

**Mathematics in the Early Years**  
Dr. Katrina A. Korb  
Early Childhood eXchange (ECx), 14 March 2020

**Mathematics  $\neq$  Memorization**  
**(Mathematics is not Memorization)**

Memorization has the following weaknesses:

- Memorization does not mean that the child understands what they are saying
- Memorization oftentimes does not last past the end of the lesson
- Memorization does not help pupils solve problems

Let's try a paradigm shift, teaching mathematics differently to see if we can get different results:

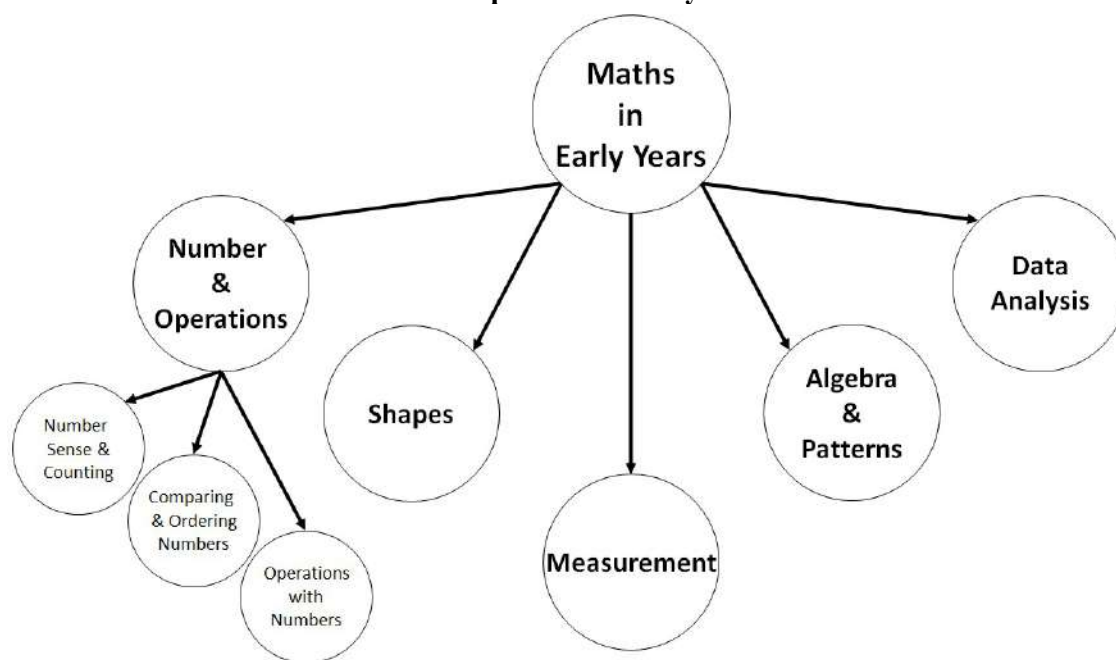
- Higher performance in mathematics
- Pupils (and teachers) who love mathematics
- Pupils who can use mathematics to solve everyday problems

**Mathematics = Understanding + Application + Memorization**

Goal of Maths in the Early Years: **Understand** foundational mathematical topics

- Understanding must come before memorization
- Much more time and effort should be dedicated to understanding and applying maths concepts than memorization

**Maths Topics in the Early Years**



NOT Maths topics in the early years

- Spelling numbers
- Multiplication (introduce in Primary 2 or 3)

### Mathematics Education in the Early Years

- **Natural Mathematics Lessons:** Integrate mathematics topics into children's everyday experiences
  - **Mathematize:** Build on the natural opportunities to apply maths in children's play and daily activities
- **Planned Mathematics Lessons**
  1. ALWAYS have some type of manipulative
    - **Manipulative:** Physical object that children can use in hands-on learning of maths
  2. Always ask children to explain their answers
  3. Give feedback to explain wrong answers
  4. Use questions to guide children to an understanding

| NOT Effective                                    | Effective   |
|--|---|
| Recite answers                                   | Use manipulatives   |
| Say Right/Wrong when an answer is given          | Have children explain answers                                   |
| Correct wrong answers with the right answer only | Explain why wrong answers are wrong and right answers are right |
| Talk, talk, talk                                 | Use questions to guide children to understanding                |

### Loose Parts for Manipulatives

- Flowers
- Pieces of Fabric/Wrappers
- Bottle caps (preferably plastic)
- Beads
- Beans
- Boxes
- Buttons
- Caps from dried out markers
- Clothes pins
- Feathers
- Fruits (whole or sliced)
- Leaves
- Match boxes
- Nuts
- Paper clips
- Rocks
- Scarfs
- Seeds and seed pods
- ...and many more