What Clicks? Why Click?

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What are the big problems in Basic Math Skills class?
- PEDMSA or PEMDAS
- Fraction operations (+, −, ×, ÷)
- Decimal division & multiplication
- Ratio, rate, and proportion
- Bermuda triangle & percent, decimal & fraction
- Solving proportion problems by cross-multiplication (IS/OF = PERCENT/100) or the percent equation (amount = % * base)
- 1-D, 2-D, and 3-D geometry
- Signed number operations (+, −, ×, ÷)

Challenges?
- Why do I need to take this class?
- Why can’t I use a calculator?
- Why do I need to learn all these?
- Why 2009?

Who Clicks?
Students

Teaching Techniques

What is the Clicker Teaching Technique (CT²)?
- After each basic math skill is lectured, Clicker Questions (CQs), in the form of multiple-choice, are quizzed, submitted, and discussed.
- An appropriate amount of time is applied on each CQ according to the 30%-70% rule.
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What are the **strengths** of the CT²?
- Instant feedback on skills just lectured
- One-to-one tutoring time during CQ session
- Real-time learning right in the classroom!

What are the **pitfalls** of the CT²?
- Cost to students (approx. $25 ~ $45 each)
- Preparation time for lecture notes PLUS appropriate numbers and types of Clicker Questions

How do you know when learning has taken place?
"... the best teachers believe that learning involves both personal and intellectual development ... People can change, and those changes – not just the accumulation of information – represent true learning."

What the Best College Teachers Do
Ken Bain, Harvard University Press

What to do if …?
• Correct-response percentage is above 70%
  - Spend **less** time when reviewing the problem
  - Pinpoint out the possible mistake

What to do if …?
• Correct-response percentage is below 30%
  - Spend **more** time when reviewing the problem
  - Peer-Instruction
  - Re-Poll
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What to do if …?
- Correct-response percentage is between 30% and 70%?

Q1. Multiply.

1. \[ \frac{5}{7} \times \frac{3}{8} \]
2. \[ \frac{21}{40} \]
3. \[ \frac{8}{15} \]
4. \[ \frac{40}{21} \]

Q2. Determine which equation is a true statement?

1. \[ \frac{12 \div 10}{42 \div 35} \]
2. \[ \frac{1 \div 3}{2 \div 4} \]
3. \[ \frac{10 \div 11}{9 \div 10} \]
4. \[ \frac{48 \div 40}{56 \div 48} \]

Finally, Why Click?
Because it works! … at least for now and active learners!