

Learning Linear Equations

Linear Equations Unit- Honors Algebra 1

OLE: <https://sites.google.com/zips.uakron.edu/linearequations/home>

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Description of the Project:

This online learning environment (OLE) will be implemented with 8th grade honors Algebra 1 students. The purpose of this OLE is for the Algebra 1 students to have all of their activities including videos, assignments, and games in one space to explore and provide self-paced learning on linear equations. My students prefer to work at their own pace and they are very independent with their learning. This OLE allows me to flip the classroom and work with certain students in a small group setting while the other students learn and master the objectives on the OLE.

TPACK's Impact

The TPACK model has impacted all of my teaching beliefs throughout my teaching career. I value the importance of technology as a tool to help students achieve and develop the skills they need as a 21st century learner. I focus heavily on learning about how to teach the content of math using the best strategies and technology resources.

I believe that students learn best with the constructivist teaching approach. Learning should be student centered and driven. With this OLE, students can work at their own pace. Also, I believe that students need activities that provide instant feedback. Most of the online activities that the students will complete on the OLE will check their answers and provide hints/videos if they need extra help learning the concept.

Since TPACK focuses on teachers knowing their content, pedagogy, and technology, my OLE focuses on using all 3 components to provide students learning that appeals to their learning styles and abilities. Teachers need to know their students background and learning styles before picking the technology and strategies to deliver the content to the students.

I had to make many important decisions using the TPACK framework to make sure that my OLE was going to be the most effective resource for students

to learn the objectives. I chose Google sites for my online platform because all of my students have been taught how to use all Google software and they prefer to use Google programs because it is easy to use. Also, I know that my students are mostly visual learners, so they prefer videos and online activities to be included in their OLE. Since 40% of my students are usually kinesthetic learners, I chose to incorporate conceptual Desmos activities that are interactive and they can apply their learning with technology. Lastly, I knew that my students needed a differentiated OLE. My OLE provides activities that have videos and hints when needed for students who are struggling. Based on the assessments, if my students need more intervention, they will be pulled for small group instruction based on their weaknesses from the assessment. I also provided more conceptual, rigorous activities for students to complete in each module. Students also can access the enrichment section for more assignments that will challenge their abilities and provide extension on the topic.

Design and Development:

I designed and developed my OLE on a Google site. All of my students have a Google account and are very fluent on all of Google programs. The main unit topic is linear equations but the main subtopics are the titles of each module. The learning is self-paced so students will have about 4 weeks to finish all of the modules. This is more than enough time for students to complete all the modules but depending on their ability, I included an enrichment section for students who need extra assignments to enrich their knowledge of the topic. I embedded all of the sites links in each module. I also included learning targets for students. These learning targets for each module will make sure the students know and understand their main goal for each module.

I wanted to make the website visually pleasing to the students. I put a target image for each module. I also included a graphic of a graph for each title on the topic of each page. I wanted to also make sure I embedded on the links so

they provided a picture to the students. I could not embed some games and activities so I provided the link instead. Students always have access to the home screen because the link is always on top of the page if they need to go back to the directions or ask for help.

I also decided that each module needs videos for extra reteach especially for struggling students. The main formative assessments are the Khan Academy assignments. I included these assignments because I can see their grades because it's linked to their Khan Academy account and they can also monitor their own understanding. I included games on most modules to promote more engagement and I know students enjoy using them. Lastly, I included a Desmos activity on most modules because they will challenge and engage students and include more conceptual thinking.

Project Use:

Students will use this OLE throughout the entire linear equations unit. Some days I will be teaching a lesson but some days I will be using small groups to differentiate. On these days, students will be working on the OLE at their own pace. Students will be pulled for small group reteach if they are struggling on their assessments in the OLE. I will also pull students for enrichment if I see that they are moving very quickly through the OLE and need further extension other than the online resources on the OLE.

The homepage has a welcome message to the students and also directions for the students. The students will first take the pre-assessment found on the homepage. Then the students will complete one module per week. Based on the assessment results, I will pull students for small group lessons and activities. Most modules include videos, exercises for practice, Desmos activities to build conceptual knowledge, and games. There is also a Google form for students to complete if they need help at any time. I included this because I want students to communicate with me if they are not understanding a concept or module. This

allows them to schedule a time to meet with me for extra help. I also wanted to include a form because it allows them to specifically tell me what they are not understanding because many students won't include those details in an email.