Parents and Guardians of Gunning Bedford Science Olympiad Team,

You should be proud that your child has elected to be part of our newly formed Science Olympiad Team at Gunning Bedford this year! Science Olympiad is a challenging, enriching and fun experience that develops science problem solving skills and deepens science content area knowledge in a student-centered atmosphere. Your child’s choice will strengthen not only science based learning, but support life skills such as self discipline, learning how to work with a team, and developing responsibility.

Science Olympiad is a science based Nation Wide competition amongst schools that compete in individual events. Much like the Olympics you and I are familiar with, the events have different criteria in which the “athletes” compete. For example, instead of a sprinter competing in the 100-yard dash event, a student might compete in an event that involves a competition about what student can design a stronger structure. The events are science related and range anywhere from topics like solving a crime (forensics) to studying rocks and minerals, to building a bottle rocket.

As stated earlier, we wanted to involve your child in their own learning, and give them a chance to choose what events interested them. After all, you would not force Michael Phelps to compete in the Women’s Gymnastics Balance Beam Event, right? The students work daily in the enrichment period during our school day from 11:50- 12:25 on a skill or a project that will enable them to compete successfully in our State Wide competition held on March 16, 2013 at Delaware State University.

Students will be working each day and as the competition date nears, we plan to add days to stay after school to finalize details and practice building event related projects. We wish to recognize the hard work, effort, time and intellectual energy spent during this period and we will award students that successfully complete projects an Honors Certificate for the Second Marking Period.

You might have heard the phrase, “it takes a village”, and we are excited to include you in our Learning Village here. We invite you to lend your expertise, ideas, suggestions and supervision assistance to our team if you are able to do so. For instance, if you are an architect, carpenter, or engineer, we would love to have your input in the building events! If you work in a lab, we can always use a scientist’s perspective! Some of you might have personal side interest or educational background that involves an event: like rocks and minerals, genetics/genealogy, or forestry. Or, if you simply have time to spend with a team to supervise them, we would very gladly accept it!

An overview of the events is listed on the attached paper. You might also view the website <http://soinc.org/> for detailed information and resources.

WE thank you for your help and support for our students as they prepare for their upcoming events. You are invited to help us in any way you are able to, and we would love for you to join us on Saturday March 16, when the actual competition is held as well. Additionally, between now and then, please let us know what events you might want to help us with in preparation. Your knowledge, time, and perspectives are welcome!

Thank you for your support and we look forward to giving your child a positive experience they will not forget!

If you have any further questions, please contact us.

Erin Motley (coach) Virginia Bennett (coach)

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EVENT DESCRIPTIONS:

Anatomy (B) - Teams will be tested on their knowledge of anatomy and health concepts including nervous and digestive systems.

Anatomy & Physiology (C) - This event encompasses the anatomy and physiology of selected body systems, this year limited to nervous, excretory and digestive systems.

Astronomy (C) - Teams will demonstrate an understanding of the basic concepts of math and physics relating to stellar evolution and Type II supernovas.

Boomilever (B/C) - Students will build a cantilevered wooden structure.

Chemistry Lab (C) - Teams will demonstrate chemistry laboratory skills related to periodicity and equilibrium.

Circuit Lab (C) - Students will compete in theoretical and practical activities involving knowledge of direct current (DC) electrical circuits.

Crime Busters (B) - Teams will identify the perpetrators of a crime or crimes by using paper chromatography and analysis of unknown solids, liquids, and plastics found at the scene of a crime.

Designer Genes (C) - Students will solve problems using their knowledge of molecular genetics and biotechnology.

Disease Detective (B/C) - This event requires students to apply principles of epidemiology to a published report of a real-life health situation or problem. (Environmental Quality)

Dynamic Planet (B/C) - Teams will work at stations that display a variety of earth science materials and related earth science questions. (Glaciers)

Elastic Launched Glider (C) - Students will design, build and test two elastic launched gliders capable of the highest time aloft.

Experimental Design (B/C) - Given a set of unknown objects, teams will design, conduct, analyze and write-up an experiment.

Fermi Questions (C) - A Fermi Question is a science related question that seeks a fast, rough estimate of a quantity which is difficult or impossible to measure directly. Answers will be estimated within an order of magnitude recorded in powers of 10.

Food Science (B) - Using their understanding of the chemistry and physical properties of baking ingredients, teams will answer questions at a series of stations.

Forensics (C) - Students will identify polymers, solids, fibers, and other materials in a crime scenario.

Forestry (B/C) - This event will test student knowledge of North American trees that are on the Official National Tree List.

Gravity Vehicle (C) - Teams design, build and test one vehicle and ramp that uses gravitational potential energy as the vehicle's sole means of propulsion to reach a Target Point as quickly, as accurately and as close to their predicted time as possible.

Helicopters (B) - Students will construct and test free flight rubber-powered helicopters prior to the tournament to achieve maximum flight times.

Heredity (B) - Students will solve problems and analyze data or diagrams using their knowledge of the basic principles of genetics.

Keep the Heat (B) - Teams must construct an insulated device prior to the tournament that is designed to retain heat. Students must also complete a written test on thermodynamic concepts.

MagLev (C) - Competitors may construct up to two self-propelled magnetically levitated vehicles powered by batteries that turn up to two propellers to move the vehicle down a magnetic track. Students will also be tested on their knowledge of magnetism and related topics.

Materials Science (C) - Teams will answer a series of questions or complete tasks involving the scientific processes of chemistry focused in the areas of materials science.

Meteorology (B) - This event involves the use of process skills as applied to meteorology. (Everyday Weather)

Metric Mastery (B) - Students will demonstrate an intuitive feeling for estimating then measuring metric units including mass, volume, area, surface area, force, distance, time and temperature.

Mission Possible (B) - Prior to the competition, participants will design, build, test and document a "Rube Goldberg-like device" that completes a required Final Task using a sequence of consecutive tasks.

Mousetrap Vehicle (B) - Teams will design, build and test a vehicle using one mousetrap as the sole means of propulsion to reach a target as quickly, accurately and close to their predicted time as possible.

Reach for the Stars (B) - Students will demonstrate an understanding and basic knowledge of the properties and evolution of stars, open clusters and globular clusters, and normal and star-forming galaxies.

Remote Sensing (C) - Teams use remote sensing imagery, science and math process skills to complete tasks related to an understanding of Earth's Hydrosphere.

Road Scholar (B) - Requires the accurate interpretation and understanding of various map features using a variety of road and topographic maps.

Robot Arm (C) - Prior to the competition teams must design, build, document and test one robotic device to move scored items.

Rocks and Minerals (B/C) - Teams will demonstrate their knowledge of rocks and minerals.

Rotor Egg Drop (B) - A team will construct a helicopter device which uses one or more helicopter rotors to safely transport a raw chicken egg from a specified height to the floor.

Shock Value (B) - Students will compete in activities involving basic understanding of electricity, magnetism and simple electrical devices.

Sounds of Music (B) - Prior to the competition, students will build two instruments based on a 12 tone tempered scale, prepare to describe the principles behind their operation and be able to perform a major scale, a required melody and a chosen melody with each.

Technical Problem Solving (C) - Teams will gather and process data to solve problems.

Thermodynamics (C) - Teams must construct an insulated device prior to the tournament that is designed to retain heat. Teams must also complete a written test on thermodynamic concepts.

Water Quality (B/C) - The event will focus on evaluating aquatic environments. (Freshwater/Estuaries)

Write It/Do It (B/C) - A technical writing exercise where students write a description of a contraption and other students will attempt to recreate it using only the written description.

PARENT INTEREST FORM

Thank you for your help and support of our Science Olympiad Team at Gunning Bedford!

After reading over the events, please identify what event you might be willing to help out with and what times or dates you are available to do so.

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| Name |  |
| Name of Student |  |
| Event to help with: |  |
| How you might help? Is this your occupation?  Educational Background?  Donate time?  Etc. |  |
| What dates/ and times work for you? After school? During enrichment? |  |
| Best way to contact: |  |