## **Just Published! Spring 2014**

## Invention, Innovation and Creative Thinking in the Gifted Classroom

## **Activities & Design Challenges for Students in Middle & High School**

ISBN 0-910609-65-9

## Harry T. Roman Distinguished Technology Educator and Inventor

**COST** = \$22.00 Including Postage & Handling

KEY WORDS: Invention, Innovation, Creative Problem-Solving, Invention and STEM, Invention Process, Creating the Right Learning Environment, Team Work, Patent Process, Electric Vehicle Challenge, Invention Notebook, Quotations from Great Inventors, Great Inventors of Recent Times, Design Challenges, What I Learned about STEM in My Father's Workshop.

- The Author is a retired engineer, inventor, STEM educator, teacher of gifted students, and holder of several patents.
- The book includes detailed lessons that stimulate the development of invention and innovative skills.
- Provides teachers of the gifted with specific exercises and suggestions for developing these skills.
- Describes the invention process by giving specific examples, and showing the importance of The Inventor's Notebook.
- Contains numerous Design Challenges such as: Robots for the Handicapped and Home-bound, Alternate Fuels for Cars, Wind Turbines and Pumped Hydro Plants, Geothermal Heating Systems in all New Structures, and An Environmental Learning Center.
- Emphasizes Team Work, Creative Thinking and Problem Solving, and the methods used by Great Inventors such as Thomas Edison.
- All invention lessons stress the importance of a STEM learning environment for promoting problem solving.
- Discusses the history of the United States Patent Office, the legal definition of a patent, and the steps involved in obtaining a patent.
- Shows how workshop experiences that the author had with his father encouraged Creativity, Planning, Responsibility, Communications, and Lifetime Learning.
- Includes several Creativity Challenges using simple objects (e.g., paper cups, pennies, toothpicks, and plastic straws) to solve design problems and invent games.
- The Appendix contains essays on Legal Issues in Technology Education, Stimulating Technology Projects, and Using Technology Timelines in the Gifted Classroom.

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