



Think Board 2

2.3.1

Word Wall: addition, subtraction, number sentence, problem, solve, solution finders, known, unknown, think

Introduction

Students will use a *Think Board* to link different ways of representing addition and subtraction problems including words, concrete materials, pictures and number sentences. This will assist them in solving words problems that contain unknown quantities.

Resources

- Think Board
- Concrete materials – counters, unifix, bundle sticks
- Whiteboard pens
- Word Problems --- unknown quantity embedded (Dark Blue)
- Set of Think Board Cards
- Early Years FISH

Time / Classroom Organisation

This activity may be introduced in a whole group or small group as a 20 – 30 minute focused teaching and learning event. Use the Think Board regularly to represent addition and subtraction problems in a variety of ways.

Australian Curriculum---Year level: Two Solve problems by using number sentences for addition or subtraction (ACMNA036)

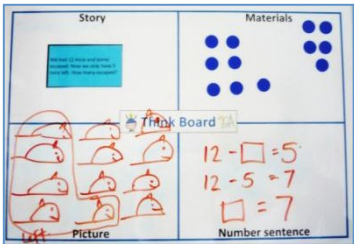
Proficiency Strand:

Problem Solving – using number sentences that represent problem situations; formulating problems from authentic situations.

Activity Process – Unknown Quantities

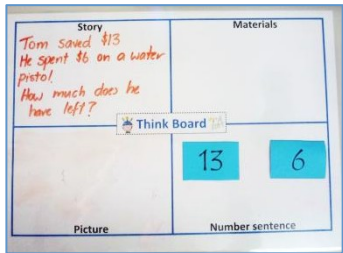
1. The Think Board helps students to find connections between the different ways of representing a problem. This helps students to focus on the meaning of the operation rather than on just calculating to find an answer. Model working through a word problem using the Think Board. Progress from MAG 2.2.5 where students were using the standard addition and subtraction word problems. Introduce students to the word problems that have an unknown quantity embedded in the question.
2. Place or write a word problem in the word section of the Think Board
3. In the *materials* section, use blocks or counters to represent the problem:
4. In the *picture* section, represent the problem with pictures of the objects. (Later students can move to more abstract representations, for example a diagram or tally marks).
5. Work with the students to decide the *number sentence* they could write that connects to the way that they have solved the problem, for example:
6. Choose a new word problem to place in the *word* section of the Think Board or write a problem on the whiteboard for all students to see.
7. In pairs allow students to work through the problem filling in all or some of the Think Board sections.

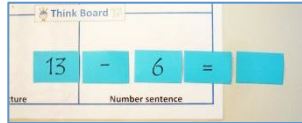
8. Come together to share representations, strategies and the number sentences that they have created. Reinforce that the same problem can be thought of in different ways.



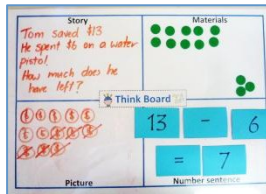
Activity Process---The Think Board

1. Provide each pair of students with a set of think board cards and a think board.
2. Ask students to select 2 number cards from the pile and then tell an addition or subtraction story about it. For example: *6 and 13. Tom saved \$13. Then he spent \$6 on a water pistol. How much does he have left?* Students will write their story in the 'story' box on the think board.





- Discuss the students' responses, then ask: *What is it we have to find out? How much had Tom saved? How much did he spend? How much does he have left?*
- In pairs ask students to use concrete materials and the think board to model the story.
- When the answer has been found, replace the blank card with the 7 number card to show $13 - 6 = 7$.

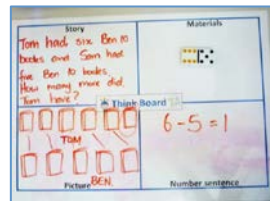


Variations & Extensions

1. Think Board – Dominoes

Resources: Think Board, counters or paddle pop sticks, whiteboard pens, dominoes.

Provide each students with a domino and a think board. Ask students to create a subtraction or addition story about the numbers displayed on the domino and write it up on the think board.



2. Think Board – Dice

Resources: Think Board, counters or paddle pop sticks, whiteboard pens, Dice.

Provide each students with two dice and a think board. Ask students to roll two dice and create a subtraction or addition story about the numbers displayed on the dice and write it up on the think board.

Digital Resources

<http://au.ixl.com/math/year-3/add-three-or-more-numbers-up-to-three-digits-word-problems>

Practice >> Year 3 >> Addition: Add three or more numbers up to three digits - word problems

Jae played a trivia game and earned 8 points on the history questions. She earned 90 points for answering science questions and 141 points for answering sports questions. How many points did Jae score in all?

points

Submit ✓ Submit & finish >>

Contexts for Learning

Play:

Provide play money and shop materials for students. Give students money questions with unknown quantities in them for the students to solve.

Investigation:

Ask students to solve questions from NAPLAN while using the think board.

Real life experience:

Create word and number stories to demonstrate who is present and absent, for example: *There are 25 people in 2G. Emma and John are sick and Jacinta is on holidays. How many students are present in 2G today?* $25 - 3 = q$

Routines and Transitions:

As students transition, ask them to roll two dice and tell you a story about the two numbers rolled.

Assessment

Photograph or photocopy the completed Think Board. Annotate comments made by the student that demonstrate their understanding of the connections between the different ways of representing the problem. Check to see if students select the correct operation, select a suitable representation, and correctly represent the number sentence.

Achievement Standard: perform simple addition and subtraction calculations using a range of strategies.

Background Reading

Students need to develop a deep understanding of the meaning and use of the four basic operations – of their link to each other and to real-world applications. In order to build up conceptual links between the various types of situations and the addition, subtraction, multiplication and division operations, a rich and flexible variety of representations is needed over an extensive period of time. It should not be rushed. These various forms of representation include:

- Experience-based scripts of real world events or dramatic play
- Manipulatives
- Pictures and diagrams
- Spoken language
- Written symbols in number sentences

Source: *First steps in Mathematics – Number – Understand Operations*, 2010. Rigby: Port Melbourne. p 87.

Year three NAPLAN --- Numeracy test links

- Addition and Subtraction – word problems

Links to Related MAGs

- 1.3.2 – Addition and Subtraction – 3
- 2.1.5 – Addition and Subtraction – 1
- 2.2.4 – Addition and Subtraction --- 2
- 2.2.5 – Think Board 1
- 2.4.4 – Think Board 3

