

# Albert Einstein and the power of creativity

FROM EARLIEST TIMES people to the natural laws of the universe and our own world. Isaac Newton, the famous English mathematician, one of the greatest contributions to our understanding when he how the planets stay in orbit around the sun and how comets and stars in space. He also how such natural forces as gravity and friction the motion of objects on Earth. His explanations to



Newton's laws of motion. Because of these laws, modern science

But as scientists more and more, they that Newton's laws not quite perfect. They did not some things exactly enough. It clear to many scientists that someone have to find a new, creative way to describe the way the universe works.

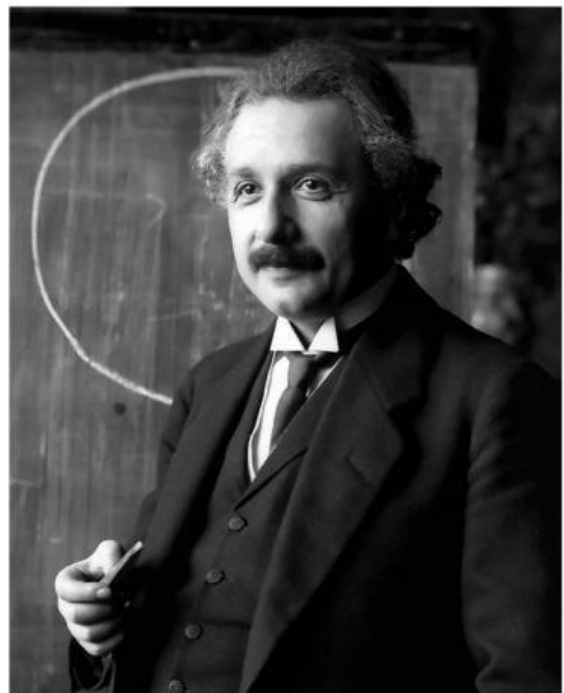
Albert Einstein born more than a hundred years ago in the city of Ulm, in southern Germany. He up at an exciting time, when new scientific discoveries were being made almost daily. Albert an observant boy. He to watch carefully what was happening around him, the motion of waves on a lake, the drift of clouds in the sky, the bending of tree branches in the breeze, the beauty of a rainbow. Whatever he something new to teach him.

One day when he was five years old, Albert Einstein saw something that was different from anything he had seen before. His father gave him a compass. The compass has a needle that points out which direction is north. No matter how much his father turned the compass to get the needle spinning, as soon as he stopped, the needle would come to a halt and point to north every time. Albert was amazed. It was almost like magic. There were no springs or gears in the compass that made the needle move. There was just the pointer needle, mounted delicately so that it could turn in a full circle.

The boy could not understand what the needle was doing. The needle acted that way. It was as if some power was pulling it to the north. He could not see this power, he could not feel it, he could not explain it. His father knew about magnetism but could not explain it. He did not know what magnetism is.

Albert's father told him that there are invisible forces at work in the world, and this had a deep impression on him. It was in his mind many kinds of explanations to show why things happen the way they do.

As he grew older, his interests in mathematics and science grew as well. By the time he was 17, he knew more about these subjects than most adults. He saw clearly that the latest experiments with light and with electricity gave results that did not quite fit with Newton's laws.

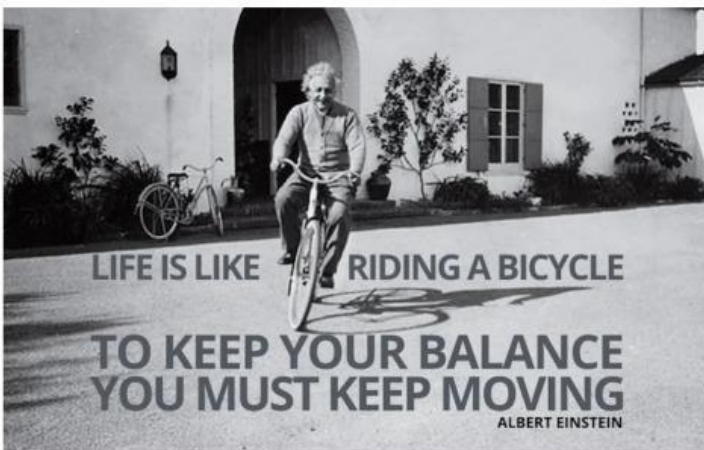


He thought that it would take lots of creativity and imagination to achieve a better understanding of the universe.

Einstein completed his schooling and found a job at the patent office in Berne, Switzerland. Now he was able to relax and think down the ideas he had stored away in his mind.

In 1905 he published a series of papers on his ideas. They changed the way scientists think about the world. Einstein showed scientists understand how the atom is put together. In his special theory of relativity, he explained how space, time, and motion are related. He also introduced in his now famous equation,  $E = mc^2$ , that energy and matter are closely related.

Ten years later Einstein published his general theory of relativity. It introduced an



entirely new concept of gravitation. The theory showed that the universe is curved, something like the surface of a very large soap bubble.

Soon astronomers made observations that confirmed Einstein's predictions, and

scientists around the world recognized Einstein as one of the greatest thinkers of all time. He was awarded the Nobel prize in physics.

Albert Einstein's creativity showed scientists a new way to understand the mysteries of very small things, like atoms, and of very large things, like space. His genius led to our world of nuclear power and space travel that was once thought impossible.