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Breaking the Silence : Building Communication in Mathematics Learning

Linawati Lauw

Monday 8 December 14:30 - 15:30
Tuesday 9 December 10:00 - 11:00

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Agenda

Part 1 – Introduction - What is communication in mathematics?
Part 2 – Problem solving activities
Part 3 – Reaction and discussion
Part 4 – Q & A

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About you...

- Pair up with a person and introduce yourself to each other
- Find one thing about your partner's experience in learning mathematics
- Introduce your partner to the rest of us

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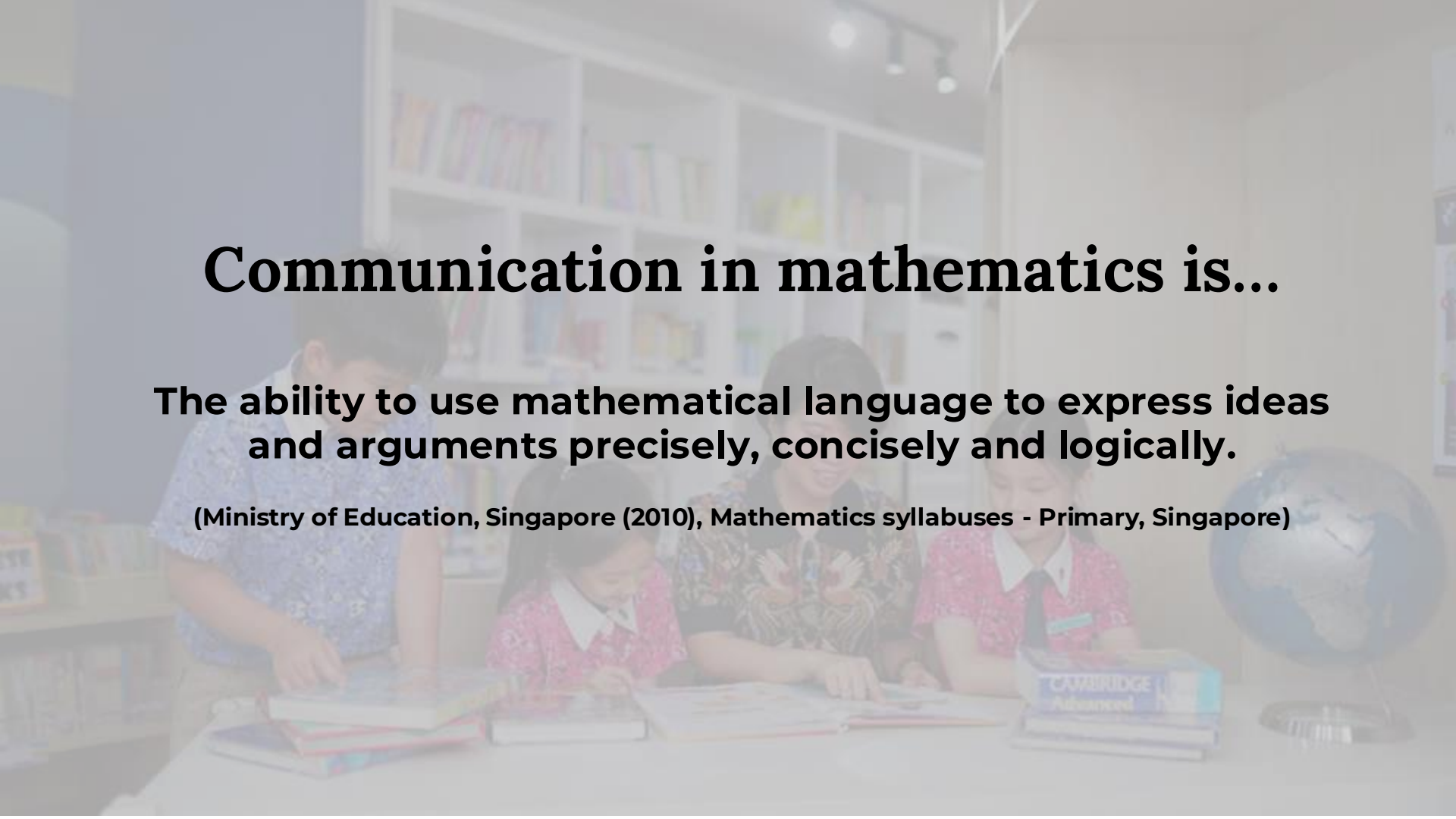
What is communication in mathematics?



Communication in mathematics is...

The ability to use mathematical language to express ideas and arguments precisely, concisely and logically.

(Ministry of Education, Singapore (2010), Mathematics syllabuses - Primary, Singapore)

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Communication in mathematics can...

- Help Learners explain their reasoning and understand multiple solution methods.
- Build Confidence through classroom talk, group problem-solving and peer-critique.
- Encourage the use of visual, written and digital representations to express ideas clearly.
- Support inclusive learning by valuing every student's voice, not only the fastest solver.
- Develop critical thinking, collaboration and adaptability-future-ready skills for all learners.

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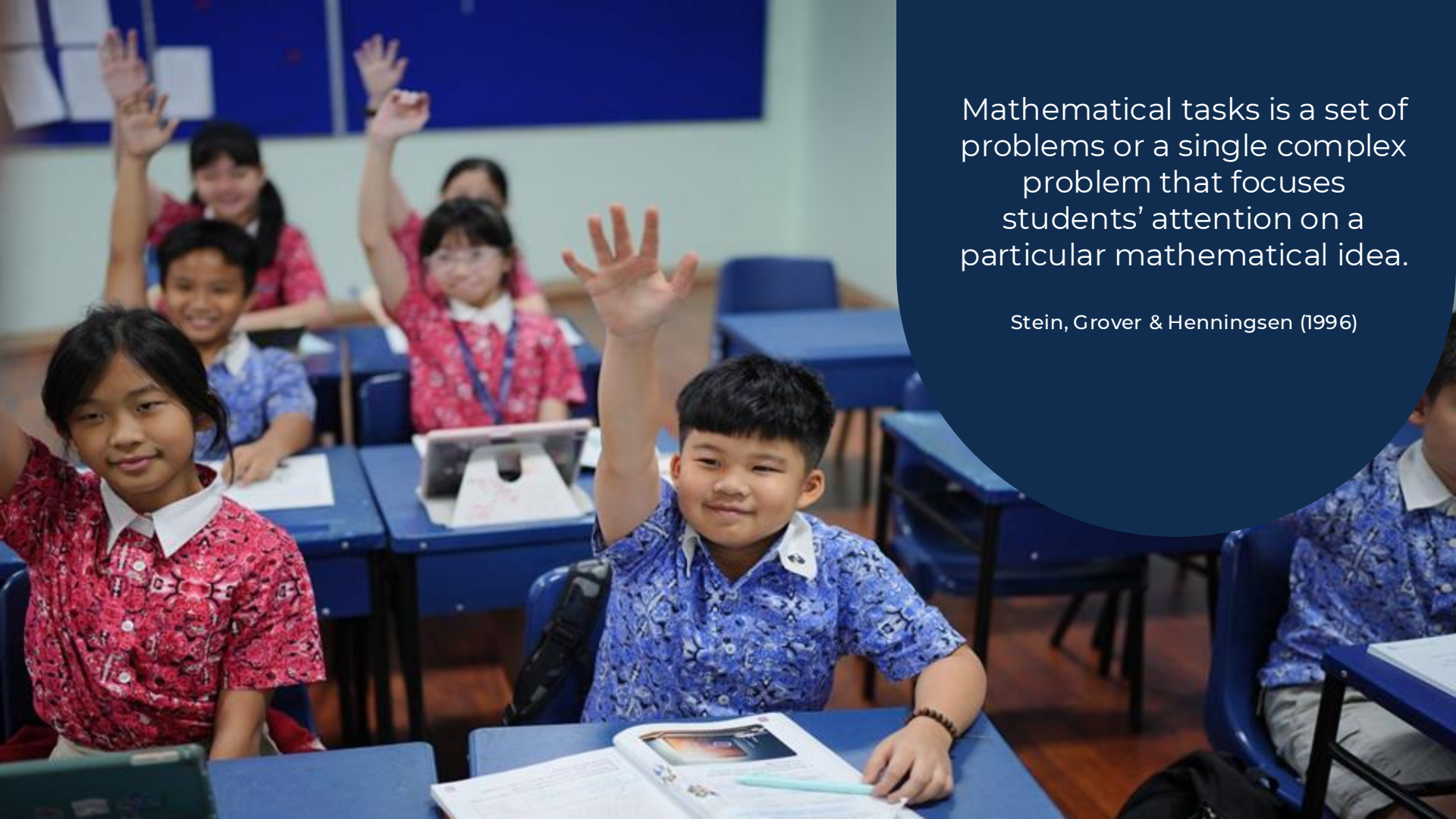
As students communicate their thinking about concepts, they not only make their learning visible to teachers but they also internalise and solidify **their understanding for themselves**.



Mathematical tasks is a set of problems or a single complex problem that focuses students' attention on a particular mathematical idea.

Stein, Grover & Henningsen (1996)

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One way to promote communication is by engaging students in open mathematical task.

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Focus

How can we ensure that students have many opportunities to engage with reasoning and mathematical communication throughout their school experience?

Problem solving activities

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Activity 1

Find two whole numbers whose sum is 20 and whose product is 96.

a. Explain why your numbers are correct.
b. How did you start to think about the problem?

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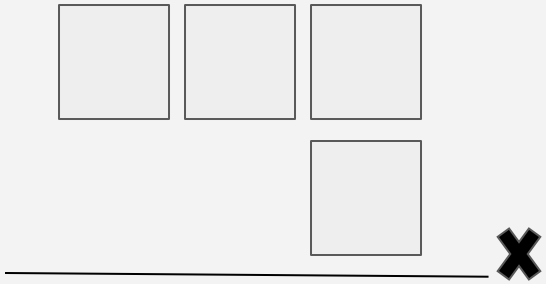
Activity 2

- Place the digits 8, 5, 4, and 2 in the following template to get the greatest product.



- Write a letter to your friend who is absent today about the strategies to solve this problem.

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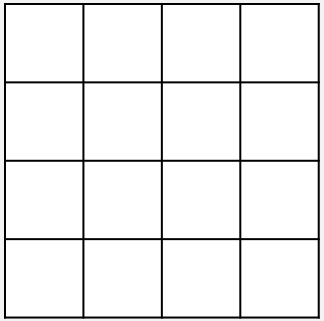
Activity 3

- Shade the picture below to show $\frac{3}{8}$. Explain how you know your picture shows the given fraction.



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Activity 4

Reaction & discussion

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Think - Pair - Share

Question 1 - In what ways has the new learning experience helped your students express/communicate and deepen their understanding of mathematics?

Question 2 - What are some factors that make it difficult to provide such learning experiences in maths classes?

Question 3 - What actions might we take in the very near future as a school and as individual teachers to support more of such learning experiences?

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Any questions?

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Saturday, 12th March 2021

Thank you!

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