## NEWSLETTER 1 AUTUMN TERM 2022/23

### Meet the Ninjas Team

Warm greetings to everyone in the Numeracy Ninjas family of users. It's 7 years since Ninjas launched with the aim of supporting teachers improving the numeracy fluency of students in their classes.

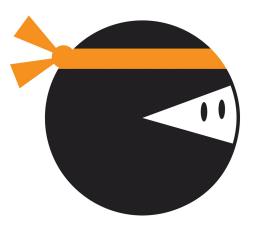
We'd like to introduce you to the team behind Numeracy Ninjas, Will and Emma Emeny.



Will has been teaching 11-16 maths for 12 years and won the prestigious 'Teacher of the Year in a Secondary School Award' at the Pearson National Teaching Awards in 2016. He is a published researcher working in the field of the Science of Learning. Will works on the strategic design and development of Numeracy Ninjas resources.

Emma has extensive secondary school experience working in both the classroom and pastoral teams. She has exceptional organisational skills from working high up in the banking sector for 16 years and she manages sales, publicity and finances of the Numeracy Ninjas project.

Both Will and Emma work on a weekly basis to develop and improve Numeracy Ninjas so we can provide the best, most impactful product possible for our Ninja Teachers worldwide.



### New Diagnostic Numeracy Assessment

Do my learners need Numeracy Ninjas? What is their current level of numeracy fluency?

In order to help Ninja Teachers answer these questions we have developed a **completely free** Diagnostic Numeracy Assessment package which can be used in your own classroom.

The assessment features 3 tests which will help you evaluate your learners' numeracy proficiency in different areas and to diagnose their strengths and areas for development.

Find out more.

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## Improving Ninjas Week-By-Week

As we move in to the 2022/23 academic year we have relaunched Ninjas with multiple improvements based on feedback of the thousands of teachers using the Ninja Skill Books with their students worldwide. We moved to a low-cost paid subscription model in order to provide the necessary time and resource to develop the programme going forwards.

Improvements for 2022/23 include:

### Achievement Certificates and Ninja Belt Stickers

Celebrate your learners' progress on every step of their journey by giving them their own Achievement Certificate and coloured Ninja Belt Stickers as they climb through the Ninja Belts.

### A brand new, improved Question Engine

The Question Engine which generates the questions for the Ninja Skill Books has been completed recoded from the ground up. Individual Ninja Skills now have an increased number of question variations to develop greater contextual transfer of students' learning.

### Improved interleaving

Numeracy Ninjas utilises cognitive science research findings to optimise learners' progress. This year the interleaving of questions is significantly increased, with unique changes to the order of the assessed skills each week from week 12 onwards. Then from week 20, to further enhance the interleaving benefits, the separation of the questions into mental strategies, timestables and key skills category tables stops and all the skills are randomised in order in a 30 question quiz.

### Weekly identification of targets

To improve learners' metacognitive awareness of their numeracy skills strengths and areas for development, the Target Skills featuring in the Ninja Skill Checks are explicitly identified at the start of each session. Students reflect and identify areas for improvement at the end of every session.

### Extension problems

The Ninja Skill Book each week features an extension activity for learners to complete if they finish their Weekly Skill Check early. The extension activities use the standard Ninja Skills, but require learners to apply them in reasoning and problem-solving contexts.

### Termly prize draws

Each term the Ninjas Team will run a competition with prizes to celebrate and reward the success of Ninja learners all over the globe.

### Support from the Ninjas Team

All subscribing schools will receive prompt email support from the Ninjas Team to help you and your learners get the most from the programme. No question too small...

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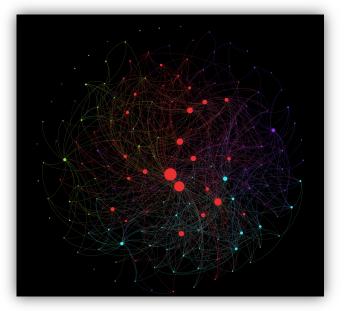
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## Ninjas- Under the Hood

We are going to run a series of articles in our newsletters called Ninjas- Under the Hood. The purpose of these is to share with you some of the behind-the-scenes development work and strategic decision making which went/goes into the creation of Numeracy Ninjas.

First up, where did the 72 individual Ninja Skills come from?

The network diagram shows a prior-learning dependency nodal analysis for the UK GCSE Maths curriculum circa 2015. Each node represents a particular content skill from the curriculum, for example, rounding numbers to a given number of decimal places.



Nodes are linked by lines if one skill is a prior-learning dependency of another. For example, in order to be able to simplify fractions you need first to be able to find the factors of a number. Thus the simplifying fractions and finding factors nodes would be linked.

The nodes are then scaled proportionally to the number of outgoing links they have. I.e. the largest nodes are the skills which are the prior-learning dependencies for the most number of topics.

The largest nodes in the network are the timestables. This is undoubtedly not a surprise to maths teachers who know through experience how a lack of fluency with timestables multiplication (and related divisions) can be to students making progress in 11-16 maths study. For this reason, timestables multiplication and division get one third of all the question allocation in Ninja Skill Books.

The next 30 largest nodes form the Key Skills section within the Numeracy Ninjas programme. If students can master these individual skills to high levels of mastery, they form an excellent foundation of secure prior-learning dependencies to lay the path for success at 11-16 maths study.

Finally, the 30 Mental Strategies skills within the Numeracy Ninjas Skill Books were inspired by the National Strategies guidance, 'Teaching Children to Calculate Mentally'.

We hope you found the first 'Under the Hood' article interesting and that it gave you some insight into where the Numeracy Ninjas project developed from.

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## Ninjas Next Steps

Numeracy Ninjas develops every week. We want to share with you what we are currently working on to bring to our Ninja Teachers in the coming months and years.

### Series B- Next Level Ninjas

The 72 Ninja Skills in the Series A Skill Books provide students with an excellent foundation of numeracy from which to make strong progress in 11-16 maths study. Our ambition in developing the Series B Ninja Skill Books is to provide teachers with a spaced and interleaved retrieval programme of the 'next level up' skills from Series A. For example, basic algebraic skills such as generating expressions, collecting like terms, expanding, factorising and substitution will be included. Series B is in its very early stages of development, but we will keep you updated with its progress as time goes on. We want to make this available to all paid subscribers at some point in the future.



### Ninja Skill Focus Worksheets

We are rebuilding our Ninja Skill Focus Worksheets so they include questions from the new and improved Question Engine. These worksheets will provide students with intensive practice of individual Ninja Skills. We will share the new Ninja Skill Focus worksheets with all paid subscribers in the future. In the meantime, if you are a paid subscriber and would like old Ninja Skill Focus worksheets, email access to the iust Emma (admin@numeracyninjas.org) and she will be happy to share them with you.

### Merchandise Store

We will be sharing Ninjas merchandise as prizes on a termly basis. However, we want to offer all schools the opportunity to purchase Ninjas merchandise as prizes for their students and as ways for your teachers to show their support for developing their learners' numeracy fluency. We are investigating ways of bring you an online Ninjas Merchandise Store and will be in touch once we've found the right partner.



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## Autumn Prize Draw

All paid subscriber schools are entered into the termly prize draws. The winners will receive Ninjas-branded merchandise which can be given to your own Grand Masters.

The 2022/23 Autumn term prize draw will happen during the first week of December 2022 with prizes posted to arrive before the Christmas holiday. You will be notified by email if your school is one of the lucky winners.

### Get Social

Follow our social media accounts for the latest Ninjas news. Click the links below.

