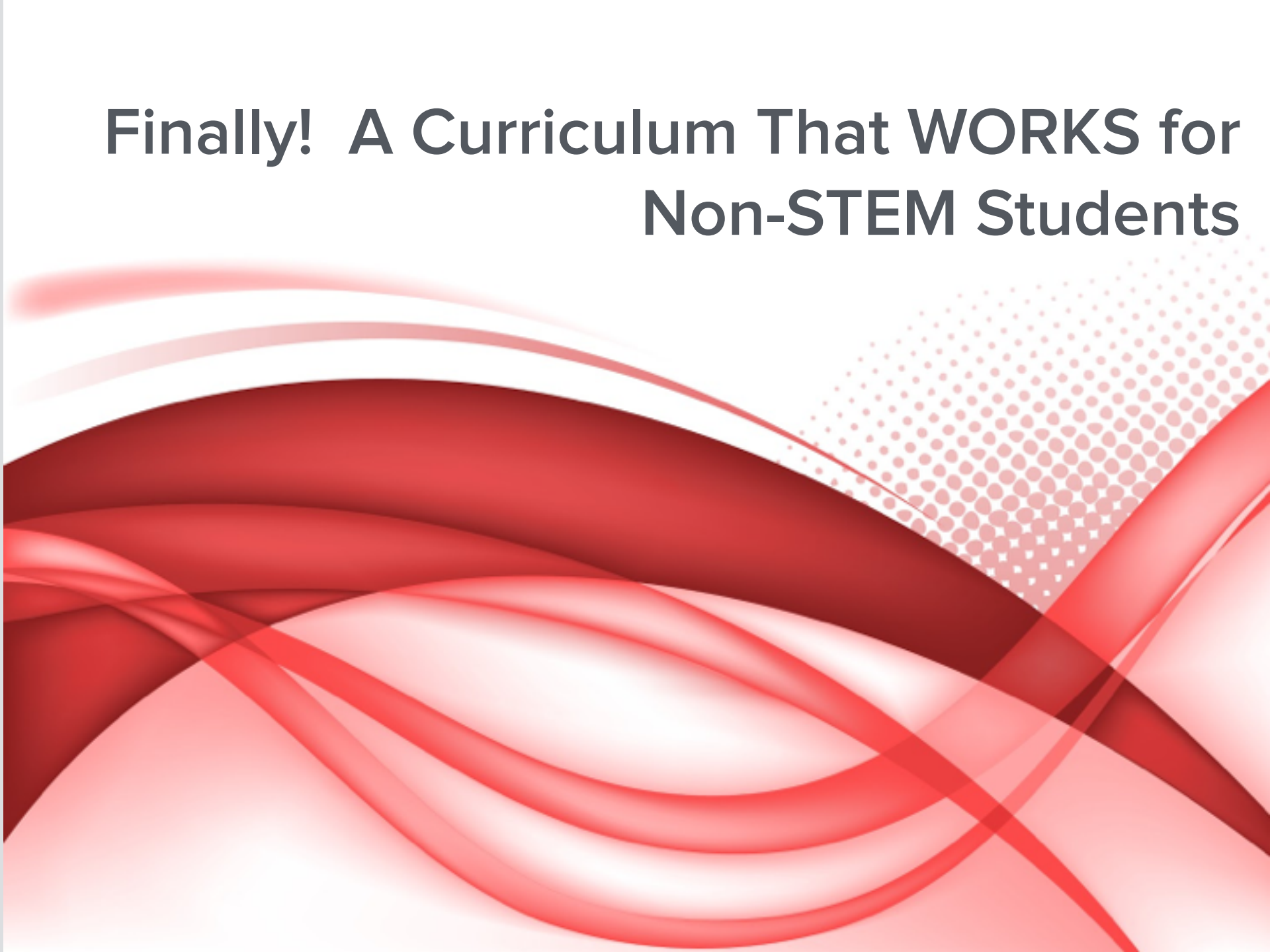
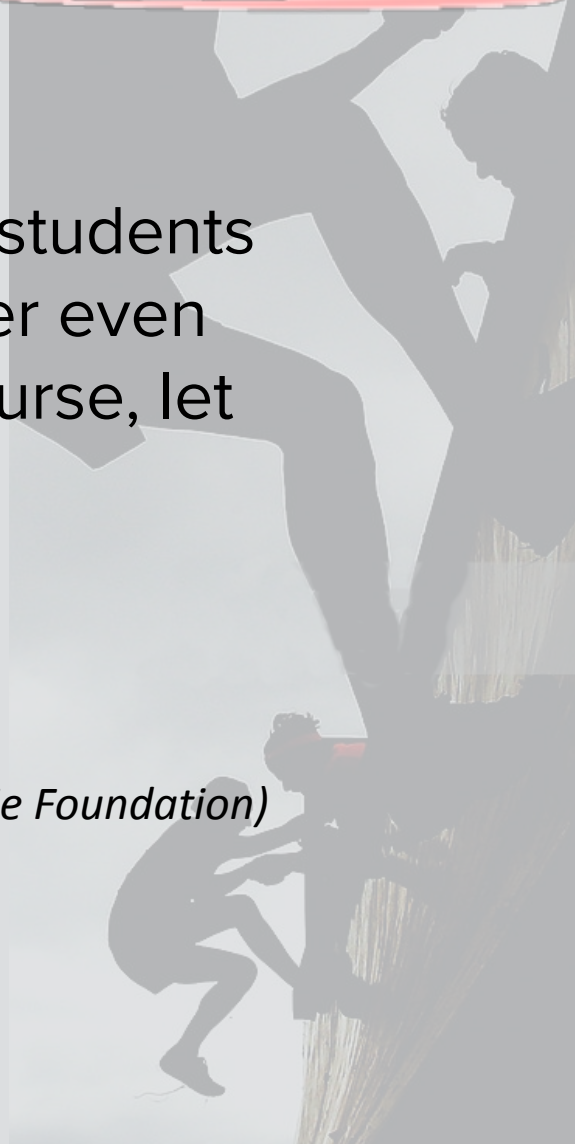
Finally! A Curriculum That WORKS for Non-STEM Students



How to Stop Beating My Head Against the Wall Because it Feels So Good When I Stop

In a typical year, about 4.5 million students begin college; 1.9 million will never even qualify for a college-level math course, let alone pass one.

(Source: Carnegie Foundation)



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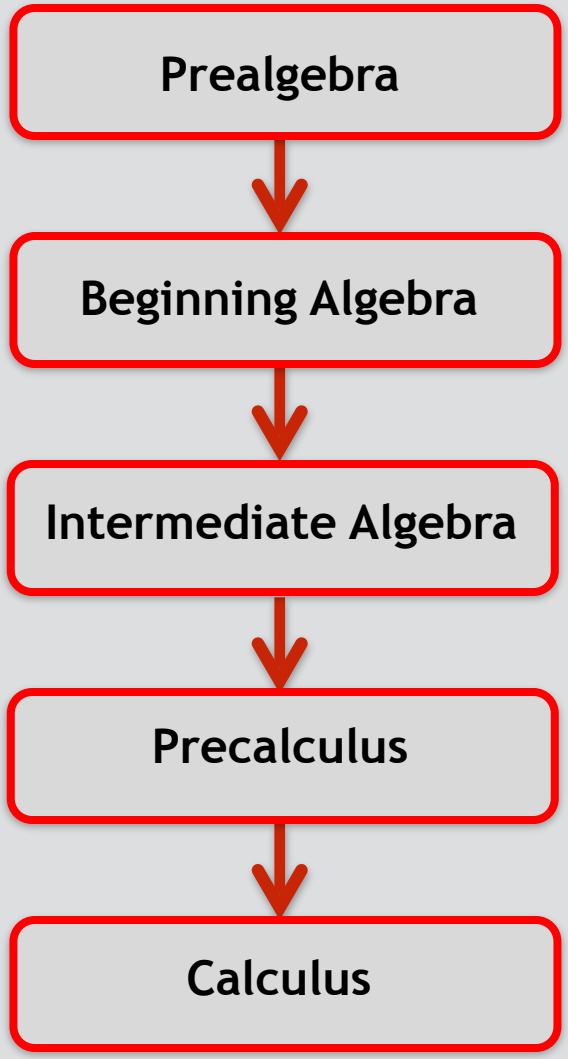
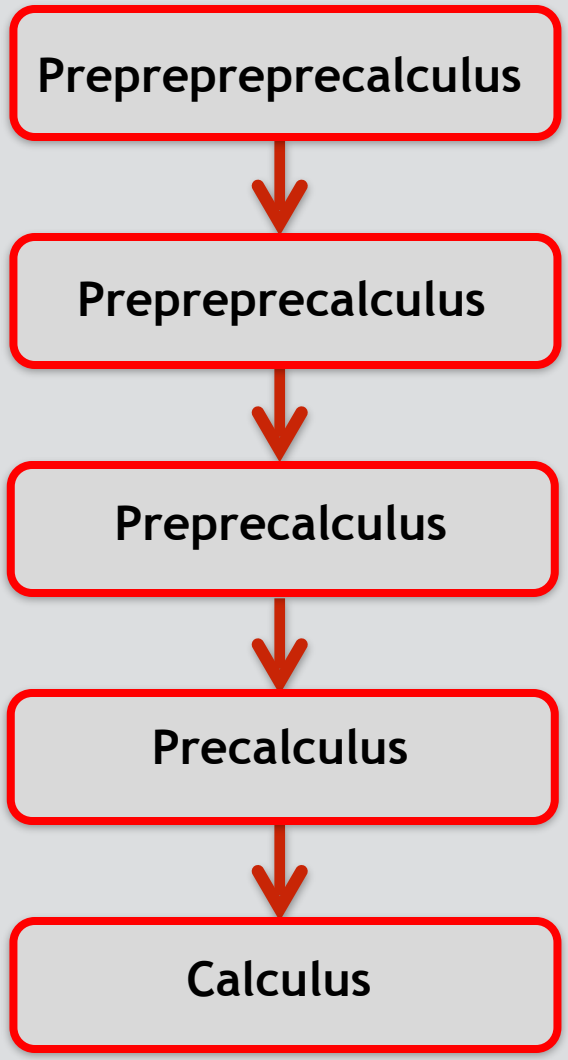
Whatever that means...

(Source: Carnegie Foundation)

A Traditional Math Sequence:



If We're Being Totally Honest...



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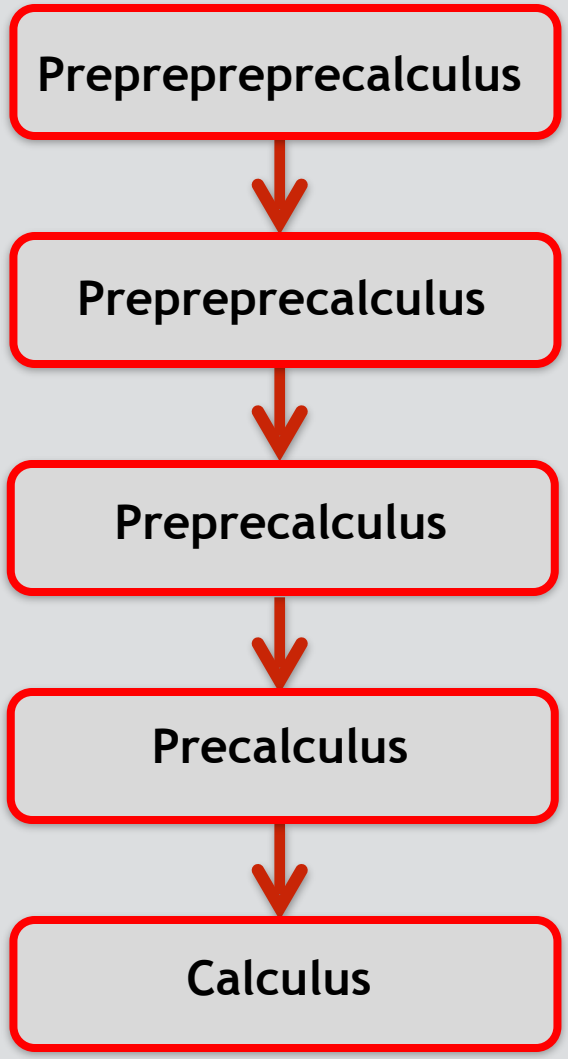
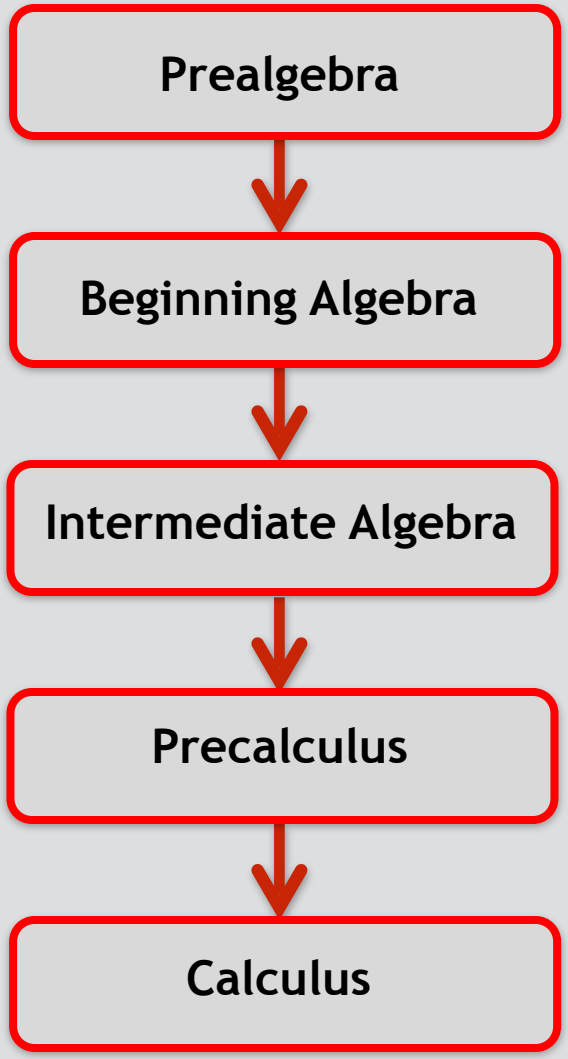


Need

A Somewhat More Modern Math Sequence:



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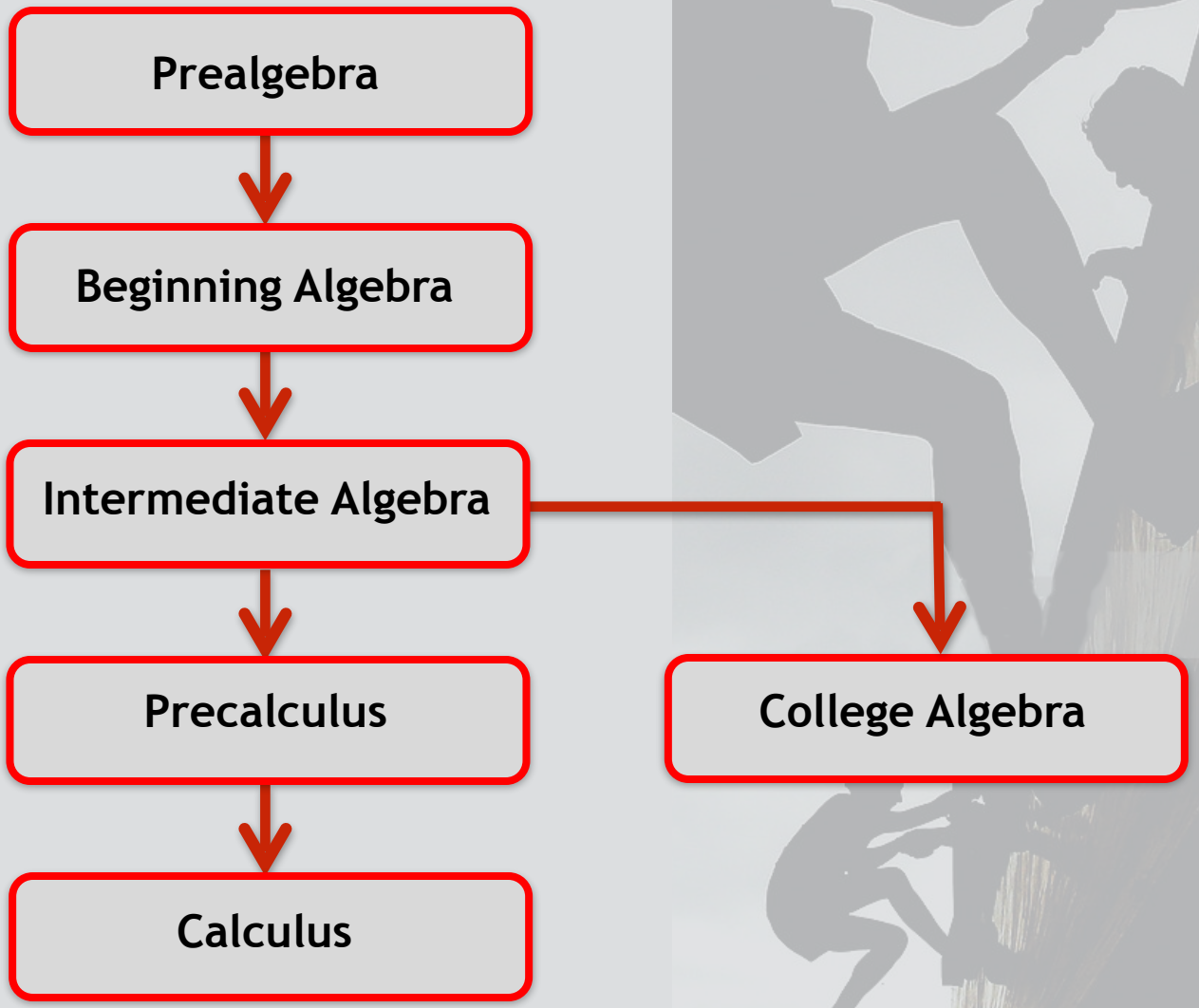

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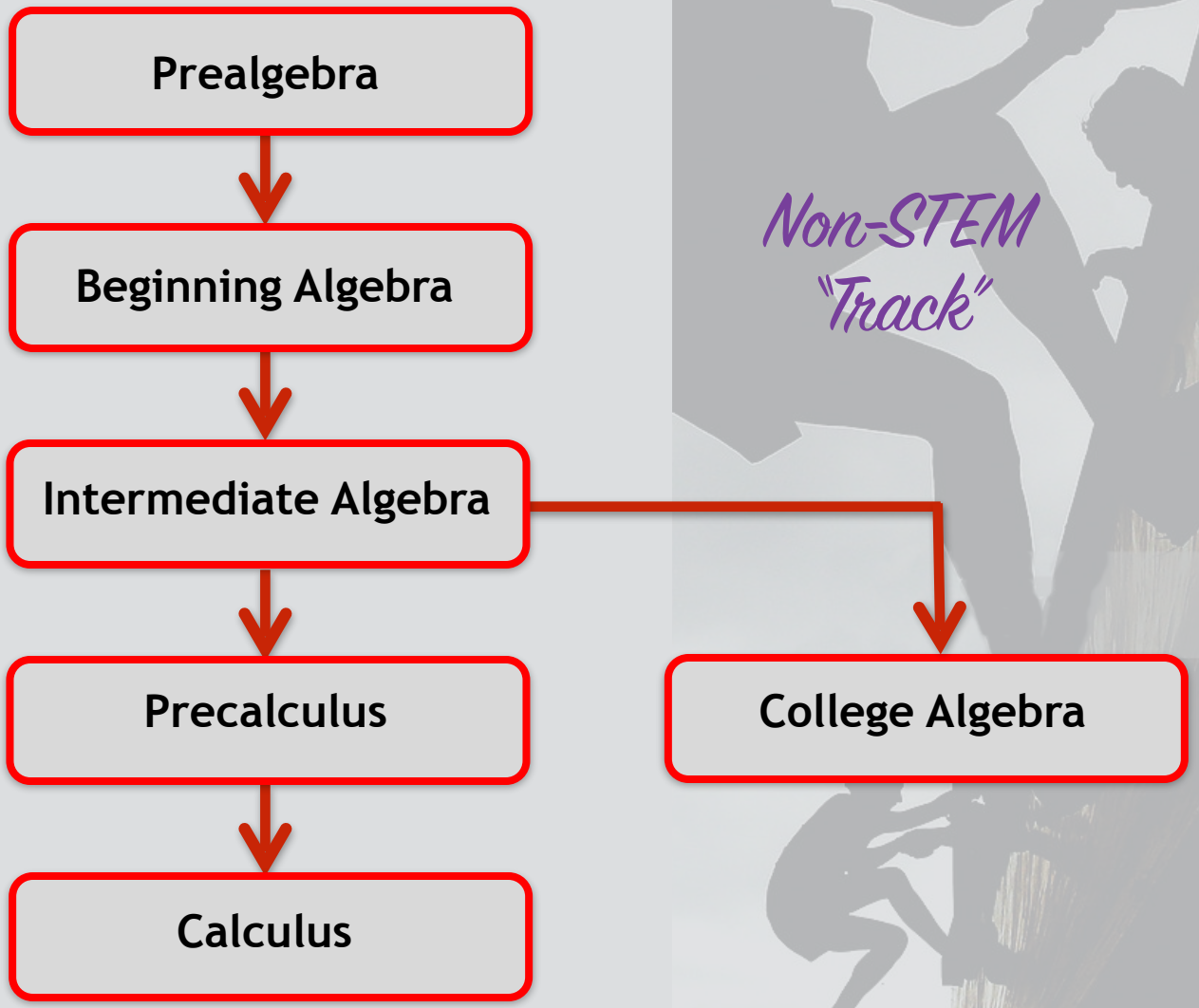

Once Upon a Time...

1. College Algebra

2. Go get a real job

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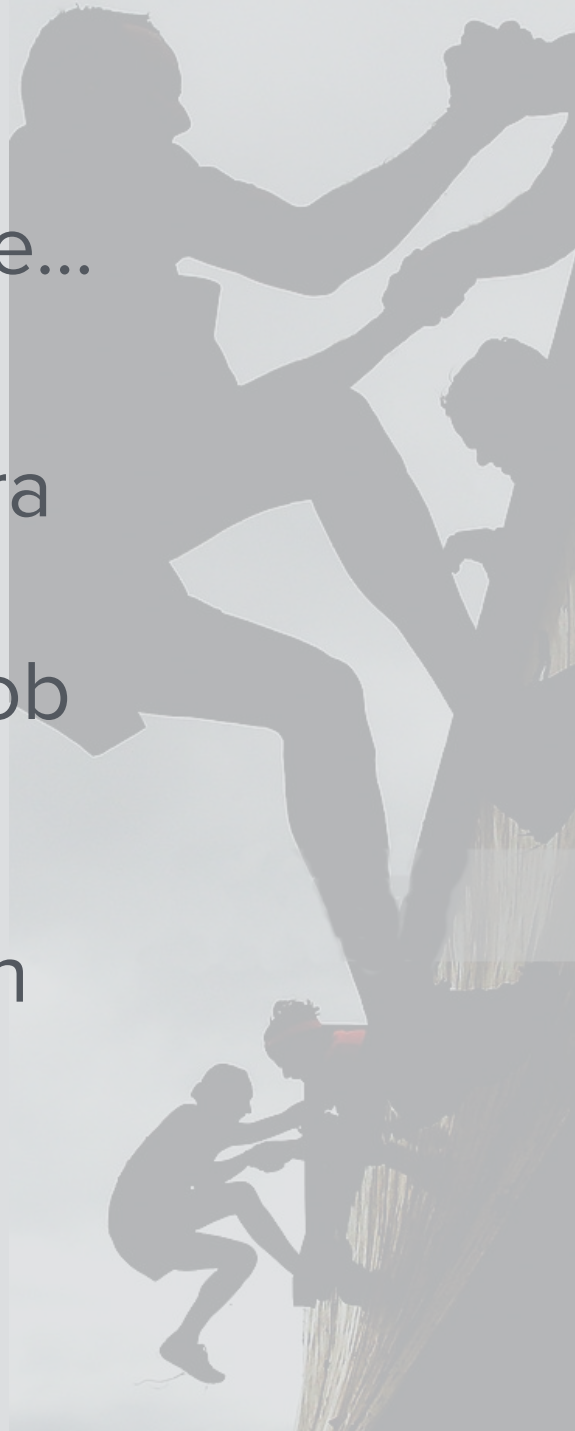
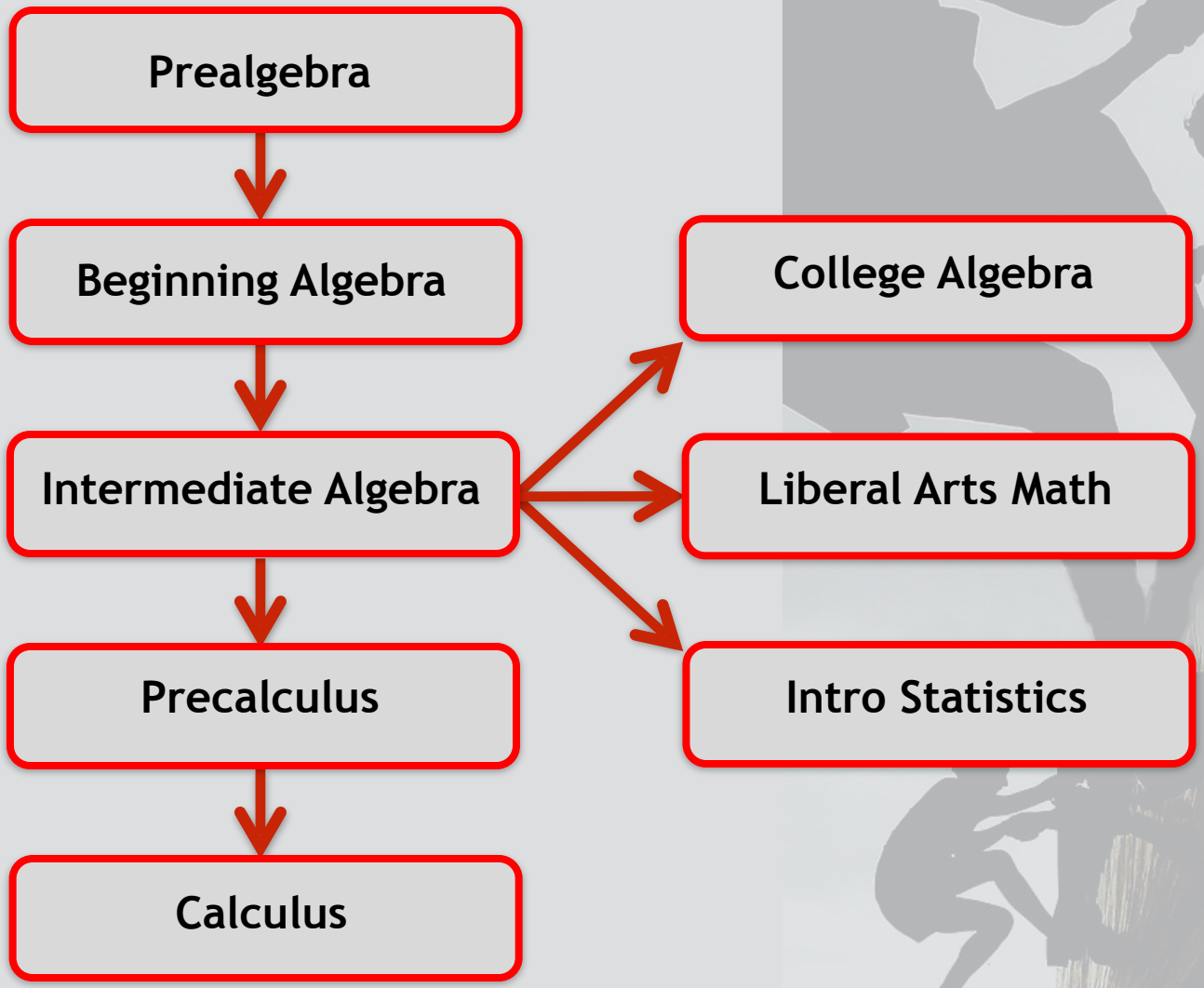
Liberal Arts Math



An Even More Modern Math Curriculum:



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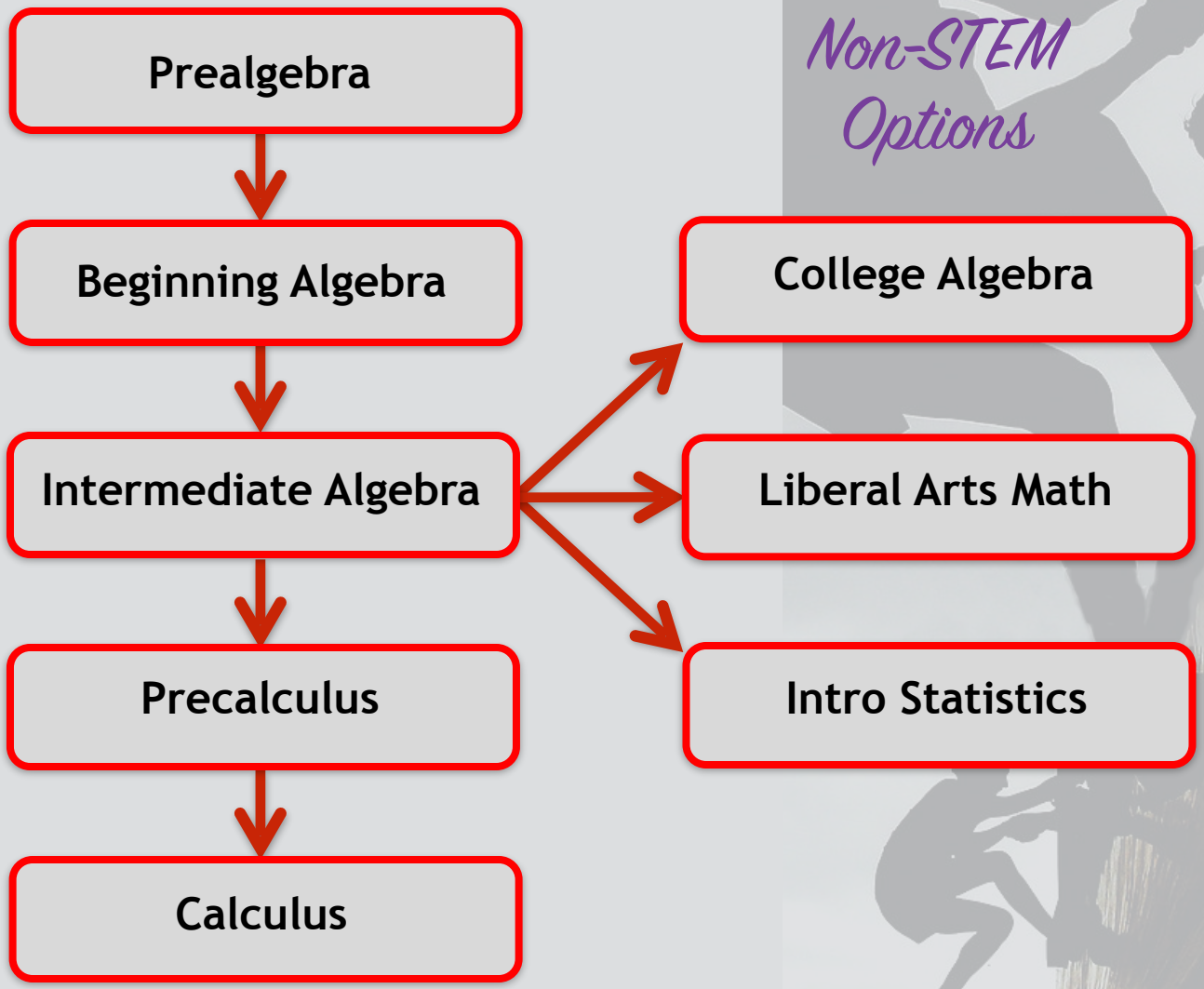

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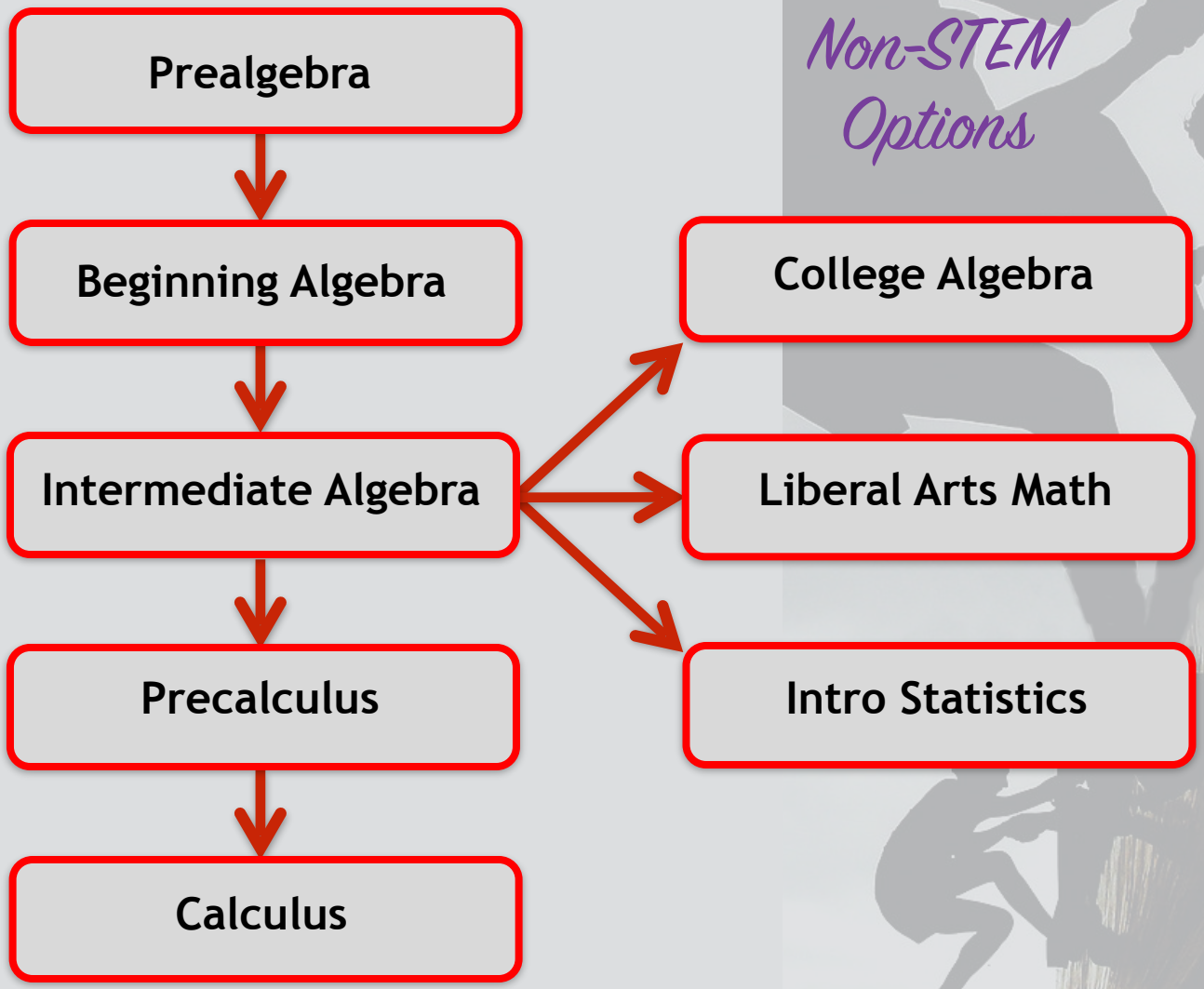

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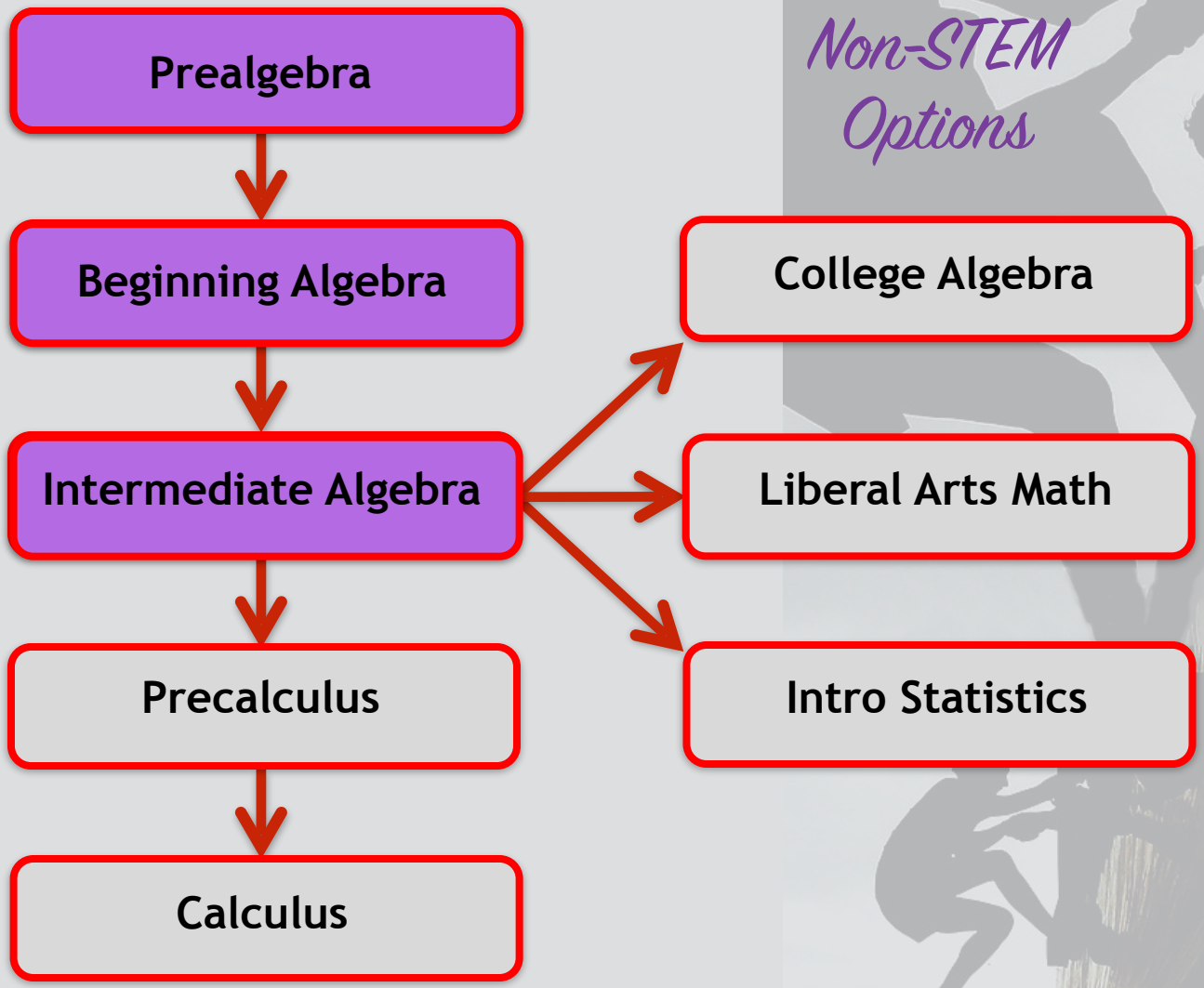

More frightening national numbers:

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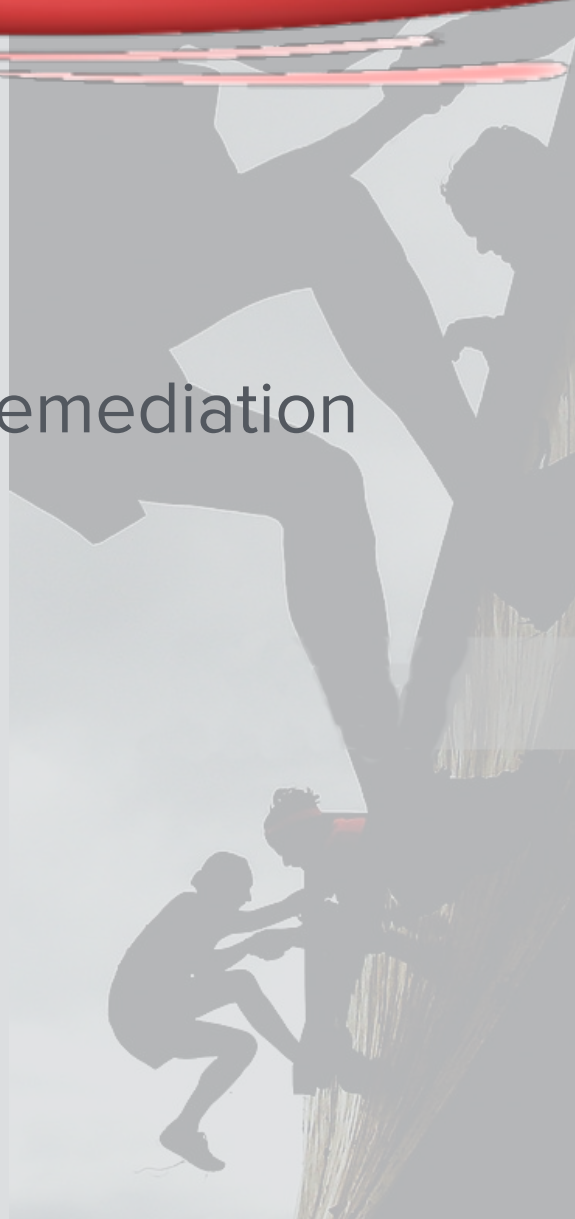
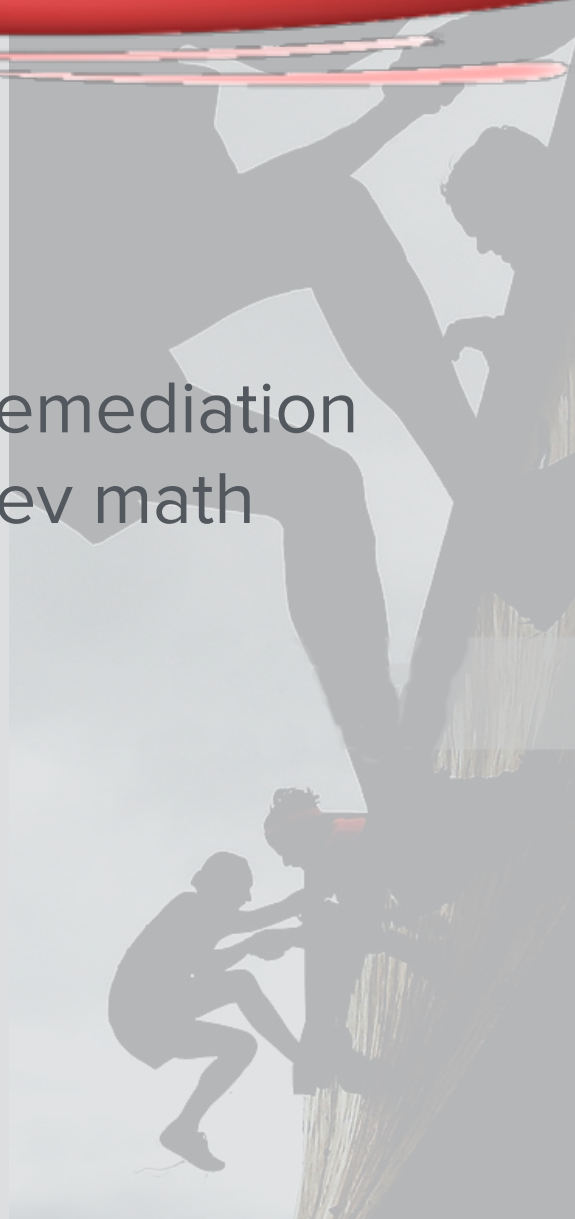


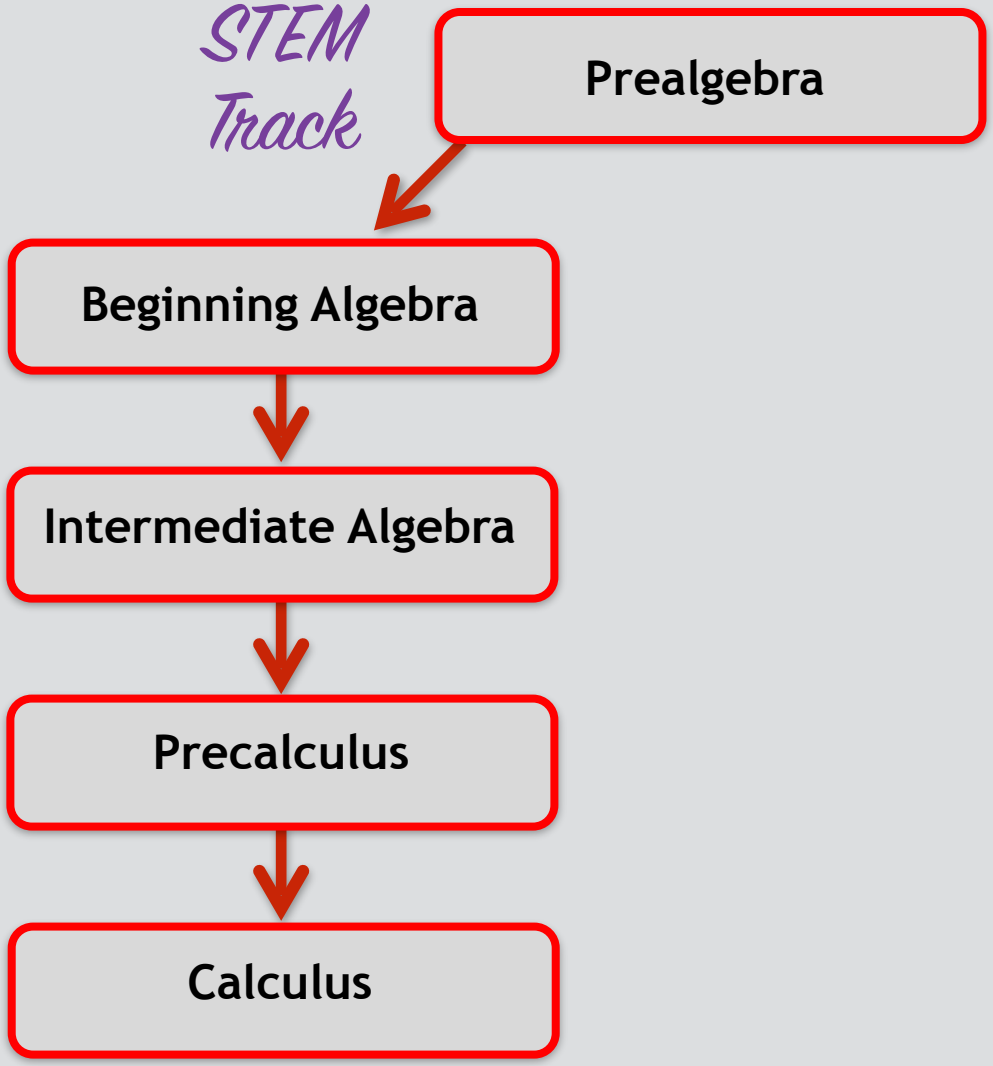
More frightening national numbers:

- 60% of incoming students need remediation
- ≃ 55% pass rates at all levels of dev math



NEED to do better.

A Post-Modern Math Curriculum:



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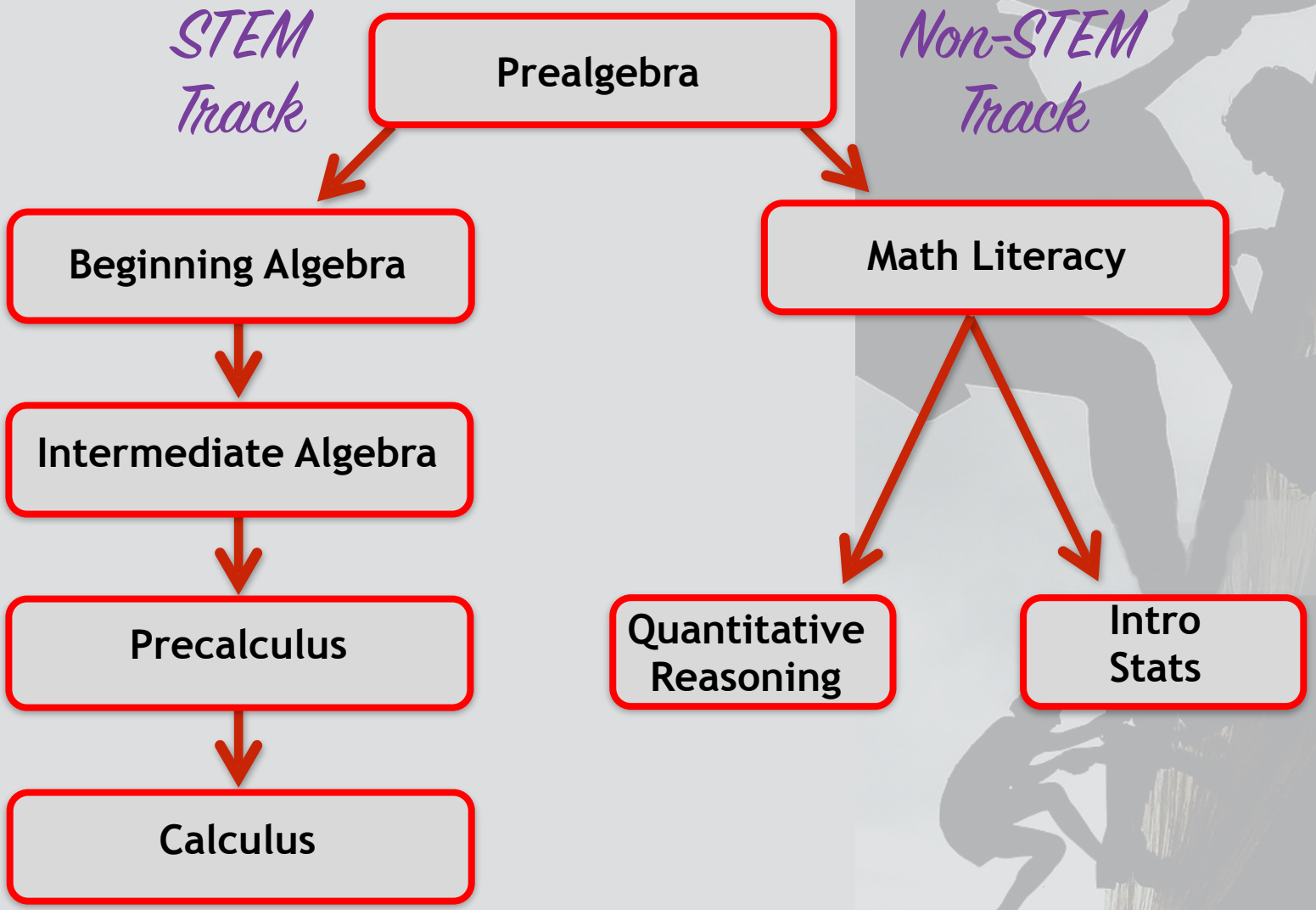

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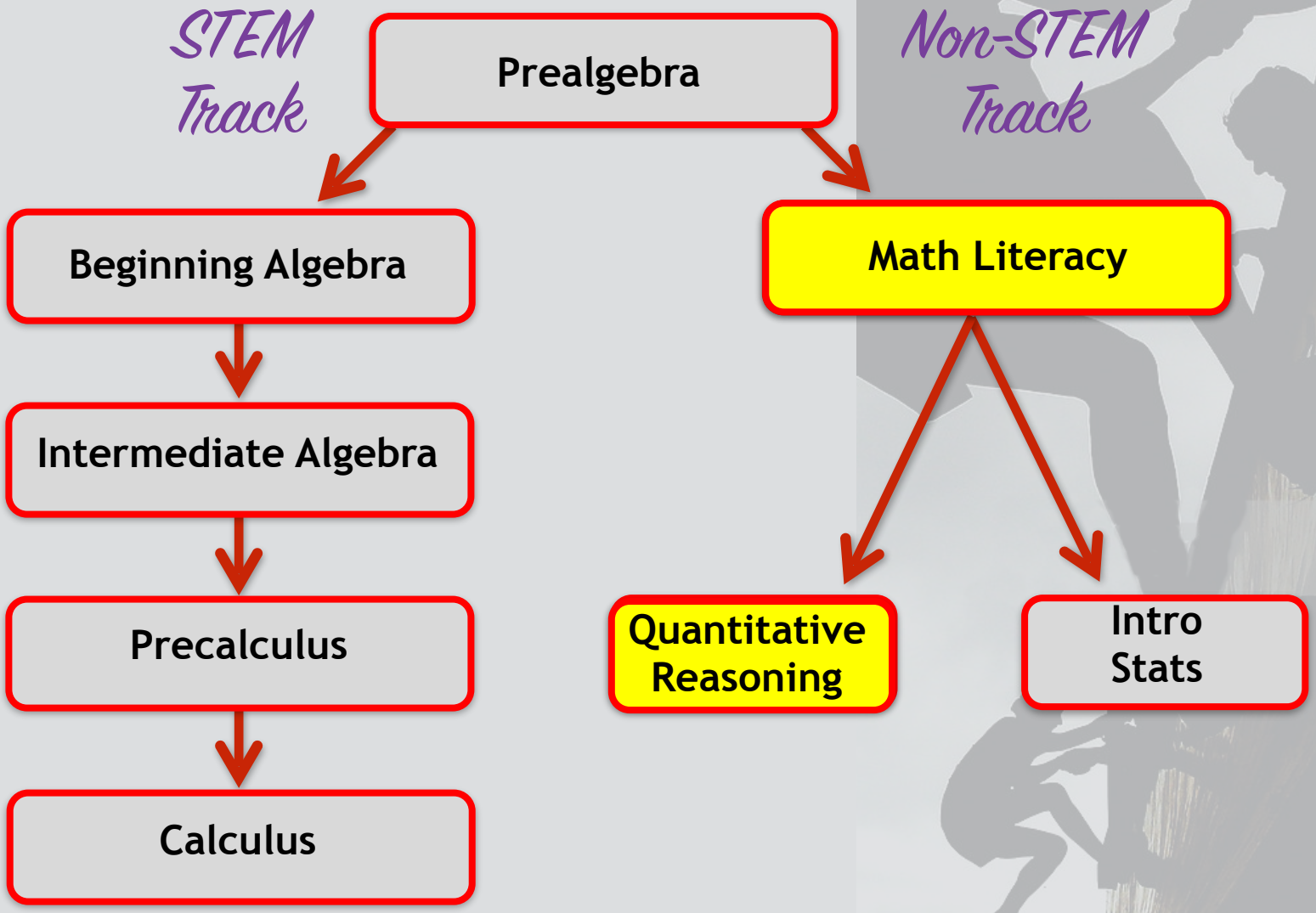

Best things about Math Literacy

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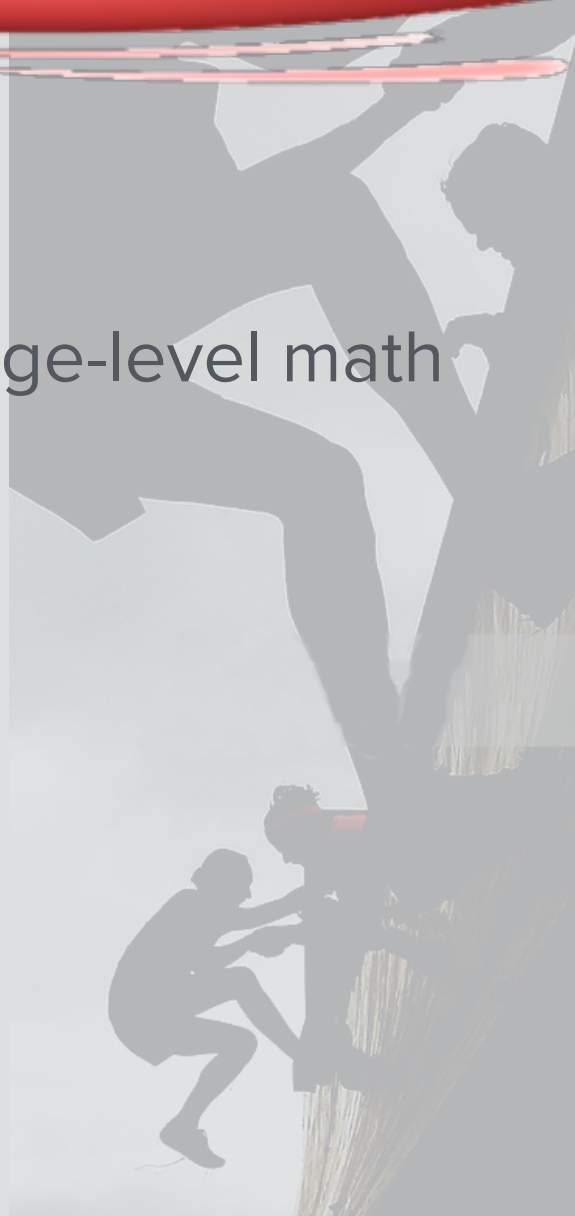

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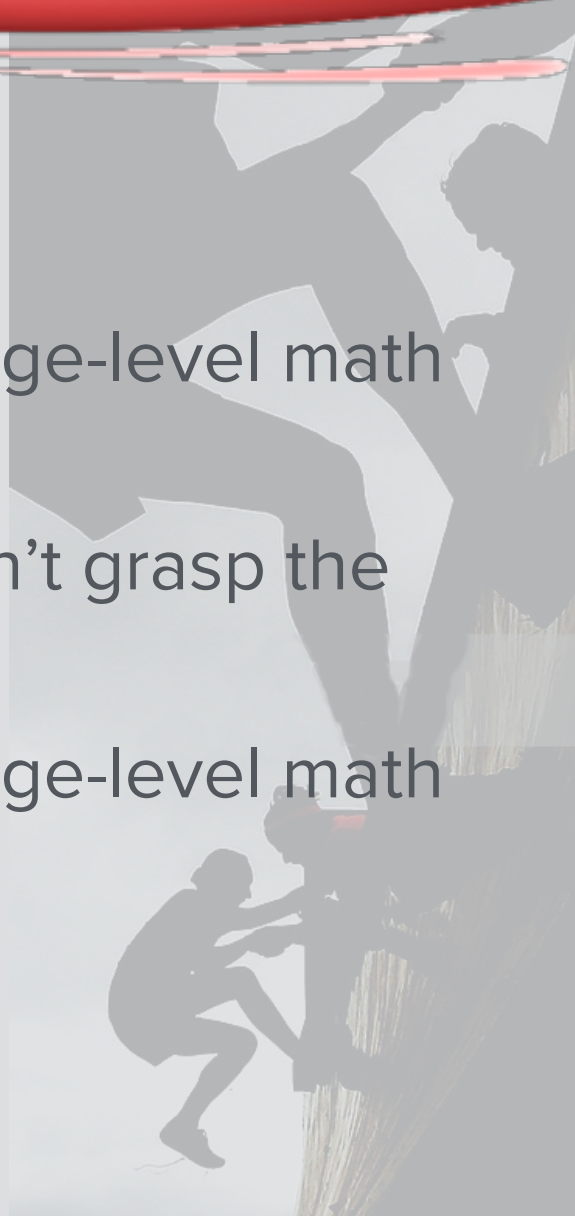

Goals of Math Literacy

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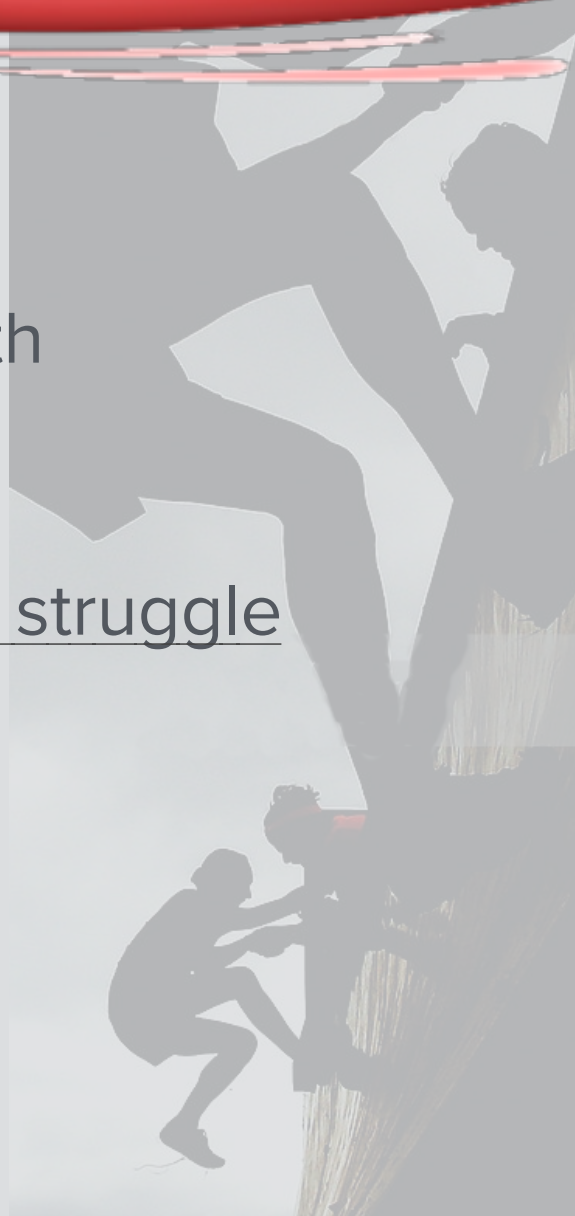

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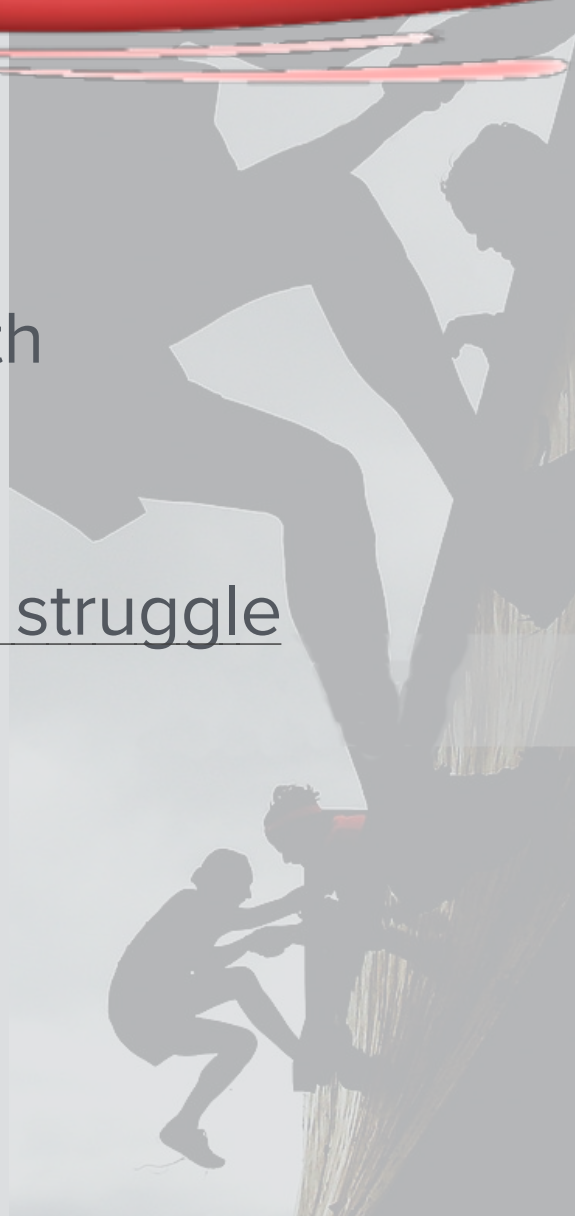

Goals of Math Literacy

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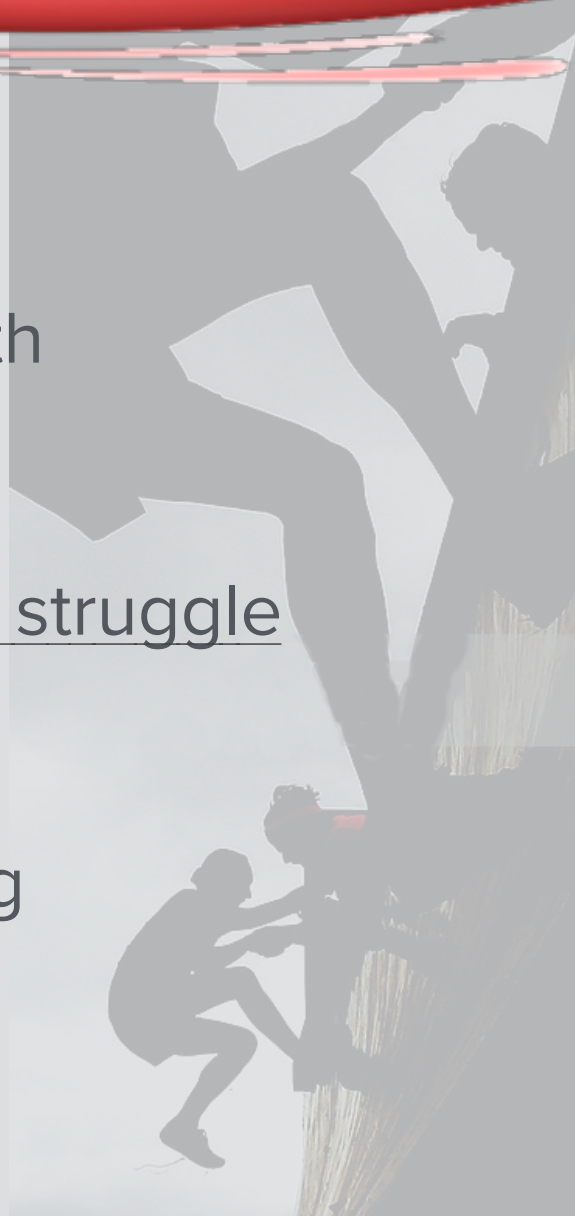
  - Take responsibility for learning



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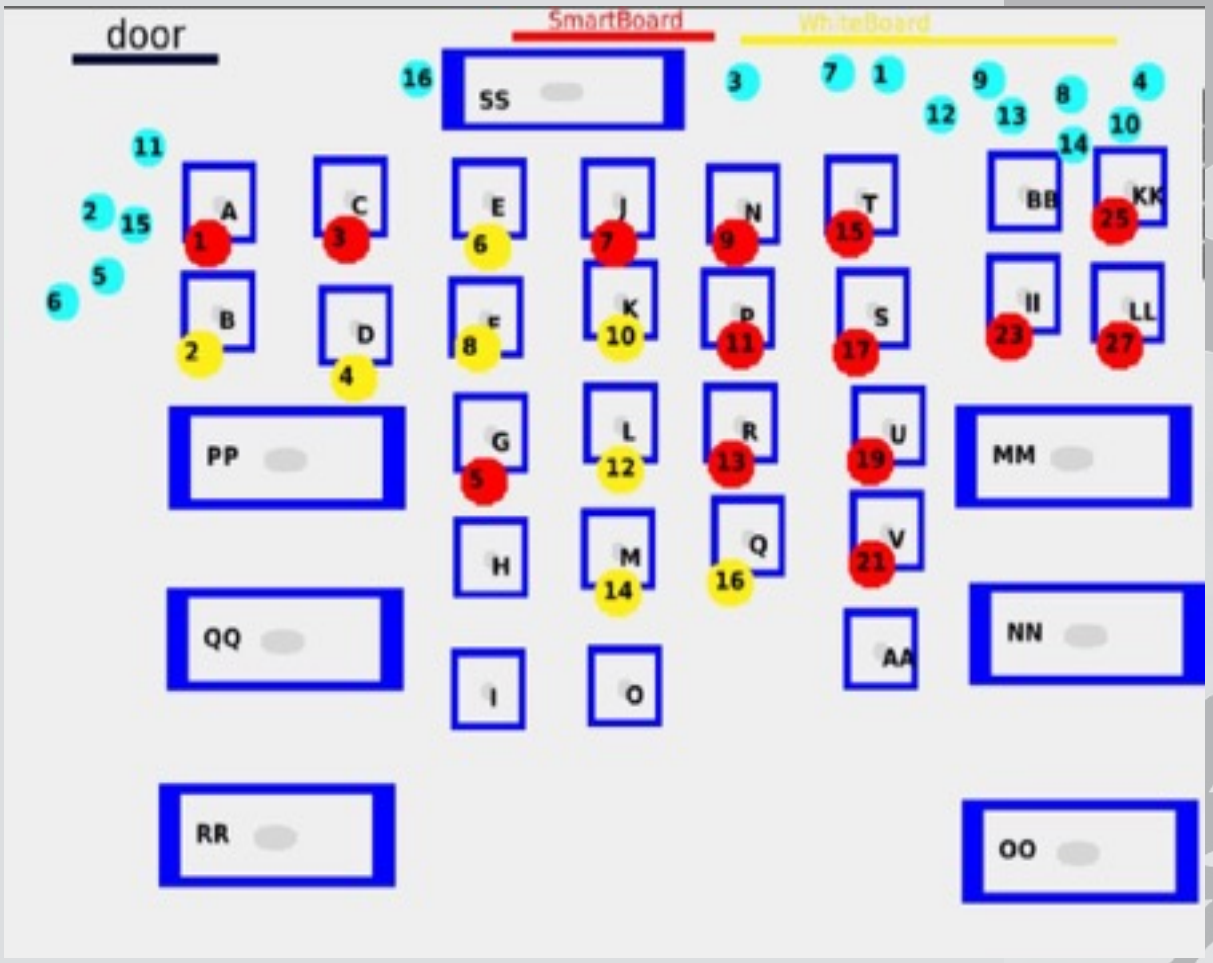
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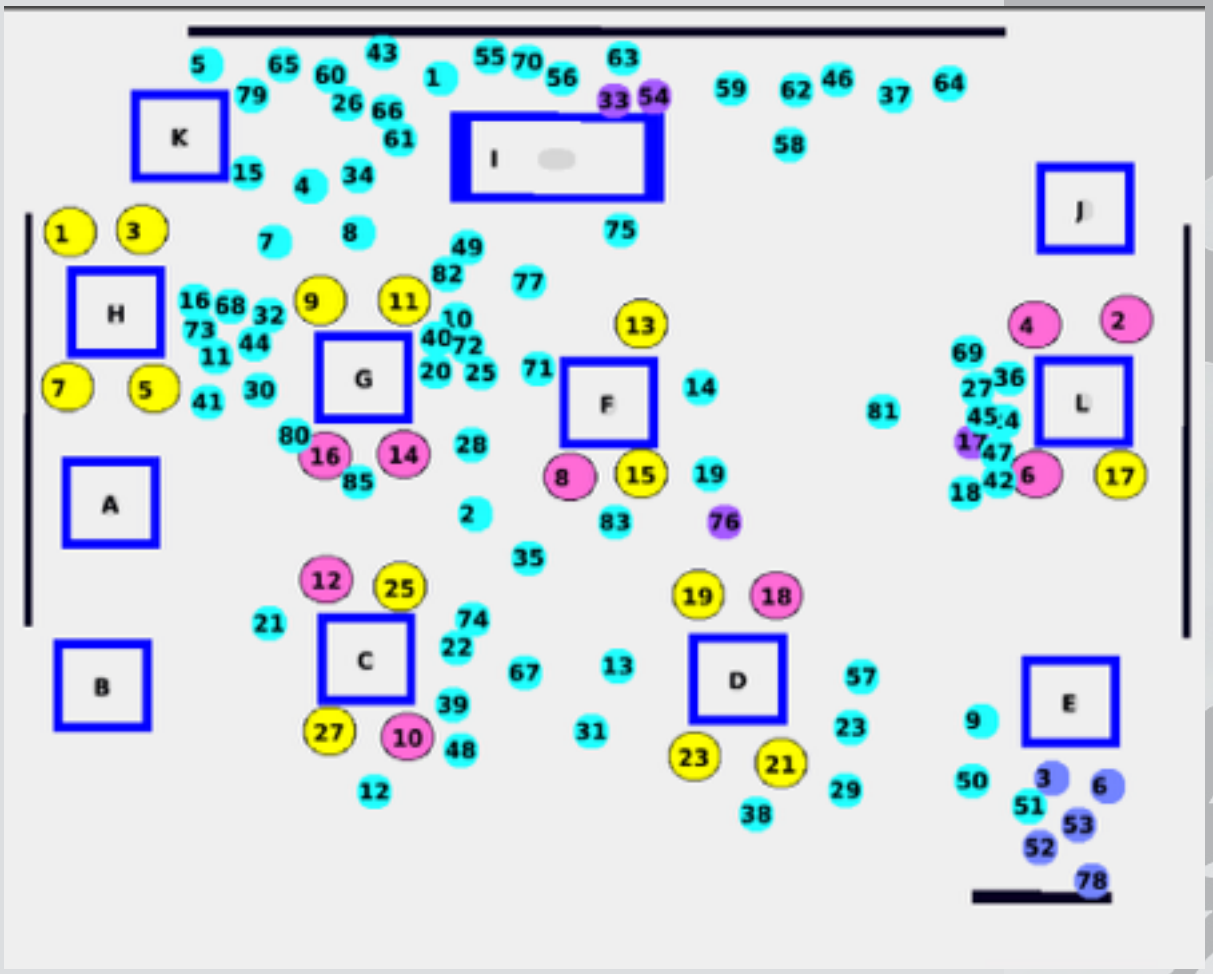
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Sell It!

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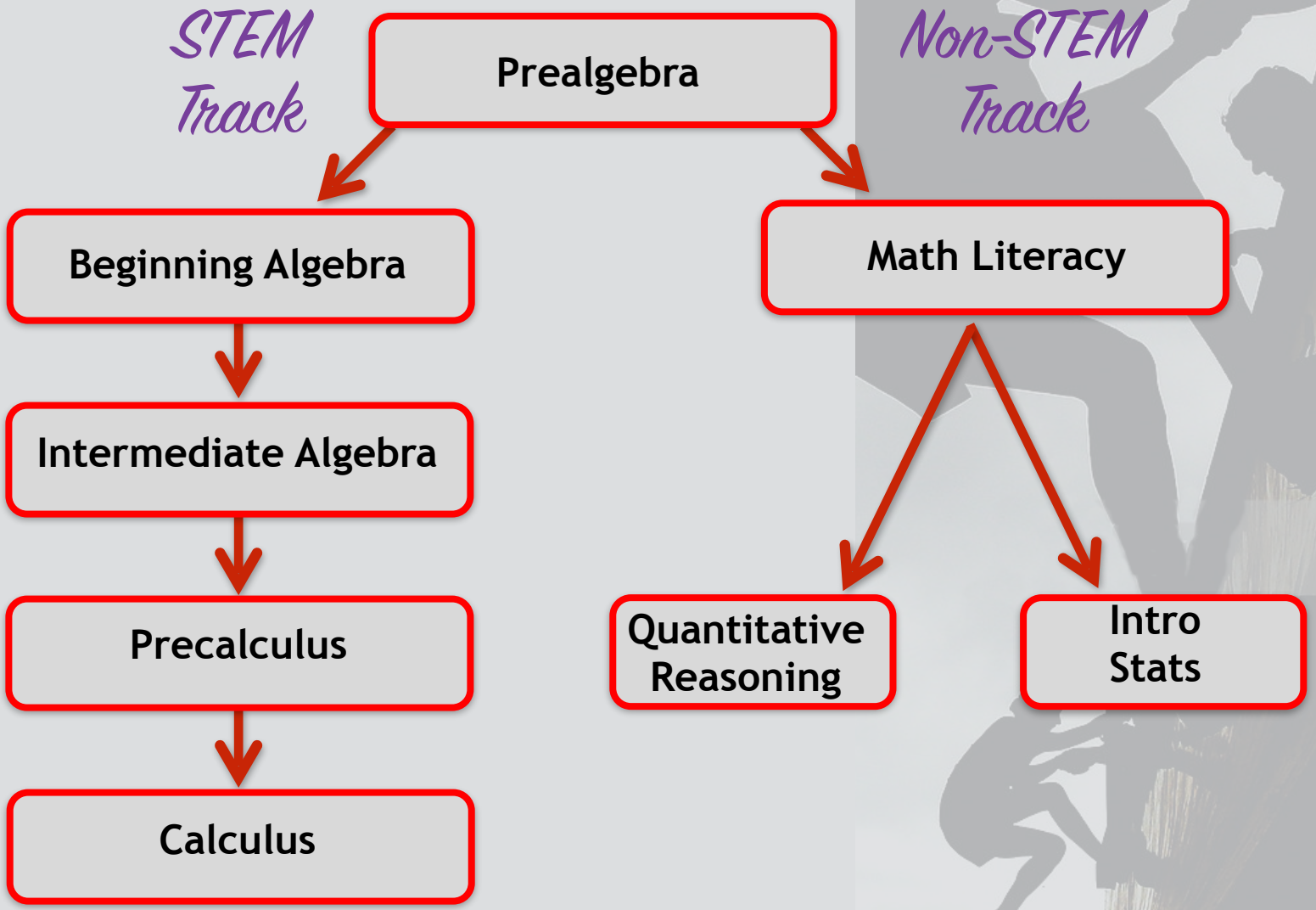

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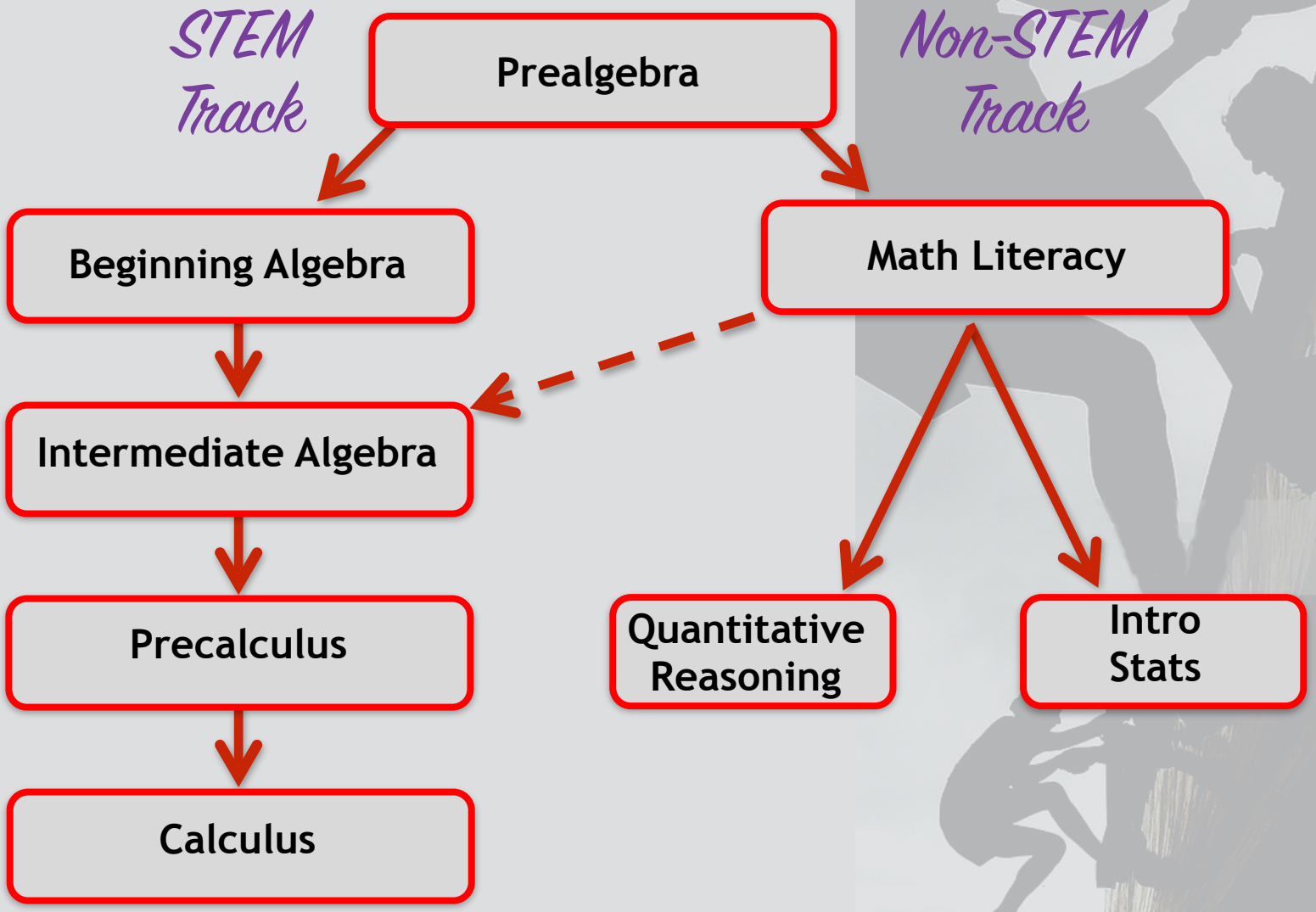

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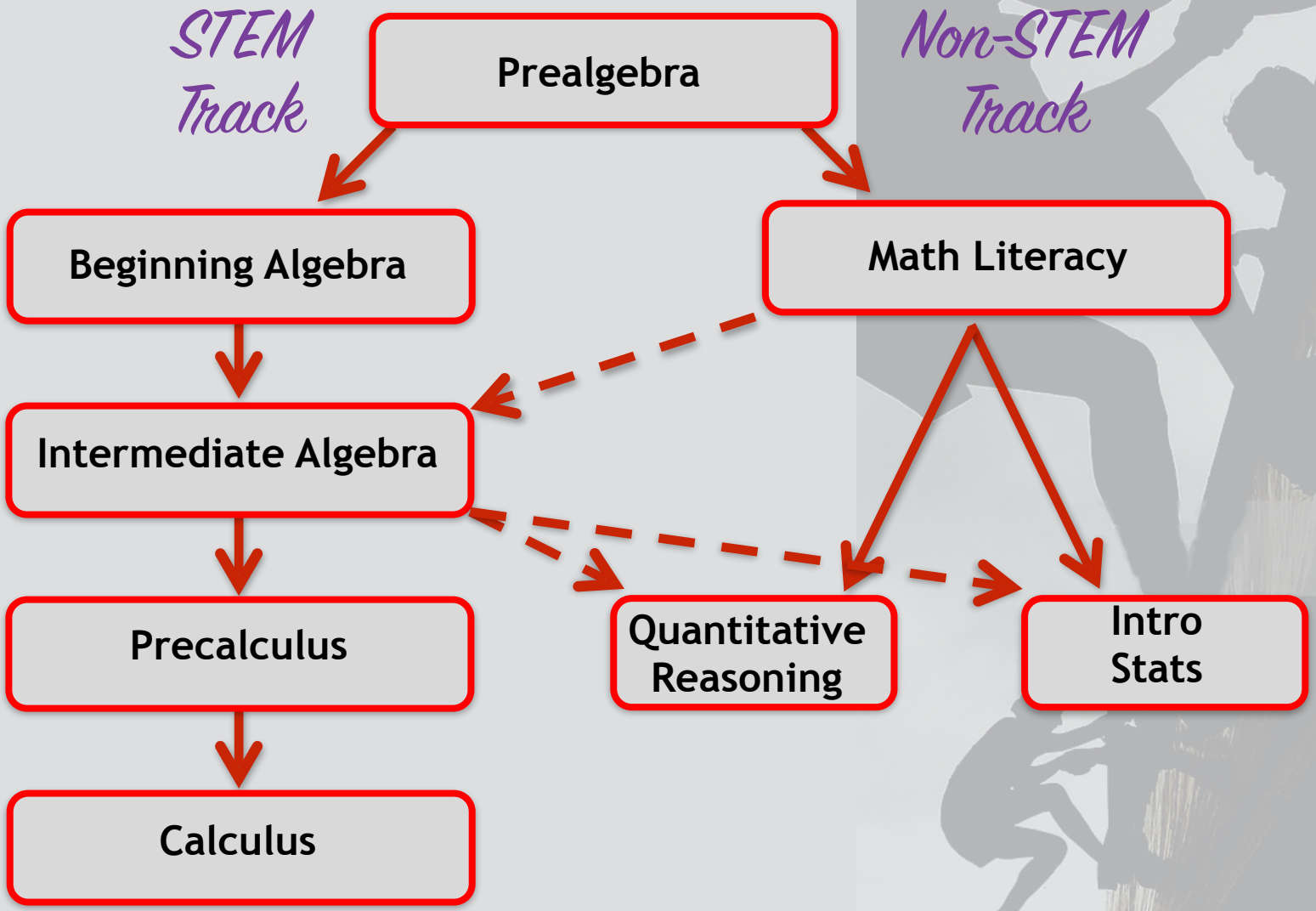

Liberal Arts Math

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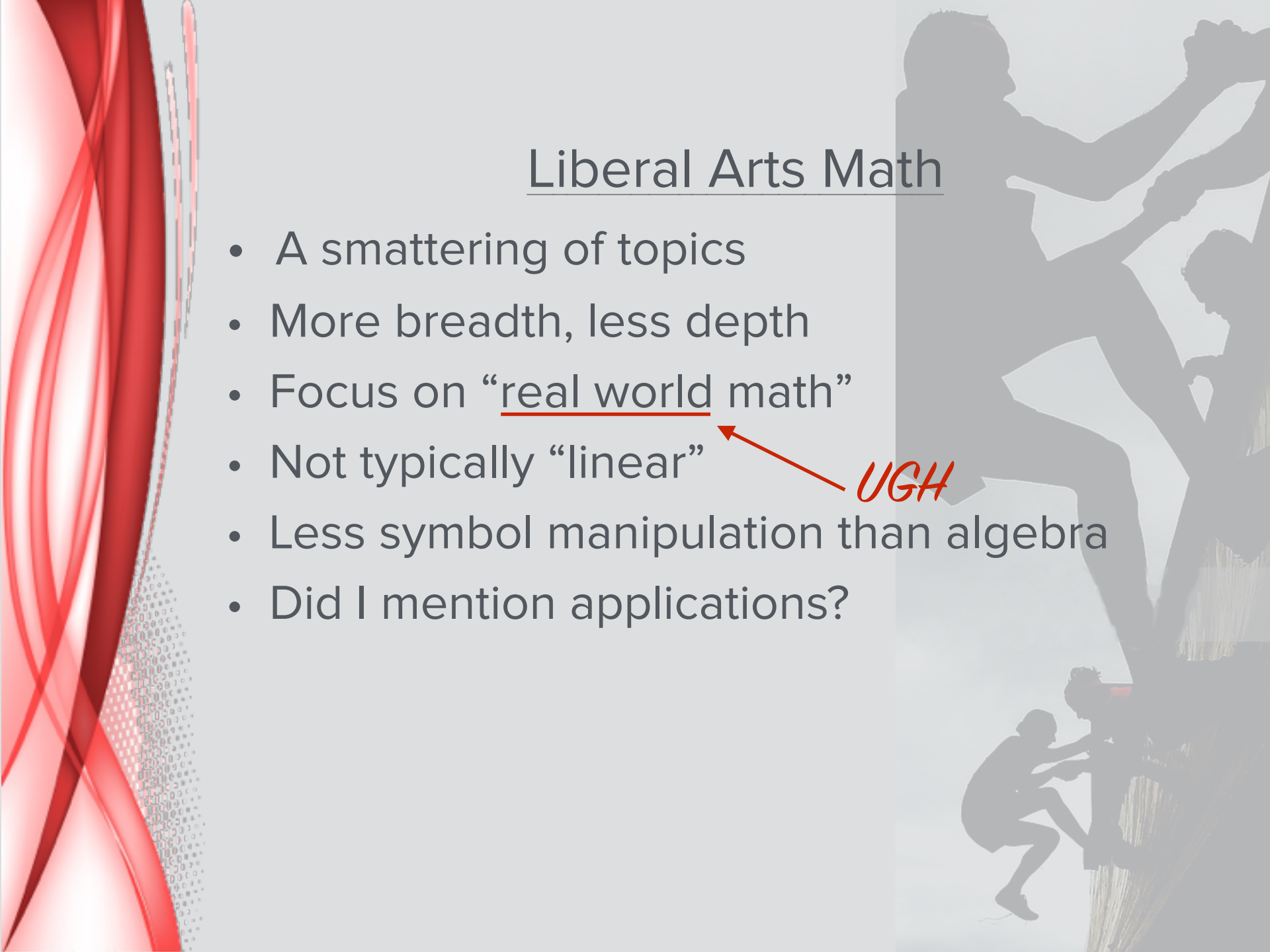

Liberal Arts Math

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Quantitative Reasoning is just…

Liberal Arts Math

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Liberal Arts Math
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So

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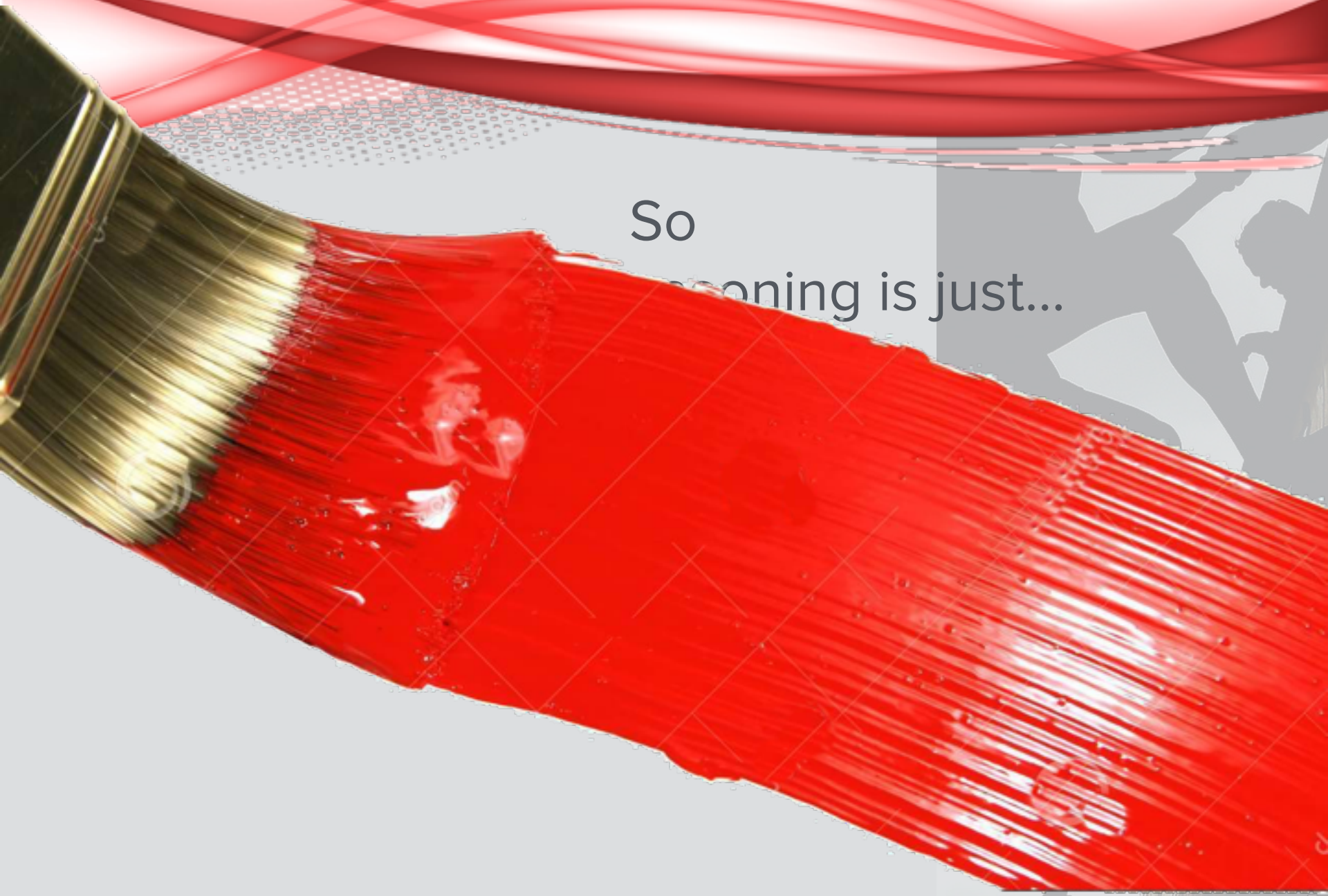

So

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Depends who you ask.

Main Goal

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LAM

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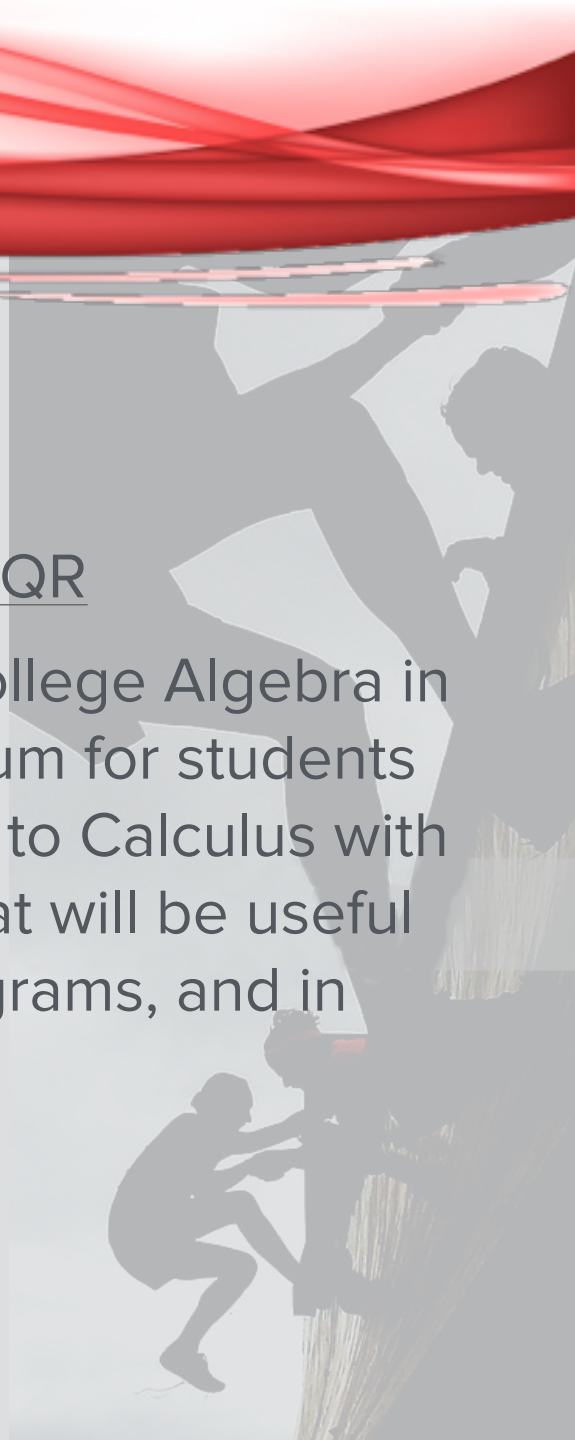
- Replace College Algebra in the curriculum for students not headed to Calculus with a course that will be useful in their programs, and in their lives.



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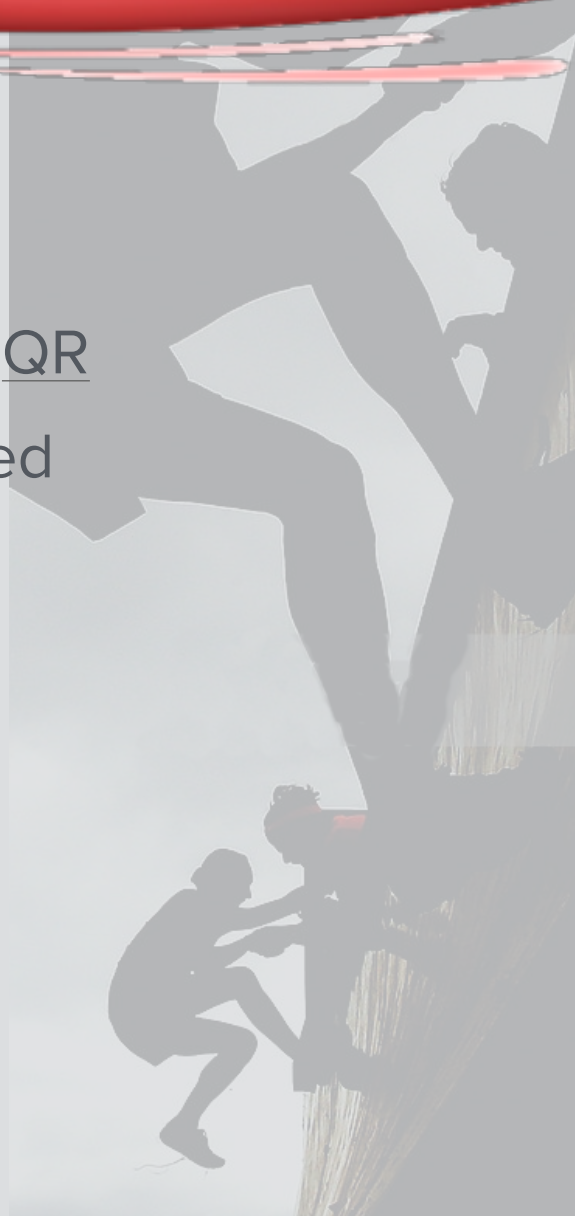

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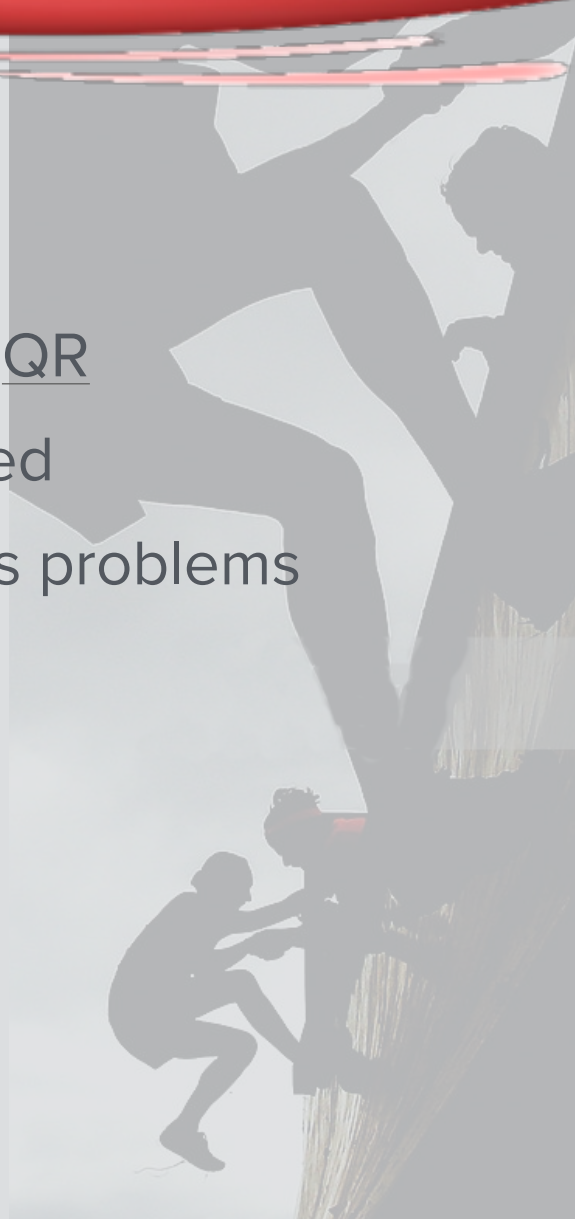

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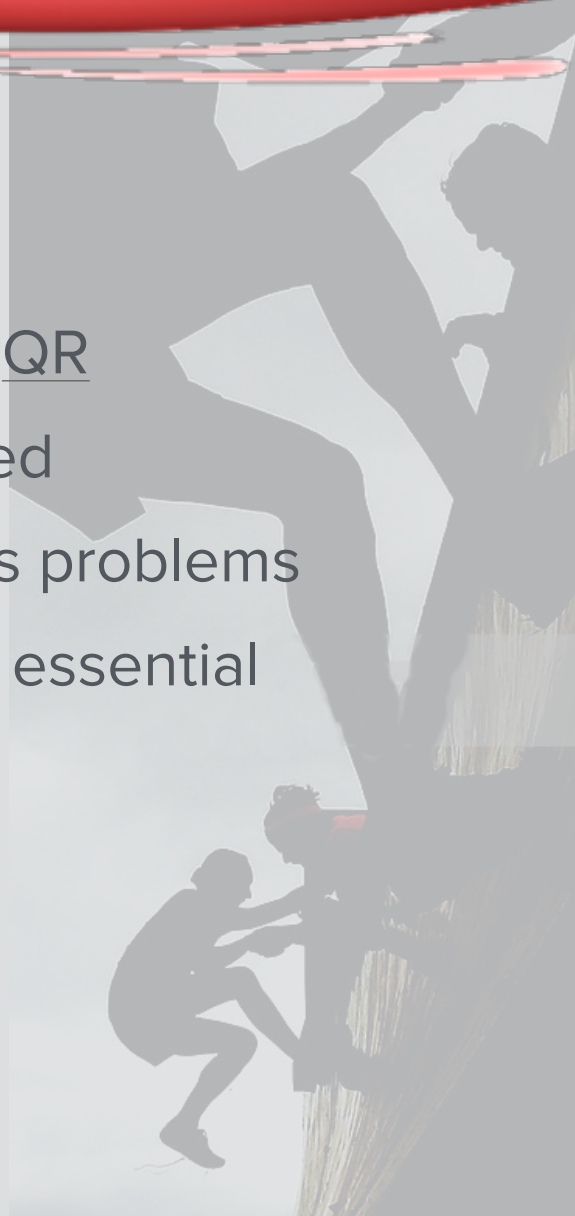

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- Project-based
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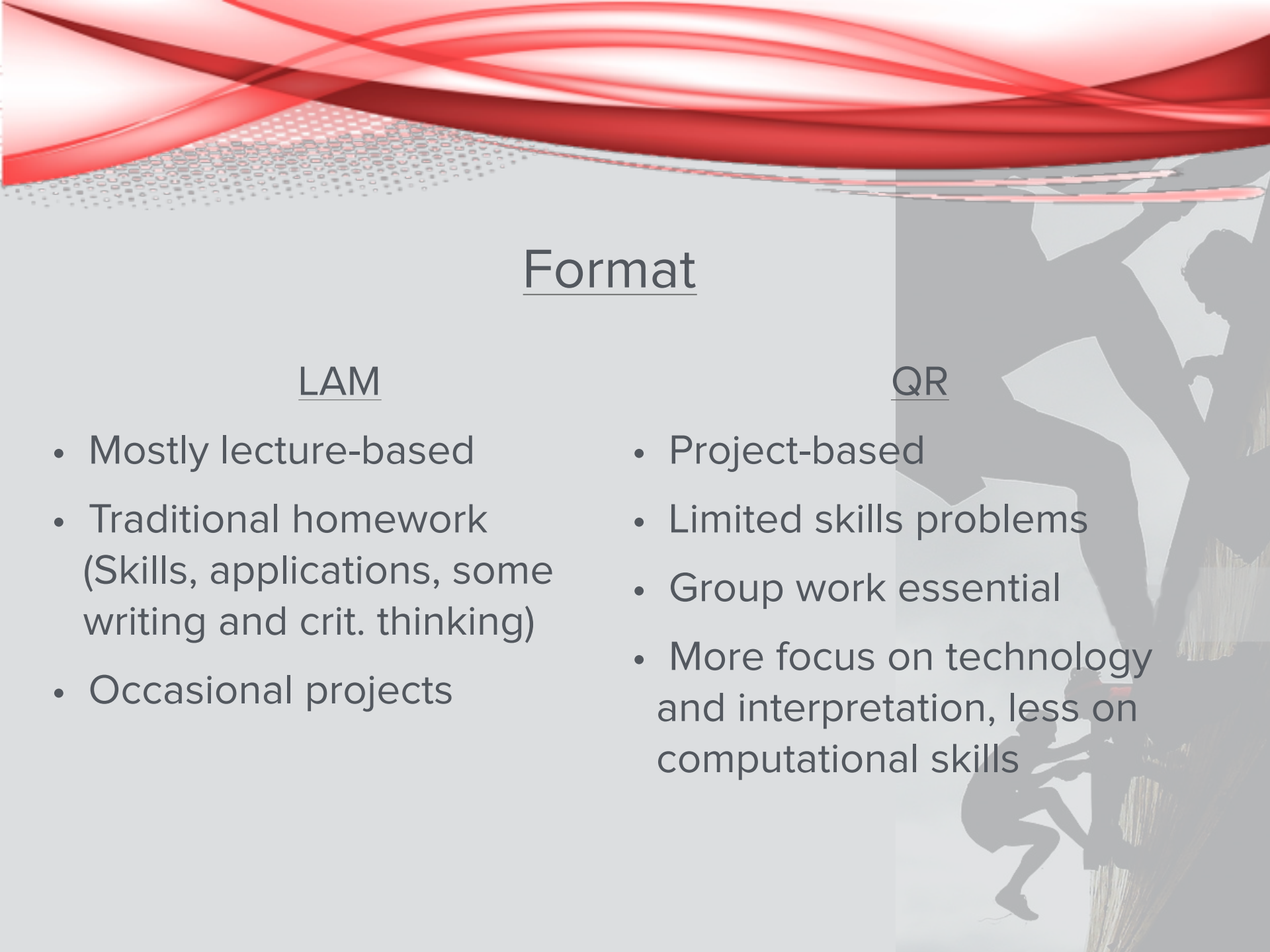
- Group work essential
- More focus on technology and interpretation, less on computational skills



Ex:

Ex:
(LAM)

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In 2003, there were 12 inmates on death row who were exonerated and freed. In the 8 years after that, there were 6, 2, 1, 3, 4, 9, 1, and 1. Find the mean number of death row inmates proven innocent for the 9 years from 2003 through 2011.

SOLUTION

There are 9 data values given, so we add them and divide by 9.

$$\overline{X} = \frac{\Sigma X}{n} = \frac{12 + 6 + 2 + 1 + 3 + 4 + 9 + 1 + 1}{9} \approx 4.3$$

The mean is about 4.3. (See the calculator guide on page 722 for help with finding the mean using a graphing calculator.)

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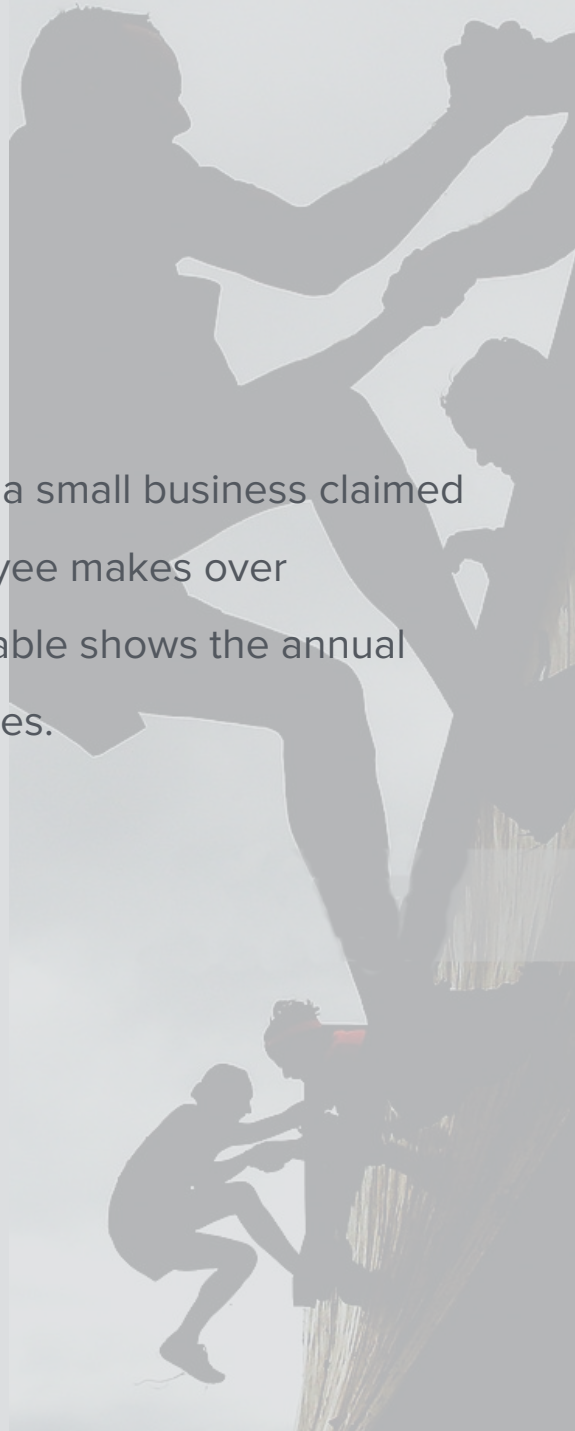

Ex:
(QR)

Employee	Salary
Jerry	$58,000
Kramer	$65,000
Newman	$944,000
George	$20,000
Elaine	$52,000
Susan	$51,000
Tim	$53,000
Estelle	$55,000
Frank	$50,000

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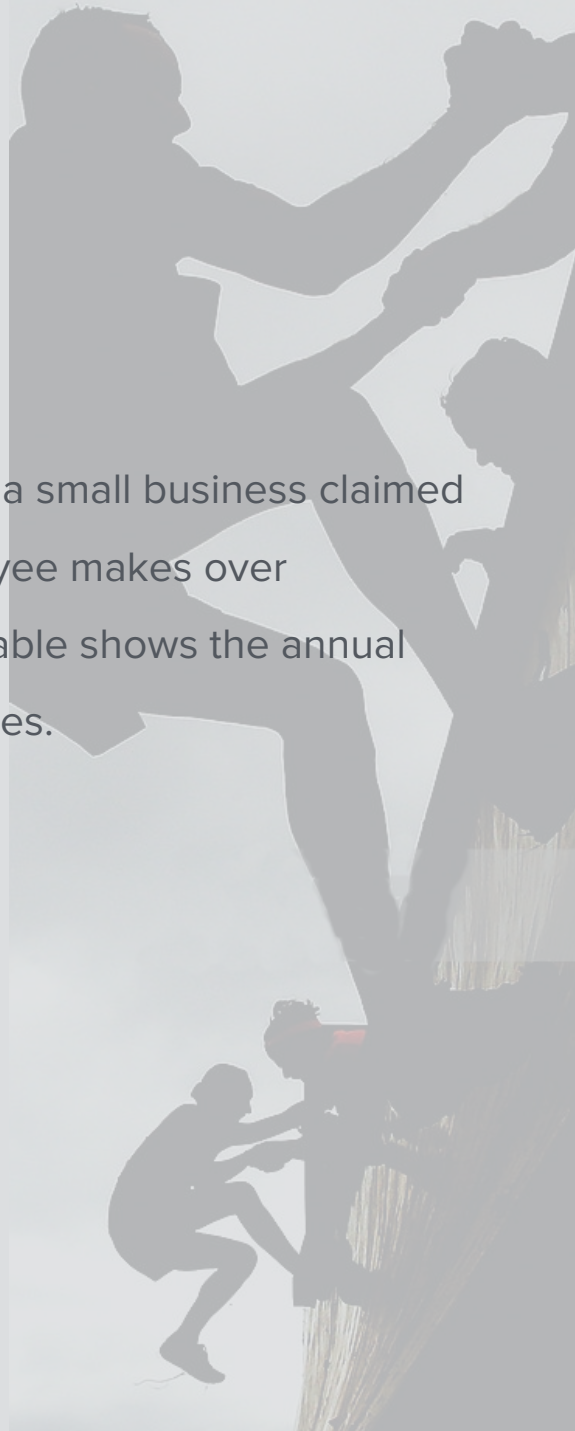
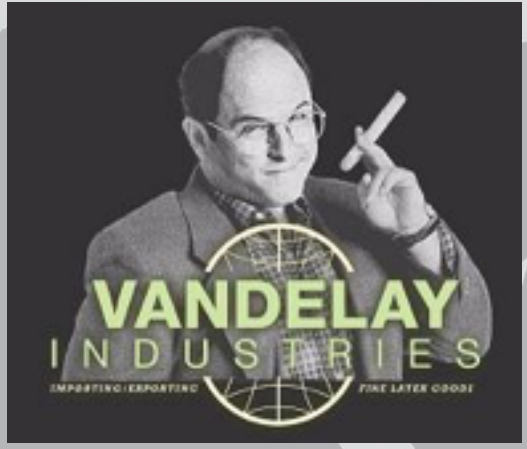


Ex:
(QR)



Employee	Salary
Jerry	$58,000
Kramer	$65,000
Newman	$944,000
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Elaine	$52,000
Susan	$51,000
Tim	$53,000
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In promotional materials, a small business claimed that their average employee makes over $150,000 per year. The table shows the annual salary for all ten employees.

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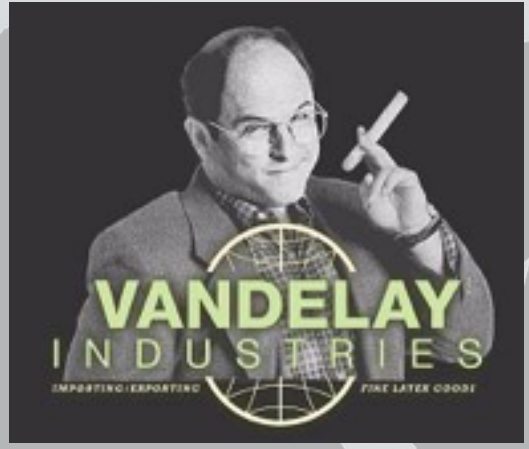

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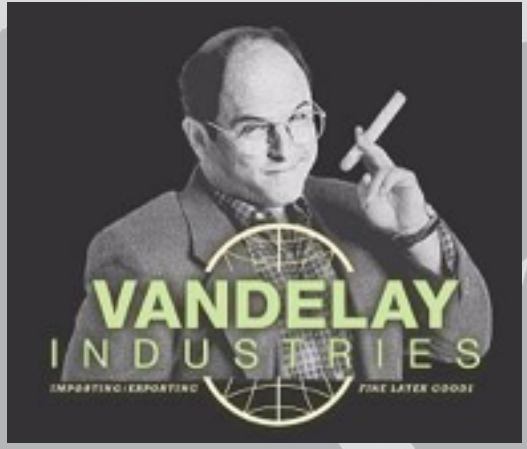

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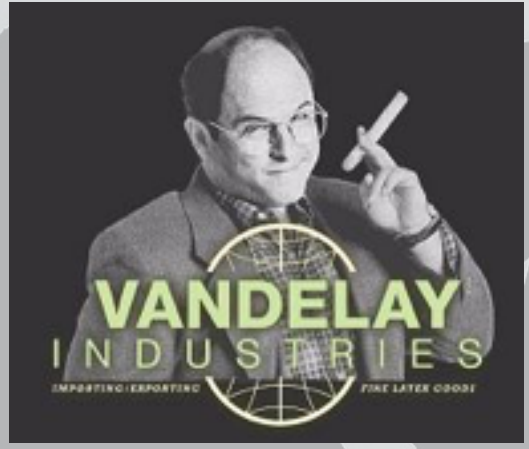

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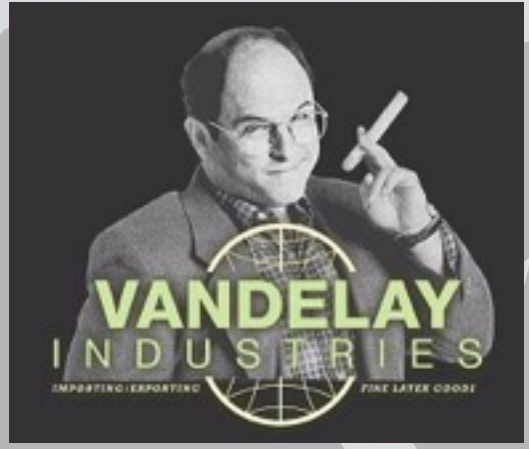

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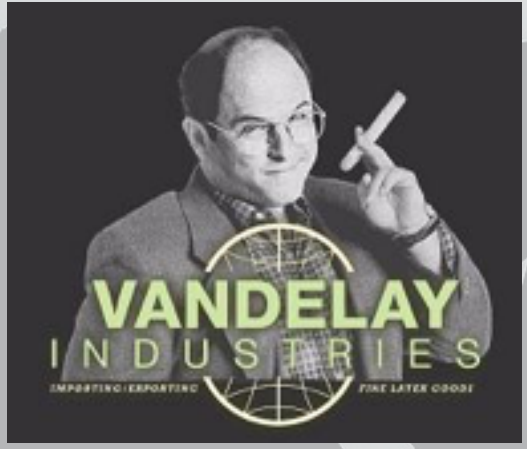

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Ex:

(LAM)

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A large latte at the Caffeine Connection sells at a regular price of \$3.50. Today it is on sale for \$3.00. Find the percent decrease in the price.

SOLUTION

The original price is \$3.50.

Step 1 Find the amount of decrease. \$3.50 − \$3.00 = \$0.50.

Step 2 Make a fraction as shown

$$\frac{\text{Amount of decrease}}{\text{Original price}} = \frac{\$0.50}{\$3.50}$$

Step 3 Change the fraction to a percent.

$$\frac{0.50}{3.50} \approx 0.1428 = 14.3\% \text{ (rounded)}$$

The decrease in price is 14.3%.

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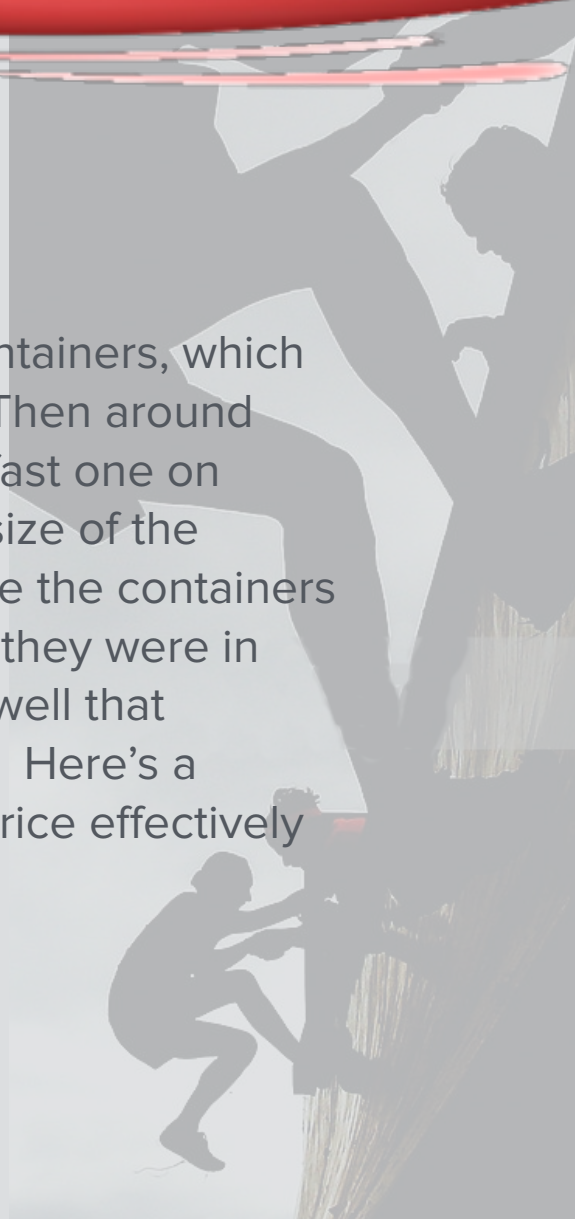
Ice cream was traditionally sold in half-gallon containers, which contained 64 ounces of creamy deliciousness. Then around 2008, several major ice cream makers pulled a fast one on consumers: prices remained the same, but the size of the container was decreased to 56 ounces. Because the containers looked so similar, most people didn't notice that they were in effect paying more for ice cream. That went so well that containers were again decreased, to 48 ounces. Here's a challenging question: by what percent did the price effectively increase with each change in package size?



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Typical Topics in LAM

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- Consumer Math
- Set theory
- Logic
- Probability
- Stats
- Problem solving
- Measurement/Geometry

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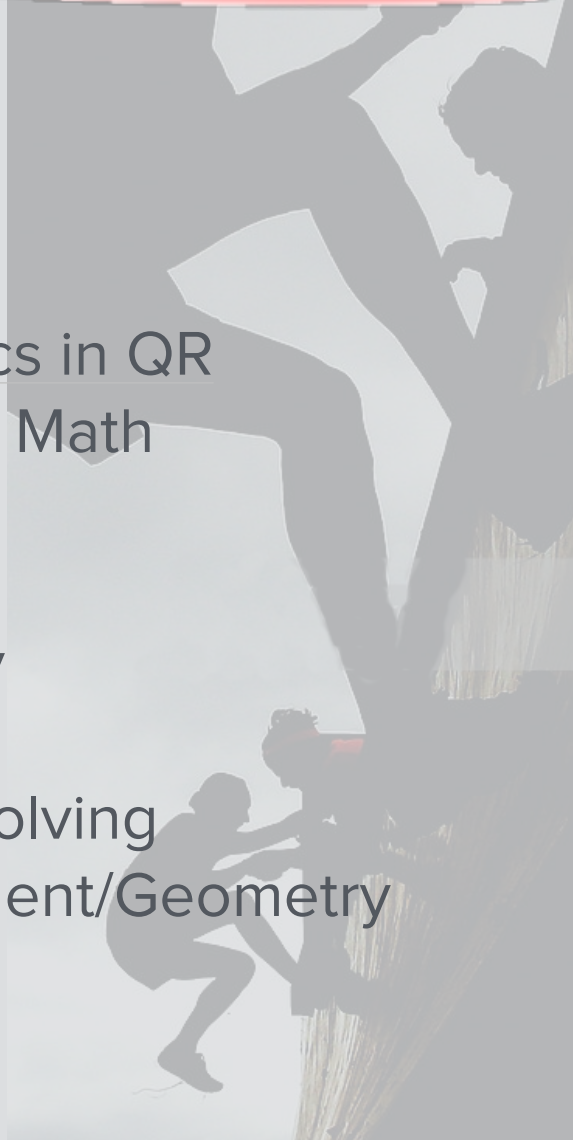
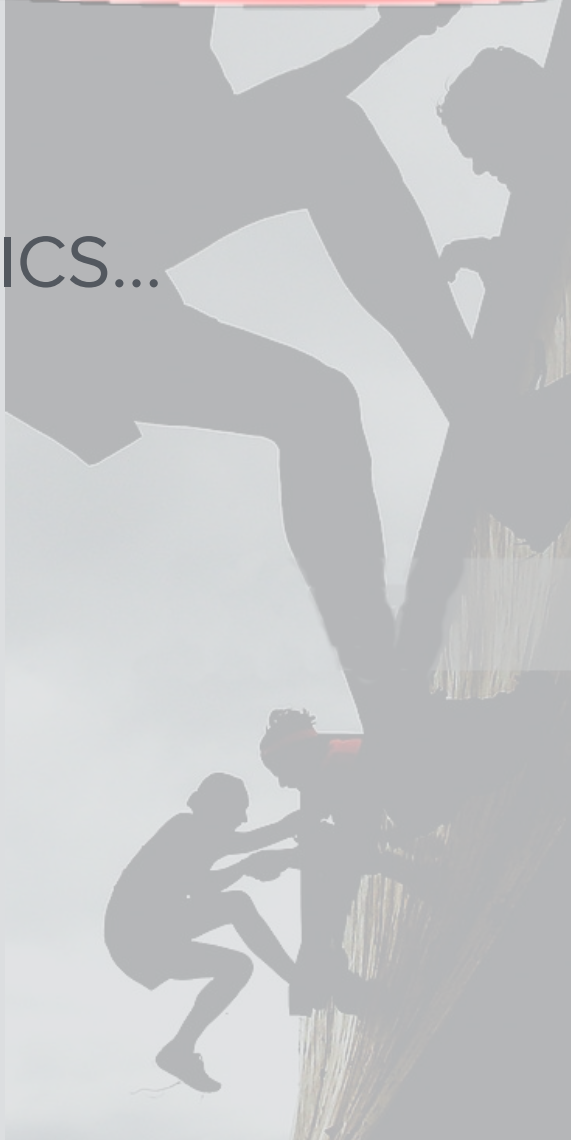


The distinction is not about TOPICS…



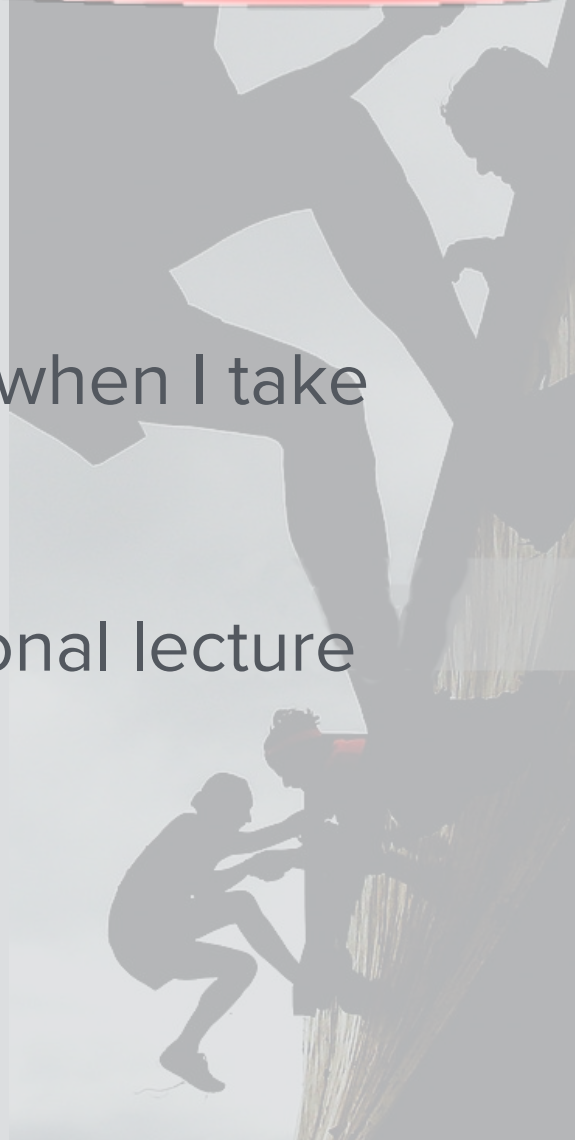
The distinction is not about TOPICS…

It’s about teaching and learning STYLE.

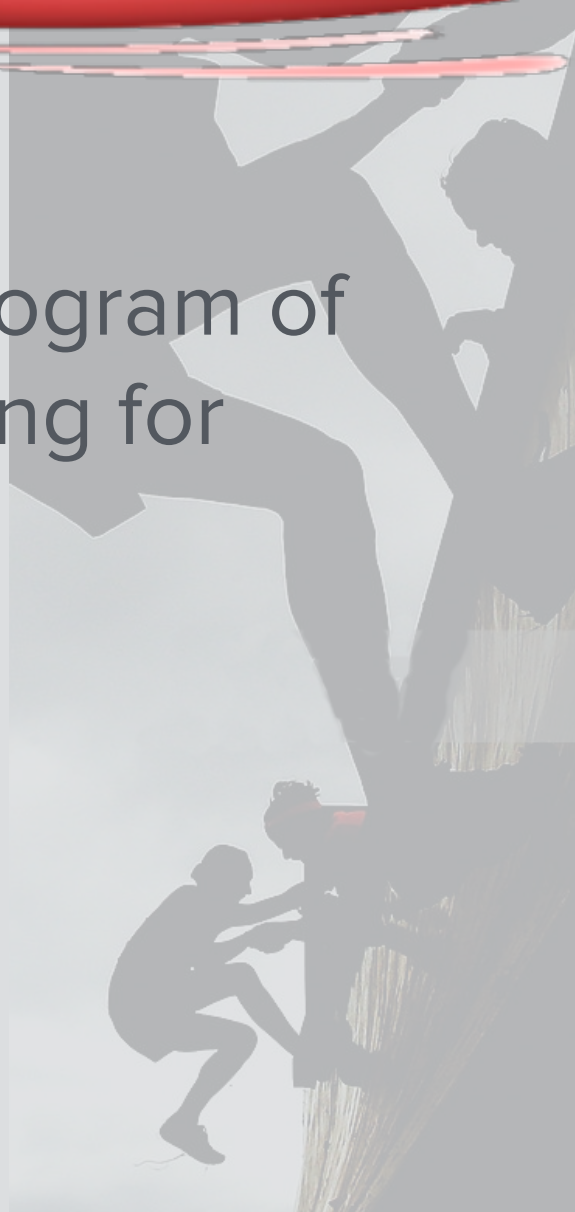
“What if dev students do really well in math lit, then struggle when going back to a traditional lecture setting?”

Potential Responses:

- What if my kids can't ride a bike when I take the training wheels off?
- Why send them back to a traditional lecture class?



What if we had a cohesive program of problem solving based learning for ALL non-STEM paths?



What if we applied the same ideas to other tracks?

Thank you for encouraging my questionable behavior.

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Comments?
Questions?
Suggestions?
Dirty jokes?

davesobecki@gmail.com

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facebook.com/Teachingbackwards
@teachbackwards