Three Reads


Purpose:
The Three Reads strategy is effective in engaging students in the Common Core Standard for Mathematical Practice #1: *Make sense of problems and persevere in solving them.* It supports students in making sense of complex tasks as they begin to engage in the solution process. Three Reads is designed to delay an immediate solution attempt by involving students in making sense of the problem and drawing connections between the situation and the quantities presented.

Description:
Three Reads is a strategy to encourage all students to make sense of the mathematical context, structures, and uncertainties within a high cognitive demand task. A typical mathematical task consists of a Problem Stem and a related question. This strategy gives students tools for learning to read, understand, and extract relevant information within mathematical tasks. Three Reads includes three separate readings of a Problem Stem (i.e., written text, video, picture, chart, etc.) before posing the related question. The goals of Three Reads are to 1) understand and make sense of the context of the situation; 2) identify, understand and connect the mathematical quantities within the situation; and 3) elicit questions based on the mathematical context of the situation.

How this Promotes Access:
Three Reads promotes access by slowing down the problem-solving process to ensure that all students make sense of the problem. By delaying the related question that is revealed after the Three Reads, students are provided opportunities to discuss relevant information and thought processes rather than blindly trying to get an answer. Three Reads deepens student understanding by surfacing linguistic as well as mathematical clues. This strategy can be used for many math tasks that include complex language structures and/or lend themselves to a variety of interpretations. While this is a particularly useful strategy for EL and diverse learners, all students can benefit from engaging in the productive struggle and inclusive discourse that will result from using this strategy. When Problem Stems contain complex written text, this strategy can support students with unpacking complex language and focusing their thinking. Three Reads encourages high expectations with high supports for all students rather than simplifying the language of a task.

Process for Implementation:
- 1st Read: Teacher reads the Problem Stem orally or shows a picture, chart, video, etc. Ask students “What is the situation about?” Strategies such as Turn and Talk or a Think-Ink-Share can support effective whole group sharing.
- 2nd Read: If the problem stem contains written text, the teacher or student reads the Problem Stem again. If the Problem Stem is an image or video, have the students view it again. Ask students “What are the quantities in the problem? What do they mean? How are they related?” (In early grades, teacher might offer “quantities are numbers or amounts,” and in later grades teachers might offer, “quantities are numbers and their units”).
- 3rd Read: The Problem Stem is read or viewed a third time. Ask students “What are all the possible mathematical questions you can think of about this situation?” The questions students come up with should focus on the quantities presented and the relationships between them.
- Students work in collaborative groups on the problem. Teachers should circulate between groups and facilitate the small group work to encourage inclusive student to student discourse.
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Examples:

Visual Image Problem Stem:

Written Text Problem Stem:

A prince picked a basketful of golden apples in the enchanted orchard. On his way home, he was stopped by a troll who guarded the orchard. The troll demanded payment of one-half of the apples plus two more. The prince gave him the apples and set off again. A little further on, he was stopped by a second troll guard. This troll demanded payment of one-half of the apples the prince now had plus two more. The prince paid him and set off again. Just before leaving the enchanted orchard, a third troll stopped him and demanded one-half of his remaining apples plus two more. The prince paid him and sadly went home. He had only two golden apples left.

First Read: What is the situation about?
Second Read: What are the quantities in the problem? What do they mean? How are they related?”
Third Read: What are all the possible mathematical questions you can think of about this situation?”

Related Question:
Which dogs are there more of at the park?

First Read: What is the situation about?
Second Read: What are the quantities in the problem? What do they mean? How are they related?”
Third Read: What are all the possible mathematical questions you can think of about this situation?”

Related Question:
How many apples had he picked?

Things to Consider:

- When selecting a Problem Stem consider:
  - Does the problem have quantities (both implicit and explicit)?
  - Will students understand the roles and relationships of the numbers and quantities in the problem?
- When pairing or grouping students, consider matching students with differing English language proficiencies. This allows for students to engage in an apprenticeship model that will support language development.
- You may want to provide students with a few key Formulaic Expressions/Sentence Starters to support them in communicating their ideas.