MATHEMATICS PENTATHLON®
GIFTED EDUCATION CORRELATION
STANDARDS AND MODELS

PROBLEM SOLVING - The Mathematics Pentathlon games are a catalyst for the highest form of problem solving: active problem solving. Students are involved in active problem solving since elements, goals, and/or a combination of elements and goals change in the games. Each student must evaluate structures, obstacles and possible reactions with deductive and inductive reasoning before taking action for the best possible outcome. This type of problem solving helps to develop the ability to solve problems that are continually undergoing change and prepares students for real world critical futuristic and reflective practices.

STRUCTURE OF THE INTELLECT: Model by J.P. Guilford partial list of thought processes used by Mathematics Pentathlon

- **Cognition** - Recognize, unscramble, and sort
- **Memory** - Remember moves, recall math facts, and identify problems
- **Convergent Thinking** - Explain, correct, convey, and demonstrate
- **Divergent Thinking** - Regroup, rearrange, infer, combine, invent, and predict (focus on finding one's own answer)
- **Evaluation** - Judge, compare, criticize, evaluate, analyze, decide select among many options, and Examine

RENZULLI SCHOOLWIDE ENRICHMENT TRIAD MODEL: This model strives to meet the needs of the gifted in three ways:

- **Type 1. Exposure to a Wide Variety of Activities** - Mathematics Pentathlon activities (Adventures, Games, Investigation Exercises) cover variety of math concepts and skills. Included in activities are in class instruction, cooperative activities, independent/group research, after school enrichment, and national competitions where students can challenge their own active problem-solving abilities against others.
- **Type 2. Process Skills** - Logic and problem solving taught through guided activities and explorations/research.
- **Type 3. Investigations of Real Problems** - Games are hands-on opportunities for real and immediate problems with instant feedback and consequences under the independent control of the players involved. Calculating for critical futuristic outcomes, as in successful planning and goal setting in real life, are key features of every game.

DIFFERENTIATED CURRICULUM: Content/Readiness, Process/Interest, Product/Learning Profile - The games allow students to proceed at their own pace, mining the games for the complex layers of strategic thinking involved. Students find complete ownership of the process and end product. Students can take the games to their level of comfort and be continually challenged while exploring the varied avenues the games encompass. While all students can benefit from the games and associated activities, gifted students find enormous satisfaction and challenge that the games provide through a variety of possible products based on their decision-making skills. See attached figure 2.1 from Carol Ann Tomlinson's book, The Differentiated Classroom.

HOTS (Higher Order Thinking Skills & BLOOMS TAXONOMY are employed when playing the games. Comparing, contrasting, hypothesizing, testing hypothesis (causes and effect), analyzing, applying, creating new strategies (synthesizing), and evaluating are all incorporated Mathematics Pentathlon.

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