

SNAP MATHS

AGES
6-16

Digital diagnostic Maths assessment

Identify specific barriers to maths learning, including Maths anxiety, and provide targeted support



1-year subscription **£330** +VAT

hachettelearning.com/assessment/snap-maths

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LEARNING

About SNAP Maths

SNAP Maths is an online, diagnostic profiler to identify Maths learning difficulties and Maths anxiety that could cause barriers to Maths learning and provides personalised reports and strategies to support learners and remove these barriers.

“SNAP Maths is a game changer for identifying specific learning needs and then taking steps to help children improve their fluency in important building blocks for good numeracy.”

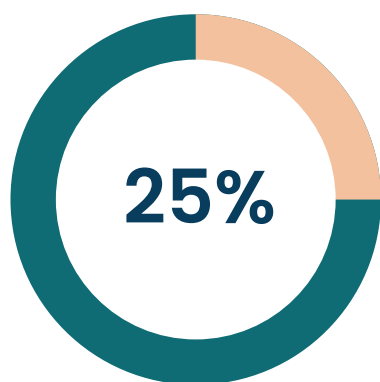
Thomas Mills High School (Trial School)



How and when to use SNAP Maths

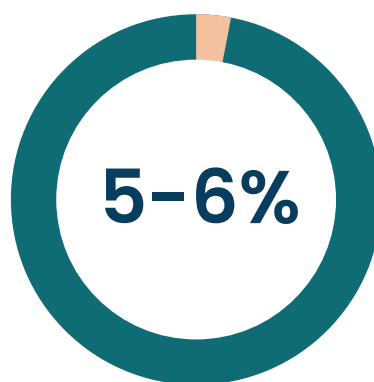
- Assess learners who are experiencing Maths difficulties
- Administer one-to-one, with small groups, classes or whole year groups
- Support learners with evident/ long-term difficulties, as well as those who are not progressing above a certain level
- Identify whether a learner's difficulties are specific to maths skills or knowledge or stem from maths anxietySNAP

Research shows that...



of the population have some kind of maths difficulty

(British Dyslexia Association)



of the population may have Developmental Dyscalculia

(Butterworth 2010, Morsanyi et al. 2018)

Developed by experts

Judy Hornigold

Judy is an independent education consultant specialising in dyslexia and dyscalculia and an Associate Tutor for the British Dyslexia Association and Edge Hill University. Judy is a primary trained teacher, author, and a qualified specialist teacher of dyslexia.

Jonathan Weedon

Jonathan is an experienced primary educator and has a particular interest in the use of Concrete-Pictorial-Abstract (CPA) approaches to supporting learning in maths, and in the use of digital technology to enhance learning. He is a Numeracy Development Lead for his Local Authority in Midlothian.

Charles Weedon

Charles is a qualified teacher, has a masters degree and doctoral degree, both exploring the nature of learning difficulties and has been an Honorary Fellow at Edinburgh University and a Visiting Scholar at Stirling. He is a registered Practitioner Educational Psychologist.

SNAP Maths follows

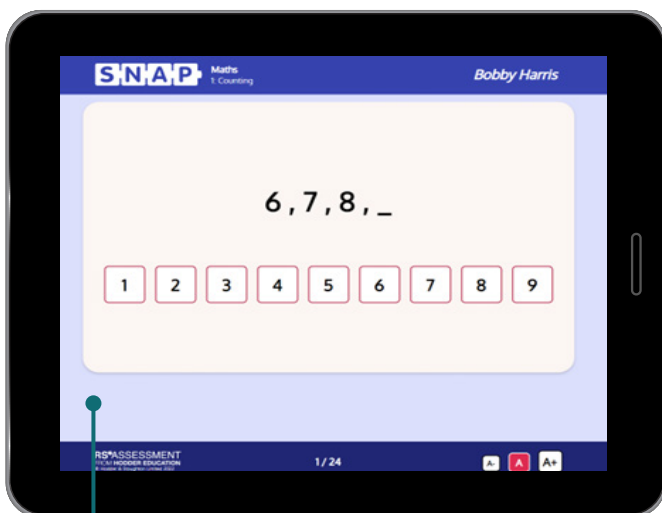
Assess > Plan > Do > Review

> **Assess** – Identify individuals and groups of learners with suspected maths learning difficulties and/or maths anxiety

Activities

There are ten short on-screen activities which measure a learner's ability in numerical and cognitive skills that are key for maths learning.

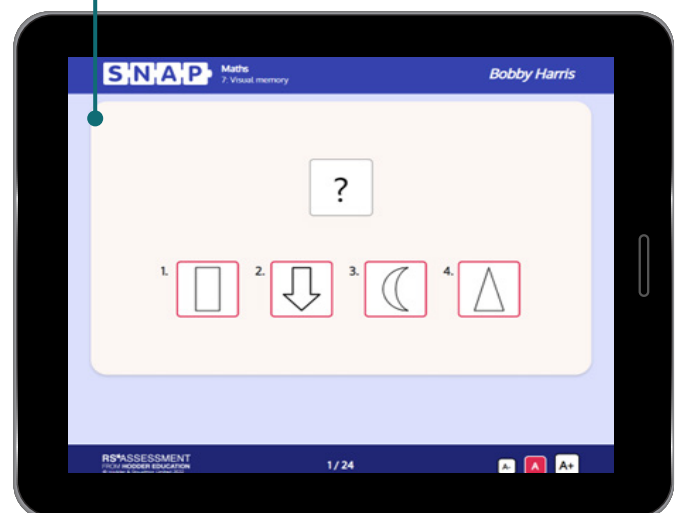
Number Skills	Cognitive Skills
Counting	Processing speed
Subitising	Visual memory
Comparing numbers	Auditory processing/Verbal memory
Number relations	Visual discrimination
Using sight facts	Non-numerical ordering



Example Activity: Counting Assess how fluently learners can recognise and continue number sequences (forwards and backwards).

Example Activity: Visual memory

Assess learners' ability to recall visual information they have just seen.

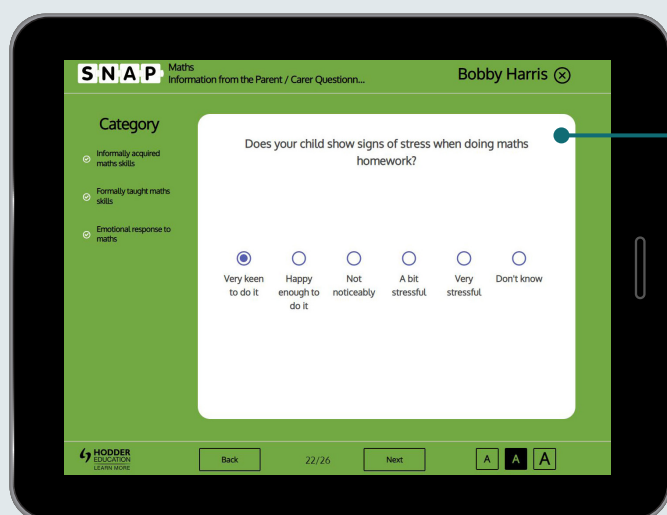


Maths learning difficulties can be caused by cognitive factors, maths anxiety, or a combination of both. SNAP Maths goes beyond curriculum-based maths assessments to examine the underlying factors contributing to under-performance in maths, so that targeted support can be put in place.

Questionnaires

Three questionnaires support the activities and help build a holistic picture of why a learner might be struggling with maths, and whether they are experiencing maths anxiety:

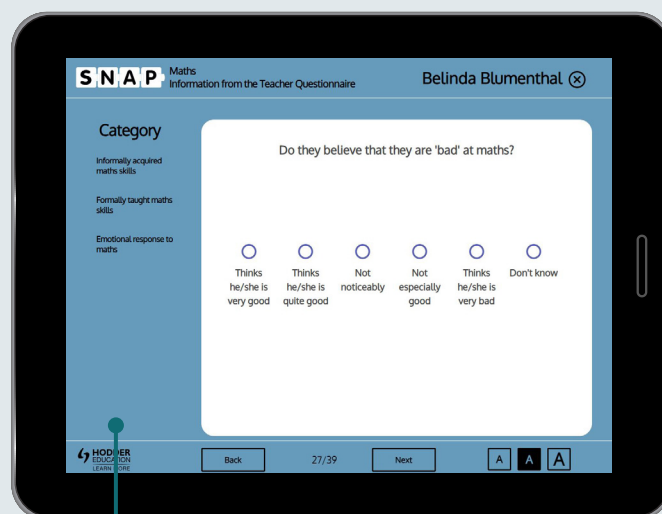
- **Teacher Questionnaire**
- **Parent/Carer Questionnaire**
- **Pupil Questionnaire**



The **Pupil Questionnaire** explores two dimensions:

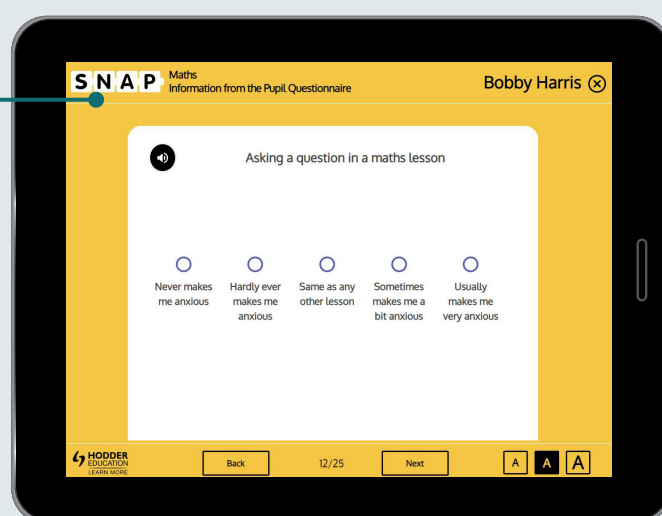
- 1 The learner's view of their own maths ability
- 2 Their emotional responses to maths (maths anxiety)

The SNAP Maths activities were standardised with a representative sample of over 4,000 learners aged 6–16 in Autumn 2022.



The **Teacher and Parent/Carer Questionnaires** explore three aspects of maths learning:

- 1 Informal skills acquired before schooling starts, such as awareness of time and simple counting
- 2 Formal skills gained as part of the maths curriculum
- 3 Emotional responses to maths/maths anxiety





> Plan – Review the results and select next steps

Once the activities and questionnaires are complete, SNAP Maths provides you with everything you need to plan and put the right support in place:



Core Profile gives an overview of a learner's results for each of the ten activities as standardised scores for fluency and accuracy.

Question Profile reports the questionnaire outcomes as bar charts.

Download individual and group reports

- Individual reports can be downloaded as PDFs and these include the Core Profile and Questionnaire Profile alongside a breakdown of the learner's results.
- Group reports are available as a spreadsheet, if SNAP Maths is administered to a group/class.



Home Reports can be shared with parents/ carers to help them to understand their child's needs, and they include strategies that can be carried out at home.

Home Report – Number relations

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Overview

SNAP Maths shows that Jessica may have difficulties in understanding number relations. This means that Jessica may not have a strong and automatic sense of the correct sequence for numbers and may not have an automatic 'feel' for the relative magnitude (or size) of different numbers. For example, Jessica may be able to recognise that 17 and 70 are both bigger than 7, but not immediately recognise that 70 is significantly bigger than both.

How will this affect Jessica?

Jessica may have difficulty with counting fluently and may find it difficult to compare a set of numbers and quickly recognise which is largest or smallest.

Jessica may also have difficulty with rounding numbers, estimating approximate answers for calculations, and recognising when an answer for a calculation is obviously incorrect (for example, calculating that $28 + 19 = 317$). Jessica may also have difficulty with understanding place value, particularly when working with larger numbers or decimals.

What can I do to help Jessica at home?

The tips, strategies and advice shown here are not comprehensive and are certainly not prescriptive. You may already be using some or most of them. They are intended just as a resource for you to draw on, using your own judgement and knowledge of Jessica – you know more about them than anybody else!

1. Regularly counting aloud

It can be very useful to regularly practice counting aloud both forwards and backwards in the number range that your child is working on (e.g., 0–10, 0–100 etc.). This is most effective in short bursts, and could be made more engaging and impactful by:

- Using stories or songs that reinforce counting sequences (e.g., ten green bottles)
- Taking it in turns – for example, pass a ball backwards and forwards and saying the next number each time you get the ball
- Making it a challenge – for example, can you get count to 100 in 30s without making any mistakes?
- Identify and focus on trickier parts of the counting sequence – for example, the 'teen' numbers, or what happens when you get to the next 'ten' or 'hundred' (e.g., what comes after 59, 99, 109, 999...?)

Information Sheet – Maths anxiety

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What is maths anxiety?

Maths anxiety is very common and can range from a mild anxiety around doing maths to a paralysing fear of maths. In some cases, it can be so extreme that even seeing someone else doing maths can trigger the anxiety.

Maths anxiety has been defined as 'the panic, helplessness, paralysis and mental disorganisation which arises among some people when they are required to solve a mathematical problem' (Tobias and Weissbrod, 1980).

Maths anxiety often stems from one incident but can also be due to repeated feelings of stress when doing some maths. When we are stressed or threatened in any way, our body produces adrenaline as we go into 'fight or flight' mode. However, neither of these options is available in the classroom, so the body produces more adrenaline to try to get a response. If this happens repeatedly it can lead to the brain shutting down when presented with a maths problem, as it has learned that there is no response to the production of adrenaline.

Possible causes of maths anxiety

Teacher's attitude to and/or experience of maths

This can be one of the main causes of maths anxiety. Many teachers are anxious about maths and may not feel confident in teaching maths above a certain age level. This often stems from their own experiences of being taught maths when they were at school. Teachers who are less confident tend to teach in a procedural way and this does not develop a deep level of understanding in the learners they teach. Often, teachers may not be aware of the existence of maths anxiety and therefore are not alerted to putting strategies in place to alleviate it.

The curriculum places a lot of pressure on teachers to get through a great deal of content and this can lead to superficial teaching, meaning that the learners have to then rely on a lot of recall of facts and procedures. The demands of the curriculum can lead to teachers inadvertently conveying the impression that being fast at maths equates to being good at maths, and there may be too much emphasis on getting the answer right over exploring efficient strategies or learning from mistakes.

Parental attitudes to maths

Parents who lack confidence in maths and who are anxious about maths tend to pass this attitude and anxiety on to their children. They may say things like 'Oh I was never any good at maths at school' and almost give their children permission to be 'bad at maths'.

Information Sheets help teachers and parents/carers understand any difficulties identified by SNAP Maths.

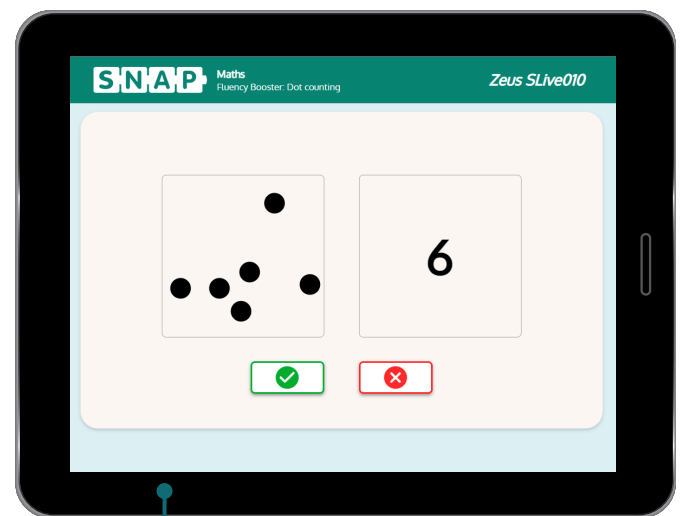
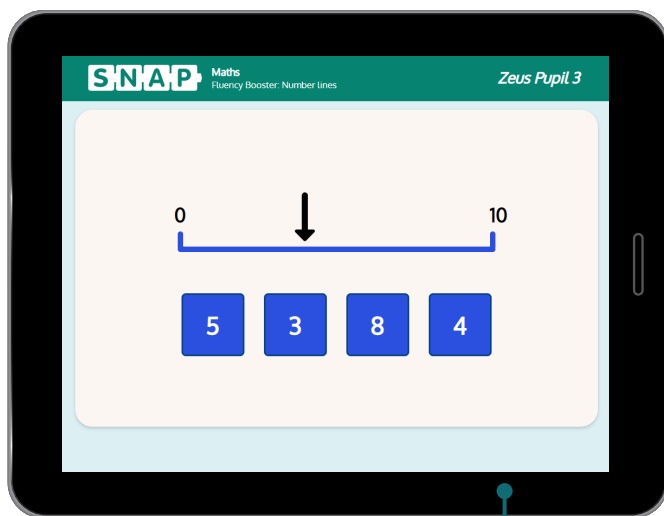


> Do – Assign Fluency Boosters and school strategies

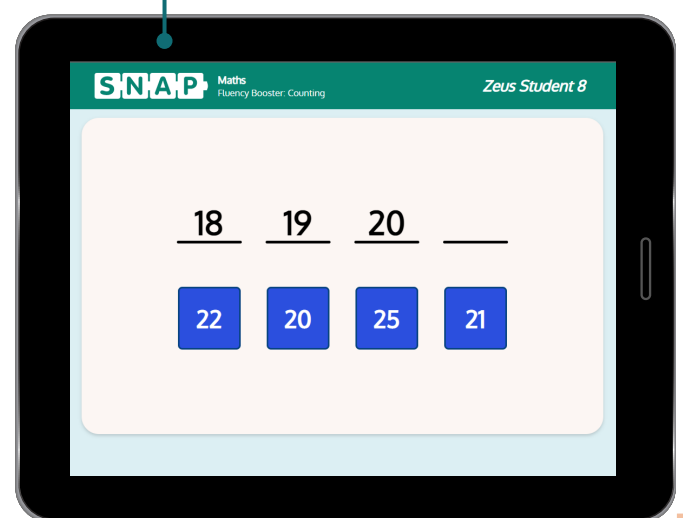
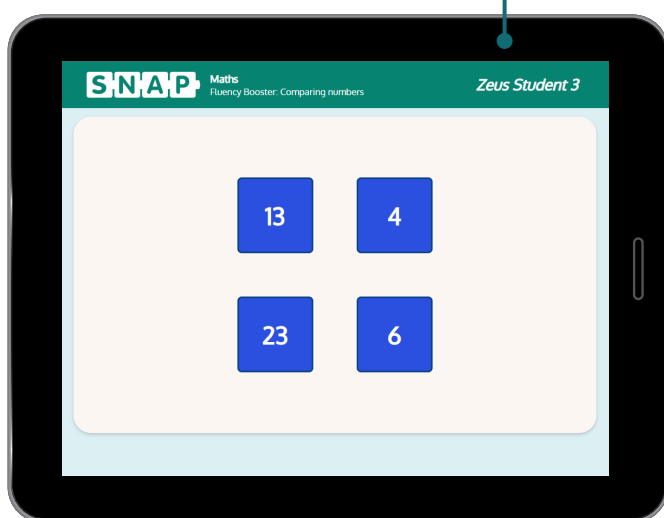
SNAP Maths provides interventions and school strategies to support pupils in overcoming barriers to their maths learning.

Fluency Boosters

Four Fluency Boosters provide intensive practice in Counting, Comparing numbers, Subitising and Number relations. Each Fluency Booster session lasts for five minutes and it is recommended that learners should access their Fluency Booster(s) three to four times a week.



Fluency Boosters are adaptive, with questions getting harder as learners' fluency improves.



School Strategies

Choose from a bank of targeted school strategies to support learners across all of the areas SNAP Maths assesses.

Visual memory

Pelmanism/pairs games

These can be a very effective way to improve visual memory and they are easy to make, so you can tailor the content to meet the needs of learners.

- Place pairs of picture cards face down in a grid. Take it in turns to turn over two cards. If they are a pair, then you keep that pair. If they do not match, replace them in their original positions.
- To begin with you may want to start with a small number of cards, showing 8 pairs, and then build up to larger numbers as the learner improves.
- The pairs can also be simple calculations, for example, $6 + 4$ match words and pictures, for example matching a picture of a square with 'square'.
- When playing these games, discuss with the learner what strategies they use to remember where individual cards are. For example, are they counting in a row or are they using the corners of the grid as markers? Learn their own ways of remembering.
- This discussion of strategies is really key and you should encourage learners to be aware of strategies that work for them and also how these strategies can be used in the classroom.

Kim's game

- 1 Place a collection of random items on a tray.
- 2 Give the learner up to a minute to look at all the items and to try to remember them.
- 3 Cover the items and remove one without them seeing what you have done.
- 4 Uncover the items and see if they can tell you what is missing.
- 5 Ask the learner how they knew what was missing.
- 6 If necessary, you can explore other strategies that may be more effective. Encourage them to come up with a story that links all the items, their recall as well. Or they may prefer to take a mental picture of the items and compare their mental picture with the revealed items. Remember not to move the remaining objects around.

Sequence recall

- 1 Give your learner a card with a sequence of numbers on it. For example: 2 5 7.
- 2 Let them look at the card for about 10 seconds, then take the card away.
- 3 Lay out the numbers 1–10 (either wooden numbers or numbers that you have written on pieces of card). Can they select the numbers on the card from the set of numbers?
- 4 You can make this harder by asking them to say the numbers in reverse order, having more numbers, introducing a time limit or adding a distraction. For example, ask them to remember the sequence and then ask them to fetch you a pencil (or some other task) before they recall the numbers.

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School Strategies – Visual memory

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Overview

Visual memory refers to our ability to recall information that we have seen (as opposed to heard). Some learners have much better recall of information that has been presented visually and others prefer information to be presented aurally.

We can help learners to identify strategies that work for them and to introduce new strategies. It is also important that they can see how to apply this to their general class-based learning.

Objectives

- Identify strategies that learners use when trying to remember visually presented information.
- Develop more effective strategies for visual memory.

Resources needed

- Picture cards, and cards showing calculations, numbers and words (each card must match with another to form a pair)
- A collection of random objects
- Engaging images for discussion
- Cuisenaire rods or lolly sticks
- Wooden numbers (optional)

Ability range

All ages

Suggested groupings

Individuals or pairs

Ideas to develop visual memory

In all the following games, focus on how the learner is recalling the information. Are they taking a 'picture' in their mind's eye? Are they making connections between items? Ask them how these strategies could be useful in class when they are presented with images on the board or in a textbook.

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SNAP Maths provides 34+ strategies which can be administered to small groups, or one-to-one.

“Our Year 2 cohort had made better than expected levels of progress, and all of them showed good progress against the SNAP Maths assessment.”

Seamer & Irton CP School



> Review – Monitor progress over time

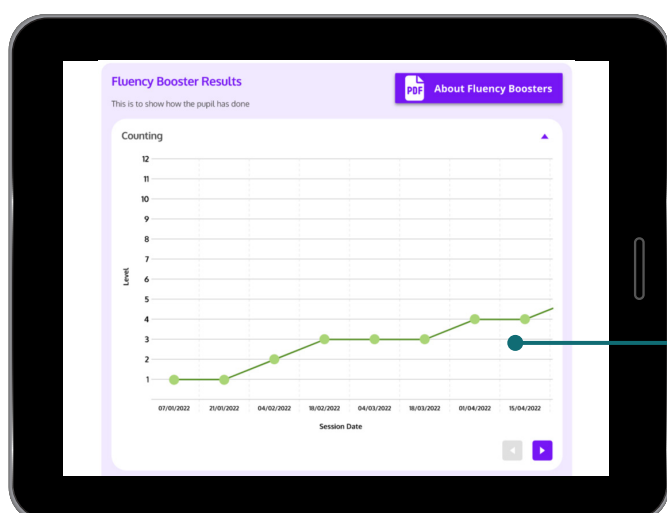
A learner's progress in maths can be monitored in two ways:

- Track the progress in any Fluency Booster activity
- Retake the teacher, parent/carer and pupil questionnaires to assess a learner's changing attitudes to maths, and confidence in the maths classroom

This information can then be used alongside teacher observation and performance in class maths assessments to adjust the blend of support and interventions needed.



Compare questionnaire results side by side to see how a learner's maths ability and their emotional response to maths has improved over time, once strategies have been put in place.



Fluency Booster graphs update after each session is complete. A fluency score is based on the speed of a learner's response and their accuracy.

2024's Award-Winning SEN Tool

- WINNER BETT 2024 SEND Resources, Products and Services
- Highly Commended Teach Awards – Best SEN Product, Resource or Service for Secondary Schools
- Education Resources Award – Nominated for Best SEN Product, Resource or Service
- Finalist – Teach Awards – Best SEND Product, Resource or Service for Primary Schools
- Finalist – GESS Awards – SEN and Inclusive Resource/Equipment Supplier of the Year

Industry experts rewarded SNAP Maths throughout 2024, praising the assessment's inclusivity, triangulated approach and how helpful it is in the classroom. Here's what the judges had to say:



“The judges were impressed with the support for learners, SNAP Maths not only assesses their maths skills, but also identifies their emotional response to maths questions, which is important because maths anxiety is a key barrier to student progress and this tool enables teachers to detect and address this issue more effectively.”

BETT Judges

“This tackles a gap in the market and has the potential to be quite transformative. It will enable schools to develop a targeted approach in implementing support for students in secondary school – in a universal subject! It has been developed by people who are specialists in the field and the assessment is both holistic and precise. This would have been very useful to me as a secondary school leader and Senco and will ensure that more students are not left behind until it is too late.”

Rebecca Leek, Judge at TeachCo

SNAP Maths is the latest addition to our award-winning series



“This continues to offer a robust, structured assessment toolkit that will be useful for anyone looking to better understand the learning difficulties of SEND students – particularly non-specialists.”

Teach Secondary Awards 2022

SNAP-B

Ages
4-16

Profile 17 social, emotional and behavioural difficulties

Ideal for assessing a learner's:

- Relationship with self
- Relationships with other children
- Relationships with adults

“SNAP-B triangulates information from pupils, parents/carers and school staff to provide data and highlight areas which may have significant impacts on engagement.”

Endeavour Academy

SNAP-SpLD

Ages
4-16

Profile 20 specific learning difficulties

- Identifies more specific learning difficulties than any other SEN tool
- Eight diagnostic probes provide additional quantitative evidence about a learner and their abilities

“SNAP-SpLD is clear, concise and the outcomes help inform the update of one-page profiles and how the child learns best. Importantly, the outcomes from SNAP-SpLD help us to make further referrals for diagnosis.”

Moulton CEVC School



Contact us



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