

Einstein

A Crossword Puzzle

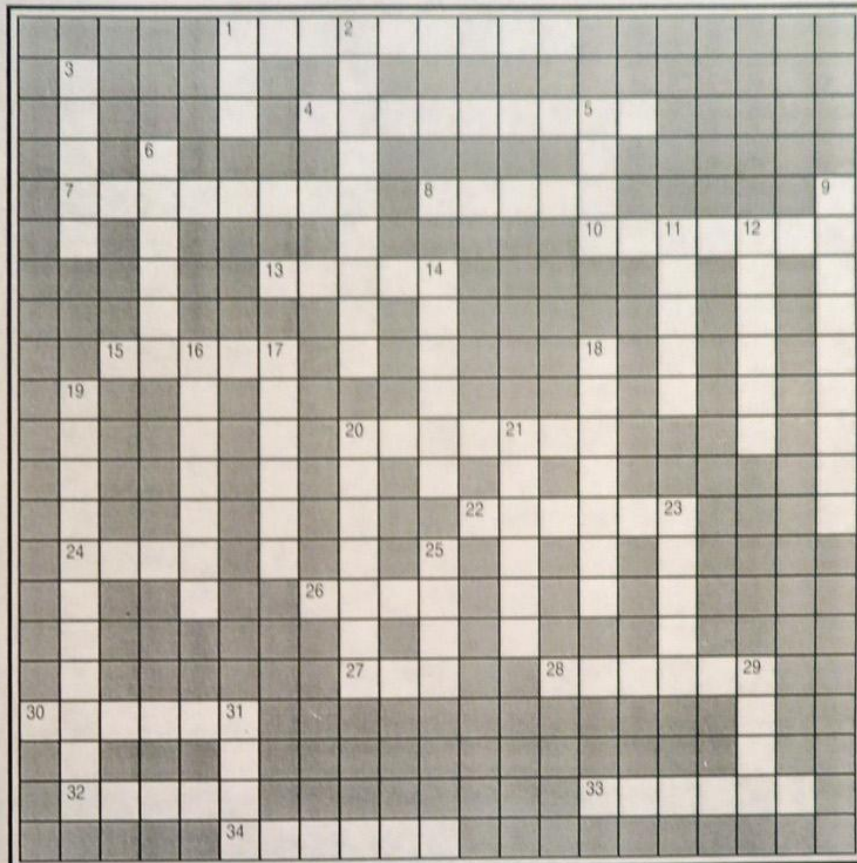
ACROSS

- 1 President to whom Einstein wrote.
- 4 This Japanese city was bombed.
- 7 Einstein loved to play with these.
- 8 Einstein rarely wore these.
- 10 As a child, Einstein was unhappy when he saw one of these.
- 13 A statement which is accepted without proof.
- 15 The relative who helped Einstein understand algebra.
- 20 The country in which Einstein was born.
- 22 Einstein studied this; another word for movement.
- 24 To entertain neighborhood children, Einstein wiggled these.
- 26 Einstein gave the world new ways of thinking about this.
- 27 The opposite of no.
- 28 The leader of Nazi Germany in W.W. II.
- 30 The children loved to see Einstein's ears do this.
- 32 Einstein's work made the exploration of outer _____ more feasible.
- 33 Einstein's first name.
- 34 As a boy, Einstein hated to go here.

DOWN

- 1 The color of Einstein's front door in Princeton.
- 2 A person who knows a great deal about some branch of science.
- 3 Einstein's greatest desire for the world.
- 5 What M stands for in $E = MC^2$.
- 6 The instrument Einstein loved to play.
- 9 The city in America where Einstein worked.
- 11 In Einstein's famous equation, C stands for the speed of _____.

- 12 This country invited Einstein to be its president.
- 14 Einstein's favorite composer.
- 16 This object first interested Einstein in science.
- 17 In Einstein's equation, E stands for this.
- 18 The science that deals with matter and energy and the laws that govern them.
- 19 Einstein enjoyed studying this.
- 20 The force that pulls things toward the center of the earth.
- 21 The kind of bomb developed with nuclear energy.
- 23 A famous prize awarded to Einstein in 1921.
- 25 Hitler made much of Europe unsafe for these people.
- 29 Some children thought Einstein looked like a lion. They liked to hear him _____.
- 31 Wonderful things can be discovered if one opens these.

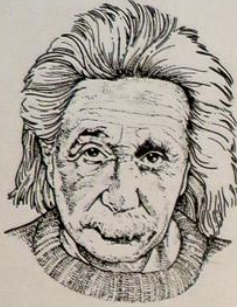


Albert Einstein: The Human Side

by Wilbert Reimer and Luetta Reimer

Biographical Facts:

Albert Einstein was born in the Bavarian city of Ulm, Germany, on March 14, 1879. His parents were concerned about his slow development and poor progress in school. After routine education in Germany and Switzerland, Einstein studied at the Swiss Polytechnic Institute in Zurich. He taught and researched at several leading universities in Europe before immigrating to the United States in 1932. He directed the school of mathematics at the Institute for



Advanced Study in Princeton, New Jersey, until his death on April 18, 1955.

Contributions:

Albert Einstein was a theoretical physicist and a mathematical genius. He is best known for developing the theory of relativity. His work also made a dramatic impact on thinking about time, space, mass, light, motion, and gravitation. He was awarded the Nobel Prize in Physics in 1921.

Quotations by Einstein:

"The important thing is not to stop questioning."

"Do not worry about your difficulties in mathematics; I can assure you that mine are still greater."

"The whole of science is nothing more than a refinement of everyday thinking."

"Great spirits have always encountered violent opposition from mediocre minds."

"Truth resembles a statue of marble which stands in the desert and is continuously threatened with burial by the shifting sand."

"I am absolutely convinced that no wealth in the world can help humanity forward...the world needs permanent peace and lasting good will."

"Scientific problems are familiar to me, but I have neither the natural capacity nor the necessary experience to handle human beings."

"Where x stands for hard work, y stands for play, and z stands for knowing when to listen, $x + y + z = \text{success}$."

Anecdotes:

The Intriguing Compass

When Albert Einstein was five years old, his father gave him a compass. This object, he said later, awak-



ened his interest in science. He asked question after question, and lay awake at night thinking about magnetic forces and gravitation.

A Clever Uncle

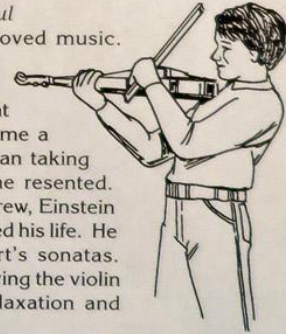
Young Albert did not like school. He was shy and unathletic, which made his social adjustment difficult. From his early childhood, he had an aversion to soldiers; even when he saw them marching in parades, he felt they were being coerced into conformity. The schools in Germany, he thought, were too much like the military.

Algebra confused Albert. He daydreamed and procrastinated until his Uncle Jacob, who lived with the family, taught him to see algebra as a useful problem-solving technique. "Algebra," his uncle said, "is a merry science; when the animal we are hunting cannot be caught, we call it 'x' temporarily and continue to hunt it until it is bagged." After this explanation, Albert learned to enjoy mathematics.

Music to Soothe the Soul

Einstein's mother loved music.

Since her young son showed no promise for academics, she thought perhaps he could become a musician. At 6, he began taking violin lessons, which he resented. But soon, as his skills grew, Einstein found that music enriched his life. He especially loved Mozart's sonatas. Throughout his life, playing the violin provided invaluable relaxation and enjoyment.



Looking for Work

In Switzerland, Einstein completed a degree in physics with honors. However, he was unable to find a teaching position. There was some prejudice against him because he was both German and Jewish. He paid little attention to how he looked; his clothes were often unkempt and his hair mussed. He usually spoke his mind, even if his comments were tactless. Everyone could tell he really didn't care about teaching. Research was his first love.

Einstein finally found work in the patent office in Berne, Switzerland. The job was undemanding, leaving him time to think and work on his own research. It was while he worked in the patent office that Einstein developed his world-changing theory of relativity.

A "Relatively" Marvelous Theory

In his complex theory of relativity, Einstein showed that time varied, depending on motion or speed. His famous equation,

$$E = MC^2$$

clarified his understanding of how closely energy and matter are related. In this equation, "E" represents the energy in any particle of matter, "M" represents the mass of the particle, and "C" stands for the speed of light. His proof that matter could be changed into energy led to the development of atomic energy and, ultimately, the atomic bomb.

The Mail Must Go Through

Einstein soon became famous around the world. How well known he was is illustrated by a true story. It seems that two young men wanted to ask Einstein some questions, but didn't know exactly where he lived. They wrote to him, simply addressing the letter to "Europe." Amazingly, the letter reached the famous scientist, who was considerably impressed with European mail delivery!



A Letter to the President

In 1939, Einstein became concerned that Germany was about to develop an atomic bomb. He was worried that they might use it to conquer the world. Out of this concern, he wrote to President Franklin Roosevelt, explaining how the bomb could be made. He hoped that the United States could use this information to prevent war. Perhaps if other nations realized the power of this bomb, they would be willing to work for peace.



Einstein was deeply disappointed when the U.S. dropped the first atomic bomb on Hiroshima. He had never wanted atomic power to be used for destruction. For the rest of his life, he devoted himself to promoting world peace.

The Absent-Minded Professor

Einstein fit all the stereotypes of the forgetful, confused professor. During his years at Princeton, he became known for his unconventional behavior. He rarely wore socks or a hat or used an umbrella; wet hair would dry quickly, he said. He often forgot where he lived, and sometimes had to call the University's switchboard to ask his address. Once on his street, he couldn't remember which house was his. This problem was finally

resolved when he hired a handyman to paint his front door bright red.



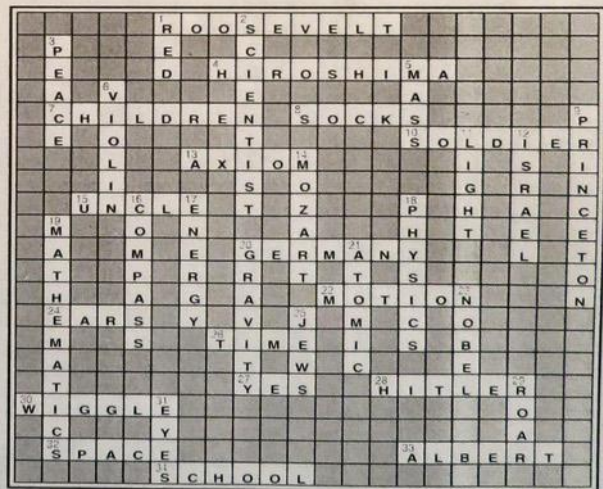
Sharing the Lollipops

Albert Einstein loved children, and often played with them in his Princeton neighborhood. Sometimes he joined the boys in football, and often amazed them all with his capacity to wiggle his ears. One little girl discovered that he knew a lot about arithmetic. She came frequently to the "funny old man" for help. His pay? She promised him a lollipop each time he helped her solve a problem.

Activity:

The crossword puzzle entitled "Einstein," teaches and reinforces facts about Einstein's life and work. Younger students may be given a list of words from which to select answers.

Solution:



Related Activities:

1. For young students, read aloud "Albert Einstein," by Pamela Bradbury. This book, part of the *Great American Series*, is delightfully illustrated. It is published by Simon & Schuster Inc., New York.
2. Information about Albert Einstein is abundant. Ask students to research various aspects of his life and his contribution to science. Consider group presentations, skits, video reports, and bulletin board displays.