Dr. Ed Meyer

The Importance of a Grand Challenge

By Ed Meyer

One of the standard greetings for successful people is, "what are you working on?" By this they mean a grand challenge. Something that requires a lot of time. It could be a physical goal, like running a marathon. It could be playing a particular piece on the piano. It could be solving a hard problem or learning a new language.

Many adults are working on multiple grand challenges simultaneously. However, you don't have to be an adult to work on grand challenges. Infants have grand challenges on which they are continually working – speaking, walking, and understanding the world around them are a few. A person of any age that is working on grand challenges it less likely to use their time inefficiently.

On edmeyer.phd, we present a grand challenge of the month. The first grand challenge is to determine the probability that each of the four players in the game of contract bridge (13 cards in each hand from a standard 52-card deck) gets one ace.

The only knowledge that is needed to solve this problem is that each ace has a probability of 1/52 to be at any location spot in the deck. That is it. The rest is thinking hard for a long time – struggling to understand. "How does this work?" "What does this mean?" A typical math teacher might think that the student needs to be trained about probability to solve this problem. This is incorrect. In fact, in my experience, students trained in the laws of probability have a much harder time with this problem than those who have not. I imagine that the reason is simply that students trained in probability tend to use formulas in place of thinking whereas students without the formulas are forced to think.

> The human brain develops the parts that are used. Like muscles, the parts of the brain that are not used will atrophy. Youngsters who struggle to come up with clever, creative ideas to solve challenging problems will develop neural connections in the part of their brain that involves cleverness and creativity. Students who avoid struggling with challenging problems will eventually lose the ability to struggle with a challenging problem or concept.

This is a challenging problem, which simply means that it provides a fantastic opportunity to develop mental strength and stamina. To develop the ability to struggle with difficult problems. To generate thoughts and ideas in your own brain. *Difficultas evigilat ingenio.*

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Physics professor Ed Meyer has published a three-part video series covering mental development to be creative, clever, and brilliant. The total length is under twelve minutes.

Watch them all on Twitter:

https://twitter.com/Gedanken_Inst/status/174450 6764693786697

https://twitter.com/Gedanken_Inst/status/174450 7088565317919

https://twitter.com/Gedanken_Inst/status/174450 7669296124201

Knight – Joker -Spy Problems

By Ed Meyer

There is one Knight, one Joker and one Spy among Mr. Blue, Mr. Red, and Mr. Green. The Knight can't lie, the Joker can't tell the truth and the Spy can say anything. Identify all three. The solution is unique.

The first is not that challenging, but the second requires some thought.

For more problems, follow Ed on X.

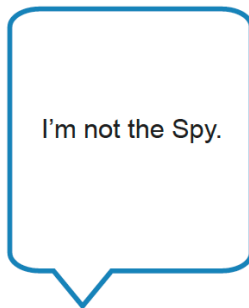https://twitter.com/Gedanken_Inst/

I'm not the Knight.

You are the Knight.

C'est Moi!

_____ K, J or S?

_____ K, J or S?

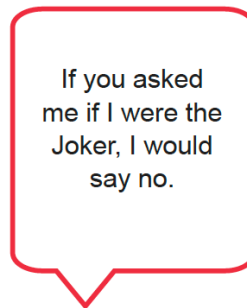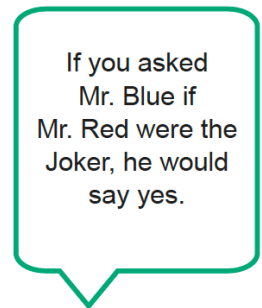_____ K, J or S?

I'm not the Spy.

If you asked me if I were the Joker, I would say no.

If you asked Mr. Blue if Mr. Red were the Joker, he would say yes.

_____ K, J or S?

_____ K, J or S?

_____ K, J or S?

Quoteacrostic of the Month

By Ed Meyer

Instructions: Fill in the words at the bottom from the clues. Then write those letters in the grid at the top to reveal an appropriate quote. Black squares indicate the end of a word, and punctuation has been removed. When you're done, the first letters of the answers to the clues, from top to bottom, will be the author of the quote.

QUOTE

1E	2D	3F	4D	5A	■	6C	7D	■	8F	9E	■
10D	11E	12E	13B	14E	15A	16F	17E	18A	19A	■	■
20C	21B	22E	■	23A	24D	25F	26B	■	27B	28F	29A 30K

CLUES

A. One or the other
    _____ _____ _____ _____ _____ _____
     5   15   18   23   19   29

B. The D in DJIA
    _____ _____ _____
     26   21   27

C. Kipling Poem
    _____ _____
     6   20

D. Blue, White, and Whale
    _____ _____ _____ _____ _____ _____
     10   2   24   4   30   7

E. Sudden release
    _____ _____ _____ _____ _____ _____ _____ _____
     9   11   14   12   17   22   13   1

F. _____ Dame
    _____ _____ _____ _____ _____
     8   28   16   25   3