

AP DIGEST

An Advanced Placement Program Student Resource

Advanced Academic Services

Austin Independent School District



Thinking like a Genius

Even if you're not a genius, you can use the same strategies as Aristotle and Einstein to harness the power of your creative mind and better manage your future."

The following strategies encourage you to think productively, rather than reproductively, in order to arrive at solutions to problems. "These strategies are common to the thinking styles of creative geniuses in science, art, and industry throughout history."

1. **Look at problems in many different ways. Find new perspectives that no one else has taken (or no one else has publicized!).**

Leonardo da Vinci believed that, to gain knowledge about the form of a problem, you begin by learning how to restructure it in many different ways. He felt that the first way he looked at a problem was too biased. Often, the problem itself is reconstructed and becomes a new one.

2. **Visualize!**

When Einstein thought through a problem, he always found it necessary to formulate his subject in as many different ways as possible, including using diagrams. He visualized solutions, and believed that words and numbers as such did not play a significant role in his thinking process.

3. **Produce! A distinguishing characteristic of genius is productivity.**

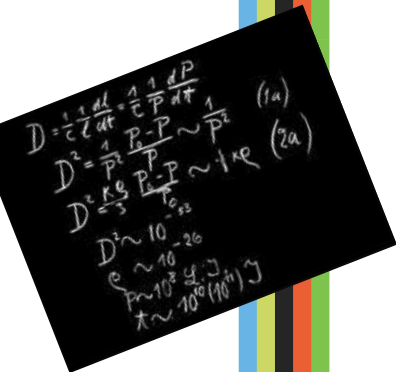
Thomas Edison held 1,093 patents. He guaranteed productivity by giving himself and his assistants idea quotas. In a study of 2,036 scientists throughout history, Dean Keith Simonton of the University of California at Davis found that the most respected scientists produced not only great works, but also many "bad" ones. They weren't afraid to fail, or to produce mediocre in order to arrive at excellence.

4. **Make novel combinations. Combine, and recombine, ideas, images, and thoughts into different combinations no matter how incongruent or unusual.**

The laws of heredity on which the modern science of genetics is based came from the Austrian monk Grego Mendel, who combined mathematics and biology to create a new science.

5. **Form relationships. Make connections between dissimilar subjects.**

Da Vinci forced a relationship between the sound of a bell and a stone hitting water. This enabled him to make the connection that sound travels in waves. Samuel Morse invented relay stations for telegraphic signals when observing relay stations for horses.





6. Think in opposites.

Physicist Niels Bohr believed that if you held opposites together, then you suspend your thought, and your mind moves to a new level. His ability to imagine light as both a particle and a wave led to his conception of the principle of complementarity. Suspending thought (logic) may allow your mind to create a new form.



7. Think metaphorically.

Aristotle considered metaphor a sign of genius, and believed that the individual who had the capacity to perceive resemblances between two separate areas of existence and link them together was a person of special gifts.

8. Prepare yourself for chance.

Whenever we attempt to do something and fail, we end up doing something else. That is the first principle of creative accident. Failure can be productive only if we do not focus on it as an unproductive result. Instead: analyze the process, its components, and how you can change them, to arrive at other results. Do not ask the question "Why have I failed?", but rather "What have I done?"

9. Have patience.

Paul Cézanne (1839 – 1906) is recognized as one of the 19th century's greatest painters, and is often called the father of modern art, an avant garde bridge between the impressionists and the cubists. During his life he only had a few exhibitions though his influence on subsequent artists was great as an innovator with shape and form. His genius, however, was not evident until late in life. He was refused admission to the Ecole des Beaux-Arts at age 22 and his first solo exhibition was at age 56. His genius was the product of many years' practice and experimental innovation.



Adapted with permission from: Michalko, Michael, **Thinking like a genius: Eight strategies used by the super creative, from Aristotle and Leonardo to Einstein and Edison** ([New Horizons for Learning](http://www.newhorizons.org/newhorizonsforlearning)) as seen at http://www.newhorizons.org/wwart_michalko1.html, (June 15, 1999). This article first appeared in *THE FUTURIST*, May 1998.