CURRICULUM, PEDAGOGY AND BEYOND









Karim Noura MED

Melbourne Polytechnic Epping





Teaching & Learning Mathematics with Problem Solving Approach

Warm up activities

• Can you fit 10 horses in nine stables?



• Is "seven" odd or even number? How can you make "seven" even?

Why do we ask such questions?

What is a Mathematical Problem Solving?

Problem solving is a set of practical instructions to find a numerical solution or a logical solution to a particular Mathematical problem or situation.

A Mathematical Problem is a situation that confronts a learner and requires resolution and for which the path to the solution is not immediate.

Example 1

A man went up to the top of the hill visiting his friend. He left the bottom of the hill at 9am and arrived to the top at 5pm.

The second morning, he started the journey down at 9am and arrived to the bottom of the hill at 5pm.

Question:

Is there a point on the way which he has passed by, at the same time on both days?

Issues & Concerns

- The ways of presenting activities make a big difference
- Activity must be relevant
- Give enough information
- Give sufficient instructions
- Give sufficient time

Example 2

Three people shared meal at a restaurant.

- The bill was \$30, but they found out that they have been overcharged, the bill should be \$25.
- They informed the manager who agreed and sent \$5 (in coins) to them with a waiter.
- The waiter did not know how to divide the \$5 between the three people.
- He gave them \$1 each to start with and then they asked him to keep \$2 for himself as a tip.

Though, they ended up paying \$9 each and \$2 with the waiter, the total is \$29.

Where is the other \$1?

Example 3 How could you measure the height of a tree in the school yard?

>Example4

You are in the field.

Can you estimate the distance to an object at the end of the field?

Example 5 Plant 10 trees in 5 lines. "4 trees per line only"

Example6

1 red pencil costs 40 cents, 1 black pencil Costs 60 cents.

You have combined the two kinds and bought 30 pencils.

How many pencils did you buy from each kind?

Strategies

- Read, recognize and understand the problem/situation
- Establish the mathematical problem
- Analyze, solve and test results
- Give examples

Example7

Find two consecutive numbers when their Sum is 33.

Example8

It takes 5 minutes for 5 people to move 5 boxes. How long does take 100 people to move 100 boxes?

Different solutions for one problem

Example9

How many handshakes will we have at the end of this session? You may setup different tasks based on this problem.



Quality

- Select activity that is relevant to what you teach.
- Select activity interesting to students and community.

Example10

Count the number of grass blades in your home's backyard.





Example11

We need to transport watermelons from Melbourne to Sydney(1000km distance). We have 3000 melons and there is only one camel Available for this job. The camel can carry 1000 melons at the time and needs to eat one melon for each km he walks. What is the maximum number of melon that you can get to Sydney?

Who Cares?

Facilities

- What do students learn while solving mathematics problem?
- Define ways to apply gained skills and knowledge.
- Create and improve the culture of problem solving among school community.
- Share ideas and resources with others (Teachers and Community)
- More P.D. sessions are needed

Example12 Think of a number. Double it, add 10, half it and then take away the number that you Started with. "Your answer is always 5!

Example13

Can you guess the sum of the three hidden Numbers when you have two dice on the top of each other?

Connection with students

Try to make your Maths class engaging by using some fun activities or teasing & light problem.

Example 14

Two fathers & two sons went fishing. Every person caught a fish, but there was three fish only in the basket.

How this happened?

Always, try to have fun in your Maths class 🙂



Finally

Brain teasing and mental puzzles are very useful in the Maths class.

Thanks for your attendance

Contact: You may email me on: kn4education@gmail.com

Check all my work and publications on google:

Karim Noura Mathematics or Medium





Event App

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Step 1: Download the App 'Arinex One' from the App Store or Google Play



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- Step 3: Enter the email you registered with
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Be in it to WIN!

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A02 - (Year 1 to Year 6) Supporting High Potential and Gifted Learners in Mathematics

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