

San Joaquin Valley Mathematics Project

ROBERT KAPLINSKY

 @robertkaplinsky





productive
struggle

unproductive
struggle



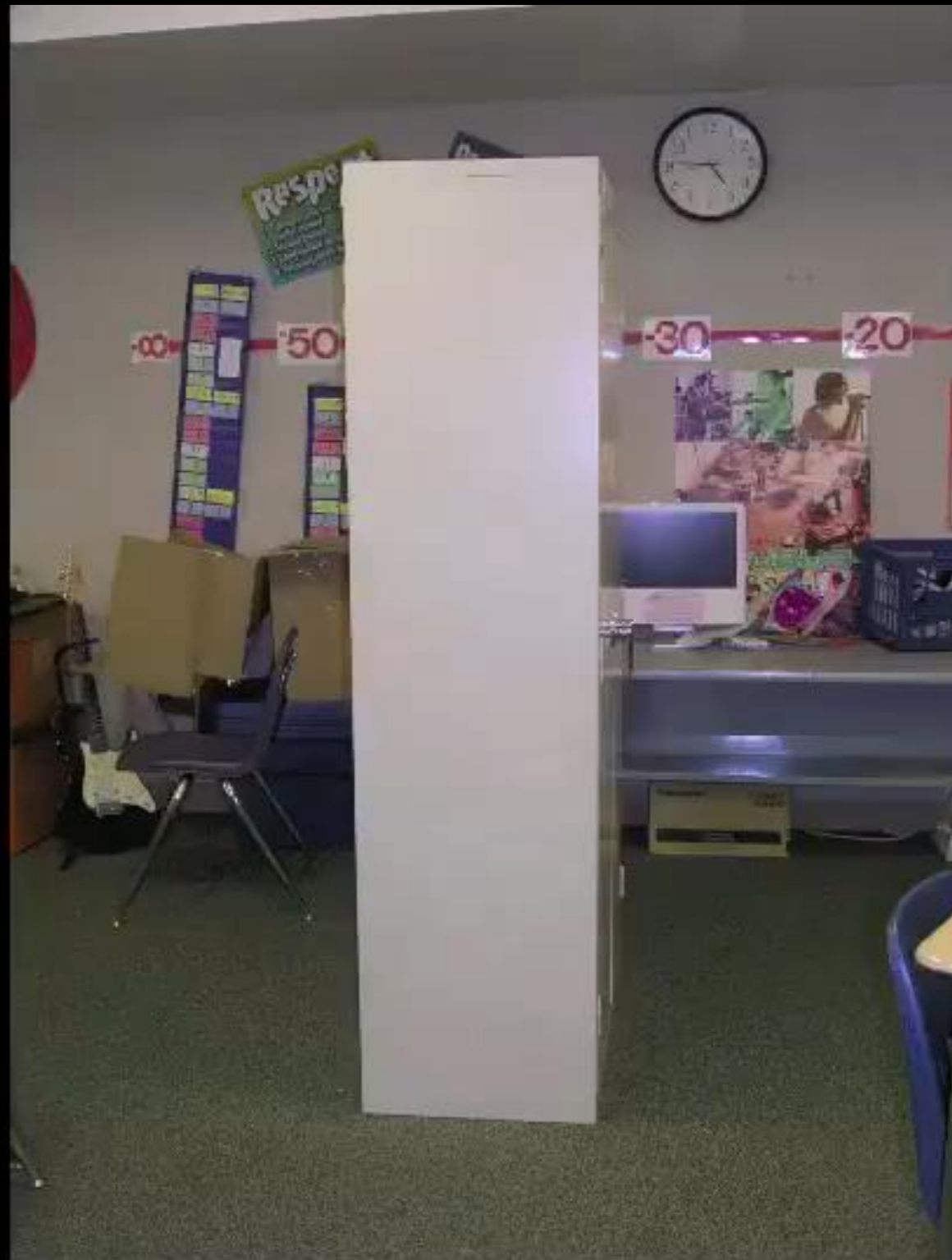
productive
struggle



unproductive
struggle

Goals

- Engaging problem solving
 - Higher depth of knowledge problems
 - Real world problem-based learning
- Practice preparing to implement a lesson



Source: Andrew Stadel via www.esteemation180.com



**Height:
72 inches**



**Height:
72 inches**



**Width:
36 inches**





**Height:
72 inches**



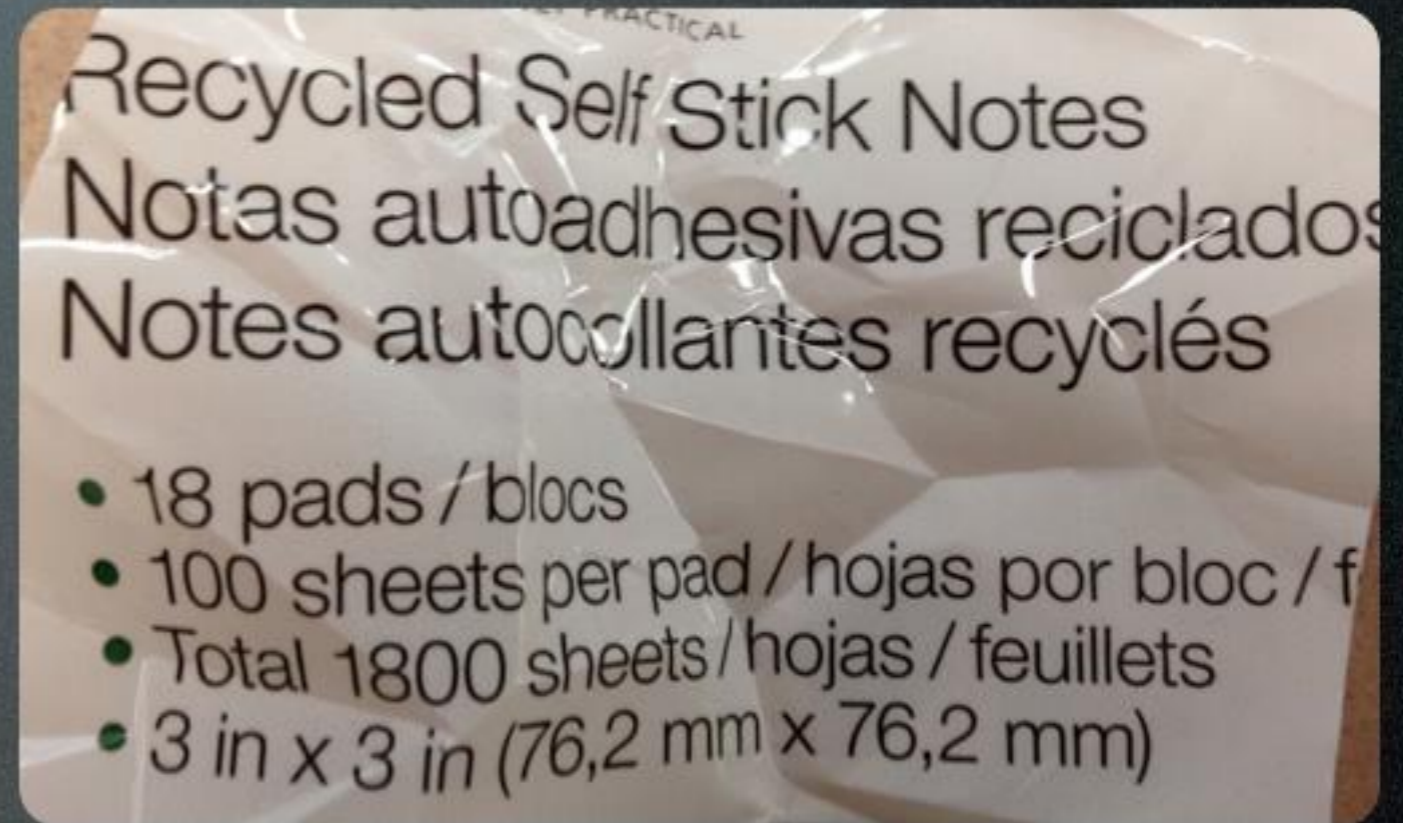
**Width:
36 inches**



**Depth:
18 inches**



Sticky note



Recycled Self Stick Notes
Notas autoadhesivas reciclados
Notes autocollantes recyclés

- 18 pads / blocs
- 100 sheets per pad / hojas por bloc / f
- Total 1800 sheets / hojas / feuillets
- 3 in x 3 in (76,2 mm x 76,2 mm)

Dimensions:

3" x 3"



Source: Andrew Stadel via www.estimated180.com

PERFORMANCE TASK

CEREAL BOXES

A cereal company uses cereal boxes that are rectangular prisms. The boxes have the dimensions shown.

- 12 inches high
- 8 inches wide
- 2 inches deep

The managers of the company want a new size for their cereal boxes. The new boxes have to be rectangular prisms. You will evaluate one box design the company proposed. Then you will create and propose your own design for the company.

Requirements for the new boxes:

- The new boxes have to use less cardboard than the

1

Determine the volume of the current cereal box with the dimensions 12 inches high, 8 inches wide, and 2 inches deep.

Find the volume, V , in cubic inches, of each box.

Volume of Original Box: $V = \underline{\hspace{1cm}} \text{ in}^3$



1	2	3
4	5	6
7	8	9
0	.	-

2

Label the dimensions of the net for the current cereal box with dimensions 12 inches high, 8 inches wide, and 2 inches deep.

FIVE PRACTICES



Discussion Questions

- “Giving students too much or too little support, or too much direction, can result in a decline in the cognitive demands of the task.” (p. 550) Why?
- “By making purposeful choices about the order in which students’ work is shared, teachers can maximize the chances that their mathematical goals for the discussion will be achieved.” (p. 554) What ways do teachers currently select students? How would you suggest they change their selection process after reading this?
- What challenges might teachers have when trying to “connect” student solutions? (p. 554)

Implementing the Five Practices

1. Anticipate potential student responses to the file cabinet problem.
2. Review the ten student work samples that represent students in your classroom.
3. Figure out which students you would have share their mathematical work.
4. Determine the order you would have those students present their work.
5. Decide on which connections you would emphasize between the students' work and mathematical ideas.

Posters

- At the top of the poster, list the selection strategy used by your group. For example:
 - Starting with the most commonly used strategy and moving to one that few students used.
 - Starting with a strategy that is more concrete and moving to strategies that are more abstract.
 - Incorporating wrong answers to address common misconceptions.
- Attach those students' work to the poster in the order that you would present it.
- Next to the student work list the questions you would ask the student(s) or ideas that you would want to come out as a result of showing that student's work.



struggle: none
feedback: none
reward: none



struggle: low
feedback: low
reward: high



struggle: medium
feedback: high
reward: medium



struggle: high
feedback: high
reward: high

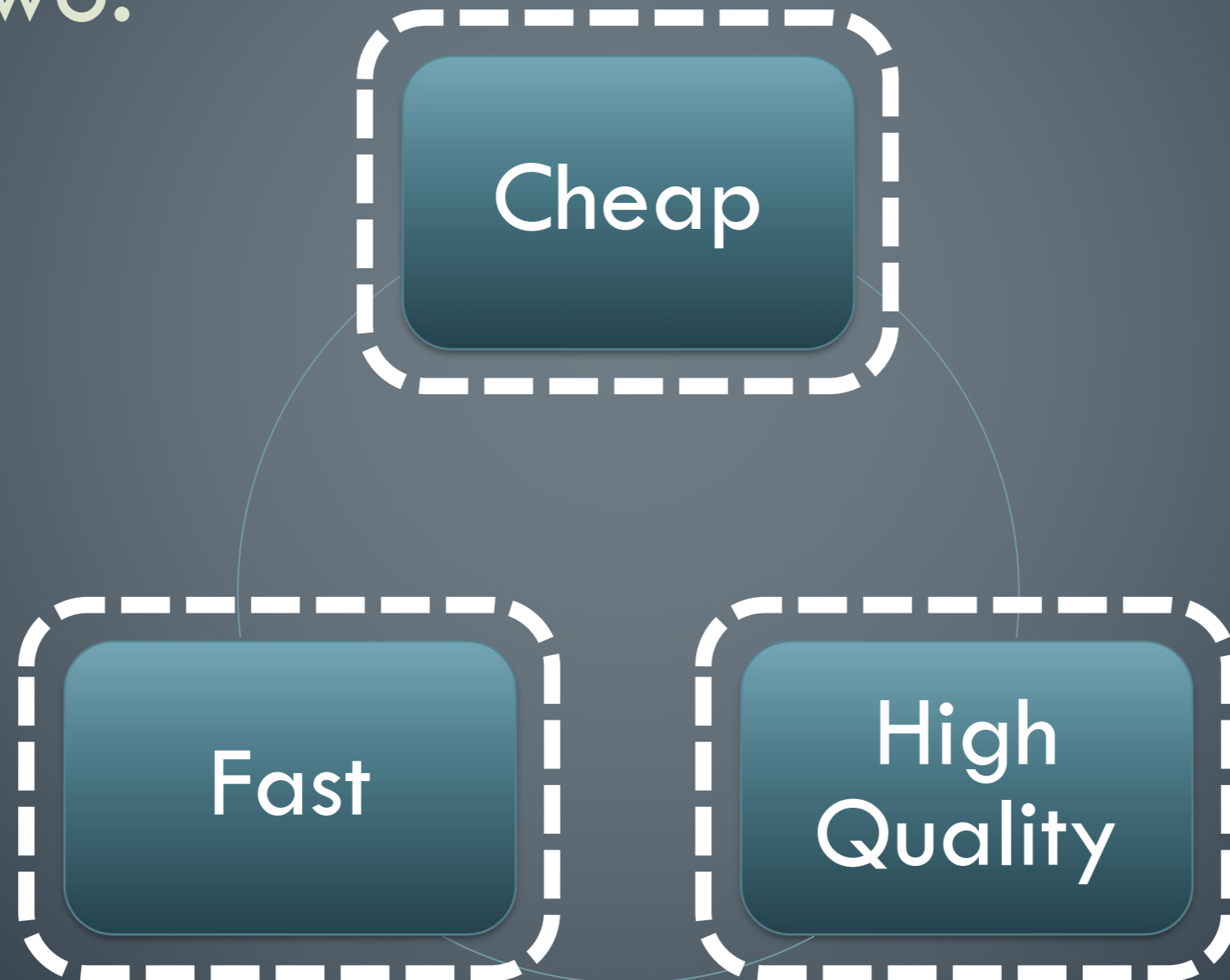


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Construction

- Pick two:



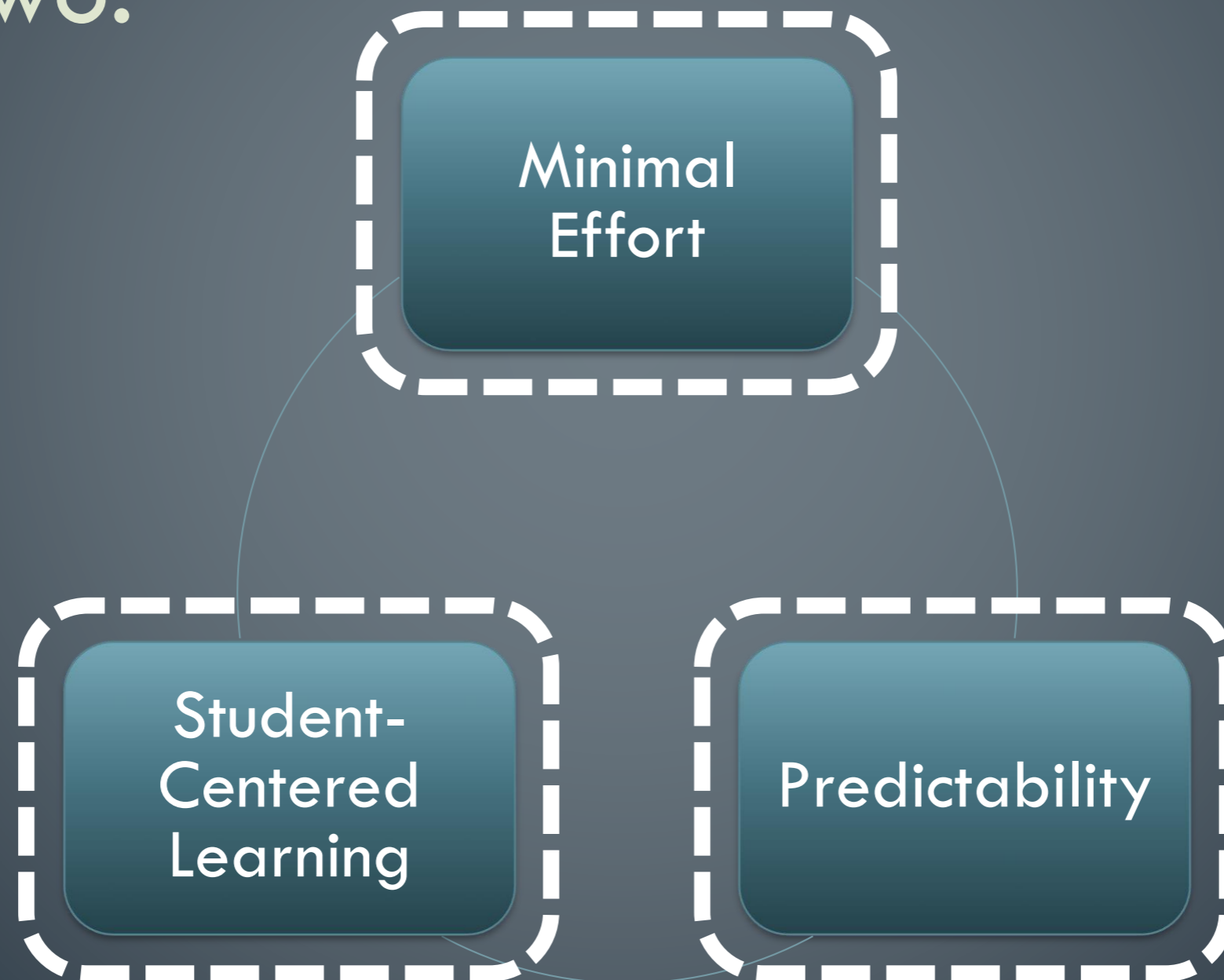
Family

- Pick two:



Problem-Based Learning

- Pick two:



Contact

Robert Kaplinsky



robert@robertkaplinsky.com



robertkaplinsky.com/sjvmp



[@robertkaplinsky](https://twitter.com/robertkaplinsky)

