



TEACHITIVITY TECHNIQUES for MATH INSTRUCTION

Indian Community School & Mathematize, Inc.

Wisconsin Indian Education Association
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J-FACTOR (Doug Lemov)

- ▶ Adding Joy Factor to mathematical tasks and problems will increase **engagement** dramatically

IDEAS FOR ADDING J-FACTOR

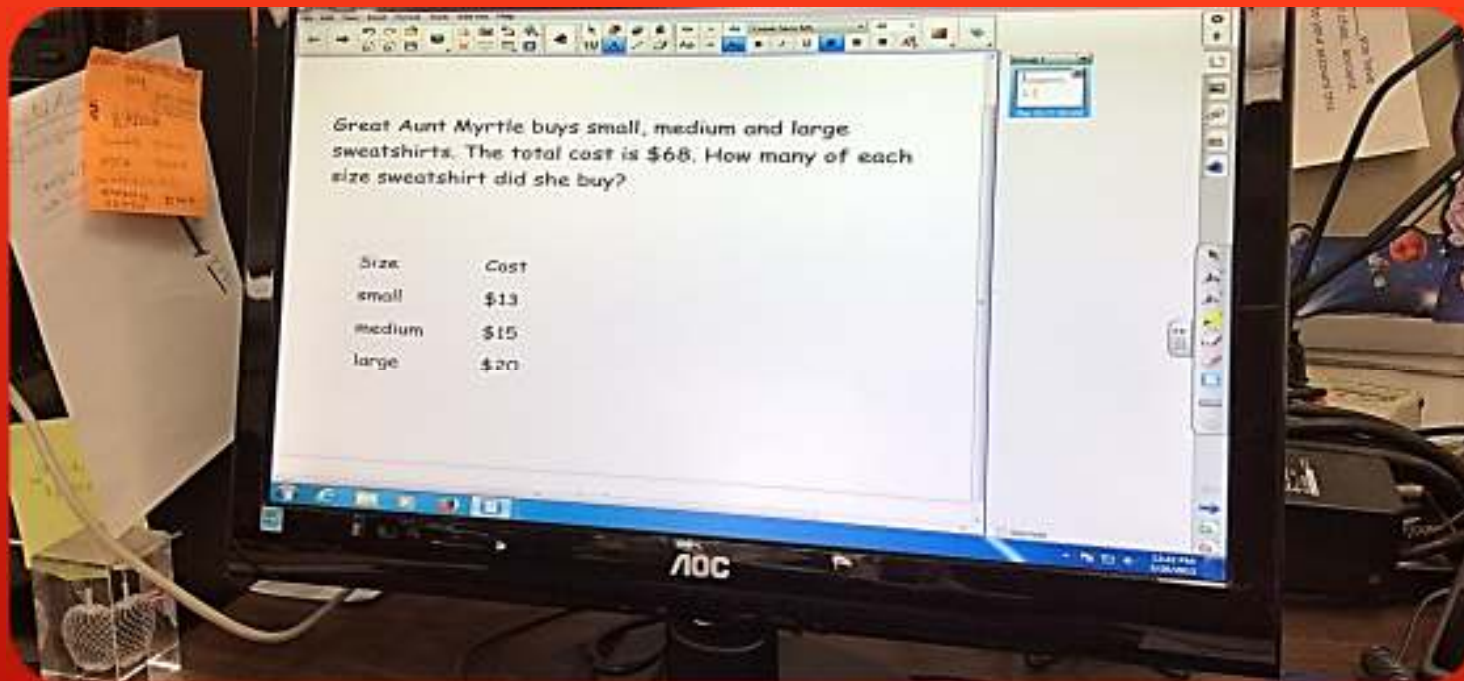
Use children's **names** in problems

Show **pictures** or **videos**

Use a **familiar** theme

Include **pop culture** references

Create **games** and/or **puzzles**



PREDICTIONARY



CHILDREN LOVE TO GUESS!

Use children's innate sense of wonder to frame mathematical problems and tasks

Predict the answer!

A family of 42 rented 17 cabins aboard the new Epic Cruise Ship. How many family members can fit 2-to-a-cabin and how many will have squeeze 3-to-a-cabin?



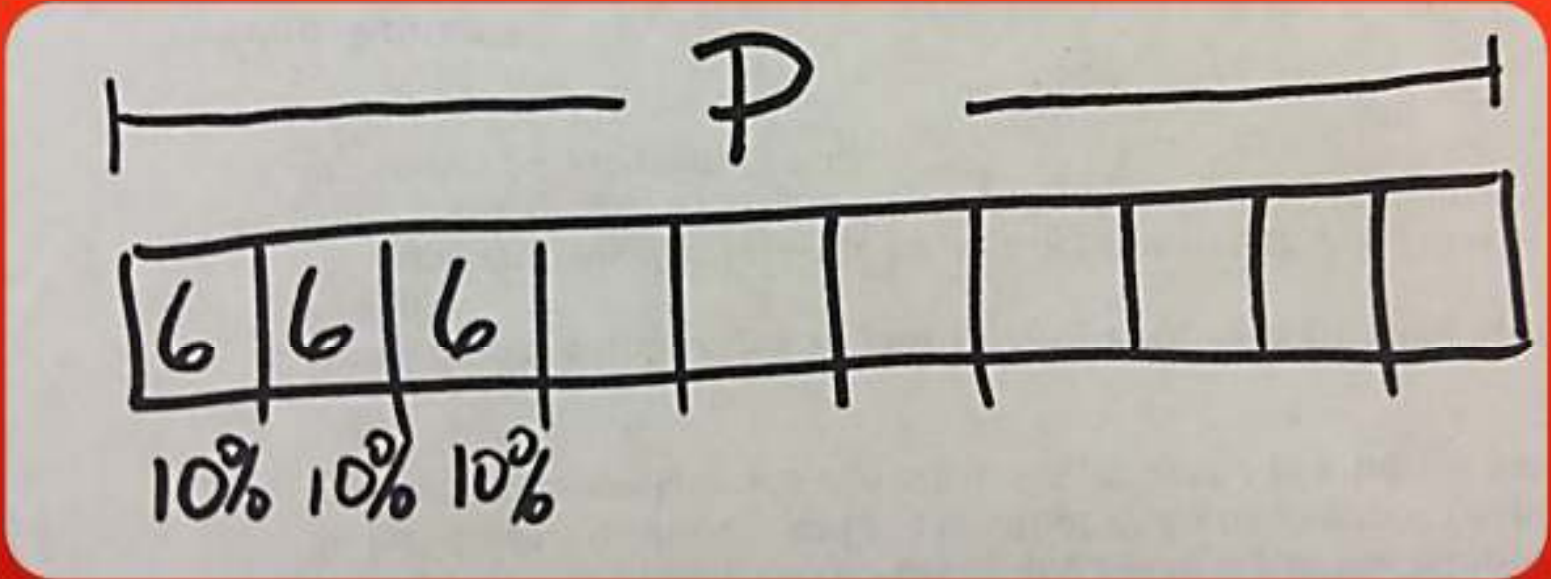
RANDOMOSITY



- ▶ Small groups can be challenging, but adding a bit of randomness to the process can create accountability. Random selection creates an atmosphere for sharing and discourse.

COOPERATIVE GROUPS ADD ACCOUNTABILITY

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10% 10% 10%
ETCH-THE-SKETCH



THE CRUISE PROBLEM

CHALLENGE: SOLVE IT ANOTHER WAY





MATH WALK

- ▶ Sharing math work increases flexibility in reasoning. Children can explain their own thinking, but explaining someone else's will increase divergent thinking

FIND A SOLUTION YOU LIKE



LIFE LINE



- ▶ Encourage students to help each other when verbalizing reasoning. This famous strategy reinforces problem solving and helps students avoid teacher dependence. It also encourages children to work cooperatively

LIFE LINE

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SAY IT AGAIN SAM

- ▶ Reiterating and re-voicing create flexible thinking. Using language to articulate mathematical reasoning can be challenging for all students. Reiterating and revoicing each other develops a collective language for the class

SAY IT AGAIN SAM

- ▶ Tally vocabulary usage. Children love games, and challenges. Challenge them to use as many math words as possible during discourse, and create rewards for certain levels of usage.

WORDS WITH CLASS

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$18 - 6 = 12$ ✓
 $12 - 6 = 6$ ✓
 $6 - 6 = 0$ ✓ } 3 steps

$8 = \boxed{4}$ Use a multiplication chart to find missing factor

Known factor: 8
 Missing factor: 4

	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50

Multiplication chart showing a "second step" from 4 to 8 and a "first step" from 8 to 32.


How many animals are there? 123

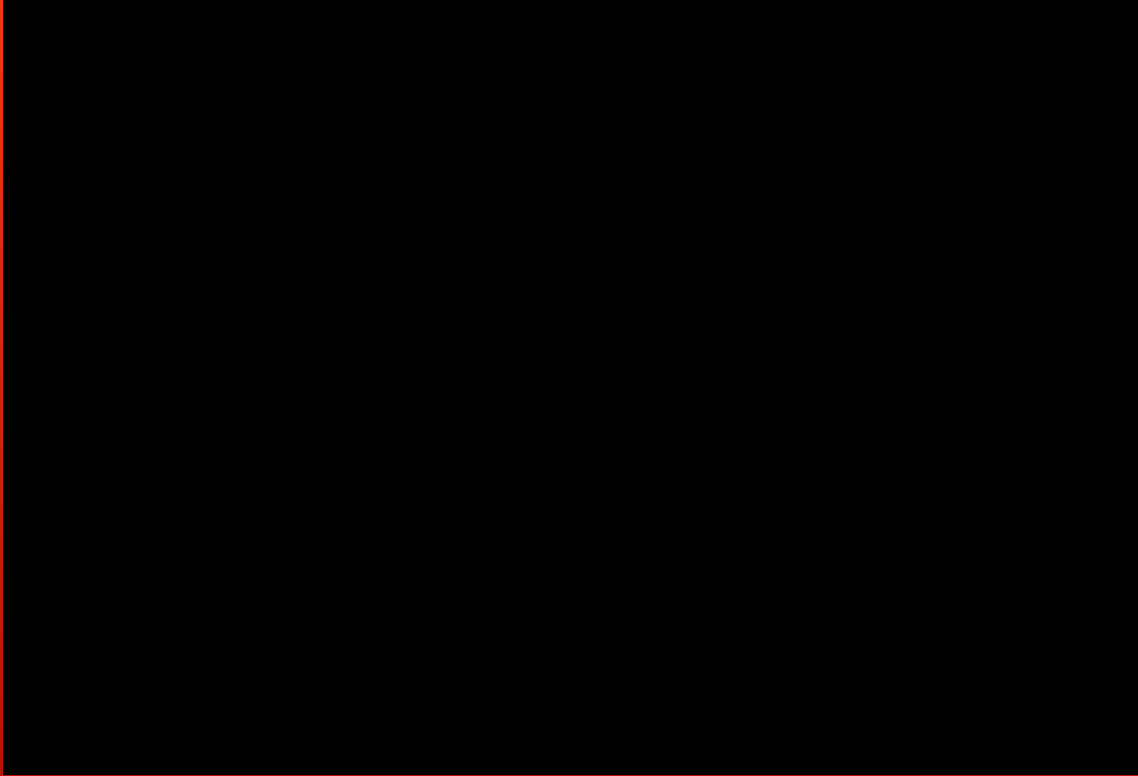
Sophia

$8 \times 12 = 96$
 $8 \times 13 = 104$
 $8 \times 14 = 112$
 $8 \times 15 = 120$
 $8 \times 16 = 128$

Division: $8 \overline{)125}$
 $\underline{-96}$
 32
 $\underline{-32}$
 0

NOTATION STATION

- ▶ Notating mathematical thought helps children communicate reasoning in a concrete manner. It also increases the opportunity to show connections in reasoning, which fosters and promotes creative intelligence.
- 



CAPTURE NOAH'S THINKING





DAY COURT

- ▶ Debate is the highest form of discourse in a classroom. Creating intentional debate forces children to form coherent arguments, prove their thinking, and articulate reasoning.

DEVELOPING DISCOURSE THROUGH DEBATE

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DAY COURT

- ▶ If a solid understanding of standards is the “what” of a coach’s job, the “how” of working with teachers to implement standards-based instruction is how best to be an effective coach.

TIPS FOR EDUCATORS ON COACHING



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