Let Them Struggle: Fostering a Classroom Rich with Discourse

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Boring Tunnels

A new tunnel will be exactly one kilometer long. The machine bores $\frac{1}{3}$ m every 6 hours. If it worked 24 hours a day, how many days will it take to bore the tunnel?

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Show your thinking

4

This is a mixed-up multiplication table.

Copy the table.

×	3	2		
	15			20
2			10	
		6		
	12			

The top row should show the numbers 2, 3, 4 and 5.

The first column should show the numbers 2, 3, 4 and 5.

Complete the table.

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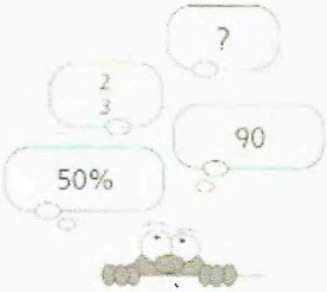
a. How much more than **50%** of **90** is $\frac{2}{3}$ of **90**?

b. Write how you figured it out.



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Note: This is a framework.

A Question or a Problem

"What do I know?"

"What am I trying to figure out?"

Proving/Explaining

Aha!

"I think this will work!"

"I understand what to do next!"

"I got it!"

Stumped!

"I don't get it!"

"Do I understand the question?"

"Argh! I want to give up!"

Tinkering

"Let me try..."

"I think I know where I can start..."

Models/Tools

"Can I do this mentally?"

"Do I need to draw it out or use a model?"

"Do I need some other tool to show my thinking?"

Systematic Tinkering

"Now that I've seen a pattern, let me keep trying..."

Pattern Sniffing/ Observations

"Hmmm... I notice..."

"I wonder if..."

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C. Charney and J. Maxfield

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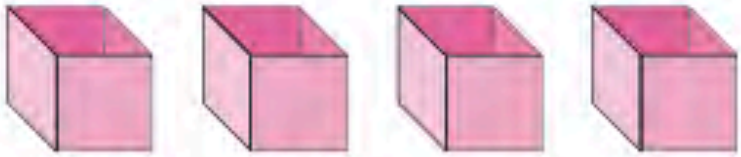
Think and Solve

There is a total of 20 counters in the four boxes.
Use the clues to calculate how many are in each box.

Clues

- Box A has twice as many counters as Box B.
- Box C has 2 more counters than Box B.
- Box D has 2 fewer counters than Box B.



Box A **Box B** **Box C** **Box D**

Box A has _____ counters

Box B has _____ counters

Box C has _____ counters

Box D has _____ counters

Words at Work

Write in words how you would solve this problem.

A factory produces 1,000 cans of beans each hour. The packing boxes hold 7 rows of 5 cans. How many full boxes of cans can be packed each hour?

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