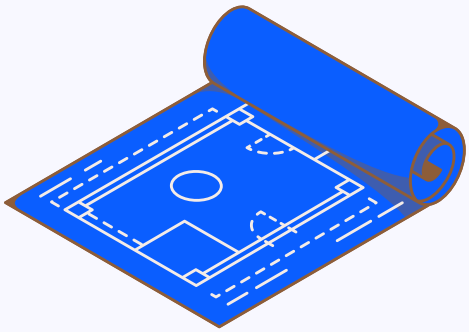
Garfield School District
Trimester 3 Newsletter
June 2023

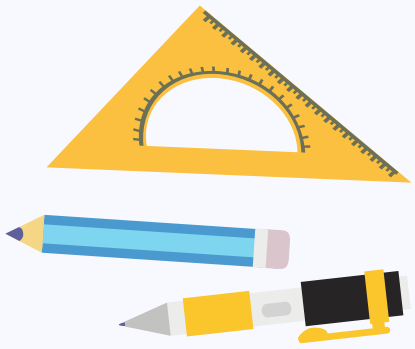
GIFTED & TALENTED PROGRAM

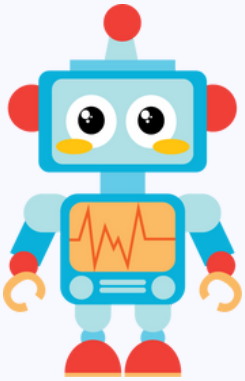
INSTRUCTOR: JENNNIFFER DEWITT

CIVIL, STRUCTURAL, AND ROBOTIC ENGINEERING

Another successful school year has come to a close. In Trimester 3, the students that were new to the gifted program took the CogAT test to determine how they learn and to provide data to administer a more personalized form of instruction for the student. The gifted classes then continued to explore structural engineering and natural disasters. They also studied the field of robotic engineering. The trimester 3 home project was a reflection assignment about the individual student and the gifted program. We rounded out our end of the school year with a field trip/party! It was a well-deserved treat!







EARTHQUAKE IN THE CLASSROOM!

Engineers incorporate structural design techniques that withstand damage from earthquake forces, for example, cross bracing, large bases, and tapered geometry. Civil engineers strive to design buildings that are more resilient to the damaging forces of earthquakes in order to keep people inside and outside of buildings safe in areas of high earthquake risk Earthquake-proof buildings are intended to bend and sway with the motion of earthquakes or are isolated from the movement by sliders.

The students worked as engineering teams and explored concepts of how engineers design and construct buildings to withstand earthquake damage. They applied elements of the engineering design process by creating a blueprint of their design and building their own model prototype structure using toothpicks and marshmallows. Then they tested their model buildings and determined how earthquake-proof their designs were by using an earthquake simulator pan of Jell-O.

In the testing phase, the teams paid attention to what needed to be changed in the model to make the prototype work better. The last step of the engineering design process was to improve the design. In addition to the material constraints, the prototype had to be at least 2 toothpick levels high; must contain at least 1 triangle; must contain at least 1 square; and must survive the earthquake!

















GEAR
and
NGINEER!







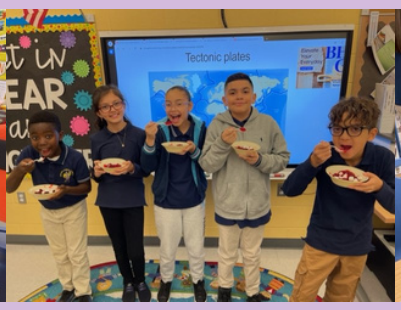











Tectonic plates












Tectonic plates

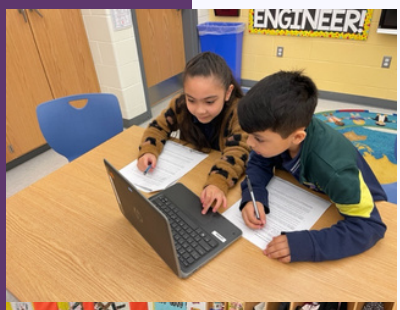

COGAT TESTING


The gifted students that were new to the program (entered after March 2022) took the CogAT test in April 2023. Our students worked hard and exercised their brains to the limit. The test was given to the students at their appropriate grade level and measured different aspects of thinking.

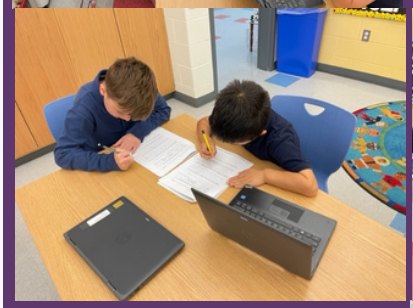
A comprehensive narrative score report for each student was mailed to the parents/guardians along with an explanation letter for the report.

The results were also sent to the principal of the home school of the student to share with the appropriate staff to help further extend student learning.

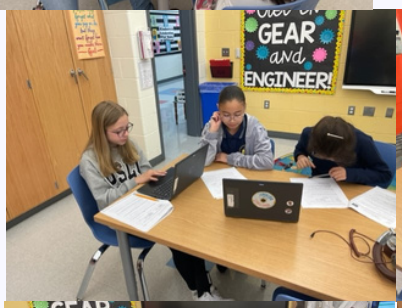
In between testing sessions, the students completed various challenges. The first challenge was to complete a Gizmo online experiment. The experiment objectives were to understand the dangers of building a house on a floodplain; understand how earthquakes occur; observe how earthquakes can damage a home; use the engineering design process to design a house to withstand a flood, hurricane, and severe earthquake within cost constraints; demonstrate how levees can help protect a neighborhood from flooding; compare hurricane risks and damages in a beachfront and inland location; and compare earthquake damage to a building in bedrock and landfill areas. The students complete a lab report documenting their results and calculations.

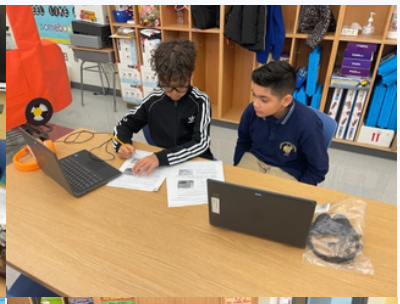
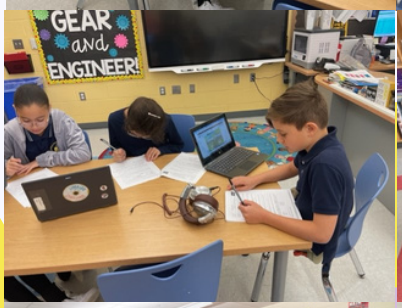



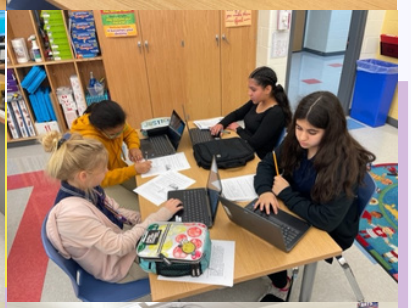


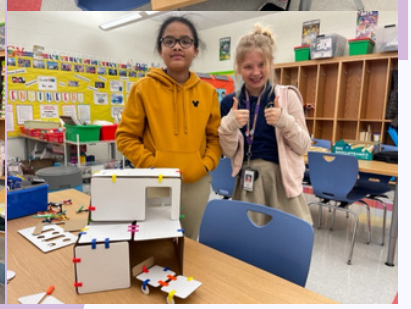








The students also completed another activity using different task cards that focused on geometrics. They were challenged to use their knowledge of shapes to make 3D math models; explain results and procedures precisely using appropriate mathematical language; comprehend the meaning of tessellation; find the area of a triangle; comprehend rotational symmetry; distinguish between straight and turning movement recognizing half turns and quarter turns. and prioritize and organize and determine relevant steps needed to complete a task. The students also completed a challenge to construct a firehouse using specifically provided materials and no directions. The only direction was to use their creative imagination!

Robotics & Rube Goldberg Machines

Engineers have used robots to create many technologies that students see every day. In this lesson, the students built a basic understanding of robotics and got an appreciation of how engineers in the real world use such devices to do work. The students were asked to think creatively about ways they could use robots to solve problems and design a program/solution as if they were engineers. The robots in this activity were used to set off a series of chain reactions to accomplish a simple task.

The students were introduced to Rube Goldberg, an artist & engineer. They worked under his mechanical influence which is rich in physical science and engineering. He was a cartoonist that had an engineering degree, which combined with his art skills, helped him delight people with his crazy mechanical creations. The Rube Goldberg creations incorporate Newton's First, Second & Third Laws of Motion, gravity, momentum, and acceleration.

They were given the challenge to plan and create their own Rube Goldberg simple machine reactions that applied force and the transfer of energy from one chain reaction to another. They had to collaborate with their teammates to brainstorm a series of simple steps that followed guidelines and resulted in this task being completed. They sketched and labeled their steps and materials before they had to bring them to life one at a time. The building began and there were constant modifications that were necessary along the way in order to be successful. The students created and tested the model in a space with constraints. They accomplished the building and then tested their designs. The students also programmed DASH the Robot with a specific task that lead the robot to be the force/energy that initiated the chain of reactions and energy transfer in their Rube Goldberg model. The model had to have at least four chain reactions during the testing phases. They had a lot of fun experimenting with this and cheering on their successes.
























TRIMESTER 3 HOME PROJECT

Reflection Essay

The gifted students were instructed to write a reflective and cumulative essay as their third-trimester home project. Their writing was rich in detail and experiences. The students were able to add some personal details about themselves and took the time to reflect on their experiences in the gifted program. They wrote about their favorite experience or experiences in the gifted classes and described them in detail. The students included why the experience or lesson meant so much to them. They also had the opportunity to write and describe an experience they may not have enjoyed in the gifted classes. In closing, the students wrote about different topics they may wish to study in the future and why the topic interests them. These topics will be taken into consideration for next year's theme of study. This reflective writing gave the students an opportunity to sit back and appreciate all of the hard work they have accomplished during their time in the program.

End of the Year Party Field Trip!

It was time to wrap up a great year of learning in the gifted classroom. The students continued working on their Rube Goldberg setups and had successful tests! They were very proud of themselves. It is always rewarding to see their faces light up when they achieve their goals!

Then we were off to McDonald's for our end-of-the-year field trip/party. Everyone was super excited. I, of course, turned the experience into a lesson. We talked about the engineering aspects of the building itself. Then we moved on to the different types of packaging we saw for the food. This relates to our packaging engineering lesson we did with pasta. The students were able to apply their knowledge to the experience, enjoy a Happy Meal, and an ice cream treat! It was a great day.



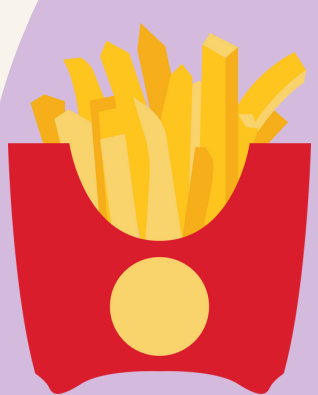












Garfield School District Administration

Mr. Nicholas Perrapato
Interim Superintendent of Schools

Dr. Giovanni Cusmano
Business Administrator/Board Secretary

Ms. Alexandra Bellenger
Director of Curriculum & Instruction

Garfield School District Board of Education

Mr. Jorge Ramos -President
Ms. Alea C. Sanchez -Vice President
Ms. Lindita Agastra
Mr. Richard Derrig
Mr. Alban Gaba
Ms. Kathy Grzywnowicz-Muniz
Mr. Dane Lio
Mr. Michelangelo Malleo
Mr. Daniel A. Taylor, Jr.