



# Supporting KS3 Pupils in Maths Catch-Up

Discover how you can use Sumdog to help nurture and empower young mathematicians as soon as they start secondary school.



# Introduction

This document helps teachers support KS3 students in maths catch-up by addressing challenges like gaps in understanding, maths anxiety, and engagement barriers. It highlights how Sumdog's personalised learning, gamification, and progress tracking build confidence and close knowledge gaps. It also covers transition support from Year 6 to Year 7 and the role of parents in home learning for a well-rounded approach to student success.

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## Supporting transition from Year 6 to Year 7

Moving from primary to secondary school is a significant milestone — bringing new routines, expectations, and teaching styles. Maths becomes more complex, requiring students to develop independence in problem-solving and deeper conceptual understanding. Some Year 6 students may feel anxious about these changes, particularly if they struggle with key foundations.

### Challenges in transition:

- Increased complexity in mathematical concepts.
  - Differences in teaching approaches and expectations.
  - Greater emphasis on independent learning and problem-solving.
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## Importance of maths catch-up for KS3 students

For many students, the transition to KS3 can be challenging, especially if they enter secondary school with gaps in their mathematical understanding. Maths builds upon itself, meaning that not mastering key concepts covered in primary school can lead to a lack of confidence and increasing difficulties as topics become more complex.

When students struggle with core maths foundations such as number fluency, place value, and basic arithmetic — it affects their ability to grasp more advanced concepts like algebra, fractions, and problem-solving. Without timely intervention and targeted catch-up work, these gaps can widen, making it harder for students to engage with maths lessons and apply their knowledge effectively.

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## Overview of challenges faced by students

Students face several challenges when trying to catch up in maths. Many struggle with maths anxiety, which can make the learning process frustrating and discourage them from asking for help. Limited access to personalised support, whether due to large class sizes or resource constraints, can hinder progress. Additionally, balancing catch-up work with other subjects and extracurricular activities can be overwhelming, making consistency difficult. Overcoming these hurdles requires patience, targeted interventions, and a supportive environment that nurtures a growth mindset, ensuring that all students feel capable and empowered to excel.



# How Sumdog can support challenges in KS3 maths catch-up

Students struggling with maths in KS3 often face several obstacles, from gaps in foundational knowledge to low confidence. Traditional methods may not engage them, leading to frustration and difficulty applying skills in problem-solving. Sumdog is designed to tackle these challenges head-on, offering a personalised, engaging, and supportive learning experience.

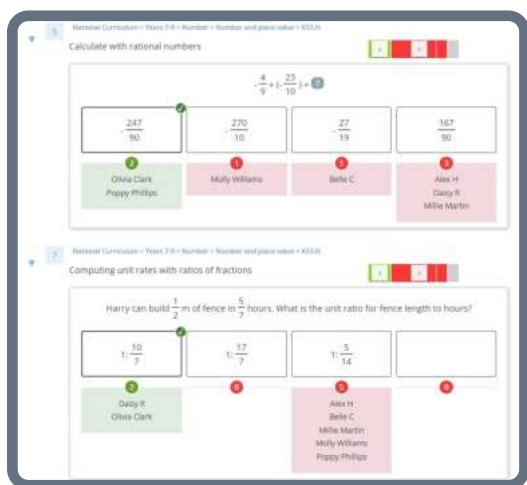
## Gaps in core mathematical understanding

### Challenge

Data from the 2023/2024 Key stage 2 results found that nearly **30% of Year 6 pupils in England do not meet the expected standard for maths in KS2 SATs**, which can leave them struggling with key concepts as they transition into secondary school. Since maths concepts are interconnected, weaknesses in foundational knowledge can create frustration and disengagement when faced with more advanced topics.

### Solution

Sumdog's low-stakes tests identify gaps and misconceptions by analysing how students answer questions, helping teachers group learners for targeted interventions. With clear insights into individual responses, educators can confidently plan next steps, ensuring support is tailored to foundational skills like number fluency, place value, fractions, and algebra.





## Maths anxiety and confidence issues

### Challenge

Maths anxiety is prevalent among KS3 learners, with some students avoiding participation due to a fear of making mistakes. According to a YouGov poll commissioned by the Maths Anxiety Trust in 2022, **36% of young people (aged 15-24) reported feeling anxious about maths**, highlighting the scale of the issue. Without intervention, this lack of confidence can become a significant barrier to their progress in the subject.

### Solution

Sumdog allows students to practise and improve their maths skills without the fear of failure, making the learning experience more accessible and enjoyable. We foster a growth mindset by demonstrating to students that mistakes are a natural part of the learning process and rewarding both effort and accuracy.

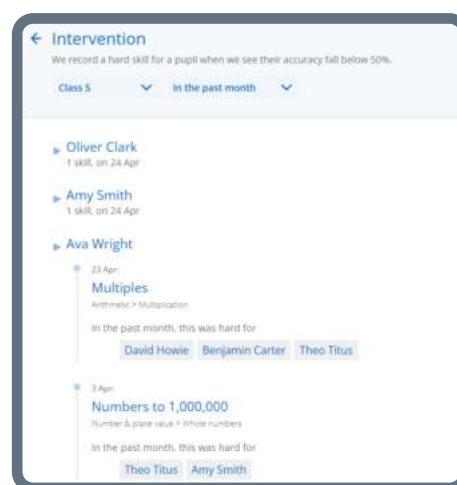
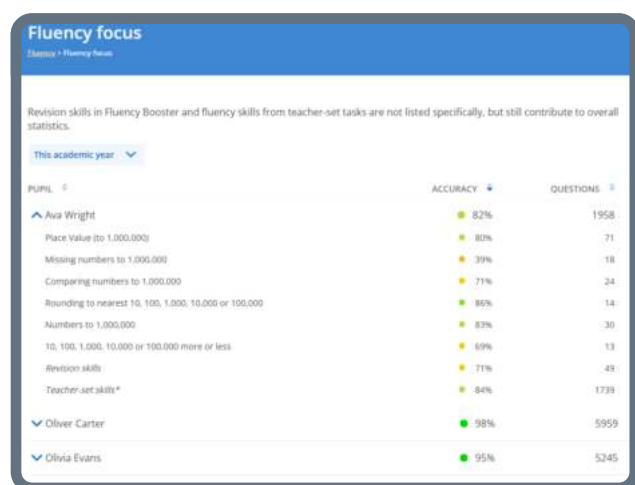
## Difficulty retaining and applying knowledge

### Challenge

Students who struggle with fluency in key maths skills may find it challenging to retain and apply their learning across different contexts. Without opportunities for reinforcement, essential concepts can be easily forgotten, hindering future progress.

### Solution

Sumdog's Fluency Booster adaptivity addresses this challenge by providing structured, targeted practice that goes beyond rote memorisation. By focusing on foundational concepts such as number bonds, place value, and arithmetic, students strengthen their understanding through varied and engaging game-based activities. Teachers can also access detailed fluency reports to track progress and identify areas needing further reinforcement.





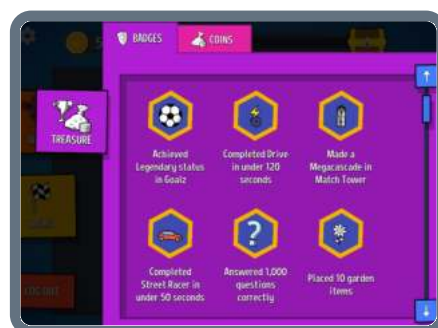
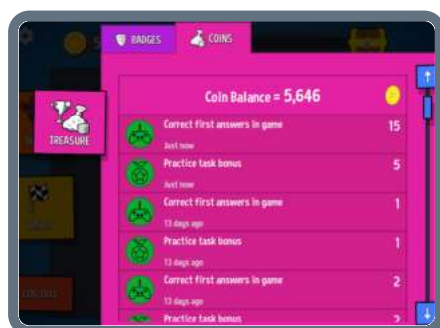
## Engagement and motivation challenges

### Challenge

The abstract nature of mathematical concepts at secondary school can sometimes feel disconnected from everyday experiences, making it difficult for students to see the relevance and value of their efforts. Additionally, the pressure to perform well in tests and exams can lead to anxiety, further hindering their ability to focus and enjoy the learning process.

### Solution

Sumdog provides students with a sense of achievement and progress through virtual rewards for correct answers, accuracy and time spent learning. Students can choose to play from over 35 games embedded within practice questions tailored to their own level. Anxiety around exam performance and maths ability is reduced as students enjoy practicing within an engaging learning environment.



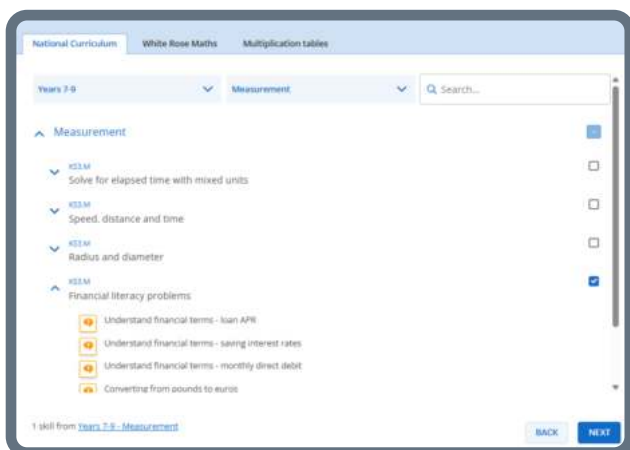
## Limited opportunities for personal support

### Challenge

Teachers have many students to support, making it hard to provide individualised help. Without tailored learning plans, students who need catch-up support may continue to struggle with the same gaps in understanding.

### Solution

Sumdog helps teachers provide personalised support by enabling them to easily set maths practice for individuals, groups, or entire classes. This means students who need extra help can be set specific skills that focus on their gaps in understanding.





# Targeted intervention for KS3 students struggling with fundamental concepts

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## Scenario

A KS3 maths teacher identifies several students in their class who struggle with fundamental concepts such as rounding whole numbers to a required degree of accuracy, performing mental calculations, including with mixed operations and large numbers, and adding and subtracting fractions with different denominators and mixed numbers using the concept of equivalent fractions. These gaps in understanding hinder their ability to grasp more advanced topics, leading to frustration and disengagement.

Struggle with rounding and mental calculations find it difficult to estimate answers when solving word problems involving multi-step arithmetic. Likewise, those who cannot confidently add and subtract fractions struggle when working with ratio and proportion problems that require fraction manipulation. The teacher seeks an efficient way to assess students' knowledge, provide tailored support, and track progress effectively.

Within the space of six weeks, the teacher aims to see a meaningful impact in students' ability to apply these skills, ensuring improved confidence and engagement. This progress will be monitored closely and shared with parents, offering insight into their child's development and helping to reinforce learning beyond the classroom.

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## Action taken: Using Sumdog's ready-made tests and practice tool

The teacher uses Sumdog's ready-made tests to evaluate students' understanding and pinpoint specific gaps in their mathematical knowledge. These assessments generate detailed reports, allowing the teacher to analyse individual and class-wide strengths and areas that need extra practice.

Once key gaps are identified, the teacher assigns personalised practice through Sumdog's engaging, games-based practice tasks, designed to reinforce essential skills in a fun and interactive way. Over the course of four weeks, students complete targeted tasks at home that focus on the specific areas where they need extra support. This structured approach ensures that each learner receives tailored support, helping them build confidence and mastery in foundational concepts critical to their Year 7 progression.



## Implementation steps

1. **Initial Assessment** – At the start of the week, the teacher sets a **ready-made test** e.g. **Year 7: Algebra** aligned with KS3 curriculum objectives to assess students' understanding.
2. **Data Analysis** – Using Sumdog's reports, the teacher examines student performance, identifying specific gaps.
3. **Personalised Practice** – Specific skills are assigned to address each student's needs, ensuring focused skill development.
4. **Progress Monitoring** – Teachers can check to see how students are progressing with their practice tasks and intervene early rather than allowing a student who is struggling to carry on.
5. **Reassessment** – A follow-up ready-made test set using Sumdog's pre and post testing feature measures students' progress and helps determine the next steps for continued learning.

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## Outcome

By following this structured approach, students gradually close their knowledge gaps, build confidence, and improve their fluency in essential maths skills. Sumdog's detailed reports enable the teacher to track progress effectively and adjust learning plans, ensuring every student receives the necessary support to succeed.

**“** *I'll regularly use diagnostic and end-of-topic assessments to pinpoint gaps and measure progress. The data gives me everything I need to track performance, and because it's all built into the platform, there's no extra marking.*

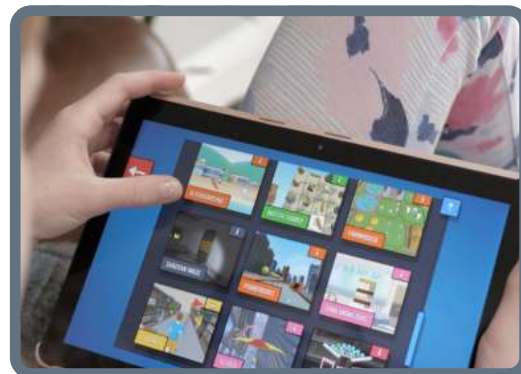
— Amanda Uden, Head of Maths and Data Manager at Rivermead School, Kent.





# Supporting parents and home learning

Effective maths catch-up extends beyond the classroom. Home learning plays a crucial role in reinforcing understanding and supporting student progress. Parents, regardless of their own confidence in maths, can make a meaningful difference in their child's learning journey. Those who feel unsure about how to help can start with simple strategies, such as encouraging a positive attitude toward maths, exploring practical applications in everyday life, and engaging in open discussions about problem-solving.



For parents who are keen to complement school learning, additional resources such as interactive apps, real-world maths challenges, and structured activities can enhance their child's confidence and ability. By fostering a supportive home environment where curiosity and perseverance are encouraged, parents can help their children build strong mathematical foundations and develop a lasting appreciation for the subject.

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## How Sumdog support home learning

- ✓ **Accessible Anywhere:** Students can log in from home to complete revision activities and homework.
- ✓ **Easy-to-Share Reports:** Teachers can share detailed progress reports with parents, helping them understand their child's strengths and areas for improvement.
- ✓ **Engaging Practice:** With game-based learning, students remain motivated to practise independently at home.
- ✓ **Building Confidence:** Home learning with Sumdog provides additional opportunities for students to strengthen their skills without pressure, fostering positive attitudes toward maths.





**Have any questions on how Sumdog can support your learners?**



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