**What Davis Teachers Say About EiE**

**Engagement**

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The kids really enjoyed this engineering activity… they loved it so much they were **doing extra things**.

What I liked most was how engaged the students were. They were **questioning constantly** and **incorporating the lessons into their lives**.

My students absolutely loved the EIE Unit! Most of my students groan before we start science, but EIE had my students excited each day for the next experiment. My favorite part was how hands on it was. My students loved being able to try different materials when cleaning up the spill. They actually saw the conclusions instead of me just telling them what would happen.

**Relevance**

Students were engaged and could **apply a large portion of what they had been taught** earlier in the year.

As a second-grade team we **integrated each project with the Big question in our reading units**. The real-world relevance of our projects made the kids more motivated.

**Integration**

I really like how they incorporate the reading piece into the experiment.  It really adds a lot and I love **using literature to tie the subjects together**.

**Improved Understanding of Technology and Engineering**

The students **had a misconstrued perception** of what technology is.  **This activity really helped to clarify that.**

The kids were very surprised by what they learned and really enjoyed the lesson.  I thought it was great that by the end of the lesson **they wanted to change their answer about what is technology**?

At the end of the unit, I asked how many students thought they might want to go into engineering when they’re older, and almost all of them raised their hands! It really helped them to see how creativity ties into this field of study.

**Developing Team-work**

The engineering process lends itself to working as a team and having good communication skills. I observed **students that normally do not take an active role in class blossom** working with their team.

**Student Autonomy/Student Centered Classroom**

At the beginning of the year, my students really struggled with being “stuck” in the position of not knowing what to do and wanting someone (the teacher) to guide them to the answer. Throughout our STEM activities they have **become more independent and more comfortable with that “stuck” feeling** and working themselves through it. Also, a lot of the class struggled with teamwork and compromising when it comes to planning. The STEM activities gave them a lot of opportunities to work on this and improve.

I wanted students to become problem solvers without always wanting to be saved by me.  We worked at this goal by giving students a chance to create or improve their bridge, and when I could see some frustrations, I’d have the whole class come back to the carpet away from their bridges and ask some guiding questions for how they could solve problems without telling them the answers.  I also let them walk around and look at what other students had created and improved.  This helped me let the students themselves be the experts and teachers.

I am hoping that we will continue to work on student centered learning as opposed to teacher centered learning.  It was fun to watch students tackle the problem and solve the issues themselves.  It was very tempting for me to jump in and give them advice but I resisted. One of my students was able to articulate what they learned so that other students could also understand.  She did a much better job explaining what we had learned and then as a group we could discuss it.  I loved how this worked.  I didn’t and couldn’t explain as well as she did.

**Growth Mindset**

The engineering process has helped my students in all subject areas. It gave them **permission to fail and try another approach**. I observed them questioning how they came up with an answer or in history the wanting to know the why things happened as they did.

I think my students have done exceptionally well with having a growth mindset, because of their exposure to STEM instruction. They learned it’s okay to fail or not know the answers, but not to give up, and to always try again.

**The Engineering Design Process**

Learning the engineering design process and applying it to literature and real-world examples was amazing!

I see my students having more success in math because of the engineering and design process. Students are now thinking about math from an engineer’s point of view.

Our 3rd graders made solar ovens.  Oh! They had so much fun **learning how they were used, gathering materials, making predictions, designing them, and trying them out**.  After we made our s’mores in the sun…we came in and recorded data of temp, and the outcome…what we could have done differently.  Then we redesigned our ovens and a few days later, we tried them out again to see if adding more insulators or positioning them in different locations changed the outcome of the s’mores.  Kids did a write up of and recorded themselves explaining the process

Many of my students are hesitant to try if they do not already know what the outcome will be. This STEM instruction module was a great opportunity for my class to fail and go back to the design process to make adjustments or try something completely different. I also noticed that students were open in talking about why they think something did not work and why and how changing something would improve or give a more desired outcome. These are very important skills for students to learn at an early age.

**Investigation**

This program helped my students to understand that all of them are problem solvers and all of them can design things to solve problems.

The students enjoyed using the flashlights and **finding out** what different types of materials did what when the flashlight was shined on them.

The kids **loved experimenting with the angles, weights, and the rocket launcher.**

**Authentic Assessment**

I loved lesson 4 and the final project. It is rare for **students to be given an opportunity to show their understanding via a hands-on project.** All too often, teachers rely on a paper/pencil summative assessment to check for mastery. I see my students having more success in math because of the engineering and design process. Students are now **thinking about math from an engineer’s point of view.** The story problem is an actual problem to be solved. I love seeing how students are making this connection and discussing it in class with each other.

**But I’m not an engineering teacher…**

Before taking the EIE workshop and being exposed to the subject of “Engineering”, I was totally clueless, unknowledgeable and had no idea about both the “what” and the “how” to teach any of this.  By using the guide and the kit (which had everything needed and was ready to go), I was able to develop and implement an entire unit on simple machines and making work easier.

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