



# AP Chalkboard

An AP Support Newsletter

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<http://www.austinisd.org/academics/curriculum/qt/ap.phtml>

## 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."

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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.

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*"They weren't afraid to fail, or to produce mediocre in order to arrive at excellence."*

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## Thinking Like a Genius Continued

*“Aristotle considered metaphor a sign of genius.”*

### 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.

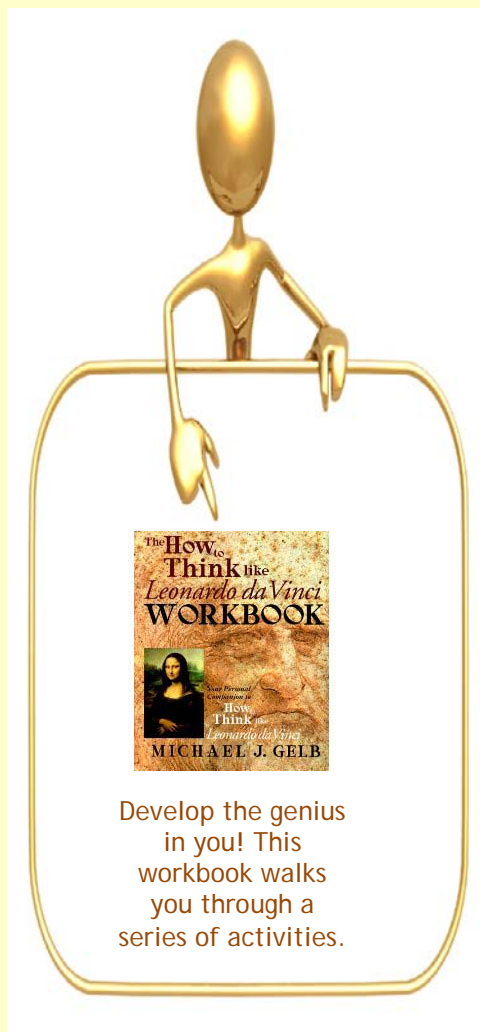
### 8. Prepare yourself for chance.

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) as seen at [http://www.newhorizons.org/wwart\\_michalko1.html](http://www.newhorizons.org/wwart_michalko1.html), (June 15, 1999). This article first appeared in *THE FUTURIST*, May 1998.



Develop the genius in you! This workbook walks you through a series of activities.

## Overcoming Test Anxiety

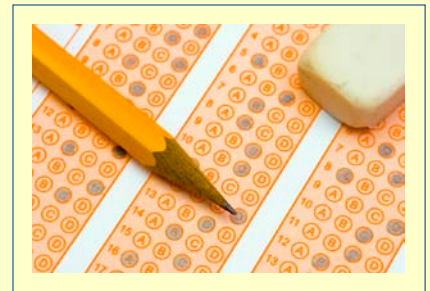
Most students experience some level of anxiety during an exam; however, when anxiety affects exam performance it has become a problem.

### Test preparation to reduce anxiety:

- Approach the exam with confidence:  
Use whatever strategies you can to personalize success: visualization, logic, talking to your self, practice, team work, journaling, etc.  
View the exam as an opportunity to show how much you've studied and to receive a reward for the studying you've done.
- Be prepared!  
Learn your material thoroughly and organize what materials you will need for the test. Use a checklist.
- Choose a comfortable location for taking the test with good lighting and minimal distractions.
- Allow yourself plenty of time, especially to do things you need to do before the test and still get there a little early.
- Avoid thinking you need to cram just before.
- Strive for a relaxed state of concentration.
- Avoid speaking with any fellow students who have not prepared, who express negativity, who will distract your preparation.
- A program of exercise is said to sharpen the mind.
- Get a good night's sleep the night before the exam.
- Don't go to the exam with an empty stomach.  
Fresh fruits and vegetables are often recommended to reduce stress.  
Stressful foods can include processed foods, artificial sweeteners, carbonated soft drinks, chocolate, eggs, fried foods, junk foods, pork, red meat, sugar, white flour products, chips and similar snack foods, foods containing preservatives or heavy spices.
- Take a small snack, or some other nourishment to help take your mind off of your anxiety.  
Avoid high sugar content (candy) which may aggravate your condition.

### During the test:

- Read the directions carefully.
- Budget your test taking time.
- Change positions to help you relax.
- If you go blank, skip the question and go on.
- If you're taking an essay test and you go blank on the whole test, pick a question and start writing.  
It may trigger the answer in your mind.
- Don't panic when students start handing in their papers. There's no reward for being the first done.



## Virtual Tools for School

**Bartleby.com:** [www.bartleby.com](http://www.bartleby.com)

With more than 370,000 full-text searchable web pages categorized by subject, and indexed by author, title and other unique criteria, this is the place to be when a paper has to be written.

**Biography.com:** [www.biography.com](http://www.biography.com)

Published by A&E Television Networks, this site includes biographies on everyone from Cher to John F. Kennedy.

**FreeTranslation:** <http://www.freetranslation.com/>

This site converts text from one language into another. Simply type and paste up to 10,000 characters (about 1,800 words) into the search window and then select the desired language. Alternatively, you can cut and paste a Web URL to convert the entire site.

**History Net:** [www.thehistorynet.com](http://www.thehistorynet.com)

The site includes U.S. history from Colonial Times to the present and features articles, daily quizzes, and pictures of the day.

**HowStuffWorks:** <http://www.howstuffworks.com/>

Find answers to your questions. Simply type a query into the search window or peruse the topics by category.

**Math.com:** <http://www.math.com/>

This site provides help in a number of mathematics-related subjects, including basic grade-school math, calculus, algebra, geometry, trigonometry, and statistics. Practice exercises are automatically graded, plus this free site also features a glossary, calculators, homework tips, math games, and lesson plans for teachers.

**National Geographic:** [www.nationalgeographic.com](http://www.nationalgeographic.com)

With maps, cultures, and facts from around the world, this website is a geography and history lesson wrapped up into one.

**Novelguide.com:** <http://www.novelguide.com/>

Novelguide.com is a reliable and free source for literary analysis of classic and contemporary books. The site offers character profiles, metaphor and theme analysis, and author biographies.

**Online Newspapers:** [www.onlinenewspapers.com](http://www.onlinenewspapers.com)

From Honduras to St. Lucia, this site provides links to thousands of newspapers across the globe.

**Poets.org:** [www.poets.org](http://www.poets.org)

Published by The Academy of American Poets, this site fosters the appreciation of contemporary poetry with biographies, poem searches, and more.

**Political Resources:** [www.politicalresources.net](http://www.politicalresources.net)

With more than 80 countries represented, this site includes listings of political sites available on the Internet sorted by country, with links to parties, organizations, governments, media and more.

**Refdesk:** <http://www.refdesk.com/>

Refdesk.com has served as a one-click springboard to many of the Web's top dictionaries, encyclopedias, calculators, atlases, news headlines, and search engines. The site also includes a handy "homework helper" section that provides help in all subjects to students in every grade.

**Shakespeare Online:** <http://www.shakespeare-online.com/>

Visitors can read every play or poem from the world's most celebrated writer and, more importantly, make some sense of his works with free analysis, Old English language translations, and famous quotes.

**Smithsonian Institution:** [www.si.edu](http://www.si.edu)

With various online resources, your child can search by region and topic and find information on hundreds of subjects including art, aviation and transportation.