The Era of Resource Abundance:

How to Navigate Through the Crap to Find the Useful & Rich Tasks

Dr. Hilary Kreisberg

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Annual NCTM Conference 2019

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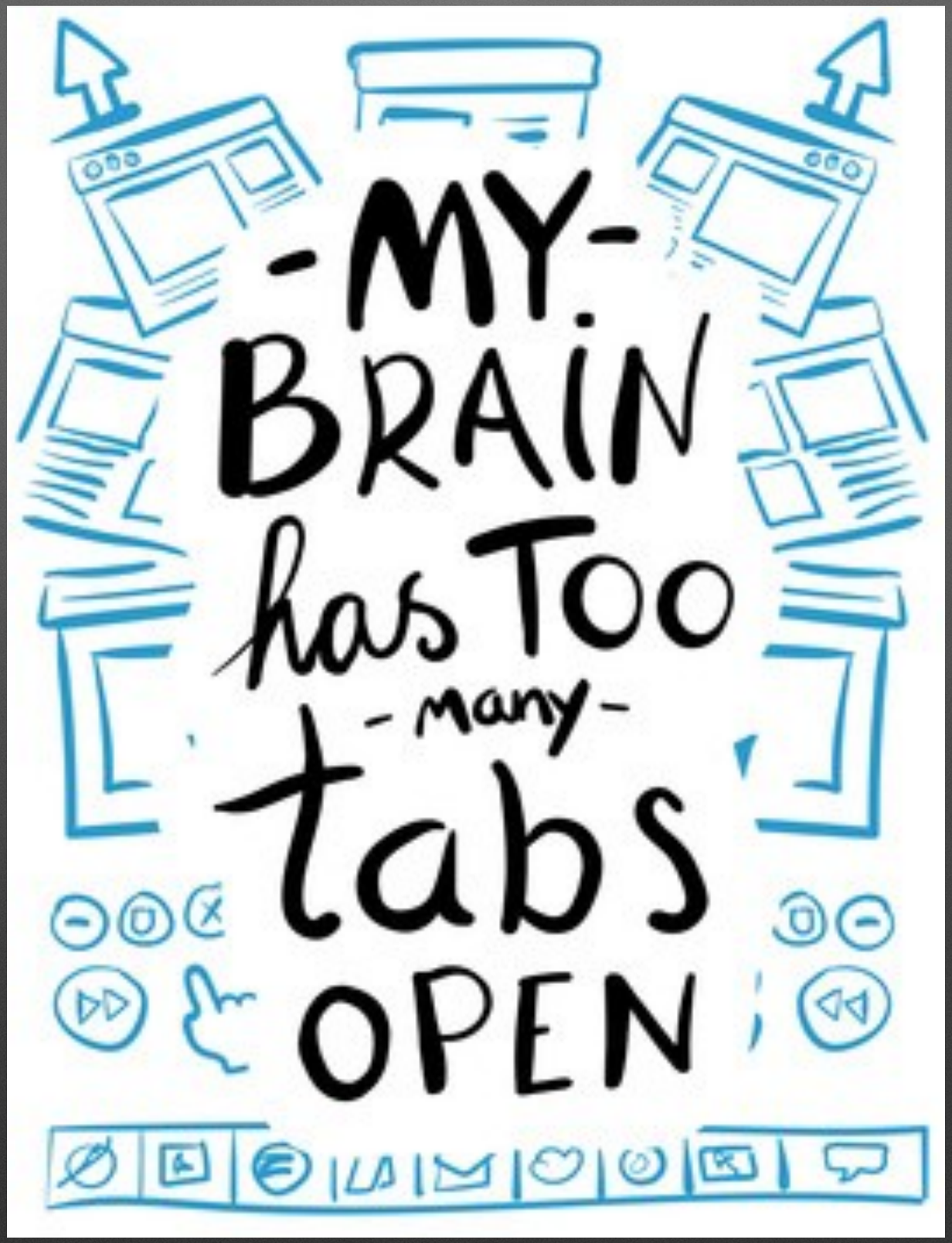

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The Era of Resource Abundance and What We Can Do About It

Hilary Kreisberg
Feb 9, 2018 · 6 min read

https://medium.com/@dr_kreisberg

In March 2010, Dan Meyer turned heads when he spoke about how desperately math classrooms need a makeover. You can watch his insightful and profound TED talk here. He spoke about how textbooks were "robbing kids of a skill more important than solving problems: formulating them" and the dire need for teachers to change the educational landscape in which textbooks are used. Since his revolutionary talk, and with the aid of other like-minded individuals and the Common Core State Standards, teachers across the nation started adapting the way they teach to include more engaging strategies that focus on problem posing, rather than just solving a problem. Almost eight years later, we now face a new issue: the abundance of resources.

The Jam Study

A

B

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Which stand attracted more people?

A

B

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Which stand attracted more people?

A

40% (104 of 260 people)

B

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Which stand attracted more people?

A

40% (104 of 260 people)

B

60% (145 of 242 people)

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What percentage of tasters bought jam?

A

B

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What percentage of tasters bought jam?

A

30% (31 of 104 people)

B

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What percentage of tasters bought jam?

A

30% (31 of 104 people)

B

Iyengar, S. (Columbia) & Lepper, M. (Stanford). 2000. When choice is demotivating: Can one desire too much of a good thing?, Journal of Personality and Social Psychology, 79, 995-1006.

The Jam Study

"The presence of choice might be appealing as a theory, but in reality, people might find more and more choice to actually be debilitating."

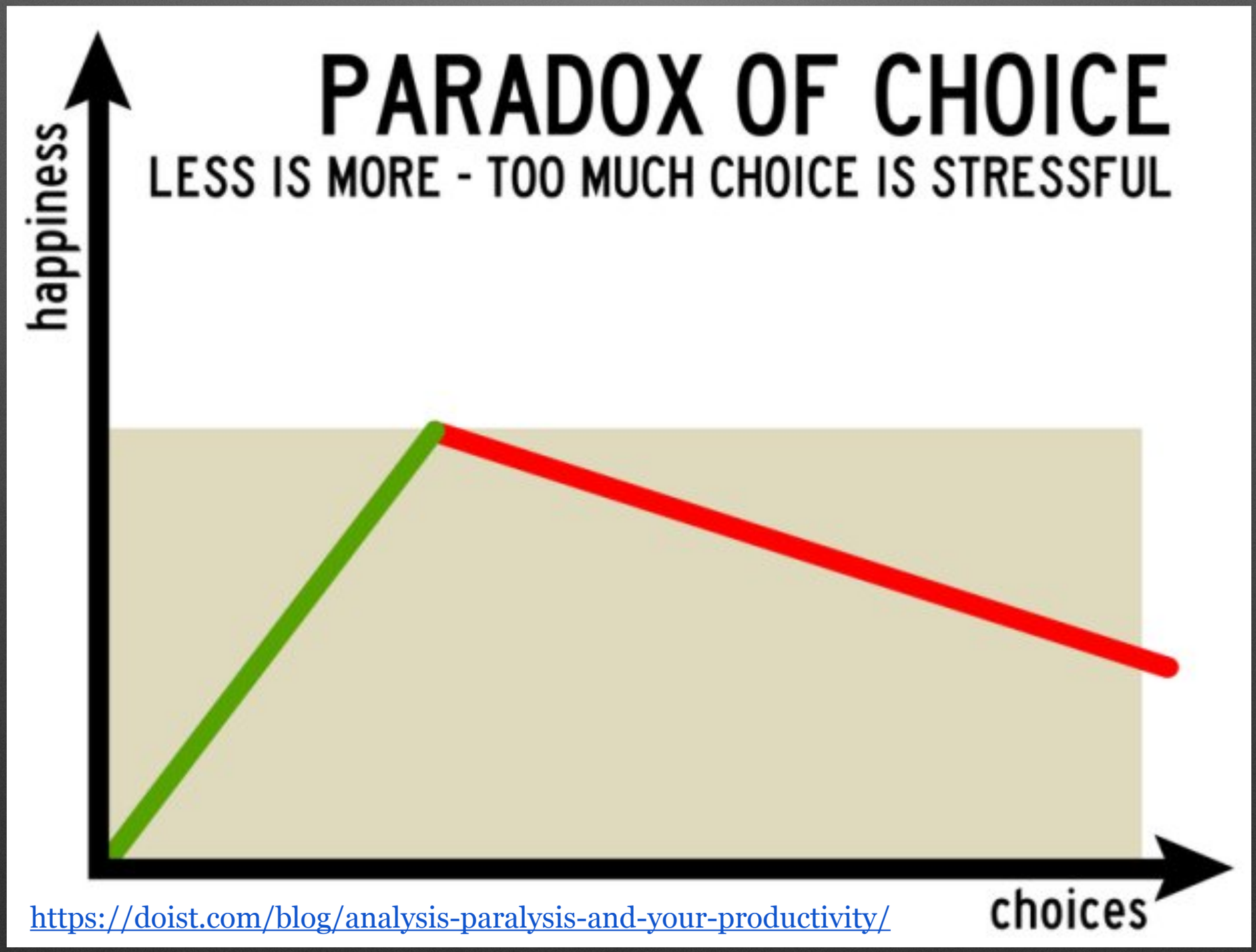
- Professor Iyengar

The Jam Study applied to Math Education

A One or two curricular resources

B Pinterest, Teachers Pay Teachers, Notice/Wonder, Estimation 180, Number Talks, Open Middle, Splat!, Numberless Word Problems, Cube Conversations, Which One Doesn't Belong, Exploding Dots, 101 Qs, What if Math, Esti-Mysteries, Estimation Clipboard, Three-Act Tasks (Dan Meyer), Three Act (Graham Fletcher), Three Act (Jon Orr), Three Act (Dan Ehlert), Three Act (Kristen Acosta), Three Act (Catherine Castillo), Three Act (Mike Wiernicki), Three Act (Robert Kaplinsky), Three Act (Kyle Pearce), Three Act (Kendra Lomax), Three Act (Andrew Stadel), Clothesline Math (Chris Shore), Clothesline Math (Andrew Stadel), Slow Reveal Graphs, YouCubed, Same But Different, CPALMS

Decision or Choice Paralysis



https://doist.com/blog/analysis-paralysis-and-your-productivity/

Abam
@AdamBroud

Me: This is my favorite book

Date: That is a cheesecake factory menu

Me: *turning to page 64* It's both

The Problem with Too Much Choice

Too much choice causes us to overthink.

The Problem with Too Much Choice

Overthinking leads to:

1. lower performance
2. lower levels of creativity
3. decision fatigue and settling
4. general dissatisfaction

How Decision Fatigue Impacts the Rulings Made by Parole Judges

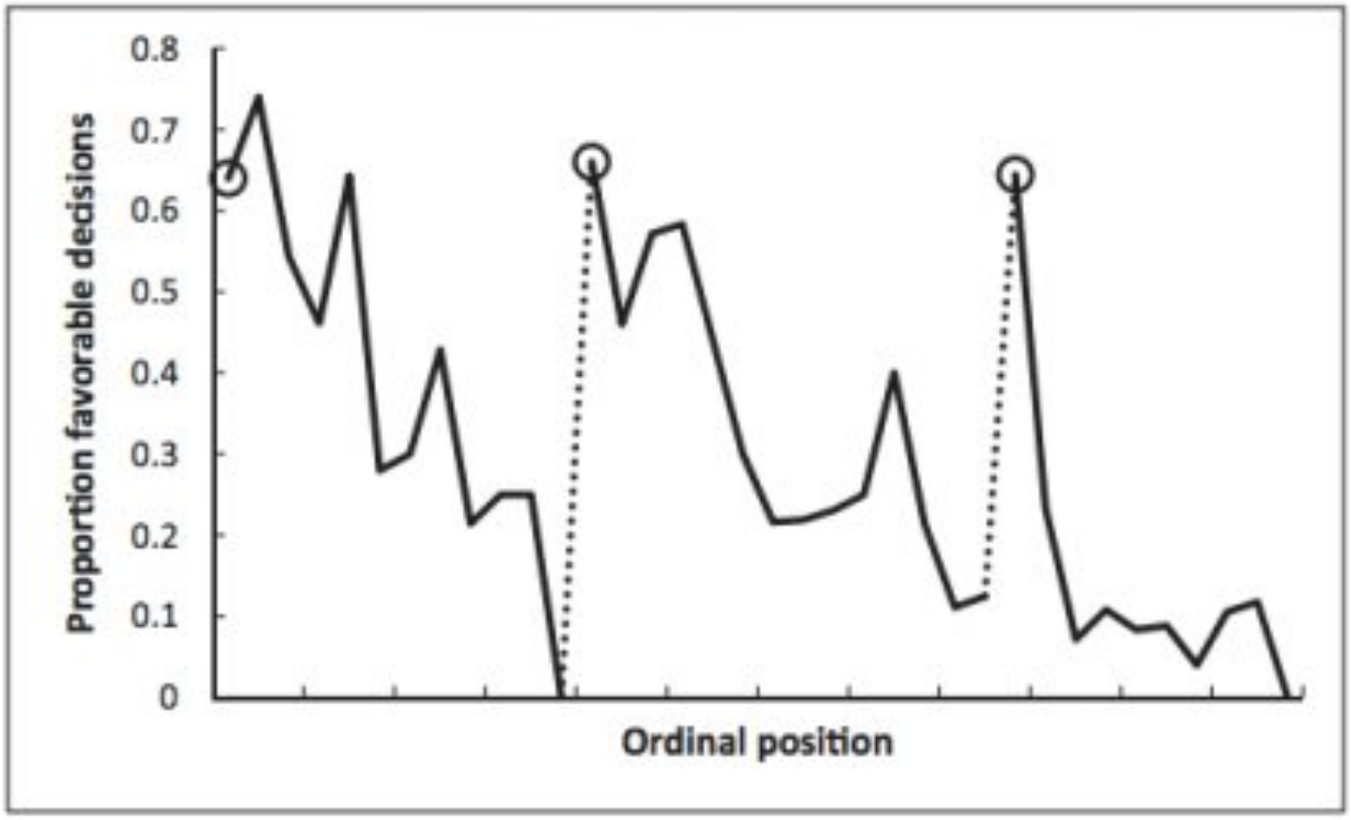


Fig. 1. Proportion of rulings in favor of the prisoners by ordinal position. Circled points indicate the first decision in each of the three decision sessions; tick marks on *x* axis denote every third case; dotted line denotes food break. Because unequal session lengths resulted in a low number of cases for some of the later ordinal positions, the graph is based on the first 95% of the data from each session.

Source: Proceedings of the National Academy of Sciences, vol. 108 no. 17

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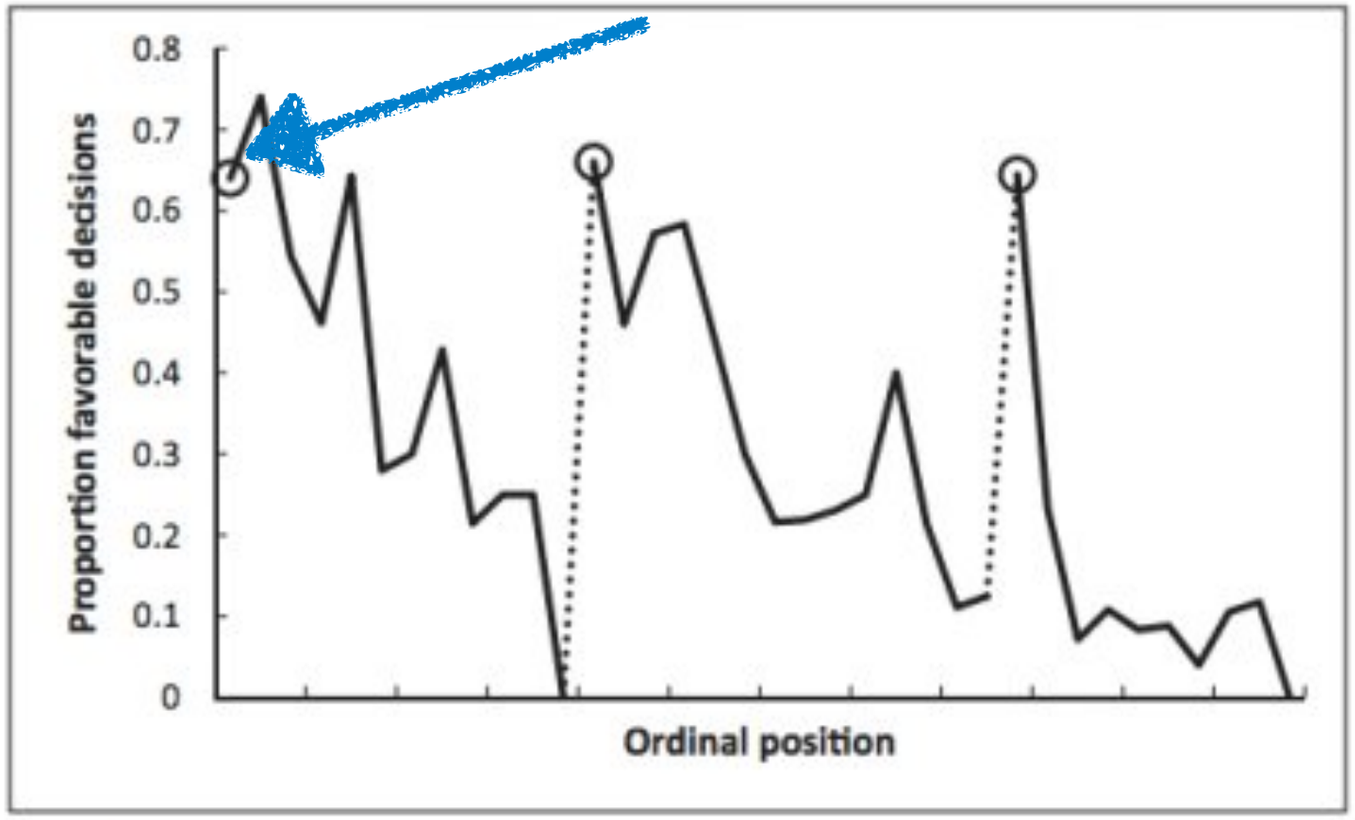

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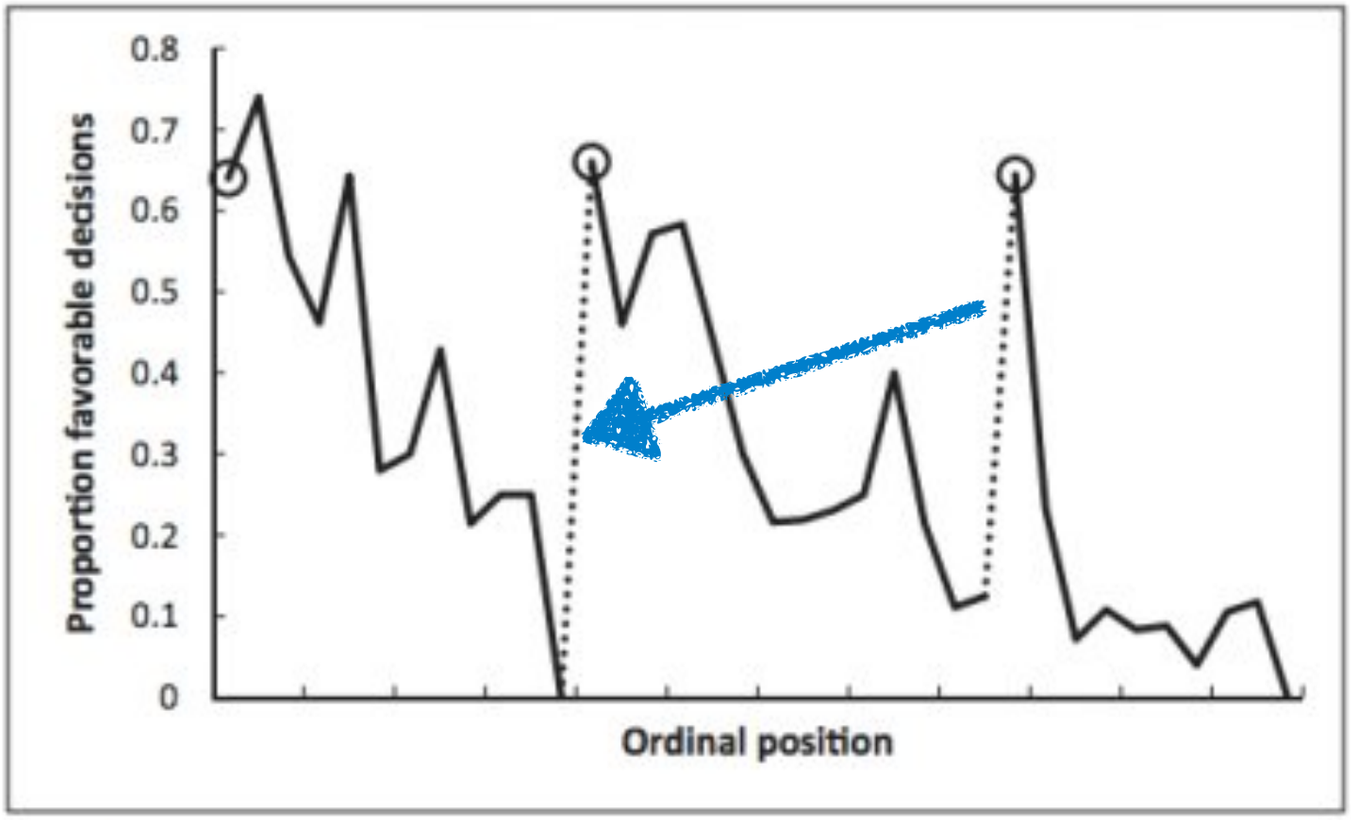

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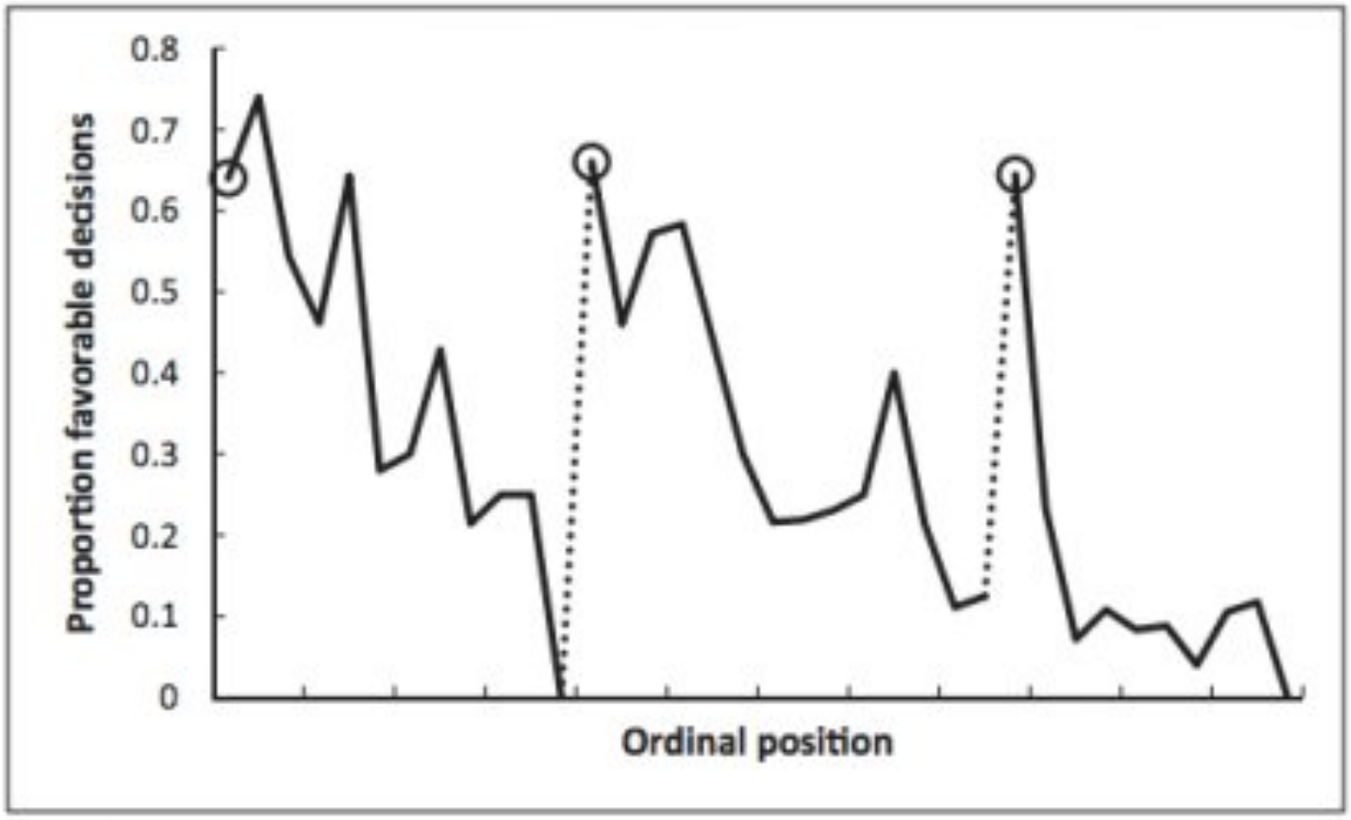

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What Can We Do in the Era of Resource Abundance?

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What Can We Do in the Era of Resource Abundance?

1. Put decisions that matter most first.

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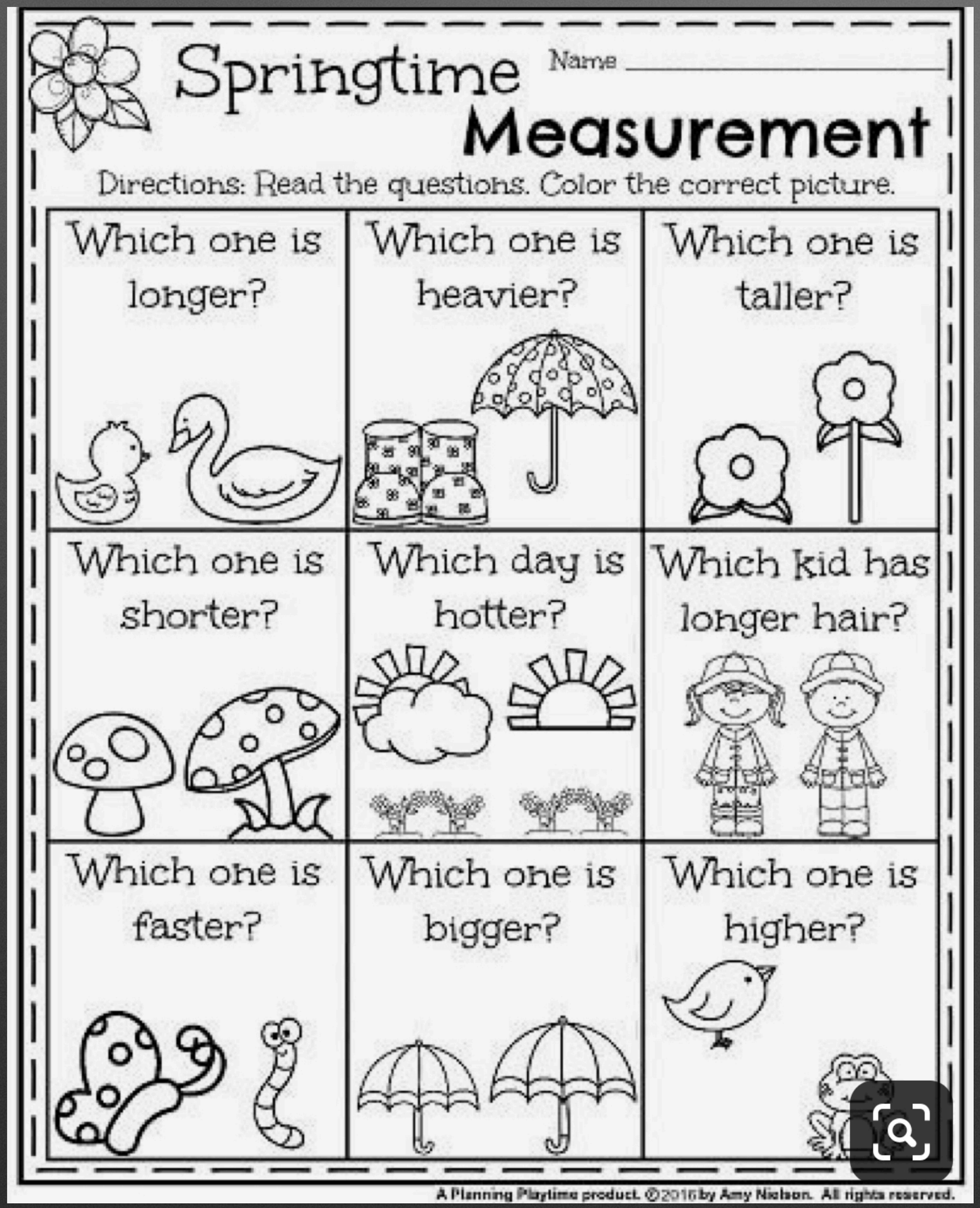
1. Put decisions that matter most first.
2. Make lesson planning a routine.
3. Limit exposure to choice.
4. Use a protocol for tasks.

My Personal Protocol for Identifying a Good Task

	What Makes a Good Task?
Mathematical Content	• Aligns directly with specific grade-level standards • The mathematics presented is accurate and contains no mathematical errors unless presented as an error analysis • Enough information is provided that task is not overly ambiguous
Sensemaking & Reasoning	• Builds on students' previous understandings and toward future learning • Asks students to make sense of situations, contexts, quantities, or abstractions • Makes student reflect on their work for reasonableness and explain the meaning of their results
Engagement & Discourse	• Can be done collaboratively • Encourages students to talk about the math • Incorporates play and reveals the joyfulness of mathematics
Accessibility & Cognitive Demand	• Has a variety of entry points • Allows for a variety of representations and tools to be used • Provides a variety of solution paths • Encourages perseverance and productive struggle



Analyzing a Task

Take a moment and use the protocol to analyze this task.

1) Is this a "good" task according to the protocol?
2) If yes, why? If no, why not?

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Dr. Kristopher J. Childs 🎓👓📚

@DrKChilds

Just because the math task is fun and exciting does NOT mean it is a good task. #BeACriticalConsumer

#ThursdayThoughts #MathTasks #QualityOVERQuantity

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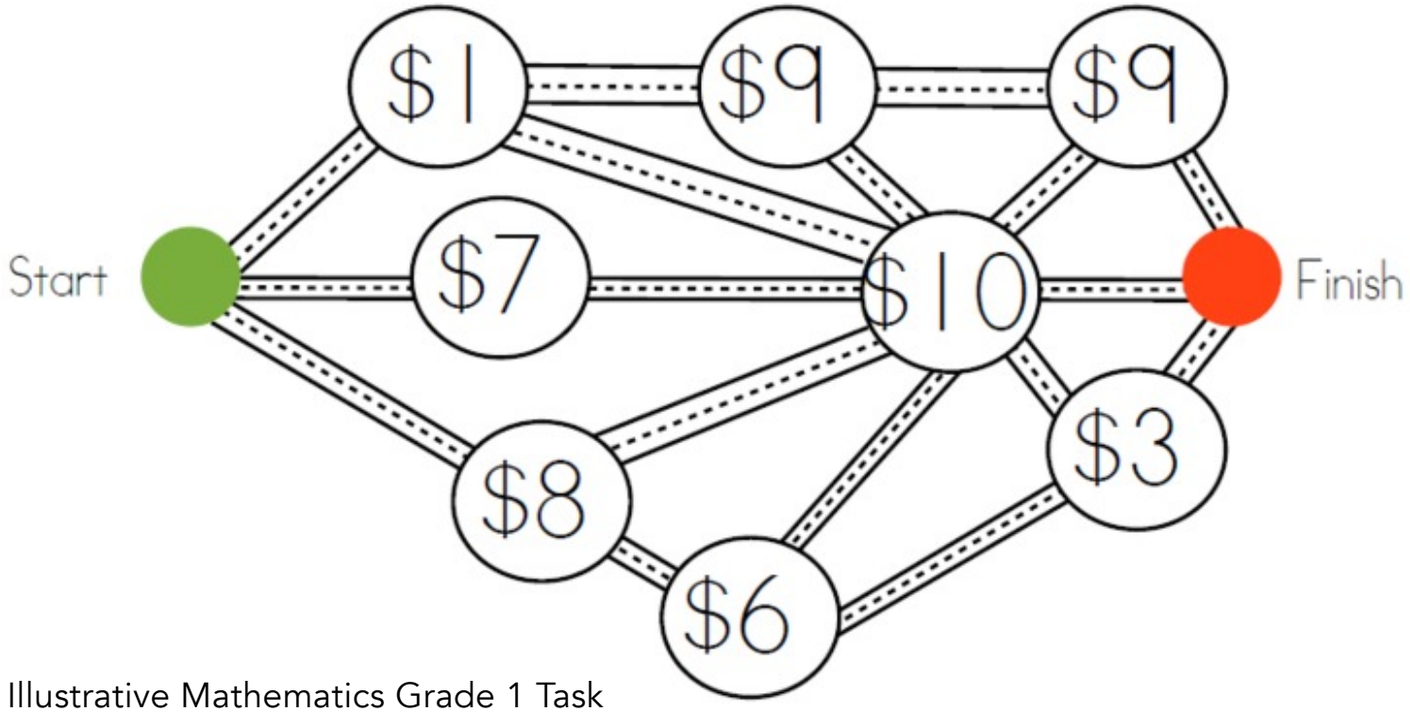


Illustrative Mathematics Grade 1 Task

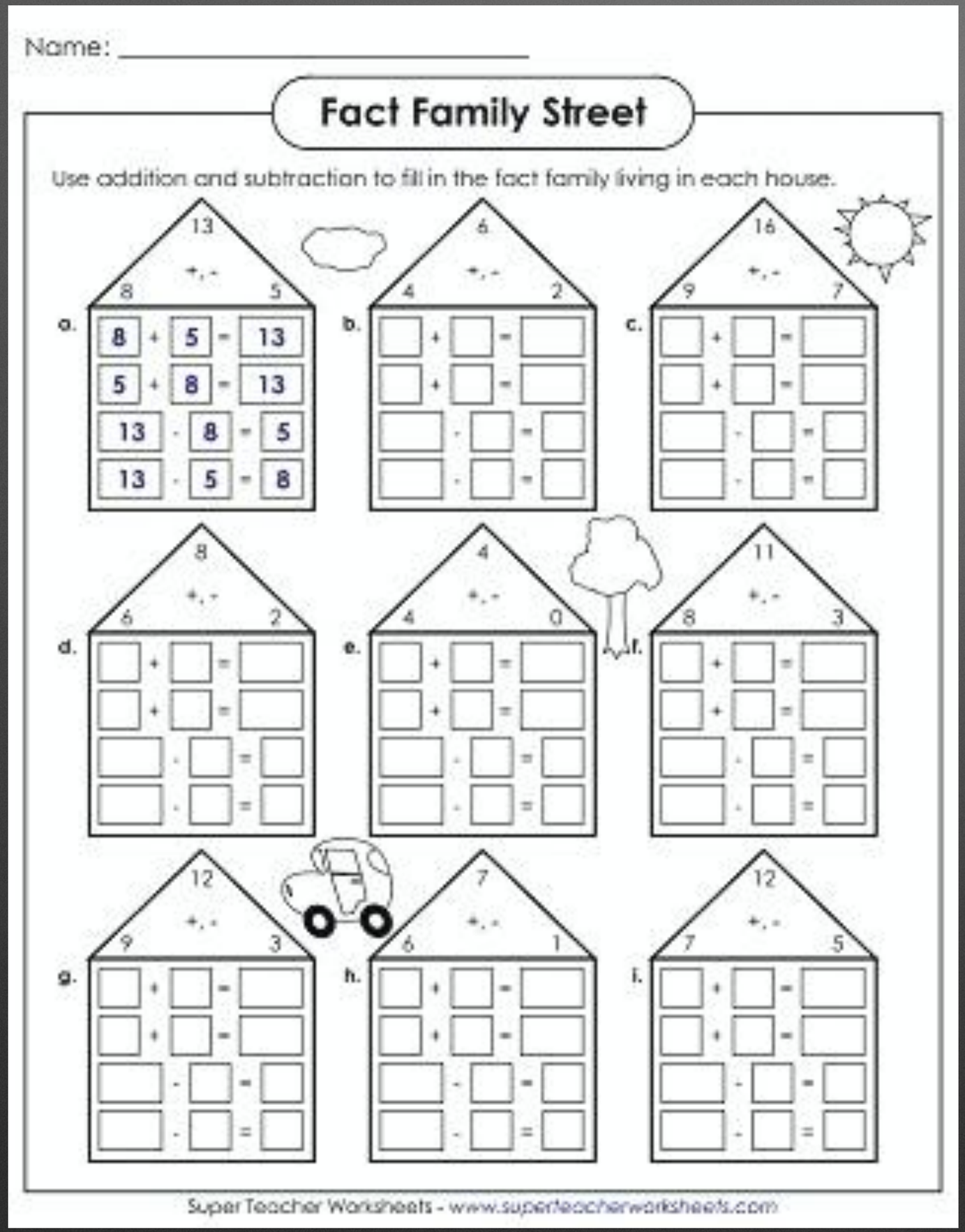
You must get from start to finish by passing through three dots and paying the number of dollars shown. If you have $20 can you get from start to finish by passing through three dots?

Bonus: How many paths can you take where you will spend exactly $20?

Analyzing a Task

Take a moment and use the protocol to analyze this task.

1) Is this a "good" task according to the protocol?
2) If yes, why? If no, why not?


Name: _____

Fact Family Street

Use addition and subtraction to fill in the fact family living in each house.

a. 13 (8, 5)
8 + 5 = 13
5 + 8 = 13
13 − 8 = 5
13 − 5 = 8

b. 6 (4, 2)

c. 16 (9, 7)

d. 8 (6, 2)

e. 4 (4, 0)

f. 11 (8, 3)

g. 12 (9, 3)

h. 7 (6, 1)

i. 12 (7, 5)

Super Teacher Worksheets - www.superteacherworksheets.com

Adjusting a Task

Adjust this task to be a "good" task. What parts of the protocol might you pay closest attention to?

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Reflection

- What might you *start*  doing as a result of this session?

- What might you going to *stop*  doing as a result of this session?

- What might you going to *keep*  doing as a result of this session?

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