

A photograph of a desk with a calculator, a pen, and a mouse on papers. The calculator is a TI-84 Plus CE, the pen is a Pentel EnerGel Ultra, and the mouse is a Logitech M3. The background is a wooden desk with several sheets of white paper.

Real World Math

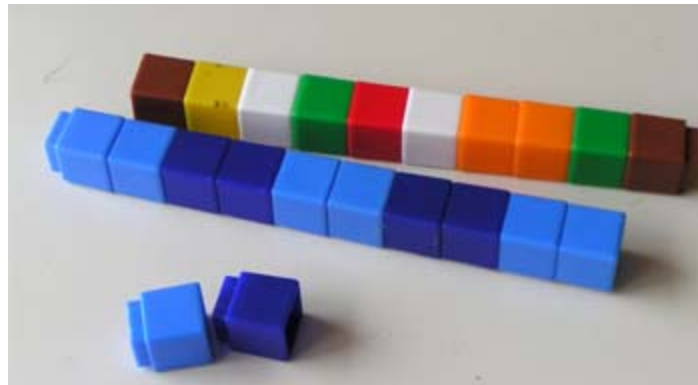
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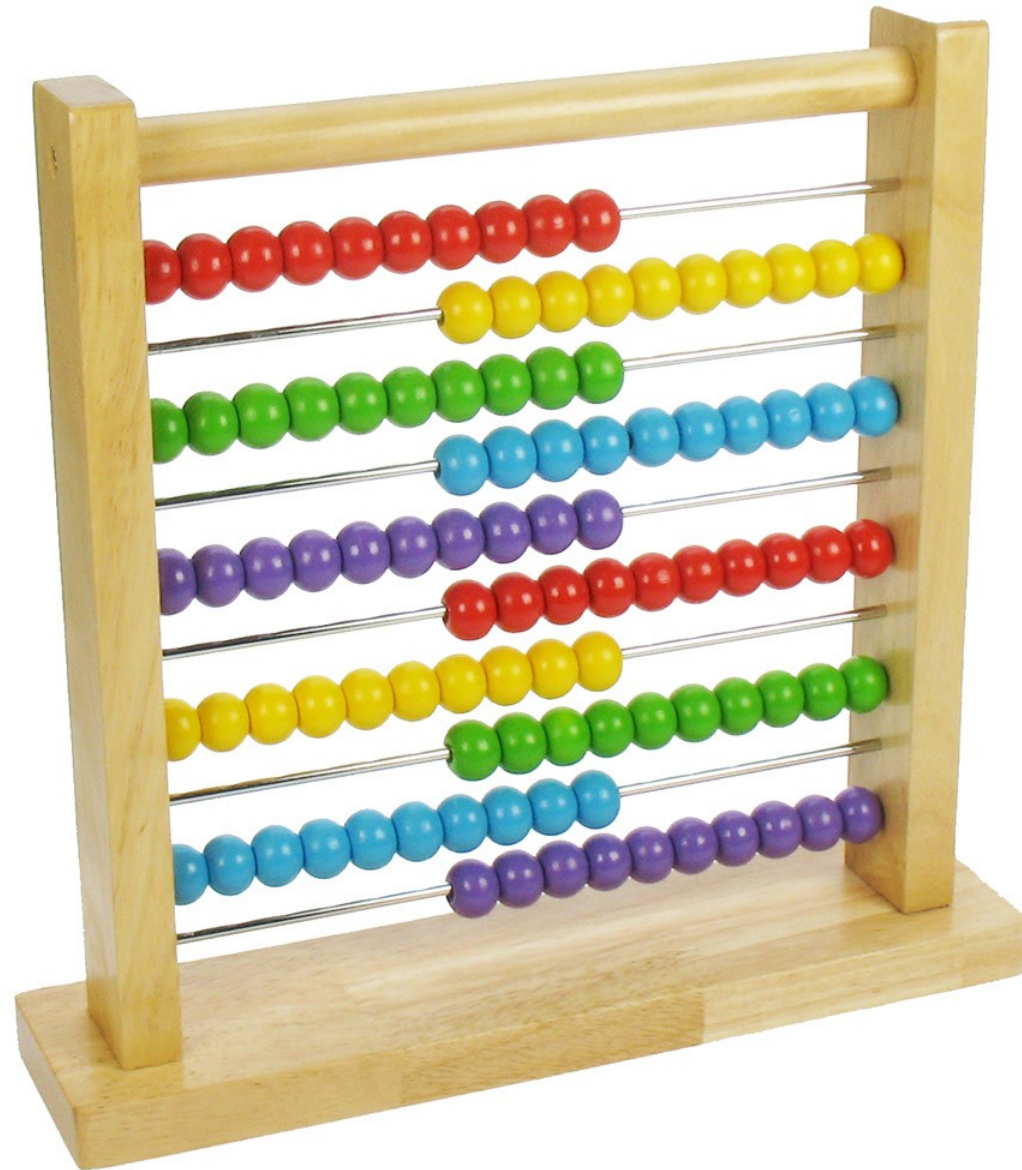
Generally accepted that real world situations can be useful for contextualizing students' mathematical activity.

Reminds me of another reform
movement

Math learning is hands-on!

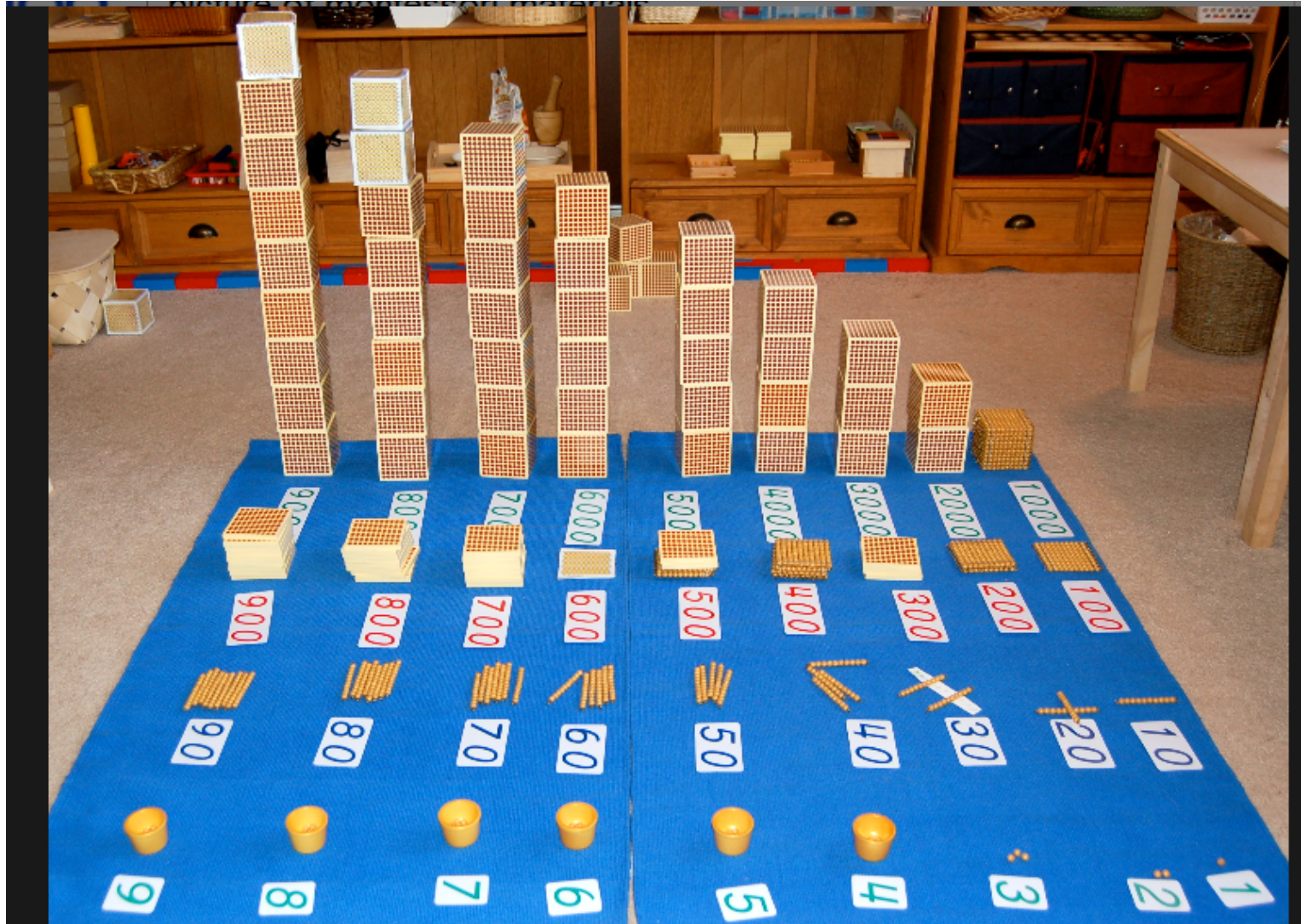


Math learning should be
hands-on



Hundreds Board

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Warning: Manipulatives don't always work!

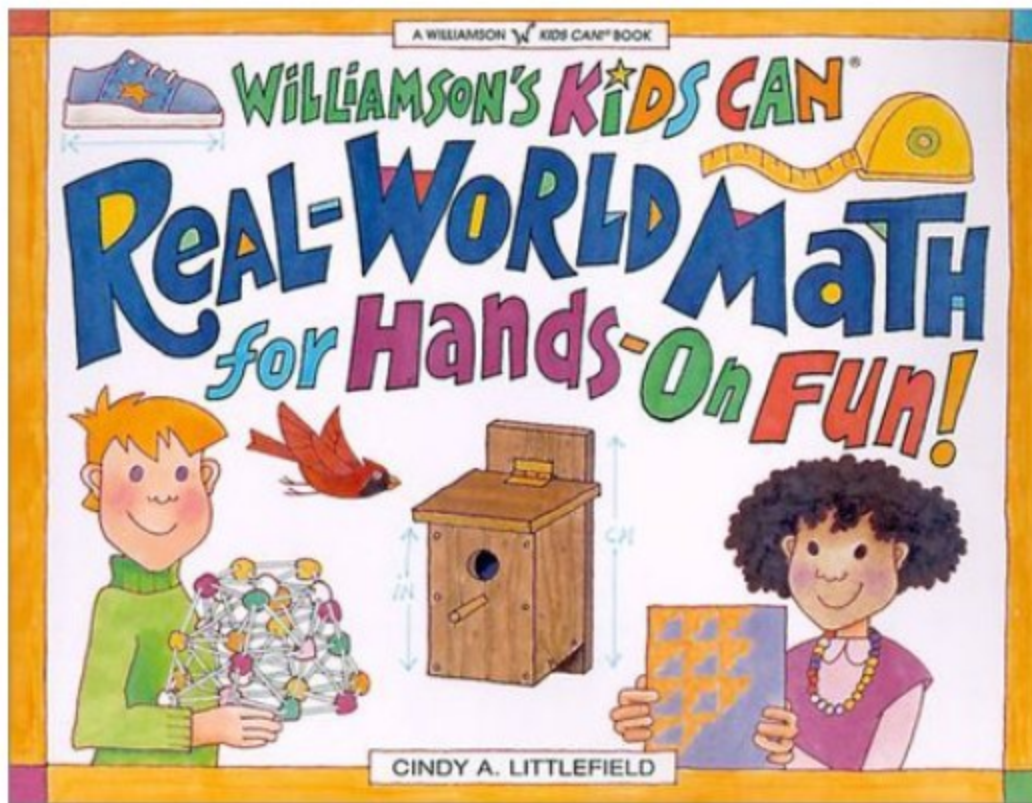
- Representational view of mind (Cobb)
- Right manipulative with correct use (Thompson)
- Must allow students to move to abstract

Math learning should be real world

“instruction that features the use of ‘real-world’ contexts has a positive impact on certain types of problem solving”

page 49 National Math Advisory Panel

Everyone's getting into the game



BASIC COLLEGE MATHEMATICS *A Real-World Approach*



Cover Image



IGNACIO BELLO

Second Edition

REAL WORLD MATH: SPORTS

BASEBALL



Primary Saxon Math K-4

A Balanced approach with manipulative opportunities and guided instruction

Students move from the concrete to the pictorial to the abstract

Saxon Math 2 Lesson 75-2 Problem of the Day

On Monday, Nancy gave her cat 10 cat treats. Each day she gave the cat one fewer cat treat. How many treats will she give her cat on Wednesday?

How does this translate into the public eye?

- http://www.youtube.com/watch?v=4MVDMNKIsfM&feature=player_embedded

If everyone is using it, we need to question it.

- Are all real-world contexts useful in mathematics?
- What are the criteria for choosing effective contexts?
- What role should contexts play in students' learning?
- Is it just the context?

Realistic Mathematics Education (RME)

Three Criteria for effective contexts:

1. Should be experientially real for students.
2. Should allow for students to create personally-meaningful models of their activity.
3. Should be didactically rich contexts.

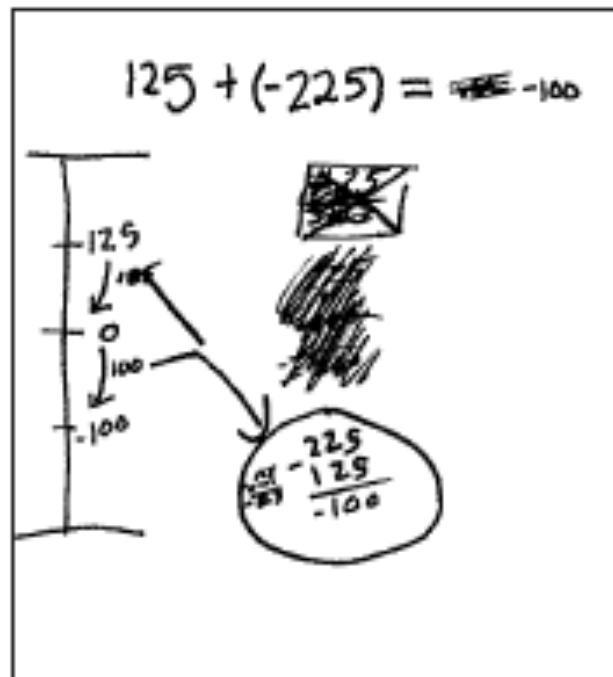
Criterion One

Should be experientially real for students

Net Worth Statement	
Client Name	
Cash Assets	Current Value
Cash Bank Accounts	
Money Market Accounts	
Other Cash	
Investments	
Bonds	
Stocks	
Mutual Funds	
Annuities	
IRAs	
Retirement Plans	
Real Estate	
Other Investments	
Personal Assets	
Household Contents	
Primary Residence	
Automobiles	
Other	
Total Assets	
Debts	
Mortgages	
Personal or Business Loans	
Automobile Loans	
Credit Cards/Charge Accounts	
Other Debts	
Total Debts	
Net Worth	

Criterion Two

Should allow for students to create personally meaningful models of their activity.



Criterion Three

Context should be didactically rich and mathematizable.

~~-100 - (-200) debt take away an debt~~
-100 - (-200) net worth take away a debt

How do you choose contexts?

- History of the development of the concept
- Current events/contexts
- Students' everyday lives
- Research (SDSU Group!)

Conclusions

- Not all contexts are effective (SDSU Group!)
- Not all problems within a context are effective (SDSU Group!)
- Must meet certain criteria, perhaps ones we have yet to discover
- Must be a mechanism to help students build on their real-world mathematizations to abstract