



Sumdog: Supporting struggling learners

Our mission: To narrow the achievement gap by helping every child reach their full potential.

It's as easy as

1, 2, 3!



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Our mission

At Sumdog, we take our mission to narrow the attainment gap very seriously and we know that our product has the potential to do this for every child. We are continually looking to develop new ways to build children and young people's confidence with maths by providing the tools for teachers to support their pupils' ongoing learning.

I hate maths!

This is a frequently heard phrase in many schools, as pupil anxiety is exacerbated by the myth that mathematics is a difficult and stressful subject.

Mathematics is often incorrectly viewed as a performance subject in which getting answers correct is the sole focus.

At Sumdog we prefer to think of maths as a creative, visual, connected and living subject.

Mathematics is integral to our world and to each of our lives - How long should I cook dinner for? What size of sofa will fit into my home? How will I balance my bank account? How likely is it to rain?

At Sumdog, we believe that by developing children's understanding of the connections within mathematical concepts, educators can help to create logical, creative thinkers and develop a culture of mathematical enquiry and discussion, in which it is OK to make mistakes. Every child and young person should be supported to realise their potential and grow to love maths, especially those learners who are struggling.

Sumdog's 3 step approach to support struggling learners

At Sumdog, we follow a **3 step approach** to support struggling learners:

- 1) Mindset** - We promote and embrace a growth mindset - learners need to know that it is OK to make a mistake and should enjoy analysing errors and learning from them.
- 2) Reporting** - Our reporting allows teachers to easily identify struggling learners and plan their next steps effectively.
- 3) Intervention** - Sumdog can be used as an effective intervention tool to quickly, proactively and supportively get learners back on track.



Step 1: Mindset



1

Mindset

Attitudes to mathematics can often be the biggest barrier to success.

At Sumdog we want to encourage learners to adopt a growth mindset, which is why we reward them accordingly at the end of our games and tests. Ultimately though we want children and young people to love our games, to engage with their learning and to love learning maths on Sumdog as a result.



How to use Sumdog to promote a positive mathematical mindset

- 1) Open the new 3D house and/or garden occasionally during the school day to get children excited about what they can spend their Sumdog coins on. Once they start using their coins to decorate their 3D house and garden they will want to earn more, and will be motivated to answer questions as a result!
- 2) Send Sumdog coins with a personalised message as a reward for individual pupils who show a growth mindset, and praise their positive attitudes.
- 3) Use our enhanced student chooser to differentiate subtly between groups of pupils. From their perspective, your class will all be sharing the same experience on Sumdog and will not know the level of question you have set.
- 4) Create a classroom culture of recognising and respecting mistakes. Use our question viewer to display questions and talk through strategies and misconceptions, developing conceptual understanding and providing reassurance that mistakes are opportunities to learn.

Please contact us on 0131 226 1511 to discuss your Sumdog subscription.

Step 2: Reporting



We all know that when a child is struggling, it is vital to respond as quickly as possible to prevent any negative implications for their overall mindset and attitude, as these can be extremely difficult to redress.

At Sumdog, we have a range of reports that enable teachers to identify where a child is in their learning journey and intervene quickly and effectively. These reports not only show individual attainment on each question, as well as accuracy, but also highlight which areas of the curriculum your pupils are struggling with and highlight misconceptions to inform your teaching.

Alex's diagnostic result
The diagnostic test was completed on December 10, 2020.

ALEX'S RESULT IS
End of Year 1

Diagnostic report
We chose the level of Alex's diagnostic questions based on the results of an initial numeracy test. Alex's test questions were started from outside their year group curriculum. [Find out more about how this decision was made.](#)

40 QUESTIONS IN TEST | 40 QUESTIONS ATTEMPTED | 32 CORRECT ANSWERS | 80% ACCURACY

Breakdown by strand

| | |
|---------|-------|
| Number | 17/25 |
| Shape | 3/6 |
| Measure | 12/13 |

[EXPORT PDF](#)

Alex's questions and answers

1 How many?

4 | 6 | 15 | 5 ✓

| RESET | PUPIL | DIAGNOSTIC RESULT | PRE-TEST SCORE | TEST SCORE | Number | Shape | Measure | DATA PROTECTION | TEST TAKEN |
|--------------------------|-------------------|-------------------|----------------|------------|--------|-------|---------|-----------------|----------------|
| <input type="checkbox"/> | Ella Carter | END OF YEAR 4 | 14/15 | 38/40 | 27/32 | 5/7 | 4/11 | 1/1 | Diagnostic 4.2 |
| <input type="checkbox"/> | Annabelle Clarke | END OF YEAR 2 | 17/15 | 18/40 | 7/32 | 2/6 | 4/11 | 2/3 | Diagnostic 3.2 |
| <input type="checkbox"/> | Sarah Greenstein | MID YEAR 3 | 7/14 | 18/40 | 7/32 | 4/7 | 1/11 | 1/1 | Diagnostic 4.2 |
| <input type="checkbox"/> | Euan Hall | END OF YEAR 2 | 2/14 | 17/40 | 7/32 | 3/6 | 4/11 | 2/3 | Diagnostic 4.2 |
| <input type="checkbox"/> | Alex Harrison | MID YEAR 4 | 13/15 | 30/40 | 21/32 | 5/7 | 3/11 | 4/1 | Diagnostic 4.2 |
| <input type="checkbox"/> | Elizabeth Johnson | MID YEAR 4 | 17/15 | 27/40 | 22/32 | 8/7 | 3/11 | 1/1 | Diagnostic 4.1 |
| <input type="checkbox"/> | Belle Nedley | END OF YEAR 4 | 14/15 | 39/40 | 26/32 | 7/7 | 4/11 | 1/1 | Diagnostic 4.1 |
| <input type="checkbox"/> | Harry Pringle | END OF YEAR 3 | 17/14 | 17/40 | 11/32 | 4/7 | 1/11 | 4/1 | Diagnostic 4.2 |
| <input type="checkbox"/> | Jonathan Reynolds | MID YEAR 3 | 8/14 | 31/40 | 15/32 | 5/6 | 2/11 | 2/3 | Diagnostic 2.2 |
| <input type="checkbox"/> | Daisy Roberts | END OF YEAR 1 | 14/15 | 31/40 | 17/32 | 3/6 | 11/11 | - | Diagnostic 1.2 |

4.N.NP.V.7 Round any number to the nearest 10.
100 or 1,000

Round 161 to the nearest 10.

| | | | |
|--|---|-----|---|
| 160 | 16 | 161 | 1 600 |
| 3 | 5 | 0 | 3 |
| Belle Nedley Conna Young Euan Hall | Annabelle Clarke Ella Carter Harry Pringle Jonathan Reynolds Sarah Greenstein | | Daisy Roberts Elizabeth Johnson Zoe Scott |

Hard Skills Report

Our newly developed hard skills report has been designed to highlight the areas of the curriculum that your pupils are struggling with. The hard skills report is automatically generated based on questions answered on Sumdog without teacher-set work, so the report requires no teacher input whatsoever.

When a pupil struggles with a particular Sumdog skill, we will mark it as 'hard', then report it to you on the hard skills report so you can provide suitable intervention and support.

Hard skills report
Class 4

- Leah G (4 skills; most recent on 18 April)
- Sonia R (3 skills; most recent on 12 April)
- Molly J (1 Skill on 11 March)
 - 11 March: Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. Year 4 - Number - Addition and subtraction - 4.NF.B.3. This skill was also hard for Nathan M.
- Nathan M (5 skills; most recent on 6 March)
- Sophie W (2 skills; most recent on 3 March)

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How to use Sumdog reporting effectively to identify struggling pupils

- 1)** Our enhanced diagnostic reporting will highlight which level of the Sumdog curriculum your pupils are working at, but also provides a breakdown of attainment in each curriculum strand; allowing you to tailor your teaching accordingly.
- 2)** Our new hard skills report identifies struggling learners and provides you with valuable data that can be used to intervene before barriers to ongoing learning are formed.
- 3)** We have a library of over 200 pre-made tests which are fully aligned to the National Curriculum statutory requirements, ready-to-progress criteria, NCETM Checkpoints and the White Rose Maths scheme of learning. Our tests have been carefully designed to give you the information you need to plan next steps in learning without overwhelming pupils with stressful formal assessments.
- 4)** Our assessment reports contain class overviews and more detailed analyses, giving you instantly recognisable visual information on curriculum areas and specific questions that your pupils struggled with, as well as whole-class data such as score distribution. You can even expand and display individual questions to address misconceptions as a class.

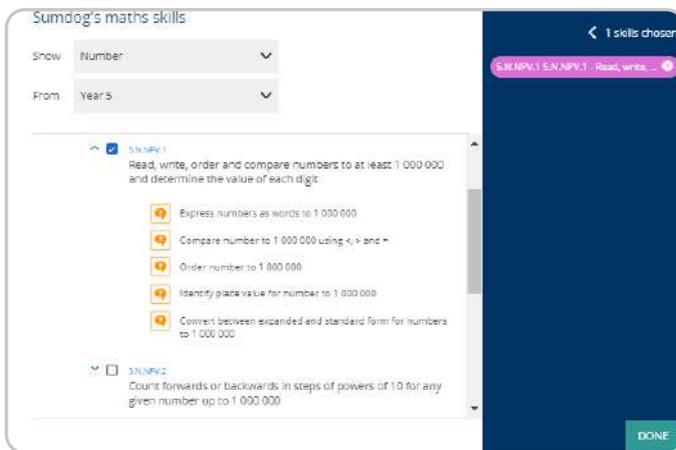
Step 3: Intervention



3

Intervention

Identifying a struggling learner is useful but further action obviously needs to be taken. Although children can work independently on Sumdog without teacher input, our platform also gives teachers the flexibility and control to set work on specific areas of the curriculum, providing suitable intervention and scaffolding to enable all pupils to succeed.



How to use Sumdog to intervene and support struggling learners

- 1) When pupils are completing Sumdog practice which is independent from set teacher tasks, we are automatically learning from them and tailoring our question content to their needs. Our sophisticated algorithm will automatically adapt to ensure that pupils receive the content they need to make progress. When they do generate a hard skill, we will provide them with supportive questions relevant to that hard skill to scaffold their learning.
- 2) Using our hard skills report will provide you with valuable data to plan your lessons and next steps

on an individual learner basis. For example, if the hard skills report identified concepts that pupils had been struggling with, you could adjust your in-class teaching of those concepts accordingly, giving your pupils the best possible opportunity to redress their misconceptions.

- 3) When you set work on Sumdog focussing on a specific area, for example one of our pre-made tests, you will be able to access and analyse a full breakdown of results, including score analysis. You can use this analysis to see at a glance where you need to provide direct support.



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| | Sumdog Premium |
|------------------------|---|
| 1) Mindset | <ul style="list-style-type: none"> ● Sumdog coins awarded for answering questions. ● Question viewer to display questions and address misconceptions as a class. ● Over 30 exciting and varied games. ● Teachers can award Sumdog coins and give positive messages. ● Enhanced student chooser for subtle differentiation. ● Friendly challenges and competitions to motivate pupils. ● Regional and national contests to bring excitement to maths learning. |
| 2) Reporting | <ul style="list-style-type: none"> ● Sumdog diagnostic results. ● Multiplication heat map reporting. ● Custom and pre-made low-stakes tests. ● Enhanced reporting for all maths skills tests and challenges to easily identify class misconceptions, including our new hard skills report (see page 5). |
| 3) Intervention | <ul style="list-style-type: none"> ● Sophisticated algorithms that support and scaffold struggling learners by providing adaptive practice that responds to individual needs. ● Set work on curriculum-aligned focus skills to support struggling learners. ● Easily repeat assessments and challenges to view progress over time. ● Compare classes' work using the school leader toolkit. |

You can try Sumdog Premium by registering for a trial at www.sumdog.com

Taking Action Use Case



The following is a use case of how you could use some of the Sumdog features mentioned in this document to support struggling learners in your class.

| | |
|------------------|--|
| Monday | <p>Set your class a pre-made test on the topic of 'Time' from the Sumdog Assessment Library.</p> <p>View the class overview report and display a question on your smartboard that the majority of your class have misunderstood. This will enable you to quickly and effectively address their misconceptions in-class.</p> |
| Tuesday | <p>Before the school day starts, you can review the in-depth individual reporting from the test you set and plan a suitable intervention if necessary.</p> <p>For example, if you notice that a group of children are all struggling with 12 hour to 24 hour clock conversion, you can plan an intervention for those pupils specifically and use the enhanced student chooser to set differentiated work for groups with your class.</p> <p>Set your class an activity such as MTC practice using the Sumdog replica MTC to provide an opportunity to work with struggling pupils previously identified to preemptively address their misunderstanding of time conversions. Using the information from the individual reporting, ensure that each pupil's individual misconceptions are addressed.</p> <p>Reward all your pupils with a period of access to the Sumdog House to spend some of their well earned coins.</p> |
| Wednesday | <p>Repeat the test on time which you set on Monday, using their coins, houses, gardens and avatars as motivation for your pupils. Subsequently, check the class overview report to see if a) most of your pupils have addressed their previous misconception and b) the small group of struggling pupils that you worked with have increased their scores.</p> <p>Reward your pupils for their effort with 50 Sumdog coins, and send a personalised message to the group of intervention pupils to let them know how proud you are!</p> <p>To encourage your pupils to continue playing Sumdog, challenge them to use Sumdog independently at home, with the confidence that the Sumdog question content will adapt to their learning and support them.</p> |
| Thursday | <p>Use Sumdog's reporting to quickly see who took on yesterday's challenge at home and how much time each pupil spent on Sumdog, then reward pupils for their effort with some additional Sumdog coins.</p> <p>Check the Sumdog hard skills report to identify areas that pupils are struggling with. You may for example notice that there is a small group of pupils who have a Sumdog hard skill related to time duration, and will be able to factor this into your lesson planning.</p> <p>Set specific Sumdog skills as focuses for your pupils and subtly differentiate the work set between different groups. Using the example of pupils struggling with time duration, you can set suitable scaffolding questions such as addition and subtraction, number bonds and skip counting in 5s.</p> <p>Finally, set a class challenge on the topic of your in-class teaching from the previous day, using the Sumdog skill chooser to select skills that are aligned to your scheme of work. You can once again use their Sumdog coins, houses, gardens, avatars and even pets as motivation for your class.</p> |
| Friday | <p>At this point, you may decide to teach a full class lesson on a scaffolding skill for the topic you are teaching next week, e.g. skip counting in 5s and how this relates to telling the time, as you start to lay the foundations for teaching how to calculate time durations. This will provide further preemptive intervention for any pupils who are struggling.</p> <p>Plan your lessons for next week based on the Sumdog data on hard skills, as well as the confidence that Sumdog is a) helping you to develop your pupils' positive maths mindsets and b) reporting struggling learners in a way that allows you to quickly and effectively intervene. As some children may use Sumdog over the weekend, Sumdog will automatically provide them with supportive question content without the need for teacher input.</p> |

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Have any questions on how Sumdog can support your learners?

☎ 0131 226 1511

✉ euan@sumdog.com

🖱 www.sumdog.com