Magic with Information Theory

Instructions

- 1. Choose one number from the cards, don't say which.
- 2. Think of the number and answer the magician's questions.
- 3. The magician reads your mind and announces your number.
- 4. You may confirm it, even though the magician is never wrong.

5. Get amazed, puzzled, and thinking: **What has happened**?! And why is a mind trick at Science on Stage?

Use science to reveal the magic!

Experiment, observe, make notes, evaluate. Hypothesize, propose a model. Check with reality, start over.

What matters? Which role do the colors play? Can we ask about the cards in a different order? Can we do the trick when seeing only parts of the cards? Or when not seeing them at all?

What are the sizes? How many numbers are there to be chosen from? How many are on each card? How many cards? Which is the smallest and the biggest number? And on each card? Any numbers missing? Is it even possible to identify one number of so many using so few questions (and telepathy)? Is it possible to work out the number according to the answers so magically fast? Does it require actually search the numbers on the cards? Or does it require remembering the card exact contents? So why are the numbers organized as they are? Could they be organized differently? What happens under boundary conditions? Can you find any regularities on (or among) the cards? Can you scale the problem down?

> Have you figured it out? Then you can create your own cards, with even more numbers!

Computer Science in General Education

Computer science is the study of efficient information processing. **Information** completes the univarsal trinity with **energy** and **matter**.

Computer science provides fundamental theoretical results, substantial applications in everyday life and unique opportunities to develop **communication and problem solving skills** at school. Despite this, it does not have an **equal role with other sciences** in general education in many countries.

How is CS included in general education in your country? Do you see links with your subject?

How do your students understand notions like information, problem, model and algorithm, efficiency? **Are they ready to use them** when appropriate?

Learn more and google **Computational thinking**, or **Computer science unplugged**!

1	9	17	25
3	11	19	27
5	13	21	29
7	15	23	31
2	10	18	26
3	11	19	27
6	14	22	30
7	15	23	31
4	12	20	28
5	13	21	29
6	14	22	30
7	15	23	31
8	12	24	28
9	13	25	29
10	14	26	30
11	15	27	31
16	20	24	28
17	21	25	29
18	22	26	30
19	23	27	31

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