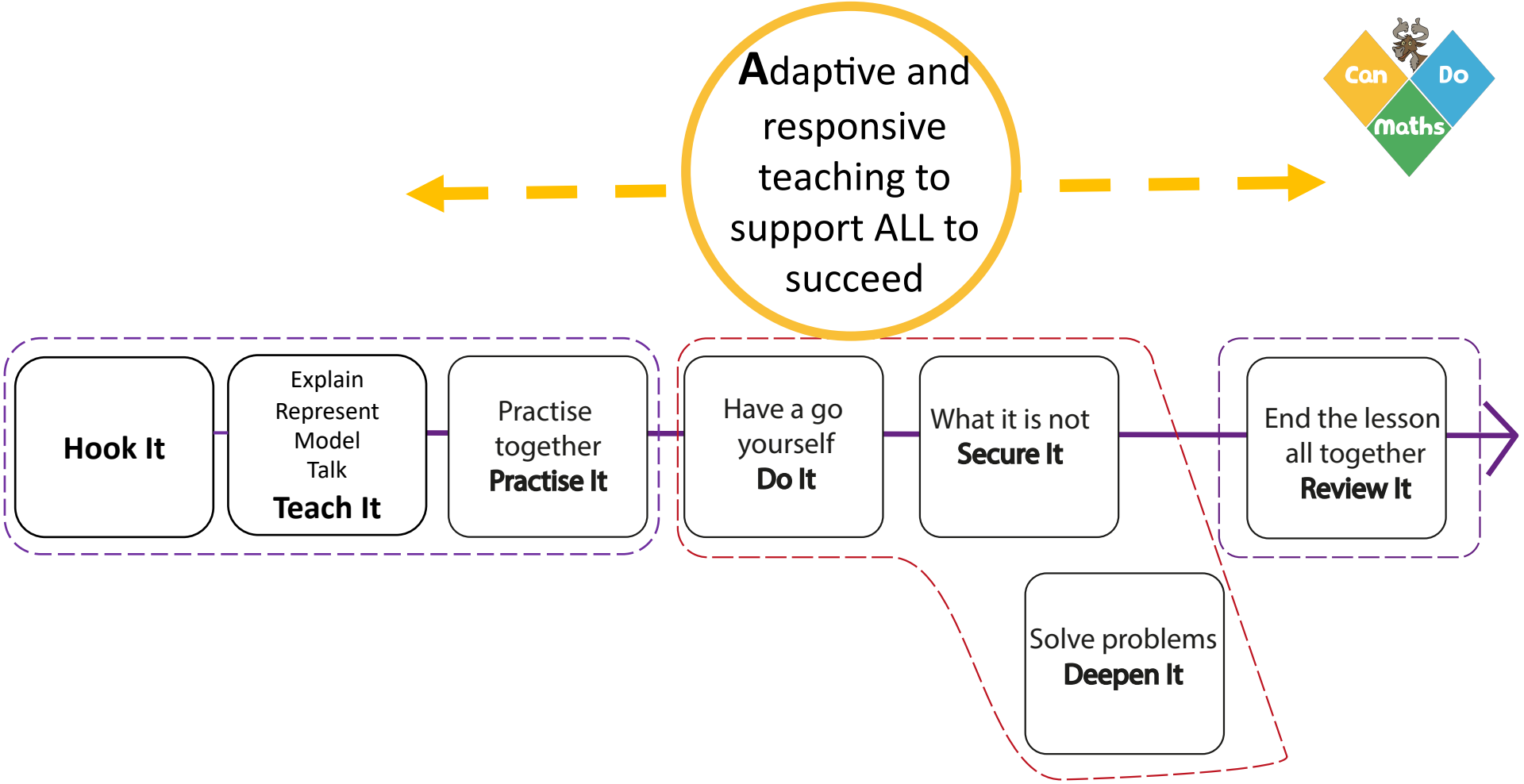
This approach is particularly useful for pupils with moderate learning difficulties who have slower cognitive processing speed.[footnote 116] Systematic approaches increase the amount of content considered per unit of time. These approaches are also highly beneficial in enhancing the progress, attainment and self-esteem of disadvantaged pupils.[footnote 117] Systematic curricular approaches give pupils with SEND and disadvantaged pupils a better chance of success, of keeping up and therefore of feeling included.

Four Mindsets that affect whether we learn



Teaching Adolescents to become learners; Farrington et al 2012
Mangels, Butterfield, Lamb, Good, & Dweck, 2006



- **Reframing questions to provide greater scaffolding or greater challenge**
- **Making use of formative assessment**
- **Re-explain the concept using representation and language**
- **Give an additional (or revisit) examples and non-examples**
- **Flexibly grouping pupils within a class to provide more tailored support**
- **Intervening within lessons with individuals and small groups**
- **Effective use of Teaching Assistants**

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MAKING BEST USE OF TEACHING ASSISTANTS

Summary of recommendations

Sections are colour coded for ease of reference

The effective use of TAs under everyday classroom conditions

1 TAs should not be used as an informal teaching resource for low attaining pupils

The evidence on TA deployment suggests schools have drifted into a situation in which TAs are often used as an informal instructional resource for pupils in most need. This has the effect of separating pupils from the classroom, their teacher and their peers.

Although this has happened with the best of intentions, this evidence suggests that the status quo is no longer an option.

School leaders should systematically review the roles of both teachers and TAs and take a wider view of how TAs can support learning and improve attainment throughout the school.

2 Use TAs to add value to what teachers do, not replace them

If TAs have a direct instructional role it is important they add value to the work of the teacher, not replace them – the expectation should be that the needs of all pupils are addressed, first and foremost, through high quality classroom teaching. Schools should try and organise staff so that the pupils who struggle most have as much time with the teacher as others. Breaking away from a model of deployment where TAs are assigned to specific pupils for long periods requires more strategic approaches to classroom organisation. Instead, school leaders should develop effective teams of teachers and TAs, who understand their complementary roles in the classroom.

Where TAs are working individually with low attaining pupils the focus should be on retaining access to high-quality teaching, for example by delivering brief, but intensive, structured interventions (see Recommendations 5 and 6).

3 Use TAs to help pupils develop independent learning skills and manage their own learning

Research has shown that improving the nature and quality of TAs' talk to pupils can support the development of independent learning skills, which are associated with improved learning outcomes. TAs should, for example, be trained to avoid prioritising task completion and instead concentrate on helping pupils develop ownership of tasks.

TAs should aim to give pupils the least amount of help first. They should allow sufficient wait time, so pupils can respond to a question or attempt the stage of a task independently. TAs should intervene appropriately when pupils demonstrate they are unable to proceed.

4 Ensure TAs are fully prepared for their role in the classroom

Schools should provide sufficient time for TA training and for teachers and TAs to meet out of class to enable the necessary lesson preparation and feedback.

Creative ways of ensuring teachers and TAs have time to meet include adjusting TAs' working hours (start early, finish early), using assembly time and having TAs join teachers for (part of) Planning, Preparation and Assessment (PPA) time.

During lesson preparation time ensure TAs have the essential 'need to knows':

- Concepts, facts, information being taught
- Skills to be learned, applied, practised or extended
- Intended learning outcomes
- Expected/required feedback

The effective use of TAs in delivering structured interventions out of class

5 Use TAs to deliver high quality one-to-one and small group support using structured interventions

Research on TAs delivering targeted interventions in one-to-one or small group settings shows a consistent impact on attainment of approximately three to four additional months' progress (effect size 0.2–0.3). Crucially, these positive effects are only observed when TAs work in structured settings with high quality support and training. When TAs are deployed in more informal, unsupported instructional roles, they can impact negatively on pupils' learning outcomes.

6 Adopt evidence-based interventions to support TAs in their small group and one-to-one instruction

Schools should use structured interventions with reliable evidence of effectiveness. There are presently only a handful of programmes in the UK for which there is a secure evidence base, so if schools are using programmes that are 'unproven', they should try and replicate some common elements of effective interventions:

- Sessions are often brief (20–50mins), occur regularly (3–5 times per week) and are maintained over a sustained period (8–20 weeks). Careful timetabling is in place to enable this consistent delivery
- TAs receive extensive training from experienced trainers and/or teachers (5–30 hours per intervention)
- The intervention has structured supporting resources and lesson plans, with clear objectives
- TAs closely follow the plan and structure of the intervention
- Assessments are used to identify appropriate pupils, guide areas for focus and track pupil progress. Effective interventions ensure the right support is being provided to the right child
- Connections are made between the out-of-class learning in the intervention and classroom teaching (see Rec 7).

Integrating learning from work led by teachers and TAs

7 Ensure explicit connections are made between learning from everyday classroom teaching and structured interventions

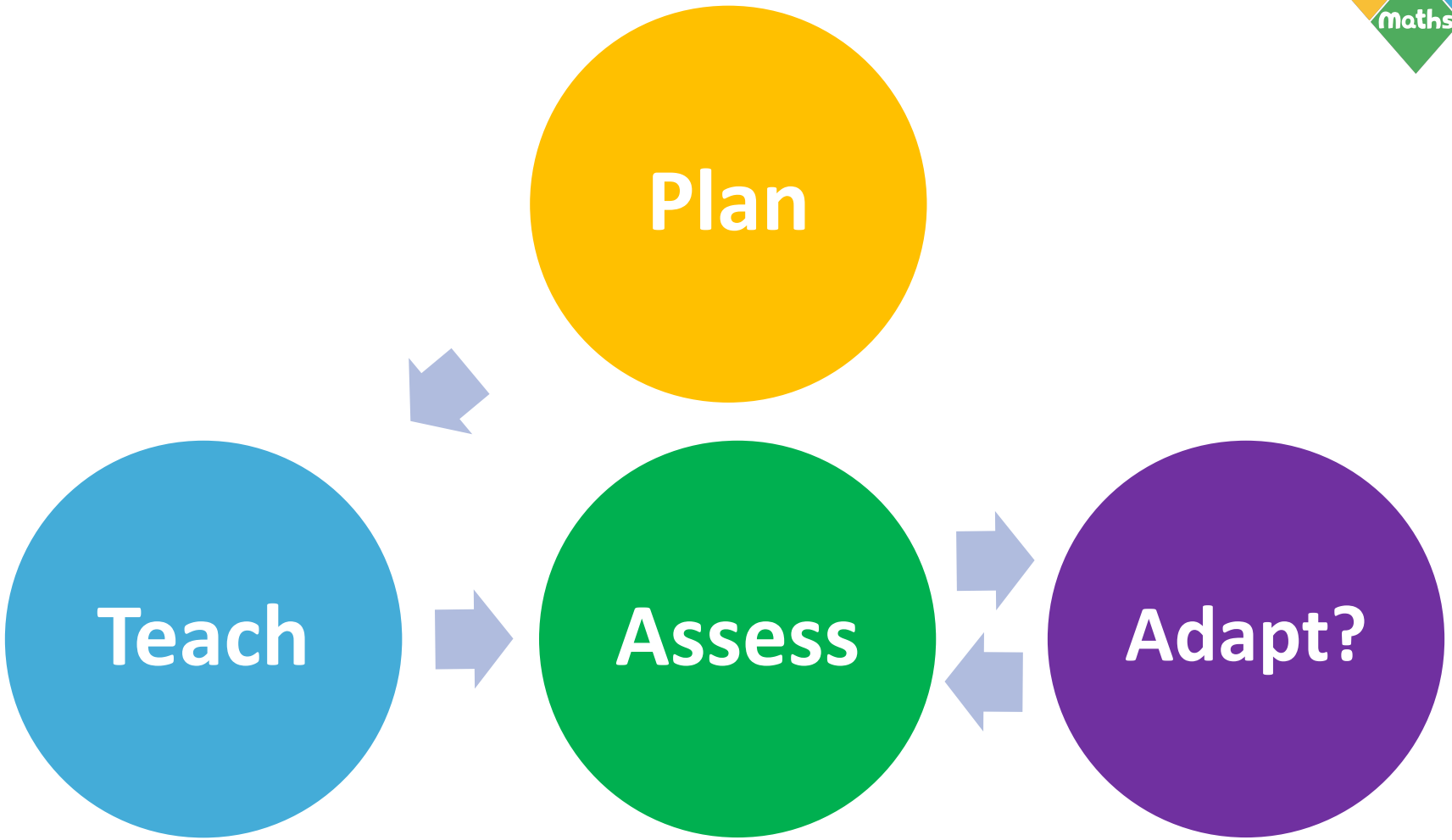
Interventions are often quite separate from classroom activities. Lack of time for teachers and TAs to liaise allows relatively little connection between what pupils experience in, and away, from, the classroom. The key is to ensure that learning in interventions is consistent with, and extends, work inside the classroom and that pupils understand the links between them. It should not be assumed that pupils can consistently identify and make sense of these links on their own.

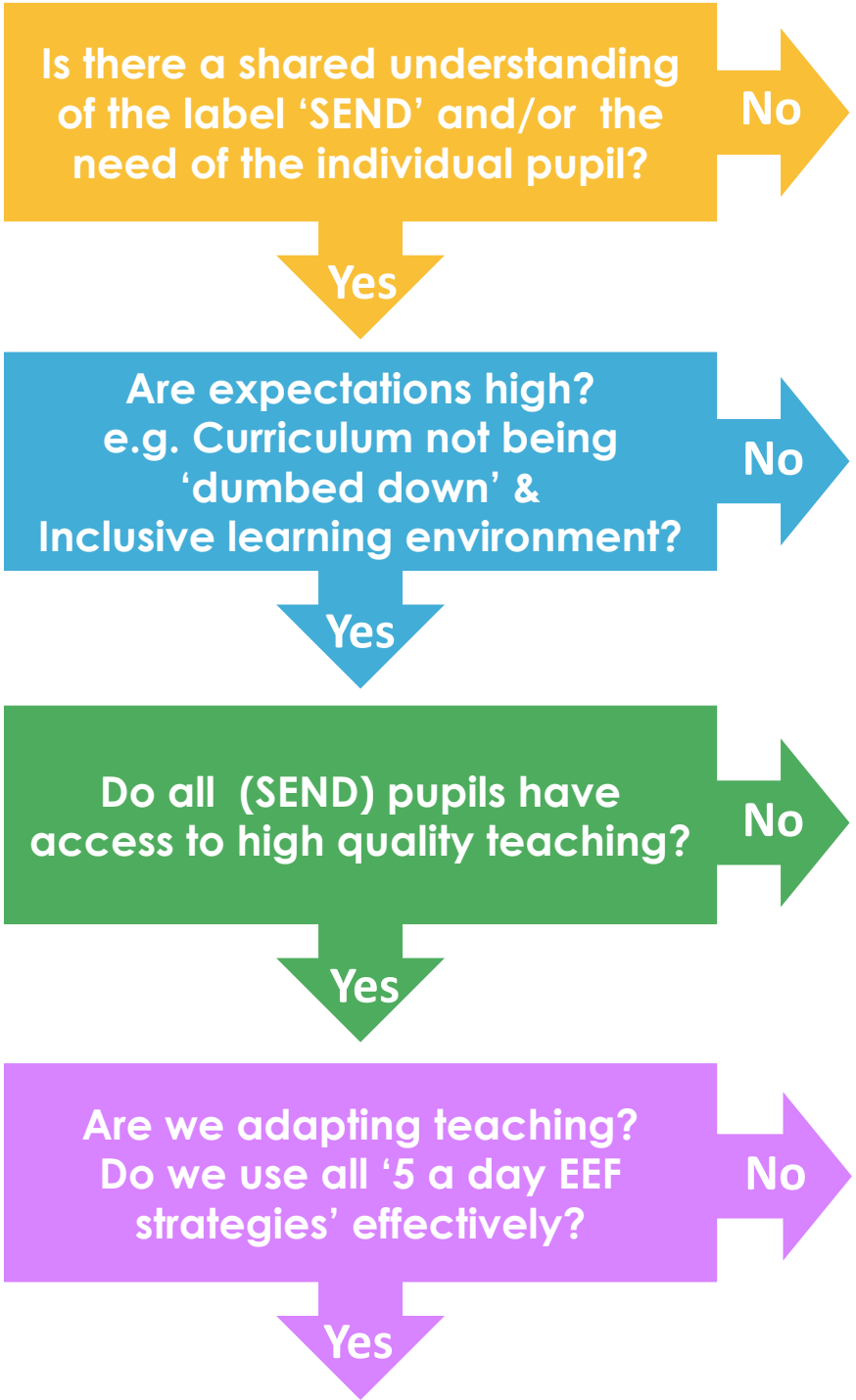
How do we make mathematics teaching equitable for all pupils?

- Explore the proactive curricular, pedagogical and environmental approaches that enable all pupils, in particular pupil premium and SEND, to keep up and reach equal outcomes with their peers

- Discuss how traditional intervention approaches can result in wide attainment gaps and a tail of under-achievement for some pupils

Ambitious and inclusive curriculum
Manageable Step for all




Is there a shared understanding of the label 'SEND' and/or the need of the individual pupil?
No
Yes
Are expectations high? e.g. Curriculum not being 'dumbed down' & Inclusive learning environment?
No
Yes
Do all (SEND) pupils have access to high quality teaching?
No
Yes
Are we adapting teaching? Do we use all '5 a day EEF strategies' effectively?
No
Yes

TransforMaths

This self-evaluation school improvement tool is designed to support schools interested in improving the achievement and enjoyment of mathematics. Schools can identify current areas of strength and next steps to transform mathematics in their school.

The features included in the self evaluation sections build on resources produced by the GLOWMaths Hub and feedback from other schools in the UK already transforming mathematics based on the four key strands: Systems and Beliefs, Teaching for Mastery, Arithmetic and Reasoning.

Note: *The resource has not been designed to be used in isolation, e.g. it is a useful school improvement tool to summarise and follow up INSET sessions and/or staff discussions based on articles, guidance and action research*

	0: Currently not a feature of our practice *1: Sometimes happens* *2: Happens fairly often but not embedded* *3: Is a central feature of our practice*	*0*	*1*	*2*	*3*
Systems and Beliefs	*TeachUp,KeepUp:* The 'Mathematics Timetable' prioritises additional curriculum time beyond the mathematics lesson to support practice, consolidation and/or immediate same day/week intervention.				
	The vision for mathematics in the school embraces the aims of the National Curriculum and promotes a 'can do' attitude				
	The Mathematics Calendar/Long Term Plan is at least 35 weeks with a detailed curriculum mapped out across all stages to ensure pupils acquire and demonstrate a sufficient grasp of the mathematics relevant to their year group				
	LingerLonger: A Medium Term Plan for Mathematics is mapped out across each term, ensuring longer time is prioritised for key topics				
	AbilityNotFixed: Staff understand classes may contain previously high/mid/low attainers but they do not label pupils such as 'most able/less able', 'good/no good at maths' and can/can't do maths'				
	YesUCan: Staff proactively promote a 'can do' attitude to mathematics for all pupils through a set of 'positive norms' for the mathematics classroom including the use of 'yet', depth of understanding before speed and learning by mistakes are valued.				
	BelieveToAchieve: Staff believe that the vast majority of Y6 pupils can achieve at least KS2 expected standards and there is a clear focused revision plan for Terms (3)/4/5				
	HelicopterNotVelcro: TAs are clear about their responsibilities and impact during different phases of mathematics sessions				
	Comments/Actions:				
Teaching for Mastery	*SecureAndDeep*: Staff understand that the essential idea behind 'teaching for mastery in mathematics' is that **ALL** pupils can and will achieve in mathematics by providing opportunities for all pupils to develop the depth and rigour they need to make secure and sustained progress over time				
	VariationNotVariety: Tasks and questions are designed using Variation Theory *(what it is, what it isn't, apply understanding to solve new and unfamiliar problems)*				
	Intelligent Practice: Examples and tasks focus on developing conceptual understanding, practise the thinking process with increasing creativity and avoid mechanical repetition				
	InchWideMileDeep: Medium term plans identifying small key learning points				
	CPA: Concrete and pictorial representations are chosen carefully to help build procedural and conceptual knowledge together				
	TeachLessLearnMore: All pupils are expected to develop at least a secure understanding of each small key learning point				
	PreventTheGap: Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with rapid intervention within the lesson and/or same day/week intervention				
	DifferentiationByDepth: Challenge is provided by going deeper rather than accelerating too early into new mathematical content.				
	Maths Manual: Teachers have access to high quality resources to support lesson planning, including text books				
	Comments/Actions:				

	0: Currently not a feature of our practice *1: Sometimes happens* *2: Happens fairly often but not embedded* *3: Is a central feature of our practice*	*0*	*1*	*2*	*3*
Arithmetic	*InYourHead,WithJottings,WrittenMethod:* Pupils are encouraged to calculate accurately, efficiently and flexibly				
	ArithmeticToolkit: Staff are clear about the key arithmetic skills for their year group and the previous year group.				
	PracticeToBeSkilled: Arithmetic skills are practised and assessed on a regular basis				
	Key number facts (bonds and multiplication tables) are learnt and practiced regularly.				
	Comments/Actions:				
Reasoning	*TheAnswerIsOnlyTheBeginning:* Mathematical ideas are discussed and reasoned and not passively 'received' by pupils				
	ConvinceMe: Tasks are deliberately designed to encourage pupils to describe, explain, justify, convince and/or prove				
	Pupils have opportunities to reason about misconceptions and teacher initiated mistakes to secure understanding				
	Comments/Actions:				

Next Steps		
Now	Next (when?)	Later (when?)