

Course Description

Grade 5 TAG

Philosophy Statement: Each student is uniquely created by God and has been given different abilities. Students who demonstrate or have the potential to demonstrate superior performance in academics, intellect, creativity, visual and performing arts, and leadership require additional opportunities and materials to meet their needs. Although all students gifted in these areas need special services, DMCS is currently committed to serving the needs of students with general intellectual and specific academic aptitude. These needs will be met through differentiated instruction and/or various support services.

Course Objective: The object of this course is to make math meaningful and real by allowing students to use arithmetic calculations and geometry to design, plan, and build scale model bridges. Working in groups of four, student contractors operate simulated architectural firms to create strong, economical bridges and account for construction costs. Building “toothpick” bridges offers a “hands on” approach for students to learn and apply abstract concepts such as stress, fulcrums, the law of gravity, and the strength of different geometric shapes. Students will learn to write checks, balance accounts, maintain a task schedule, and work with others to accomplish a common goal. The students will study about different types of bridges and write a report about their favorite type of bridge. There will be a “Bridge Breaking Ceremony” at the end of the semester and the parents will be invited to hear the students give presentations about their bridges and enjoy the bridge breaking ceremony.

Textbooks: None

Materials:

- Flat toothpicks
- Cardboard (1 pc, 15x35cm, p/company)
- White glue
- Bottle caps or other small disposable containers
- Thread
- Metric rulers
- Wax paper
- Calculator
- Small bucket to put the sand in for breaking the bridge
- Sand as weight to break the bridge
- Large manila envelopes (1 p/ company)
- Warehouse price list poster
- Reproducible materials from the curriculum

Time Allotment: One hour per week

Course Content:

- Estimating spatial configurations.
- Estimating dollar amounts in the thousands.
- Adding and subtracting 7-digit numbers
- Measuring (using graph paper, ruler, and manipulatives).
- Research Writing
- Public speaking
- Ratios
- Stress
- Fulcrums
- Law of gravity
- Divergent Thinking
- Convergent Thinking
- Spatial Thinking
- Evaluative Thinking
- Write checks, balance accounts, and keep a task record
- Work with others

Areas to be evaluated:

- Students are evaluated in all content areas using teacher observation, student work, and the end product.

Additional activities: