LITERACY IN MATHS POLICY

Sheringham High School

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Ratified	**25-9-22**
Review Date	**25-9-25**

Context

Literacy in Mathematics

By developing students' literacy, we aim to give all students the communication skills to become excellent problem solvers. To us, literacy in mathematics means developing a student's structured speaking, vocabulary, writing, and reading to help them solve mathematical problems.

Structured Speaking

Students who have difficulty writing in a mathematics lesson often find it easier to say what they think. Therefore, we provide opportunities for students to engage in dialogue that supports, deepens, and challenges their understanding.

These opportunities arise from questions posed throughout the various phases of the lesson. We use starters as a reminder of essential keywords. In the central part of the lesson, we encourage discussion that will connect today's learning to other aspects of mathematics, subject areas or elements of life outside of school. In addition, the plenary presents a deeper level of questioning, so students extend each other's conceptual understanding.

By developing active listening skills and turn-taking, students learn how to question and challenge their peers' understanding and the teacher's explanations. We build on this by encouraging students to ask lots of questions.

Vocabulary

The positive effects of an increased vocabulary and the ability to speak mathematics are essential to understanding. Therefore, we believe modelling the use of key words with definitions placed in context will help students internalise the concepts and terms they encounter.

In year 7 and 8 at the end of a topic, students create a Frayer Diagram with 4 identified words as a homework – see appendix below

Writing

We develop students' writing by modelling written methods on the teacher's board. We leave completed examples on the board while students attempt a similar problem.

On occasions, students use mini whiteboards to form, refine and present a written record of their understanding of a problem. Teachers act on this formative assessment by addressing misconceptions or progressing onto deeper level questions.

We use department meetings to share best practices. For instance, we have completed some CPD on using zero sum counters to better improve student understanding of negative numbers.

Reading

Teaching comprehension is a vital part of the mathematics curriculum. However, worded mathematical problems contain multiple concepts and text, including symbols, diagrams, tables, and units. Therefore, comprehending a wordy problem can often be more complex than applying mathematics.

Mathematics is not about learning facts or procedures. It is about teaching students how to interpret a mixture of symbols, diagrams, and keywords. Making these connections and understanding how they form part of a bigger problem is key to applying the learned mathematical skills.

We do this by:

- Reading out the text to the class and highlighting keywords or phrases as they appear.
- Modelling how to extract information from the text so the problem can be represented algebraically or as a diagram.
- Providing a high level of exposure to these types of questions.

Appendix 1

Four Square Vocabulary

1. Pupils take paper and fold into 4 squares
2. Top left: dictate the word to be taught
3. Describe the word and model in context.
4. Top right: pupils discuss & write a definition of the concept
5. Bottom right: pupils draw a diagram
6. Bottom left: use in a sentence in context

congruent	Having the same shape and same size
A cube has six **congruent** faces.	