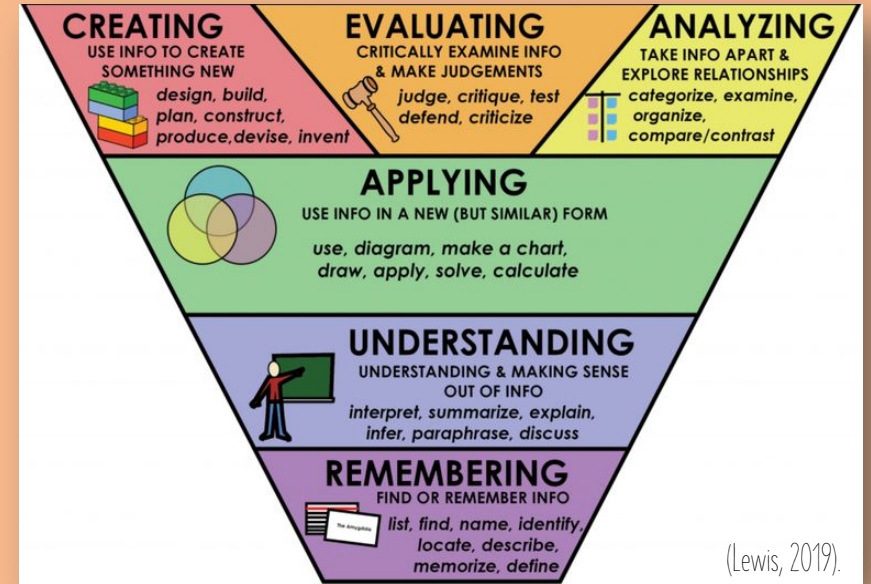


Supporting learners who experience barriers to learning in numeracy.

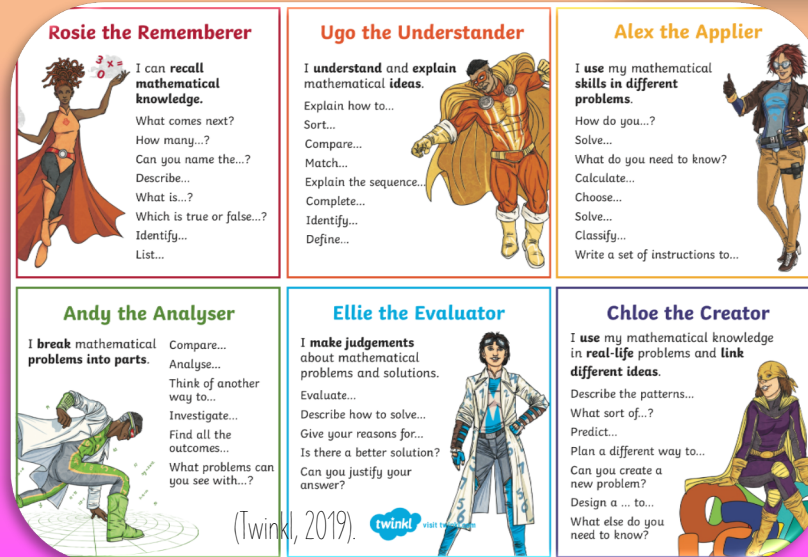


Numeracy in the classroom – Blooms Taxonomy .

- “Without mathematics, there's nothing you can do. Everything around you is mathematics. Everything around you is numbers” (Devi, 2013).
- ‘Bloom’s taxonomy is a hierarchical system that categorizes the thinking skills of students, ranging from recalling information which is the most basic skill to evaluation, which involves judging and stating an opinion about information’ (London School of Management Education, 2019).



- Rosie the Rememberer
- Ugo the Understander
- Alex the Applier
- Andy the Analyser
- Ellie the Evaluator
- Chloe the Creator



What is Times Tables Rock Stars?

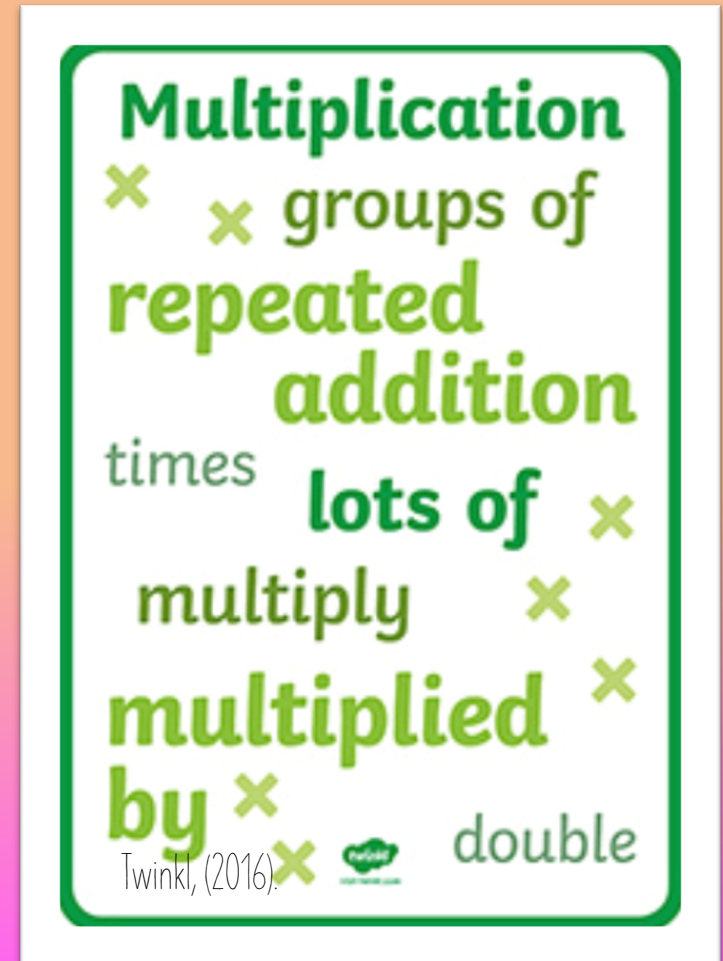


(Stokesley Primary Academy, 2019)

- A carefully sequenced programme of daily times tables practice.
- ‘Increased access to technology for math allows for a more customized learning experience because no two learners are exactly alike’ (Scharalidi, 2020).
- ‘This theory prosses a major transformation in the way our schools are run. It suggests that teachers be trained to present their lessons in a wide variety of ways’ Hudson, (2016).
- Tailored to their ability.
- Able to follow children's progress online.
- ERW's mission is to actively improve teaching and learning to secure the best outcomes for every child and young person, they decided to provide every school across the six local authorities with a free full subscription to Times Tables Rock Stars.

Why multiplication?

- Multiplication is one of the four operations that children need to be confident with.
- Maths coordinator Cheung, 2020 states (children that struggle with multiplication often struggle with other aspects of the maths curriculum, so multiplication is a fundamental aspect of teaching maths to then develop in numeracy).
- By the end of year 3 children should be able to ‘recall 2, 3, 4, 5 and 10 multiplication tables and use to solve multiplication and division problems’. (Curriculum for Wales, 2016, p. 3).
- ‘The panel’s report to Welsh Government noted that digital competence is as important in the twenty-first century as literacy and numeracy.’ (Welsh Assembly Government, 2018, p. 5).
- When using ICT in education, it offers more opportunities to advance critical thinking skills while producing a creative learning environment. (Das, 2019, p. 25).



Does TT Rock Stars really work?

‘TTRS has made times tables much more enjoyable! It has made us enthusiastic and motivated to learn our multiplication facts and it has injected a lot of fun and excitement into our numeracy lessons’. (Llangynidr CP School, 2017).

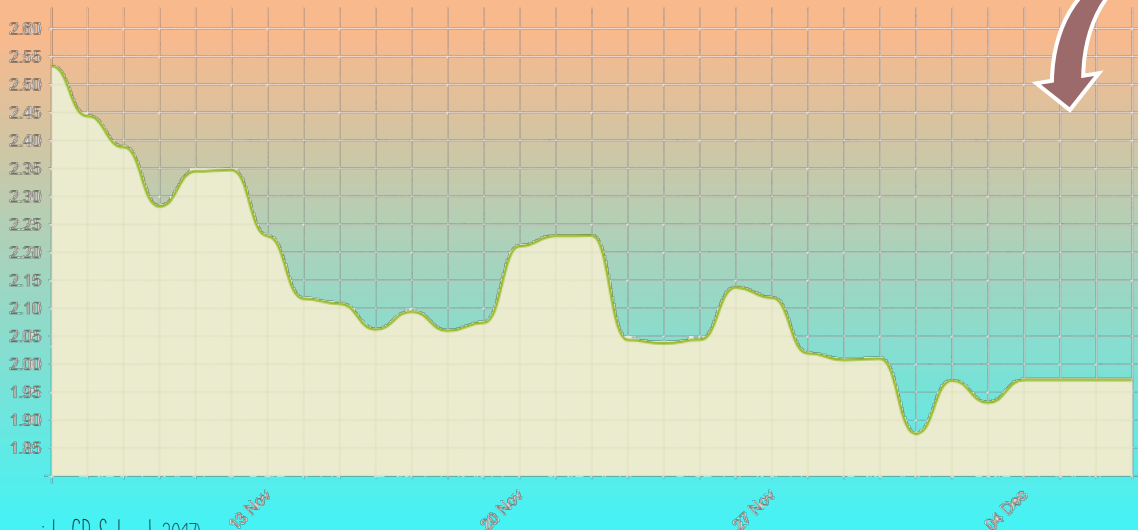
School	% Active players	Minutes per active player	% Accuracy	% Age Related Expectation
Neyland Community School	77	38	83	78

(Neyland Community School, 2017).

‘TTRS has made a massive difference in a range of ways-many children who, in September were getting very low scores are now regularly getting 60 or close to 60’. (Neyland Community School, 2017).

‘Data to show the average rock speed for all users in Llanrhidian between March and April’. (Llanrhidian Primary School, 2017).

Average rock speed (sec/qu)



‘Data demonstrating that all 36 pupils in Year 5/6 have made significant improvements in both the speed and accuracy of their answers. Even children who find the rapid recall of number facts difficult, have made a lot of progress’. (Llangynidr CP School, 2017).

Average rock speed



(Llanrhidian Primary School, 2017).

(Llangynidr CP School, 2017).

In conclusion.

Positives:

Engaging resource.
Tailored to suit development.
Medium of Digital Competence Framework.
Self assessment tool.

Negatives:

Discouraged at using ICT.
Does not teach students conceptual understanding of multiplication.
Subscription fee.

Thank you for listening
Diolch am wrando

Any questions?

References;

- Addison, I. (2019). ‘*Times Table Rockstars*’ Available at: <https://ianaddison.net/times-table-rockstars-ttrockstars/> (Accessed 3rd January 2021).
- Cheung, M. (2020). Conversation. Sadie Maddox, 28th December 2020.
- Curriculum for Wales, (2016). ‘*Mathematics Programme of Study key stages 2-4*’ Cardiff: Welsh Government.
- Das, K. (2019). ‘*Role of ICT for Better Mathematical Teaching*’ India: Shanlax.
- Devi, S. (2013). ‘Shakuntala Devi Quotes’ Available at: <https://www.brainyquote.com/authors/shakuntala-devi-quotes> (Accessed 4th January 2021).
- Guttenplan, S. (2018) ‘*Times Tables Rock Stars*’ Available at: <https://www.common sense.org/education/website/times-tables-rock-stars> (Accessed 4th January 2021).
- Hudson, D. (2016). ‘*Specific Learning Difficulties*’. London: Jessica Kingsley Publisher.
- Lewis, B. (2019). ‘*Using Bloom’s Taxonomy for Effective Learning*’ Available at: <https://www.thoughtco.com/blooms-taxonomy-the-incredible-teaching-tool-2081869> (Accessed 4th January 2021).
- Llangynidr CP School, (2017). ‘*Case study - Llangynidr CP School – Powys*’ Available at: <https://ttrockstars.com/page/erwstarter> (accessed 3rd January 2021).
- Llanrhidian Primary School, (2017). ‘*Case study - Llanrhidian Primary School – Swansea*’ Available at: <https://ttrockstars.com/page/erwstarter> (Accessed 3rd January 2021).
- London School of Management Education, (2019). ‘*Blooms taxonomy*’ Available: <https://lsme.ac.uk/blog/blooms-taxonomy> (Accessed 4th January 2021).
- Neyland Community School, (2017). ‘*Case study – Neyland Community School – Pembrokeshire*’ Available at: <https://ttrockstars.com/page/erwstarter> (Accessed 3rd January 2021).
- Safdar, A. Yousuf, M. Parveen, Q and Malik, G. (2011). ‘*Effectiveness of Information and Communication Technology (ICT) in Teaching Mathematics at Secondary Level*’, *International Journal of Academic Research*, vol. 3, p. 67.
- Scharaldi, K. (2020). ‘*What are the benefits of teaching maths using technology?*’ Available at: <https://www.texthelp.com/en-gb/company/education-blog/march-2018/what-are-the-benefits-of-using-technology-for-math/> (Accessed 2nd January 2021).
- Stokesley Primary Academy, (2019). ‘*TTRockstars!!*’ Available at: <https://www.stokesleypa.org.uk/blog/2019-09-18-08-15-00-ttrockstars> (Accessed 2nd January 2021).
- TTRockstars, (2016). ‘*ERW Starter*’ Available at: <https://ttrockstars.com/page/erwstarter> (Accessed 3rd January 2021).
- Twinkl, (2016). ‘*Multiplication Poster*’ Available at: (Accessed 3rd January 2021).
- Twinkl, (2019). ‘*KS2 Maths Bloom’s Taxonomy, Meet the Bloom Superheroes*’. Available at: <https://www.twinkl.co.uk/resource/t2-m-17515-ks2-maths-blooms-taxonomy-meet-the-bloom-superheroes-desk-mat> (Accessed 4th January 2021).
- Welsh Assembly Government, (2015). ‘*Successful Futures*’ Cardiff: OGL.
- Welsh Assembly Government, (2018). ‘*Digital Competence Framework*’ Cardiff: Education Wales.
- WGU (2020) ‘What is the behavioural learning theory?’ Available at: <https://www.wgu.edu/blog/what-behavioral-learning-theory2005.html> (Accessed 4th January 2021).