Integration of reading comprehension with foundation phase mathematics

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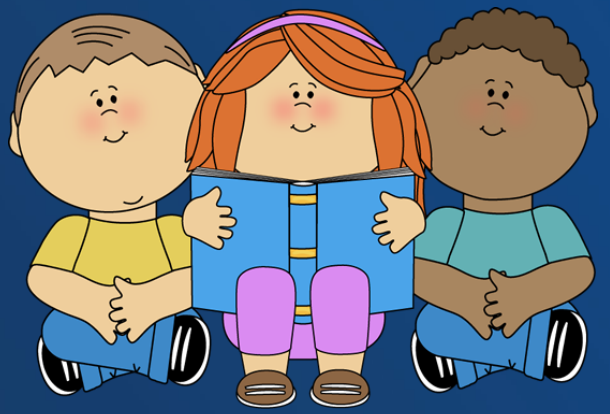
THE CHANGE IN EDUCATION

Roadmap

- ✓ Reading comprehension
- ✓ Reading comprehension strategies
- ✓ Foundation phase mathematics
- ✓ Practical strategies
- ✓ Teacher is the agent of change
- ✓ Enhance teaching and learning
- ✓ Word sum-wheel
- ✓ Practical implementation and examples

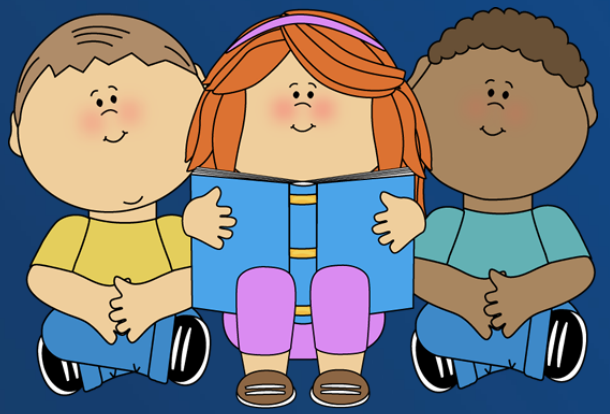
Value of stories

- ✓ Theme of the week
- ✓ Types of texts
- ✓ Drawings
- ✓ Manipulatives
- ✓ Props
- ✓ Music
- ✓ Dramatisation



Value of stories

- ✓ Know your learners
- ✓ Multiple intelligence theory
- ✓ Foster understanding
- ✓ Demystify mathematics
- ✓ Asking of leading questions



Reading comprehension startegies

- Processing skills
  - Guessing
  - Predicting
  - Generalising
  - Proving
- Reasoning processes
  - Analysing
  - Reflecting
  - Clarifying
  - Understanding
- Comprehension strategies
  - Activating of background knowledge
  - Vocabulary development
  - Sequencing

Mathematics word problem solving

- ✓ Mathematics word problem solving is a product of reading comprehension
- ✓ Educational challenge around the world (Mellone, Verschaffel & Van Dooren, 2017:1)
- ✓ Reasoning mathematically is fundamental to learning mathematics with understanding (Kim & Kasmer, 2006)
- ✓ Complex process (Morales, Shute & Pellegrino, 1985:41)
- ✓ "Demon problems" (Weber, 1966:314)
- ✓ Resistance against mathematics word problem solving

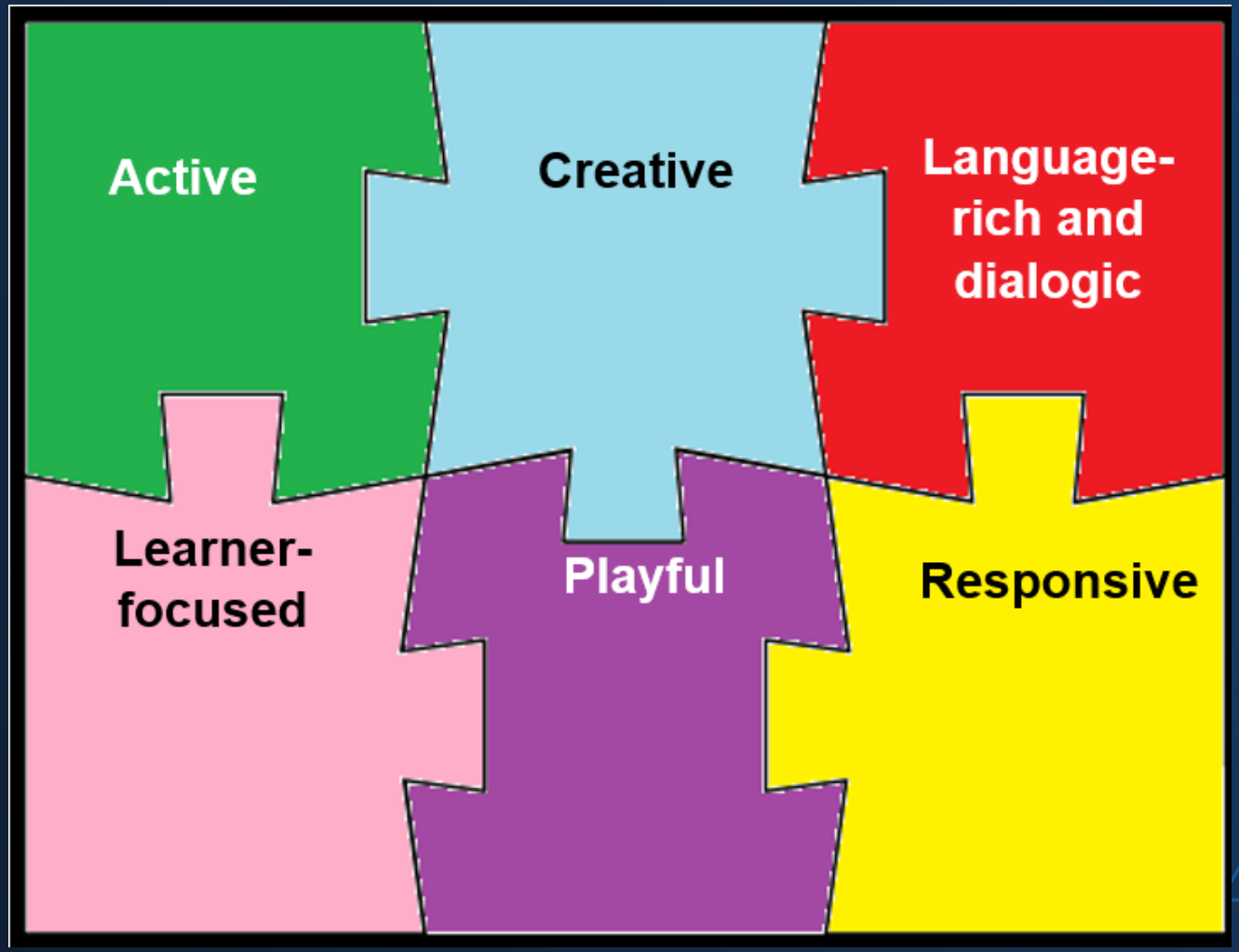
Value of mathematics word problems

- ✓ Meeting point for many different skills and processes
- ✓ Related in some way to real-world experiences
- ✓ Improves the learners' thinking ability
- ✓ Teaches learners to apply procedures
- ✓ Deepens conceptual understanding (Siagan, Saragih & Sinaga, 2019:331)
- ✓ Mathematics can be fun
- ✓ Provide practice with real life problem situations
- ✓ Motivate learners to understand the importance of mathematics concepts
- ✓ Help learners to develop their creative, critical and problem-solving abilities (Chapman, 2006)

Relationship between reading comprehension and mathematics

- ✓ Mathematics word problem solving is a product of reading comprehension (Light & DeFries, 1995, Vilenius-Tuohimaa *et al.*, 2008:409)
- ✓ Elements needed for mathematics modelling:
  - ✓ Reading fluency
  - ✓ Word recognition
- ✓ Common ground
  - ✓ Reasoning skills

Suggestions for integration of reading comprehension with mathematics



Creativity in the classroom

- ✓ Creativity is the heart of solving a problem, understanding the language used in a text and the ability to comprehend a text (Vuong & Martin, 2014)
- ✓ Creativity within reading comprehension assists as a way of making sense of the mathematics register and the vocabulary involved.
- ✓ "Do schools kill creativity?" Sir Ken Robinson (2006)
- ✓ Intelligence is diverse, dynamic and distinct (Robinson, 2006)
- ✓ Total Physical response (TPR) is a method of teaching language or vocabulary concepts "where learners listen to instructions and respond by performing physical actions" (Joubert *et al.*, 2019:332).

Practical strategies (videos)

- ✓Three reads approach
  - ✓ *who and what*
  - ✓ *number information*
  - ✓ *what is the story asking*

Practical strategies (videos)

- ✓ **CUBES**
  - (C) circle
  - (U) underline
  - (B) box
  - (E) evaluate
  - (S) solve

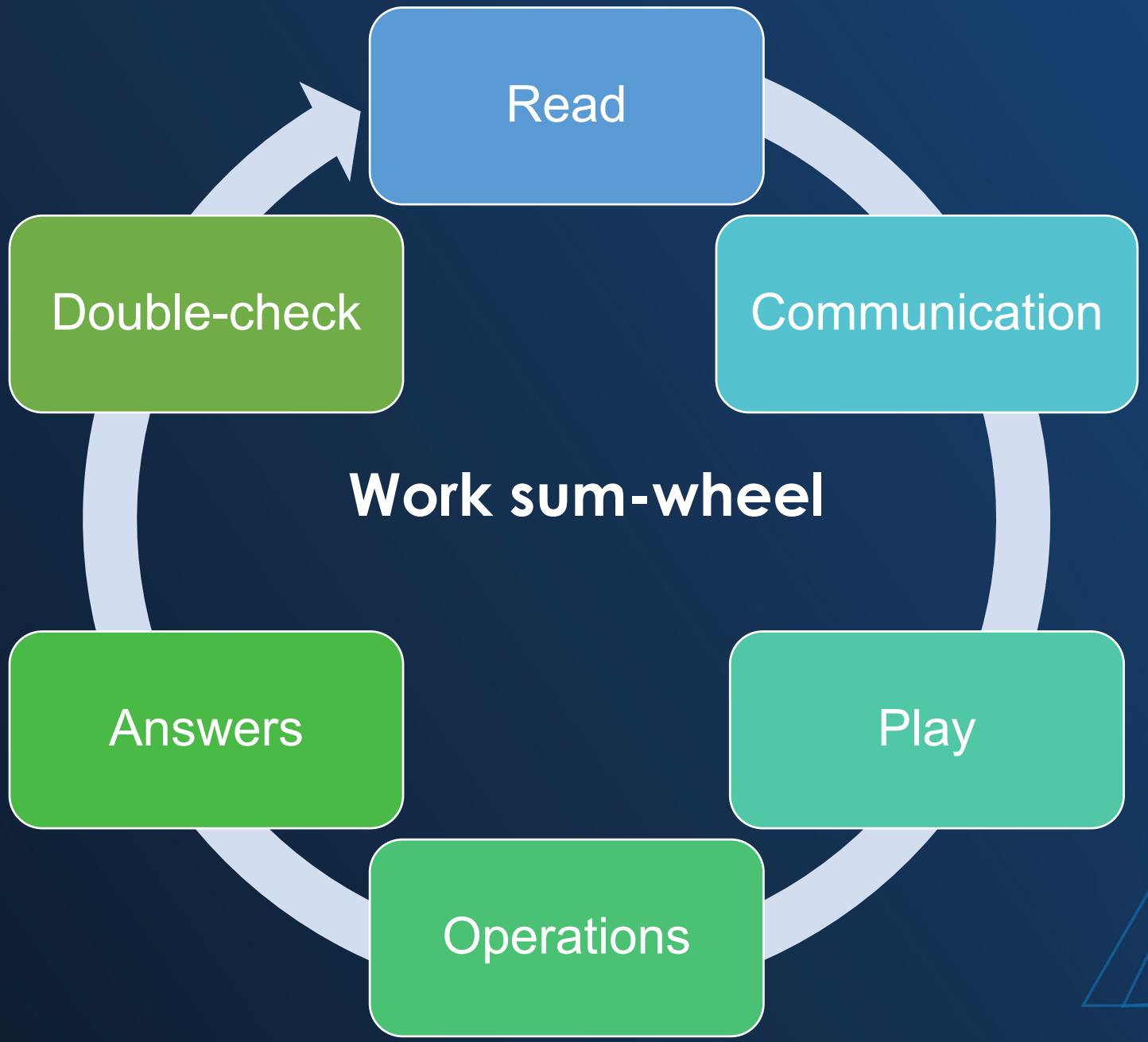
Practical strategies (videos)

- ✓ Vocabulary development

  fast**er**, larg**er**, short**er**, slow**er**, high**er** and quick**er**

Practical strategies (videos)

- ✓ Four steps in solving a mathematics word problem
  - (1) Understand
  - (2) Plan
  - (3) Solve
  - (4) Check


Read
Communication
Play
Operations
Answers
Double-check
Work sum-wheel

Application of the word sum-wheel

- ✓ Peer and group instruction
- ✓ Practical application
- ✓ Play
- ✓ Creativity
- ✓ Real-life experiences
- ✓ Including the MI theory
- ✓ Knowledge of learners
- ✓ Choice of text

Enhancing Grade 3 teachers' mathematics word problem solving instruction

Questions?

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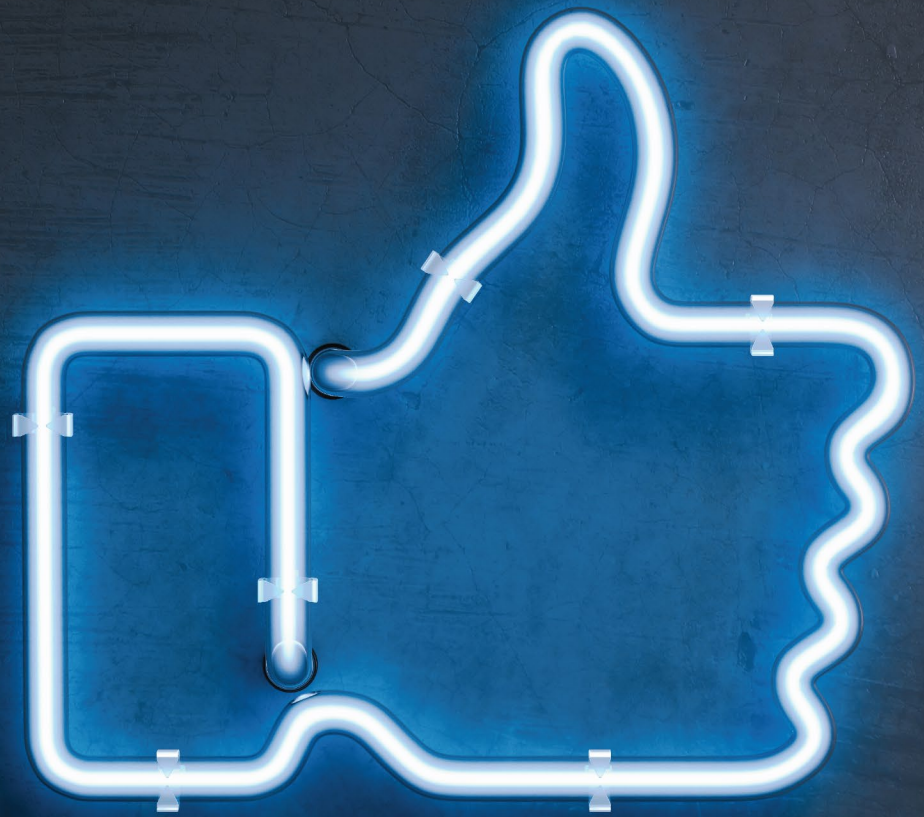

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