



PiXL



**THE ST. MARY'S
PARTNERSHIP**

Securing the Fundamentals

Leadership Thinking Guide



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INTRODUCTION

This Leadership Thinking Guide has been designed to inform the effective use of the Securing the Fundamentals package, which aims to support teaching teams in KS1 and KS2 to diagnose and address barriers to pupils' learning across priority areas of the curriculum. It also places a strong emphasis on pupils' wellbeing and character development.

Towards the end of this guide, you will find a section entitled *Questions for leadership reflection*. Before implementing this package, we encourage you to ringfence time to think about these questions and to discuss them as a leadership team, to support you in aligning use of this package with your particular context and to address the specific barriers that your pupils may be facing.

You may also wish to use the [Specialist and Networking Platform](#) to book a *Transition for all years* surgery with a member of the PiXL team. This will provide the opportunity to discuss how use of the Securing the Fundamentals materials can enhance your current approach to transition. Similarly, the [Transition Leadership Thinking Guide](#) provides an opportunity for leaders to reflect on their approach to transition of all pupils, and how Securing the Fundamentals can enhance and complement your existing approach.

WHAT IS THE *SECURING THE FUNDAMENTALS* PACKAGE?

As the name suggests, the Securing the Fundamentals package has been designed to support teaching teams to diagnose and address barriers to pupils' learning in relation to priority areas of the curriculum, as well as pupils' wellbeing and character development.

This package builds on and supersedes the Summer Transition Package and is still intended to be used in a targeted way to support the transition process during the summer and autumn terms.

However, the guidance and materials have been updated to reflect the value in using the package flexibly at other times of the year, to identify and address gaps in priority learning areas and pupil wellbeing and character development, including for inwardly mobile pupils.

As with the PiXL Diagnostic Assessment Package, Securing the Fundamentals is designed to support schools in achieving data wisdom by providing tools and strategies to drive the DTTR (Diagnosis – Therapy – Testing – Revisiting) process. To gain a detailed understanding of data wisdom and DTTR, please see:

- [PiXL Diagnostic Assessment Package – Leadership Thinking Guide](#)
- [DTTR CPD package](#)

WHAT DOES *SECURING THE FUNDAMENTALS* INCLUDE?

The package consists of checklists, low-stakes diagnostic quizzes and therapies for Maths, Reading and Grammar, Punctuation and Spelling (GPS), covering priority curriculum content from Years 1 to 5. It also includes a checklist and therapies to support key aspects of pupils' character development and wellbeing.

- **[Securing the Fundamentals checklists](#)**: These outline the areas of learning covered for each subject by the package and can be used to RAG rate (red-amber-green) pupils in relation to each of the fundamental areas of learning. While these can be used to assess whole cohorts to inform transition discussions between teaching teams, for the greatest impact, we recommend that they are used in a targeted way to forensically track individuals or groups of pupils as they progress towards securing the fundamental areas of learning. Please note that for Mathematics, the statements on the Securing the Fundamentals checklist closely align with the [NCETM's Ready to Progress criteria](#) (geometry being one exception).

In addition to the subject-specific checklists, there is a Securing the Fundamentals checklist for key aspects of pupils' character and wellbeing. While these may be used to diagnose areas of strength and development for key groups of pupils in the same way as the checklists for Maths, Reading and GPS, schools may wish to use the character and wellbeing checklist for a whole class or cohort. This way, all

pupils' specific pastoral needs can be identified and addressed during periods of transition, such as when pupils move from one year group to the next, or when a pupil joins the school mid-year. Additionally, the checklist can be used to prepare pupils for and provide support during any other key challenges throughout the school year.

- **Low-stakes diagnostic quizzes for Maths, Reading and GPS:** These have been designed to be used informally (most are broken into sections giving teachers the option to administer quizzes in 10 or 15-minute sections) and will provide a wealth of information to support pupils to be ready to access the following year's curriculum.

NB: The quizzes, especially for Mathematics and GPS, can be completed by being displayed on the whiteboard which removes the need for additional printing.

Depending on the context and the needs of pupils in a particular cohort, it may be beneficial for the Securing the Fundamentals low-stakes diagnostic quizzes to be used instead of one of the more formal PiXL diagnostic assessments. Alternatively, schools may wish to use analysis of a PiXL diagnostic assessment to inform their use of the Securing the Fundamentals quizzes, enabling teachers and leaders to gain a deeper understanding of pupils' gaps in relation to particular aspects of learning.

- **Mark entry spreadsheets:** For each quiz, a mark entry spreadsheet has been provided which can be used to support the diagnosis of barriers to learning through Question Level Analysis for groups of pupils or, if appropriate, cohorts. While this can be a useful starting point for analysing outcomes, it is important to note that it can be a blunt tool and to gain a laser-sharp understanding of a pupil's precise barriers to learning, teachers will need to dig deeper, for example, through script analysis and pupil conferencing.

To take a question from a maths quiz as an example, if a pupil does not achieve the marks on a multi-step word problem, it is important to get curious and explore if the issue relates to an underlying misconception in mathematical understanding, or perhaps it may relate to mathematical vocabulary or the pupil's ability or confidence to approach multi-step problems systematically. By being precise in the diagnosis of learning gaps, teachers can then select the most effective therapies to address them.

- **Securing the Fundamentals therapies:** For each statement on the Securing the Fundamentals checklists for Maths, Reading, GPS and Character/Wellbeing, there is a corresponding therapy which will support teachers in addressing gaps in understanding that have been diagnosed. These are intentionally editable to enable teaching teams to adapt the content to meet the precise needs of pupils.
- **Additional guidance document on Oracy:** Oracy is increasingly seen as a foundational skill, equal to literacy and numeracy in its importance for children's development and essential not just for academic success but for life in an increasingly complex world. As such, we have produced an additional guidance

document to support school leaders in considering how they can secure the fundamentals of oracy by embedding it into the school culture and curriculum.

- **Additional guidance document on Writing:** Within the Securing the Fundamentals materials for GPS, we offer targeted support to help pupils develop critical skills in writing, using therapies and quizzes to diagnose and strengthen the use of grammar and sentence construction. This additional guidance document supports leaders to reflect on the extent to which grammar teaching is embedded within the writing curriculum so that it is taught as a writer's craft, with pupils learning that true authorship is the careful selection of words, phrases and sentences to have an impact upon a reader.

WHY ARE THE AREAS OF LEARNING COVERED BY THE PACKAGE SO FUNDAMENTAL?

The Securing the Fundamentals package provides a framework for the application of DTTR (Diagnosis – Therapy – Testing – Revisiting), focusing specifically on the areas of learning which are essential to enable pupils to progress to the following year's curriculum. In addition, it provides a structure for providing targeted pastoral support to pupils, which will be especially beneficial throughout periods of transition. The statements for Mathematics, Reading, GPS and Character/Wellbeing have all been carefully selected by our subject teams, as they are the areas of learning and key skills which we feel need to be secured to enable pupils to progress smoothly and successfully to the next year group.

The broad areas of learning which are covered can be seen in the image below. Should you wish to gain a more detailed understanding of the rationale for each of these areas of learning, please see [Appendix 1](#).

Securing the Fundamentals aims to support teachers in KS1 and KS2 to diagnose and address barriers to learning in priority areas of the curriculum (covering the areas of learning detailed below) as well as supporting pupils' character development and wellbeing.

Reading

- Word meaning and decoding (Y1 - 2)
- Vocabulary and language in context (Y3 - 5)
- Comprehension: Retrieval
- Comprehension: Inference

Mathematics

- Number and place value
- Calculation: Addition and subtraction
- Calculation: Multiplication and division
- Fractions

GPS

- Sentence composition
- Punctuation
- Grammatical terms and word classes

Character and Wellbeing

At PiXL, we believe that enabling young people to get the best outcomes AND enabling them to be the best people they can be is at the heart of what we do in education. This is why we speak up about improving outcomes AND life chances. At PiXL, we talk about the PiXL 3Cs:

Currency – the outcomes and qualifications you need to progress to where you want and need to be.

Character – who you are and how you behave.

Culture – how together, we can create a culture that enables us to live in thriving communities.

You can find out more information about our approach to Character and Wellbeing in the [Character](#) and [Wellbeing](#) folders on PrimaryWise. In addition, you can also participate in the [Engagement Leadership Programme focusing on Character](#), which provides pre-recorded CPD and is available to you as part of your membership.

As the [EEF's Transition Toolkit](#) states, during periods of transition, it is important to provide support to pupils to help them to manage change, for example, to routines and expectations, and also to build healthy peer networks, which includes pupils developing the language to identify and articulate their own and others' emotions. The statements on the Securing the Fundamentals Checklist for Character and Wellbeing have been specifically chosen as they are the areas which we feel will be particularly beneficial in terms of supporting pupils as they navigate change, including during the transition process. Areas covered include managing feelings, identifying support networks, being positive and developing character traits including resilience, organisation and motivation.

HOW CAN THE PACKAGE BE IMPLEMENTED IN SCHOOL?

To support the transition of inwardly mobile pupils

The Securing the Fundamentals package can be used to support pupils during periods of transition, which includes pupils who may join the school mid-year, those who may have experienced extended absence from school and pupils who are transitioning from being home schooled to being school based. The low-stakes, informal quizzes can provide teachers with a wealth of diagnostic assessment information, specifically focused on fundamental areas of learning, which can support them in building a clear picture of a pupil's areas of strength as well as any gaps in learning. This can then be used to inform the support provided to that pupil in whole-class teaching or potentially through more targeted intervention as required.

To support the planning process by revisiting prior learning

As noted previously, the quizzes are designed to be low stakes and delivered informally. One approach to using the quizzes, which may be especially useful in mathematics, is to assess pupils' understanding of priority areas of the previous year's content to inform planning of a new unit of work. As an example, for a Year 4 class, in advance of teaching fractions, it may be that the Year 3 quiz is used informally – perhaps chunked into sections and used as a warm-up task over a number of days – to provide the teaching team with a clear understanding of pupils' security with previously taught content. Diagnostic information gained from use of the quizzes can then be used to inform and adapt planning and, for pupils who require it, the Year 3 fractions therapies can be used as pre-teaching to provide them with solid foundations on which Year 4 fractions content can then be built.

To support transition of pupils in all years

As outlined in the [EEF's Transition Toolkit](#), there are three key challenges linked to transition which can lead to a dip in attainment – particularly in literacy and numeracy – and the Securing the Fundamentals package has been designed to support pupils with each of these challenges. The identified challenges which should be considered are:

- **Curriculum continuity** which needs to be underpinned by diagnostic assessment to provide an accurate and clear picture of pupils' understanding of priority areas of the curriculum so that prior learning can be secured, revisited and built upon, as required.
- **School routines and expectations** which requires close collaboration between year groups as well as explanation, practice and positive reinforcement to support pupils to adjust to any changes. While this is important for all pupils, bespoke arrangements will, of course, need to be made for individual pupils who may require additional support to manage change.
- **Healthy peer networks** which can be supported by providing rich opportunities for peer collaboration and friendship-building throughout the transition process, as well as authentic opportunities for teachers to get to know pupils and vice versa. In addition, it is recommended that the use of emotional language is modelled in every classroom, so pupils develop the ability to articulate and express how they and others are feeling.

The Securing the Fundamentals package can help to address all three of these challenges. To support curriculum continuity, the package provides tools to enable forensic diagnosis of gaps in learning in fundamental areas of literacy and numeracy as well as therapies to help to address the identified gaps. In addition, the Securing the Fundamentals checklists, when completed for key pupils, provide a powerful tool to add rigour and precision to transition meetings between teaching teams.

The statements on the Securing the Fundamentals checklists for Character and Wellbeing and the accompanying therapies have been selected as they will support pupils in preparing for and managing change as well as helping them to build healthy peer and wider support networks.

Ultimately, the Securing the Fundamentals package can be used to support the application of DTTR throughout the transition process and should be used flexibly and strategically to meet the needs of the pupils in your school. One approach is to use your outcomes and analysis of the summer diagnostic assessments to inform your use of the Securing the Fundamentals materials. Where gaps in learning or misconceptions are identified in data from the summer diagnostic assessments, the Securing the Fundamentals quizzes can be used – ideally with small, targeted groups of pupils – to dig deeper into specific areas to provide teaching teams with a clearer understanding of the precise gaps in learning.

Outcomes from the quizzes, supported by use of the mark entry spreadsheets and deeper analysis such as use of pupil conferencing and script analysis, can support teachers to complete Securing the Fundamentals checklists for groups of pupils who require forensic support to secure the essential areas of learning. These priority learning gaps can then be addressed, in part, through use of the relevant Securing the Fundamentals therapies. If used prior to transition, progress in these priority areas, as highlighted on the checklist, can form part of the transition discussions between current and new teaching teams.

While we recommend that use of the quizzes, checklists and therapies for Maths, Reading and GPS are used in a strategic and targeted way with key groups of pupils, from our experience we have found that schools often find it beneficial to complete the Character and Wellbeing checklists for all pupils in a class, as it provides an opportunity for teaching teams to reflect on crucial aspects of wellbeing and character development. When used in this way, the checklist can provide a powerful overview of the pastoral needs of all pupils in a class which can provide rigour to transition meetings between teaching teams and can inform the precise support required by pupils during the transition process and beyond.

Please note that where the Securing the Fundamentals package is used, for example, with a Year 4 class in the summer term, the expectation is that the Year 4 checklists, quizzes and therapies would be used to support pupils' preparation and readiness for Year 5. As this class moves into Year 5 during the autumn term, the Year 4 materials would continue to be used where pupils still have gaps relating to fundamental aspects of learning.

To provide an example for using the materials to support an inwardly mobile pupil: if a child enters Y2 part way through the year, teaching teams may benefit from checking the pupil's understanding of the fundamental aspects of the Y1 curriculum and also any aspects of the Y2 curriculum that have already been covered. This can then inform the support required by the pupil.

HOW DOES THE *SECURING THE FUNDAMENTALS* PACKAGE ALIGN WITH THE WIDER PiXL PRIMARY OFFER?

The Securing the Fundamentals package is just one of the tools that PiXL provides to support the DTTR (Diagnosis – Therapy – Testing – Revisiting) process. Before teaching teams utilise the package, it is important for school leaders to consider how use of the package aligns with other approaches to diagnostic

assessment and therapies to ensure that it is being used strategically for impact, with teacher workload in mind.

Below are some suggestions for how use of the package could align with the wider PiXL offer.

PiXL Primary Diagnostic Assessment Package

As detailed in the section above, one approach is for outcomes from the summer diagnostic assessments to inform the strategic, targeted use of the Securing the Fundamentals package, enabling teachers to gain a clearer understanding of pupils' barriers to learning in key areas so that these can be addressed during transition. Where areas for improvement are identified through analysis of a diagnostic paper, the Securing the Fundamentals quizzes can be used to support teaching teams to dig deeper into areas for improvement that have been identified – for individual pupils, groups of pupils or perhaps whole cohorts, where appropriate – and the Securing the Fundamentals checklists and therapies can then be used to support teachers to address the relevant areas for the identified pupils.

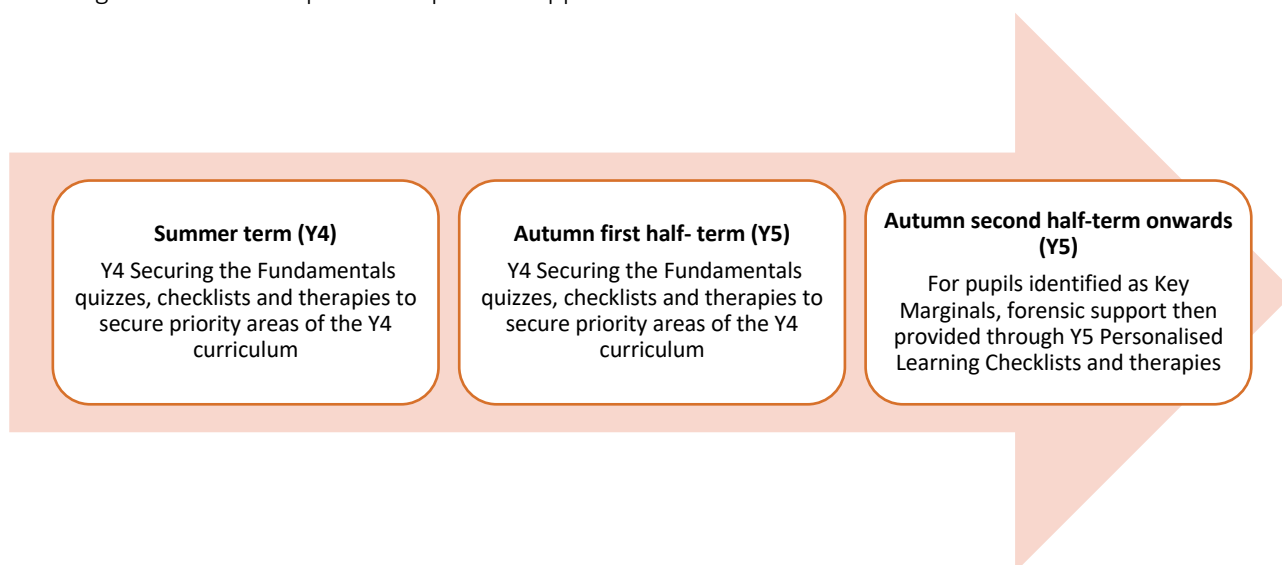
Another approach which some schools may choose to take is to use the quizzes from the Securing the Fundamentals package – for some or all pupils depending on the needs of the cohort – instead of using the summer diagnostic assessments, thereby focusing assessments during the summer term on the priority areas of learning which need to be secured to support pupils' progress to the following year's curriculum.

Personalised Learning Checklists and Therapies

The Securing the Fundamentals checklists focus purely on priority areas and key skills needed to be ready to progress to the following year's curriculum. In contrast, the Personalised Learning Checklists (PLCs) and the accompanying therapies provide more comprehensive curriculum coverage.

One approach is to use the Securing the Fundamentals checklists and therapies throughout the period of transition, but then, as the autumn term progresses, move relevant pupils from the Securing the Fundamentals checklists and use of the Securing the Fundamentals therapies to Personalised Learning Checklists and the wider therapy offer. So, as a pupil transitions from Year 4 to Year 5, the Securing the Fundamentals package may be used to support them in securing priority areas of the Year 4 curriculum during the summer term and into autumn, as required. If the pupil is identified as being a Key Marginal pupil in the autumn term, once the priority areas of learning from Year 4 are secure, the pupil may then be moved to a Year 5 Personalised Learning Checklist and this would be used to diagnose gaps in learning and inform therapy provision.

The diagram below exemplifies this possible approach:



Character and Wellbeing

The statements on the Securing the Fundamentals checklist for Character and Wellbeing have been specifically chosen to support pupils during periods of change. Where the checklist is completed for a group of pupils or perhaps a full cohort, it provides a powerful tool for informing the pastoral support each pupil may require throughout transition.

In addition, the completed checklist can then be used to shape and guide the character development and wellbeing provision throughout the rest of the year. Where trends are identified on the Securing the Fundamentals checklist, to give an example, it may be that pupils struggle to identify their support networks; this may highlight that pupils will benefit from materials from the wider [Wellbeing package](#) which cover support networks more comprehensively.

You may wish to explore how the [Horsforth Quadrant](#) can be used as a powerful tool to support a forensic approach to identifying and addressing pupils' character development and wellbeing needs.

To support you in using a completed Securing the Fundamentals checklist to inform your use of the wider PiXL offer for character and wellbeing, or to discuss how the Horsforth Quadrant can be used for impact in your setting, you may wish to book a surgery on the [Specialist and Networking Platform](#) to discuss this in detail.

QUESTIONS FOR LEADERSHIP REFLECTION

Before implementing this package, we encourage you to ringfence the time to think about the questions below and to discuss them as a leadership team, to support you in aligning use of this package with your particular context and to address the specific barriers that your pupils may be facing.

- What is the purpose of using the Securing the Fundamentals package in your school? What issues are you trying to solve?
- What impact do you expect to see from use of the package, and by when?
- Are all staff clear about the purpose of using the package? Are staff clear about how the Securing the Fundamentals package links to and enhances other processes that are in place?
- How can you ensure that the Securing the Fundamentals package is used in a targeted, strategic way? What support might teaching teams need to do this?
- Are staff clear about the intended purpose of the low-stakes, diagnostic quizzes so that they are used informally as part of normal classroom practice, rather than as more formal methods of assessment?
- Where gaps in learning are identified through use of the low-stakes, diagnostic quizzes, how will these be prioritised? Is there enough flexibility in the curriculum to adapt as appropriate and what support might staff need to effectively adjust planning?
- Where a therapy is used to help to address a gap in learning for a pupil or a group of pupils, how will the impact of this on pupils' learning be measured? How will that priority area of learning be revisited over time, to ensure that pupils' understanding remains secure?
- How can use of the Securing the Fundamentals package be adapted to support learners with additional needs including those with EAL?
- How can the Securing the Fundamentals package be used to inform leadership approaches? For example, how will it feed into Core Team, SLT and pupil progress meetings? How can Subject Leads use the package to gain insights about the areas which they lead?
- If used to support the transition process, how will use of the Securing the Fundamentals package align with and support your existing approach to transition? What is currently in place for diagnosing gaps in learning and ensuring pupils have the necessary learning in place at the end of a year? Are they effective? Do they need adjusting? What improvements are needed? What works well and needs to be kept?
- How will you align use of the Securing the Fundamentals package with use of more formal diagnostic assessments? Are there any implications in terms of pupil wellbeing?
- What are the implications of your approach to using the Securing the Fundamentals package in terms of staff workload and wellbeing? It can be useful to consider use of the package within a workload vs. impact quadrant, like the one below:

High workload - High impact	Low workload - High impact
Low workload - Low impact	High workload - Low impact

FREQUENTLY ASKED QUESTIONS

Do you recommend using both the Securing the Fundamentals quizzes and the diagnostic assessments in the summer term?

In the first instance, we recommend that school leaders engage with the [Questions for leadership reflection](#) above as this will support them to identify their aims for using the Securing the Fundamentals package. It will also ensure that consideration is given to how use of the package could align with use of any formal assessments in their context, including those from the PiXL diagnostic assessment package, taking considerations relating to pupil wellbeing and teacher workload into account.

Possible approaches include:

- Using analysis of outcomes from the summer diagnostic assessments to inform the strategic, targeted use of the Securing the Fundamentals quizzes. Where areas for improvement are identified through analysis of a diagnostic paper, the Securing the Fundamentals quizzes can be used to support teaching teams to dig deeper into areas for improvement that have been identified – for individual pupils, groups of pupils or perhaps whole cohorts, where appropriate – and the Securing the Fundamentals checklists and therapies can then be used to support teachers to address the relevant areas for the identified pupils.

As an example, in the last set of summer diagnostic assessments for Year 3, the PiXL partnership data highlighted fractions as an area for improvement, with only 31% of questions in Paper 2 involving fractions being answered accurately, and 48% in Paper 1. If a group of pupils in your Year 3 cohort followed this trend, it would be worth digging deeper by using the Year 3 Securing the Fundamentals quiz for fractions so that teaching teams can gain a clear understanding of the specific barriers for those pupils. The Securing the Fundamentals checklist for fractions could be populated and used to inform use of the Year 3 Securing the Fundamentals fractions therapies, alongside a range of representations such as manipulatives and images to support pupils' understanding in fractions.

- Another approach which some schools may choose to take is to use the quizzes from the Securing the Fundamentals package – for some or all pupils depending on the needs of the cohort – instead of using the summer diagnostic assessments. With this approach, the summer term assessments will be focused on the priority areas of learning which need to be secured to support pupils' progress to the following year's curriculum.

Are the quizzes in the Securing the Fundamentals package more effective for identifying key gaps rather than relying on the analysis of diagnostic summer assessments?

The PiXL Diagnostic Assessments are, in effect, summative assessments and thus require pupils to draw on a wide range of content and skills to reflect end-of-year expectations. In contrast, the Securing the Fundamentals quizzes are designed to be low stakes and used informally within classroom teaching, focusing on a specific, fundamental area of learning, with the aim of providing a much clearer picture of the precise barriers which may be inhibiting a pupil's progress in that particular area.

Let's take Number and Place Value as an example. In the PiXL Summer Diagnostic Assessments for Year 5, across Papers 2 and 3, there are 6 marks available for Number and Place Value, whereas in the Securing the Fundamentals quiz, there are 19 marks available. The quiz therefore is likely to provide a much greater body of evidence across a wider range of contexts about pupils' security with this fundamental area of learning. This then enables the right therapy to be selected more precisely to help to address the pupils' barriers to learning.

How does the package support the DTTR (Diagnosis – Therapy – Testing – Revisiting) process?

At PiXL, we believe that the process of DTTR (Diagnosis – Therapy – Testing – Revisiting) is key to achieving data wisdom. As with the PiXL Diagnostic Assessment Package, Securing the Fundamentals is designed to support schools by providing tools and strategies to drive the DTTR process.

Diagnosis – What are pupils' precise barriers? Use of the Securing the Fundamentals quizzes can support teaching teams to dig deeper into priority areas of the curriculum, to help them to gain a more precise understanding of children's barriers to learning in particular areas. Outcomes from the quizzes, in addition to teachers' professional judgements, can be used to populate the Securing the Fundamentals checklists, for groups of pupils who require forensic support during the transition period.

Therapy – How can the barriers be addressed? For each statement on the checklists for Maths, Reading, GPS and Character/Wellbeing, there is a corresponding therapy which can be used to help to address identified barriers. These are intentionally editable so can be adapted to meet the specific needs of the pupils.

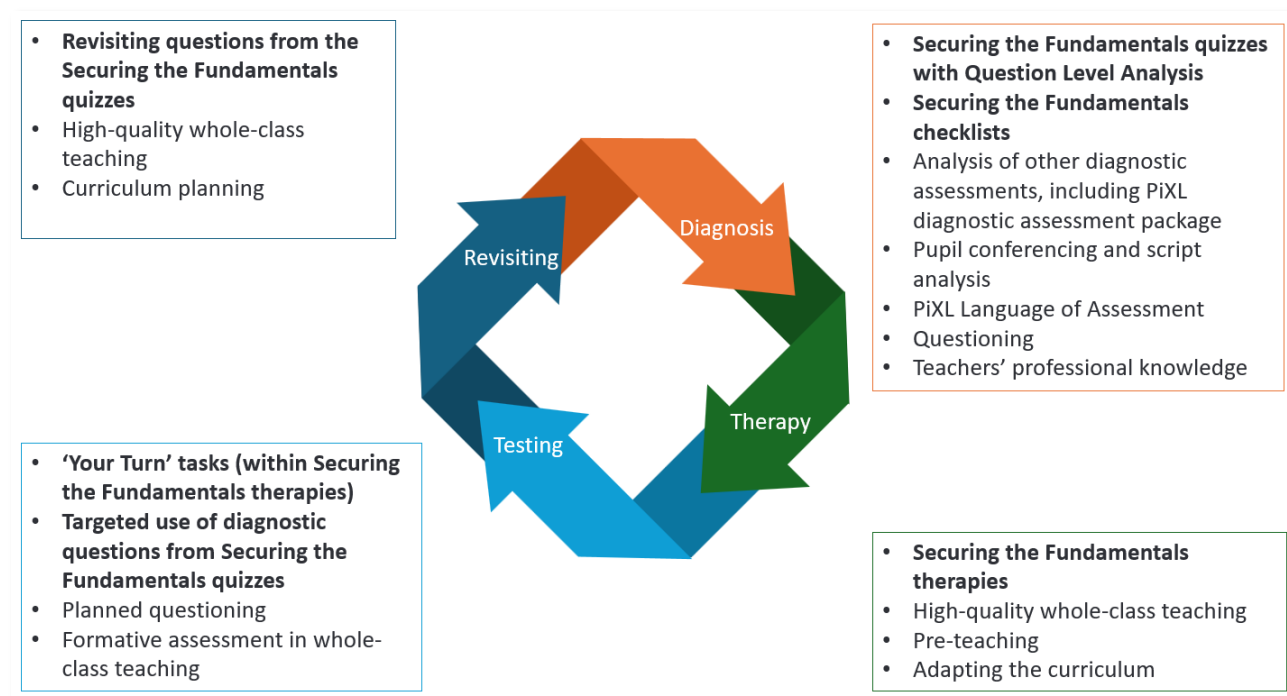
Testing – How can we check if the therapy has had the desired impact? Each therapy includes a variety of 'Your Turn' opportunities in which pupils can apply their learning and demonstrate their understanding in a range of contexts. This provides teachers with an opportunity to check if the identified gap is closing and to identify any potential misconceptions that may have arisen. Targeted use of the diagnostic questions from Securing the Fundamentals (and/or selected questions from the PiXL Diagnostic Assessment papers) can also be used to test if pupils' learning is secure.

Revisiting – How do we know that pupils' learning has remained secure over time? As with testing, targeted use of diagnostic questions from Securing the Fundamentals can also be used to check if pupils' learning in relation to priority areas has remained secure over time. In addition, decisions need to be made

as a team about how fundamental areas of learning will be revisited across the wider curriculum to ensure that pupils retain the knowledge and skills required.

Ideas from cognitive science can be used to inform your approach to revisiting, for example, by using spaced learning, interleaving or retrieval practice. (EEF, 2021)¹

The diagram below illustrates how the tools and resources within the Securing the Fundamentals package could be used to support the DTTR process, although approaches will vary depending on your context.



To gain a detailed understanding of data wisdom and DTTR, please see:

- [PiXL Diagnostic Assessment Package – Leadership Thinking Guide](#)
- [DTTR CPD package](#)

Do you recommend the Securing the Fundamentals package for every pupil in a cohort?

As with all the PiXL materials to support diagnostic assessment, we recommend a targeted approach to use of the Securing the Fundamentals quizzes. To be able to decide which quizzes should be used with which cohorts or groups of pupils, it is important to be clear about the purpose of using the quiz. What are you

¹ EEF (2021) Cognitive science approaches in the classroom: A review of the evidence. Available from: Cognitive science approaches in the classroom | EEF (educationendowmentfoundation.org.uk) [Accessed 6th February 2025]

trying to find out, what issue are you trying to solve and what will you do as a result of the information gathered?

If, to take GPS as an example, pupils in your Year 3 cohort are making good progress in terms of sentence composition and grammatical terms and word classes, but are exhibiting less confidence with accurate use of punctuation, you may wish to only use the punctuation quiz to help to dig deeper and identify specific barriers. Instead, questions from quizzes from the other areas of learning could be used as starter activities, opportunities to revisit or for further consolidation practice, as required.

Can lower year group quizzes be used for pupils with additional needs performing significantly lower than their year group?

Where a pupil is performing significantly below age-related expectations for their year group and they are accessing content from a different year group's curriculum, depending on the context and specific needs of the pupil, it may be appropriate to use a quiz from a different year group to support the identification of their barriers in relation to fundamental areas of the curriculum.

How can the quizzes be used in KS1 to effectively gain an overview of learning?

The Securing the Fundamentals quizzes for all year groups have been designed to be low stakes with the expectation that they are used informally, as part of normal classroom practice. The quizzes are chunked into smaller sections to give teachers the flexibility to complete these in 10 to 15-minute blocks rather than as a longer quiz. This is especially important for Key Stage 1, where you may wish to aim for the quizzes being completed in small groups or even 1:1, supported by an adult. This provides the opportunity to observe pupils whilst they complete a selection of quiz questions which can provide a powerful tool for identifying their strengths/areas for improvement.

To support you in considering your approach to assessment in Key Stage 1, you may wish to explore the [KS1 assessment guidance document](#).

APPENDIX 1

Below you can find detailed rationale about why the areas of learning in Mathematics, Reading and GPS which are covered by the Securing the Fundamentals package are essential in order to support pupils to progress.

Mathematics

Securing the fundamental mathematical concepts of place value, number fluency, calculations and fractions are essential because they are interrelated and collectively provide a robust framework for mathematical literacy. This literacy is not only crucial for academic success but also for everyday problem-solving and informed decision-making. A strong grasp of these basics enables students to progress confidently to more advanced mathematical topics and applications, fostering critical thinking and analytical skills that are valuable in all areas of life.

1. Number and Place Value

Place value is the foundation of the number system, allowing us to represent and work with increasingly large numbers efficiently. It helps us understand the magnitude of numbers and is crucial for performing arithmetic operations correctly. Additionally, place value is essential for working with decimal fractions and understanding their relationship with fractions and percentages. Studies have shown that strong number sense in early education is a predictor of later mathematical success. A study by Siegler and Ramani (2009) demonstrated that games and activities designed to improve number sense in kindergarten students significantly improved their mathematical performance in later grades .

To be truly efficient, pupils need to develop "number fluency," enabling them to perform quick and accurate calculations essential for solving everyday problems. Number fluency builds confidence in handling numbers and reduces maths anxiety. It is a prerequisite for understanding more complex mathematical concepts like algebra and calculus and is necessary for real-world tasks such as budgeting, shopping, and measuring. By achieving true number fluency, pupils can focus their cognitive efforts on solving problems rather than recalling basic number facts.

2. Calculations

Mastering the basic calculations of addition, subtraction, multiplication, and division is essential for solving more complex problems. Pupils will use these skills across many areas of mathematics, so to be truly successful, they need to apply these methods in various ways, including with positive and negative integers, decimals, fractions, percentages, and units of measure. Proficiency in these calculations also enables mathematicians to effectively communicate their ideas and solutions.

3. Fractions

Fractions become increasingly important as a mathematical concept as pupils progress through school, making early understanding essential. The part-whole relationship learned when first introduced to fractions will underpin their knowledge of proportions, ratios, and percentages as they advance. Additionally, fractions are fundamental for more advanced concepts in algebra, geometry, and calculus. Research by Booth and Newton (2012) indicates that early mastery of fractions is a strong predictor of success in algebra and overall mathematics performance in secondary school.

Reading

The Securing the Fundamentals reading package focuses on Language in Context, Retrieval, and Inference as essential components since they underpin successful reading comprehension and broader academic achievement.

Tennent's Components of Comprehension framework (Tennent, 2015) highlights that effective reading comprehension requires a balance of skills, including literal understanding, inferential reasoning and evaluative thinking. Within these, language in context, retrieval, and inference represent essential components that provide a foundation for other comprehension processes:

- **Language in Context** ensures pupils can interpret meaning through the relationships between words, sentences, and the broader syntax of the text.
- **Retrieval** establishes a capacity for locating explicit information, which is fundamental for constructing basic understanding.
- **Inference** enables readers to move beyond explicit meaning, fostering deeper engagement with texts and critical thinking.

By focusing on these areas, we address the core skills that scaffold further reading development, ensuring pupils have the tools to access and engage with texts of increasing complexity.

Language in Context

Understanding language in context is fundamental for interpreting meaning in texts. This skill enables pupils to connect words and phrases to their broader linguistic, cultural, and situational context, enhancing both comprehension and vocabulary acquisition. Research highlights that children exposed to rich language environments develop stronger oral language skills, which are directly linked to reading proficiency (Education Endowment Foundation, 2021).

Alexander further emphasises that language comprehension in context is essential for fostering dialogic teaching, where rich discussions enhance understanding and support the development of critical thinking skills (Alexander, 2008). Moreover, fostering the ability to understand language in context helps pupils unlock nuances in meaning, aiding their comprehension of texts across subjects.

Once pupils' word reading is automatic, any barriers to understanding a text are far more likely to relate to difficulties with language comprehension than word-reading problems (Catts, Adlof & Weismer, 2006; Perfetti, Landi & Oakhill, 2005). This demonstrates the importance of equipping pupils with strategies to quickly identify language in context, as it enables them to interpret meaning effectively and overcome these barriers. Without these strategies, pupils risk struggling with comprehension, limiting their ability to engage deeply with texts.

The National Curriculum itself emphasises the importance of using spoken language to develop reading skills, demonstrating that exposure to language in context improves understanding of grammar, figurative language and syntax.

Retrieval

Retrieval is the ability to locate and recall information explicitly stated in a text. This skill is fundamental because it ensures that pupils can extract key facts and details required to build an accurate understanding of what they read.

Strong retrieval skills also play a critical role in fostering self-monitoring and metacognitive awareness. As pupils retrieve information, they actively evaluate their understanding and identify gaps or inconsistencies, prompting them to revisit the text or adjust their strategies. This reflective process enhances their ability to self-regulate and take ownership of their learning.

Through repeated retrieval practice, pupils also develop independence in their reading. They learn to approach texts strategically, using tools like skimming, scanning or annotating to locate information efficiently. This ability to organise and consolidate details enables them to connect ideas and engage with texts on a deeper level. Moreover, retrieval provides a stepping stone to more advanced comprehension skills, such as inference and critical analysis, empowering pupils to navigate increasingly complex materials with confidence.

Inference

Inference is the ability to read between the lines and deduce meaning that is implied rather than explicitly stated. It is a cornerstone of deep comprehension and critical thinking, allowing pupils to engage with a text's underlying messages, themes and emotional tone. Research demonstrates that inference skills are a strong predictor of reading comprehension success, even when vocabulary and decoding are accounted for (Cain and Oakhill, 1999). Inference supports pupils in moving beyond surface-level understanding, fostering engagement with more complex texts in later key stages.

However inference does not develop in isolation but as part of a broader interplay of reading skills. Discussion and experience in talking around texts are critical for deepening this ability and supporting pupils in feeling confident when justifying and explaining their inferences. By engaging in structured discussions, pupils can explore how retrieval, contextual understanding, and prior knowledge contribute to making inferences. This highlights the importance of therapies and targeted interventions that provide opportunities for pupils who need support to further practise justifying and explaining their thinking, which can reinforce their ability to infer meaning effectively.

Grammar, Punctuation and Spelling (GPS)

The Securing the Fundamentals GPS materials focus on sentence construction, punctuation and grammatical terms and word classes as essential components. These crucial areas are the tools pupils need to write fluently and with clarity for a range of purposes and audiences.

Sentence composition

Pupils who struggle with sentence construction have great difficulty in communicating clearly in their writing. Common issues with sentence construction are:

- Basic sentence security in KS1
- Issues with basic sentence demarcation across KS2
- Lack of grammatical understanding around multi-clause sentences
- Lack of understanding around the function of a comma
- Lack of confidence and understanding of conjunctions, adverbials and prepositions

As pupils move through Key Stage 2 and are taught more and more complicated sentence constructions, it becomes increasingly difficult to secure the basics. The sentence construction therapies regularly revisit learning from previous year groups to ensure that prior learning has been embedded, starting with simple sentences and compound sentences, and moving to more complex constructions with fronted adverbials, relative clauses and subordinate clauses. Having a wide range of sentence types to play with ensures that Upper Key Stage 2 pupils have the ability to create a myriad of effects on their reader, conveying *what* they want to say and *how* they want to say it with precision and clarity.

Punctuation

It is crucial that punctuation and sentence construction are taught hand in hand – they cannot be taught in silo. The decision over which punctuation mark to use is dictated by not only the sentence, but the intended effect on the reader. By the end of Key Stage 2, pupils need to use a wide range of punctuation marks for clarity, cohesion, conciseness and effect. The hardest punctuation to teach is, somewhat ironically, often referred to as ‘the basics’ – capital letters and full stops. For this reason, the Key Stage 2 therapies regularly revisit this area. The other key area of difficulty is the use of the comma to separate a subordinate clause from a main clause. This is addressed in both punctuation and sentence construction therapies.

Grammatical terms and word classes

There has been a marked increase in the number of questions on the Key Stage 2 GPS paper that ask for pupils to name/give examples of different grammar terms. Whilst this is worth noting, the importance of teaching the correct terminology is rooted in giving pupils a metalinguistic language with which to discuss grammatical choices made by authors in authentic texts and to talk about their own writing. Using the

therapies alongside a rich grammar for writing pedagogical approach equips pupils with a better understanding of how grammar works and how it can be used creatively in the context of their own writing.

For information about the importance of embedding grammar teaching within the writing curriculum, please see the [additional guidance document on writing](#).