



# The Man, The Cube, Its Impact



Texas Essential Knowledge & Skills

The standards for this lesson can be found throughout the ELAR TEKS for grades 1-12 with varying levels of depth and complexity. In Elementary grades these TEKS are found under the following topic headings in the 107 adoption:

- Reading/Comprehension of Informational Text/Expository Text
  - identifying main idea
  - analyzing the development of the main idea
  - Summarize text to identify supporting details
- Oral Language Proficiency Standards K-5.1C
  - Using Oral Language to convey ideas
- Inquiry and research: listening, speaking, reading, writing, and thinking using multiple texts
  - K.12/1-5.13C - identify and gather relevant information from a variety of sources; *{K-with adult assistance}*
  - K.12D/1-5.13E - demonstrate understanding of information gathered; *{K-with adult assistance}*
  - K.12E/1.13E/2.13G/3-5.13H - use an appropriate mode of delivery, whether written, oral, or multi-modal, to present results.

Objectives:

- 1) Students will learn about the history of the Rubik's® Cube through research (and presentations).
- 2) Students will practice collecting and organizing information.
- 3) Students will prepare and share a presentation for the class.

Materials:

- Guiding Questions worksheets
- Presentations Notes worksheet
- Computers/devices with internet access (for research)
- Art supplies\* (poster paper, markers, tape, etc.)
- Projector\*
- Speakers\*
- \*depending on presentation expectations

**Procedure:**

1. Explain your presentation expectations (duration, number of facts, type of display, etc.).
2. Break the class up into groups of 2---3, and assign each group a topic:  
  
Who is Ernő Rubik?  
How did the Rubik's® Cube come to be?  
What impact has the Rubik's Cube had over the years?  
What else? (fun & random facts about the Rubik's Cube)
3. Hand each group the appropriate Guiding Questions worksheet.
4. Groups work on collecting, organizing, and displaying information. (This could take one or more class periods.)
5. Groups take turns sharing their presentations with the class in order by topic (man, origin, impact, then fun facts). Students will take notes on the Presentation Notes worksheet during classmates' presentations.
6. After all of the presentations, give the students some time to answer the questions at the bottom of the worksheet.
7. If not already shown in a presentation, show the class a five minute clip from a Time interview with Ernő Rubik found on YouTube at:  
<https://goo.gl/jhe9BV> or  
<https://www.youtube.com/watch?v=0poQ8q8RzSg>

**Notes to Teacher:**

If you have more than four groups, topics may be assigned to multiple groups.

Also, check your school's internet filter. I have to get mine temporarily altered so that sites aren't blocked when students are researching.

An article about Ernő Rubik is included to give you some background information.

## Guiding Questions

Topic: Who is Ernő Rubik?

Partners:

Questions:

Where was Ernő born?

Where did he grow up?

What was he like as a child?

What did he like as a child?

Where was he educated?

What kind of work did he do?

What was his family like?

What is he doing now?

Presentation Plans:

Who is going to say what?

What is going to be displayed? And how?

## Guiding Questions

Topic: How did the Rubik's® Cube come to be?

Partners:

Questions:

When was the Rubik's Cube made?

Where was it made?

How was it made?

Why was it made?

Where did Ernő get the idea?

How long did it take to make?

What did it look like?

Presentation Plans:

Who is going to say what?

What is going to be displayed? And how?

## Guiding Questions

Topic: What impact has the Rubik's® Cube had over the years?

Partners:

Questions:

How, and when, did the Rubik's Cube make it around the world?

What Rubik's brand toys came after?

How has the Rubik's Cube inspired the world of art?

What other twisty puzzles have been made?

How, and when, did speed solving become a sport?

What is the World Cubing Association?

Presentation Plans:

Who is going to say what?

What is going to be displayed? And how?

## Guiding Questions

Topic: What else? (fun & random facts about the Rubik's® Cube)

Partners:

Questions:

How many Rubik's Cubes have been sold?

Where is the Rubik's museum, and what is in it?

What is the most valuable Rubik's Cube?

How many ways can a Rubik's Cube be scrambled? How long would it take to see each?

What is the world record for solving the Rubik's Cube?

What size is the smallest Rubik's Cube? The largest?

What percent of the population owns a Rubik's Cube? What percent can solve one?

What are some other talented things that have been done with a Rubik's Cube?

Presentation Plans:

Who is going to say what?

What is going to be displayed? And how?

## Notes from Student Presentations

**Write down three interesting facts learned from each of the different presentations.**

Who is Ernő Rubik?

1)

2)

3)

How did the Rubik's® Cube come to be?

1)

2)

3)

What impact has the Rubik's Cube had over the years?

1)

2)

3)

What else? (fun & random facts about the Rubik's Cube)

1)

2)

3)

What do you think was the greatest influence in young Ernő's life that lead him to develop the Rubik's Cube?

What feature(s) made the Rubik's Cube unique?

Why do you think the Rubik's Cube became such a cultural phenomenon?

What impresses you the most about Ernő Rubik and his cube?



## **Ernö Rubik: Inventor of the Rubik's® Cube**

Ernö Rubik was born on July 13, 1944 in Budapest, Hungary to his parents, Erno Rubik, Sr., an aeronautical engineer who designed gliders and light aircraft, and Magdolna Szántó, a poet. Rubik studied sculpture at the Technical University in Budapest and then architecture at the Academy of Applied Arts and Design, also in Budapest. Rubik was a professor at the Academy when he invented the Rubik's Cube in 1974.

Rubik's first design was made of 27 wooden blocks. It took Rubik about six weeks to design a mechanism that would allow the rows to rotate, thus rearranging the smaller cubes, but reforming a large cube. Once he had a working cube, Rubik spent no less than a month figuring out a solution method- never writing anything down, just working through the solution in his head.

As a teacher, Rubik was always looking for new ways to present information to his students. He used his cube invention to explain spatial relationships as well as algebraic group theory. Rubik also considered his invention to be a work of art, a mobile sculpture that may look very simple at first, but is, in fact, rather complex. Rubik marveled at the fact that throughout its many transformations in colors and patterns, the cube remains a single unit.



The first cubes were made and sold in Hungary as “Magic Cubes.” When Ideal Toy Company began the sale of the cube in the United States in 1980, the name was changed to the Rubik’s® Cube, which is thought to be one of the first toys named after its inventor.

The popularity of the Rubik’s Cube quickly spread and the first international speedcubing competition was held in 1982. Today hundreds of speedcubing competitions are held regularly around the world. As of June 2016, Lucas Etter, a 14-year-old from Kentucky, holds the world record for the fastest single solve of a 3x3 Rubik’s Cube. Etter solved the puzzle in 4.904 seconds in November of 2015.

The Rubik’s Cube holds the record as the world’s best-selling puzzle/ toy with over 350 million units sold. It is estimated that 1 in 5 people worldwide has held a Rubik’s Cube. There have been over 50 books published describing how to solve the puzzle, as well as humorous books poking fun at cube solvers and the previous cube solving books.

The Rubik’s Cube is back on track to being as popular today as it was in the early 1980s when it was first available in the United States. Part of the resurgence in popularity is credited to today’s Internet culture and the availability of solution guides and techniques for solving that can be learned from streaming videos online, as well as teachers that are bringing Rubik’s Cubes into their classrooms to empower today’s youth to learn to solve the Cube, and incorporating the powerful tool into math and science lessons.

#### References:

- "Erno Rubik". *Encyclopædia Britannica. Encyclopædia Britannica Online*. Encyclopædia Britannica Inc., 2016. Web. 17 Jun. 2016
- "Erno Rubik Biography." *The Famous People website*. The Famous People, n.d. Web. 17 June 2016.
- Fisher, Dave. "Erno Rubik and the Invention of the Rubik's Cube." *About.com Home*. N.p., 3 Nov. 2015. Web. 6 June 2016.
- Lynch, Kevin. "Confirmed: Teenager Lucas Etter Sets New Fastest Time to Solve a Rubik's Cube World Record." *Guinness World Records*. Guinness World Records, 24 Nov. 2015. Web. 6 June 2016.
- Slocum, Jerry. *The Cube: The Ultimate Guide to the World's Bestselling Puzzle: Secrets, Stories, Solutions*. New York: Black Dog & Leventhal, 2009. Print.
- "The History of the Rubik's Cube." *Rubiks*. Rubiks.com, n.d. Web. 17 June 2016.