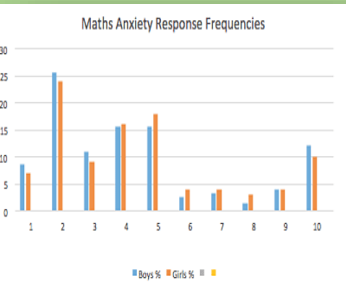


NUMICON

Barriers



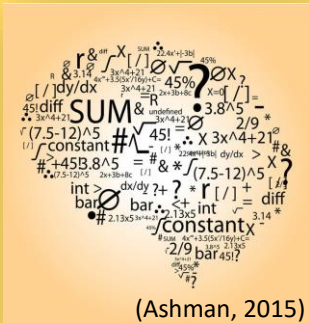
- Dyscalculia
- Maths anxiety
- Attitudes
- Dyslexia

(Mathsanxietytrust, 2019)

(Department for education, 2011)

Difficulties for Children with ALN

- Reading
- Mathematical language
- Recalling information
- Learning sequences
- Mathematical concepts



(Dynaread, 2018)

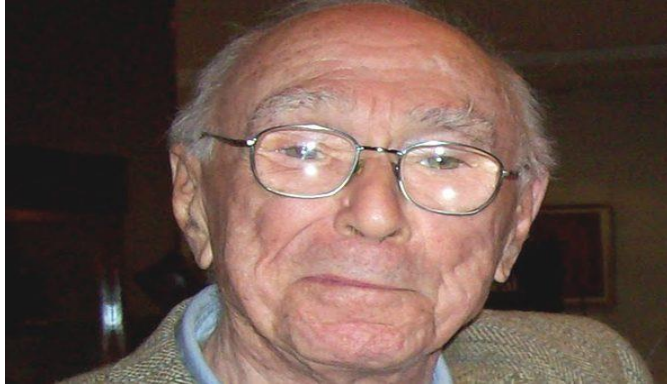
(Ashman, 2015)

Numicon



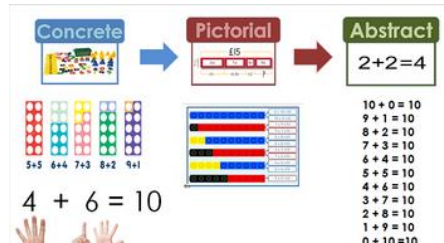
(Babycchino, 2014)

Jerome Bruner



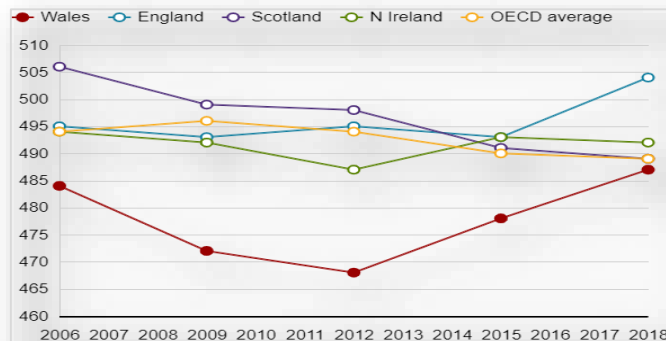
(Observer, 2017)

CBA Approach



(Tes, 2020)

Pisa results 2019

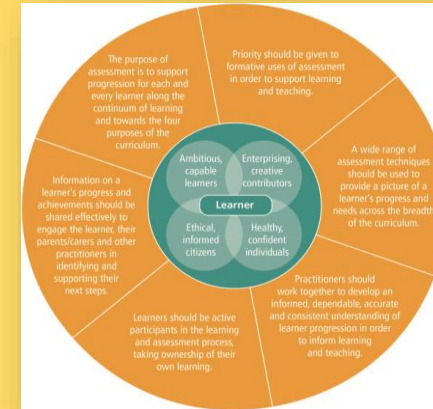


(Lewis, 2019)

Assessments

- Collecting information on what and how children learn
 - Giving feedback based on continuous observation of children's learning
 - Keeping an ongoing record of what is learnt in order to plan the next step
 - Gathering information which helps to compare performances of groups of children
- (Koshy and Murray, p.146)

(Koshy and Murray, p.146)



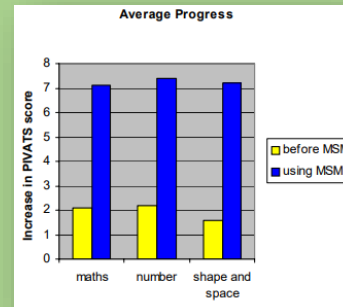
(Curriculum for Wales, 2019)

Conclusion

The New Curriculum for Wales 2022

- 97% agree or strongly agree that it improves pupils mathematical language/vocabulary
 - 99% perceive that it helps children think and communicate mathematically
 - 98% report gains in developing fluency, reasoning and problem solving
- (Bradley, 2020)

(Brading, 2020, p.1)



(Fdslive, 2005)

Reference List

- Ashman, G. (2015). *Why students make silly mistakes in class (and what can be done)*. [online] The Conversation. Available at: <https://theconversation.com/why-students-make-silly-mistakes-in-class-and-what-can-be-done-48826> [Accessed 11 Jan. 2020].
- Association for Psychological Science - APS. (2017). *Remembering Jerome Bruner*. [online] Available at: <https://www.psychologicalscience.org/observer/remembering-jerome-bruner> [Accessed 11 Jan. 2020].
- Atkinson, R., Tacon, R. and Wing, T. (2016). *Number, pattern and calculating*. Oxford, p.1.
- Bates, B. (2016). *Learning theories simplified*. 2nd ed. London: SAGE, p.144.
- Brading, G. (2020). *Numicon Impact Study : Primary: Oxford University Press*. [online] Global.oup.com. Available at: <https://global.oup.com/education/content/primary/series/numicom/impact/?region=uk> [Accessed 12 Jan. 2020].
- Cline, T. (2019). *Overcoming barriers to learning in mathematics*. [online] Naldic.org.uk. Available at: <https://www.naldic.org.uk/Resources/NALDIC/Initial%20Teacher%20Education/Documents/Overcomingbarrierstolearninginmathematics.pdf> [Accessed 12 Jan. 2020], p.1-2.
- Curriculum for Wales Blog. (2019). *Assessment and the new curriculum*. [online] Available at: <https://curriculumforwales.gov.wales/2019/04/26/assessment-and-the-new-curriculum/> [Accessed 12 Jan. 2020].
- Department for Education and Skills (2001). *Guidance to support pupils with dyslexia and dyscalculia*. London: The Colour works, p.2.
- Driscoll, P., Lambirth, A. and Roden, J. (2015). *The Primary Curriculum - A Creative Approach*. 2nd ed. London: Sage, p.38-39.
- Dynaread.com. (2018). *Dyslexia and Math Struggles: How do They Relate?*. [online] Available at: <https://www.dynaread.com/dyslexia-and-math-struggles-how-do-they-relate> [Accessed 14 Jan. 2020].
- Fdslive.oup.com. (2005). *Multi Sensory Approach to Teaching mathematics*. [online] Available at: http://fdslive.oup.com/www.oup.com/oxed/primary/maths/numicon/Numicon_research_leeds_LA.pdf?region=uk [Accessed 13 Jan. 2020].
- Gov.wales. (2019). *Education is changing | GOV.WALES*. [online] Available at: <https://gov.wales/education-changing> [Accessed 15 Jan. 2020], p.1.
- Gov.wales. (2015). *Mathematics Tasks and finish Group*. [online] Available at: <https://gov.wales/sites/default/files/publications/2018-02/mathematics-task-and-finish-group-report-and-recommendations.pdf> [Accessed 15 Jan. 2020], p.16.
- Hansen, A. (2014). *Children's errors in mathematics*. 3rd ed. London: Sage, p.1-20.
- Hwb.gov.wales. (2015). *The Curriculum for Wales*. [online] Available at: <https://hwb.gov.wales/storage/d5d8e39c-b534-40cb-a3f5-7e2e126d8077/foundation-phase-framework.pdf> [Accessed 15 Jan. 2020], p.5.
- Koshy, V. and Murray, J. (2002). *Unlocking mathematics teaching*. 1st ed. Abingdon, Oxon: David Fulton, p.146-163.
- KPMG. (2018). *MATHS ANXIETY HOLDING BACK MILLIONS*. [online] Available at: <https://home.kpmg/uk/en/home/media/press-releases/2018/05/maths-anxiety-holding-back-millions.html> [Accessed 12 Jan. 2020], p.1.
- Lewis, B. (2019). *Wales improves in global education tests*. [online] BBC News. Available at: <https://www.bbc.co.uk/news/uk-wales-50629432> [Accessed 11 Jan. 2020].
- Mathsanxietytrust.com. (2019). *Important New Research | The Maths Anxiety Trust*. [online] Available at: <http://mathsanxietytrust.com/important-new-research/> [Accessed 12 Jan. 2020].
- Oecd.org. (2019). *Asian countries top OECD's latest PISA survey on state of global education - OECD*. [online] Available at: <https://www.oecd.org/education/asian-countries-top-oecd-s-latest-pisa-survey-on-state-of-global-education.htm> [Accessed 15 Jan. 2020], p.1.
- TES Resources. (2020). *Concrete, Pictorial & Abstract Maths Working Wall Display*. [online] Available at: <https://www.tes.com/teaching-resource/concrete-pictorial-and-abstract-maths-working-wall-display-11660482> [Accessed 12 Jan. 2020].
- Varun, A. (2014). *Thematic Approach to Effective Communication in ECCE*. [online] Ijepr.org. Available at: http://ijepr.org/doc/V3_Is3_Oct14/ij10.pdf [Accessed 15 Jan. 2020], p.1.
- Weale, S. (2019). *'Maths anxiety' causing fear and despair in children as young as six*. [online] the Guardian. Available at: <https://www.theguardian.com/education/2019/mar/14/maths-anxiety-causing-fear-and-despair-in-children-as-young-as-six> [Accessed 12 Jan. 2020], p.1.