SUMMIT SPOTLIGHT AT MGS
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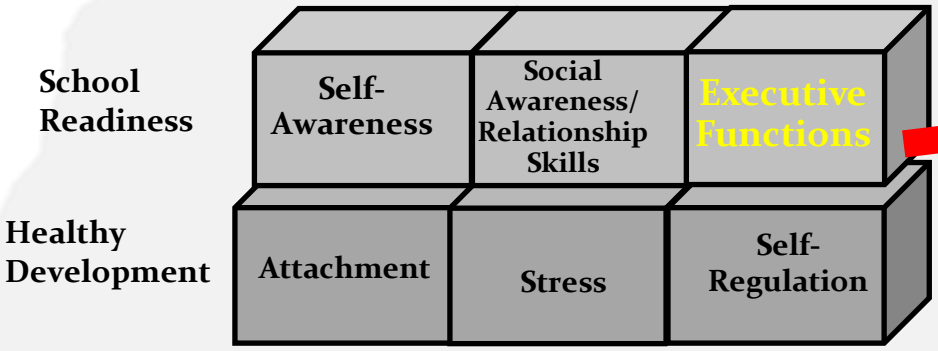
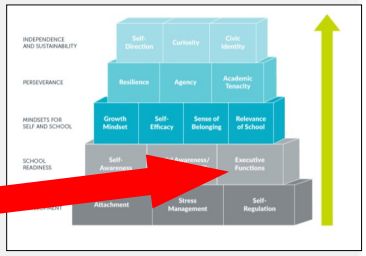
Habits of Success for **School Readiness:** #3 **Executive Functions**

Executive functions, sometimes referred to as cognitive control functions, are needed for a person to concentrate, develop a working memory, and think before acting on impulse. From these basic functions, a person builds higher-order functions, such as, problem-solving, reasoning, and planning. Executive functions are important in nearly every aspect of life and are essential for mental and physical health, success in school and in life, and psychological development (Diamond).

Some students acquire executive skills naturally, while others need more help and support. *Summit Learning* supports executive functioning by integrating face-to-face teacher instruction with personalized learning that is self-paced. The platform requires students to set individualized goals, and it provides each student with a mentor who regularly meets with the student to reflect and adapt these goals, while strengthening the relationship with the student. *Summit* helps with organizational skills, providing check-points throughout each project. These components are important for all students, but especially for students who are easily distracted, have difficulty maintaining effort, or find it difficult to follow multi-step instructions. Students who make positive choices and develop positive behaviors understand the importance of attending school and getting work completed and turned in. These mindsets and behaviors will help them transition from one teacher to another, one grade to the next and on to careers ("Executive Function").

MGS teachers understand that classroom environment is important for students who struggle with executive function, and this is apparent in all classrooms. They use different ways to support and help students: small group assistance, verbal reminders, visual cues, lists, consistent routines, guided practice and reviews. Organization, structure, accountability, and routine are also an important part of home life. Educators and parents working together will help students develop the executive functions needed to understand themselves and build the confidence they need to be successful in school and life.





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In the Spotlight

6th Grade Students Study Natural Hazards and Their Impact on Society

Students in sixth grade have a better understanding of the impact natural hazards, such as floods, earthquakes, volcanic eruptions, and tsunamis, have on human society. They learned that a natural hazard becomes a natural disaster when the threat actually happens and destroys human life and property.

For this project, students identified populated regions that have been prone to natural disasters in the past, and they researched and discussed the probability of a future disaster occurring in those locations. Working in groups of two or three, the students selected one location that is likely to experience a major, deadly earthquake sometime in the future.

In their research and study, students developed an understanding of plate tectonics, faults, seismic waves, epicenters, energy, and how scientists study earthquakes in order to predict future disasters. In order to obtain data and study how buildings withstand strong shaking, each group developed a model of an earthquake-safe building that would withstand a simulated earthquake in their chosen location. Legos were used in Mrs. Frack's classroom to build the models. Students' gathered data to determine possible consequences and make decisions on how to improve the design of their building and improve the building's performance after it had been tested using a shake table.

The lab (engineering) reports were graded on the students' ability to :

- ◊ Ask questions, make connections and inferences
- ◊ Predict and hypothesize,
- ◊ Plan and carry out investigations
- ◊ Interpret data and information to make a valid claim
- ◊ Provide a valid explanation of evidence found
- ◊

The next step of this project was for students to critique a peer's solution and report. The final step was for each group to complete a self-assessment of their own work and the peer critique, listing arguments, evidence from their work and ideas from the rubric to explain their self assessment.

SCIENCE LAB REPORT

Grant Rice+ Aidan Hessman

6TH GRADE SCIENCE

INTRODUCTION

For our earthquake test, we chose the country of Greece to test the house that we built with legos to withstand many earthquakes. The most recent earthquake that has happened was on February 14, 2020, and had a magnitude of 4.8. In Greece, they receive 1-3 earthquakes a year. In Greece, they do not have big earthquakes, but they have a lot of small ones. The fault line that surrounds Greece is called the Hellenic Arc. This is because the area around Greece is surrounded by a fault line that is mostly divergent, and with some places showing convergent boundaries.

Method

Hypothesis- We thought that due to the number of plate boundaries surrounding the peninsula of Greece that the people that live there will have to build a house that will withstand many earthquakes.

Planning- First, we planned to build a one-story house that way there would be a reduced chance of the house foundation and walls cracking. Then, through our research, we found that many houses in Greece are extremely modern and are usually 1-2 stories high. Their walls are made out of full concrete to absorb the vibrations or shock from the earthquake.

Carrying out Investigations- We used legos that measured 1 cm high and at most 9.5 cm long and some legos at least 2.5 cm long. Because when you start with thicker legos and go thinner, the building will stay up longer. The strength of the building is toward the foundation of the structure being tested. Our legos were all white to go along with the modern style of Greece. When we were done the height of our house was 8 cm tall.

Results

Through the test, we learned that the style of the house we built was able to withstand an earthquake with ease. This was because we made the house with sturdy walls and a firm foundation. The structure withstood the test and only broke when Mrs. Frack took the structure and made it slide side to side on the cookie sheet making it hit the sides until it was split in half. In fact, our structure was able to withstand Mrs. Frack lifting and dropping the desk repeatedly.

Conclusion

In conclusion, while we were doing our testing the test was not reliable, the main reason being the shake table could not replicate an actual earthquake. This is because the whole house would not be moving side to side in a real earthquake. One way we would make our house better is to add a flat bottom to connect all the house structure together. Another way to make our house withstand an earthquake with a stronger magnitude is to build two-layered walls instead of skinny walls that will not hold up. Finally, we were able to draw this conclusion because a real earthquake produces waves of shock and vibration and is usually measured by a seismograph.

Lab Report

By: Kyle, Dalton, and Ryan

Introduction:

How do we design a house that can withstand an Earthquake? We chose to research earthquakes in California. The last earthquake that was in California was on February 18, 2020. This Earthquake had a magnitude of 1.6 and a depth of 11 km. Being less than 50 miles from the coast of the Pacific Ocean. This Earthquake was on Transform boundaries. Earthquakes in California typically take place along the San Andreas Fault. This fault is a prominently 750 miles long. This is the fault that is between the North American Plate and the Pacific Plate. The most powerful earthquake that happened in California was called The Fort Tejon. The magnitude was 7.9 to 8.3, this earthquake was 45 miles Northeast from San Luis Obispo near Parkfield, California. This earthquake happened in 1857.

Prediction:

If we would have not built our house with the wide walls and the smaller lego blocks it probably would have fallen down. This is because if the walls were thin it would have been less sturdy. The smaller blocks were more flexible, and the bigger blocks worked well for the base. We built two beams to hold up the ceiling. Without these beams, our roof would of fell in when the earthquake happened. With our planning, we decided that we would build a strong base with bigger legos. Then we started building up with smaller legos that would be more flexible and would stand up to an earthquake.

Results:

The house we built out of Legos was 13cm by 13cm wide and the height of our structure was about 6cm high. The majority of our structure was made out of Lego blocks measuring 6.5cm in length and 1.5 cm in width. We also made it out of blocks measuring 3cm by 1.5 cm. The height of these blocks is 1cm. We thought that our house was going to withstand the shake table because of our wide walls. When we put our house on the shake table the one side broke partway. We found out that this was because of our door. Our door is not very strong because it is one piece meaning that there is not much flexibility. When Mrs. Frack took the cooking pan and started shaking it this is when it broke. If we would have had a different type of the door we think that our house would have not collapsed.

After Picture

Before Picture

Conclusion:

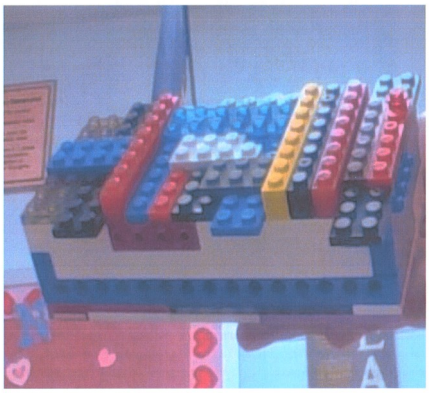
In conclusion, while we were doing our building and testing we learned that the wider the walls were the better support the structure had. We also learned that the shake table and Mrs. Frack shaking the desk was not the most reliable way we could have done this test, so basically if we were going to build a real house we would have wanted to have a more reliable test source. Finally, we were able to draw the conclusion that our house would have withstood the "earthquake" if we would have had a stronger door. This was very interesting for us to learn about earthquakes and how to build a strong house that can withstand them.

Science Lab Report
By: Addy and Emma
Honolulu, Hawaii

Introduction: How can humans build an earthquake safe structure? My partner and I picked the location Honolulu, Hawaii. We picked the south-east side of Honolulu. The last earthquake located in Honolulu was on May 4, 2018, at 12.33 pm. The earthquake's name was Hilo Honolulu. The earthquake was preceded by a smaller event, measuring 5.4, that was felt across the island and as far away as Oahu. At least twelve thousand earthquakes have happened in Hawaii in the last thirty days.

Method: We use six by one and a half centimeter legos. Our building was thirteen centimeters long. Our building was four centimeters tall. In our research we found out that Honolulu's structures use steel-reinforced slabs for earthquakes. They also use traditional hale that is constructed of native woods lashed together with cordage. Pili grass was a preferred thatching that added a pleasant odor to a new hale. They keep their houses low to the ground so that the earthquake does not make the structure fall over.

Results: We thought that our structure wouldn't break because we pressed the legos with a wooden triangular prism. We were kinda right because our light fell off, but nothing else came off. Then Mrs. Frack put it in the popper upper. When that happened it only loosened it up just a little. Then Mrs. Frack shook the structure on a cookie sheet, back and forth and and up and down. Our structure even flipped upside down and did not break.



Writing Lab Reports

Question

Interpret Data

Make Connections

Explain Evidence

Plan & Carry Out Investigations

Make Valid Claims

Predict

Hypothesize