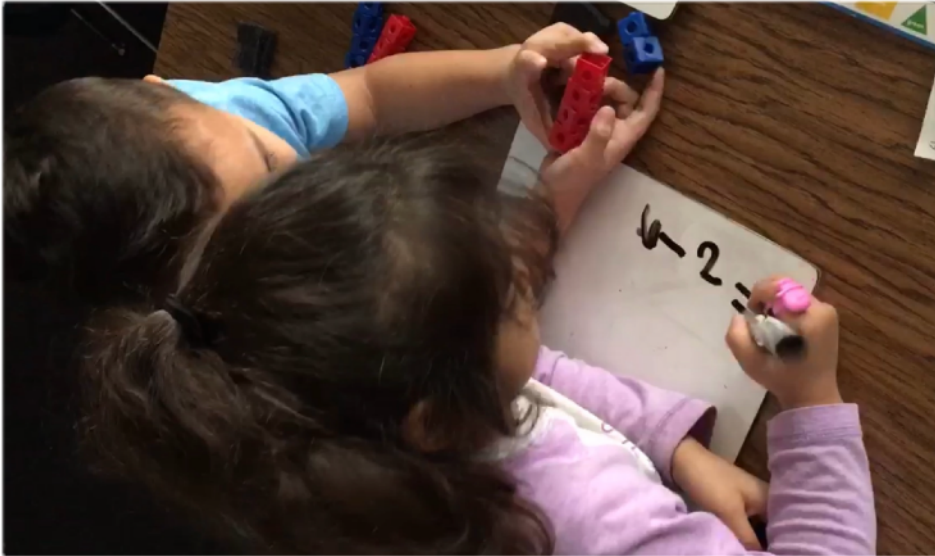


# Stepping into STEM

Education is not the learning of facts, but the training of the mind to think.  
- Albert Einstein



First graders in Mrs. Montoya's class use manipulatives to help them write subtraction sentences for fact families.

## Tech Corner

**Snap and Read** is here!

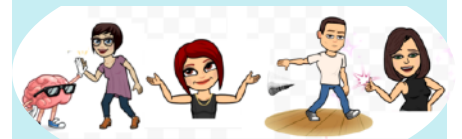
Are you looking to help



struggling readers by using the Text to Speech on the Chromebooks? Do you want to use Text to Speech on translated text? Then Snap and Read is for you! The district recently purchased a year long license to add this new feature to the Chromebooks and to the students' Gmail accounts. It is ready to go and easy to use! You can find directions and short (like **really** short) tutorial videos to help you get started. Just click [HERE](#). If you have any questions just contact me: [rblock@llcsd.net](mailto:rblock@llcsd.net).

## Contributors

Maria Gutierrez  
Denisse Frenes-Gomez  
Roger Block  
Erin Dunroe



## Here's the M in STEM!

Are you wondering how to increase the rigor in math? How do you know if a problem or task provides enough rigor? You are not alone! There are many resources available when googling "Depth of Knowledge" (maybe too many). This wealth of resources can leave educators feeling overwhelmed. We researched and evaluated various sites and found one that has what you need to continue incorporating rigor in your math lessons. Below is a link to Robert Kaplinsky's page dedicated to answering some of those pesky DOK questions. The site also offers examples on how to move from one DOK level to the next. <https://robertkaplinsky.com/tag/depth-of-knowledge-dok>

### MATH ON TWITTER

Twitter and Instagram hashtag:

#unitchat

Shares photos and ideas for Number Talks.

### TECH ON TWITTER

@Catlin\_Tucker

Google Innovator, has written 3 books on using Google apps in the classroom.

### SCIENCE ON TWITTER

@philipbell

A leader in developing NGSS, writes articles on STEM and NGSS, and shares phenomena.

# Using Claim, Evidence, Reasoning Framework to Support Argumentation

## Part1- Introduction

Engaging in argument from evidence and constructing explanations are two of the science and engineering practices within the Next Generation Science Standards. We know our students love to argue, but can they construct an argument that is logical and supported by relevant evidence? How do we get them to that point? The claim-evidence-reasoning (CER) framework can offer the support we need.

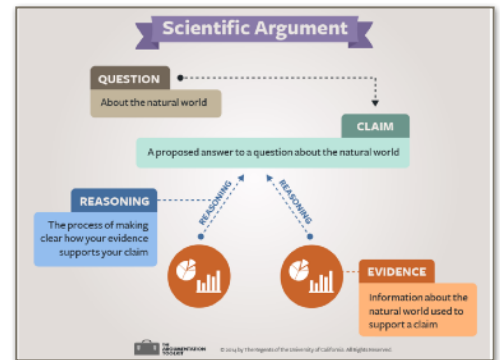
Students benefit when we make argumentation the driving force behind science instruction. By preparing for an argument we are asking students to build their science knowledge, then apply it. This gives students a purpose and connection to the content. This process prepares students for life outside our classroom by teaching them to be critical consumers of science. They learn to use logical reasoning to critique claims and evaluate evidence. Argumentation is beneficial for all students (including all subgroups). Students are engaged in dialogue with their peers; there is a purpose to their learning; there is an excitement to argumentation; and it holds students accountable for their learning.

**“Scientific argumentation is a social process in which students build, question, and critique claims using evidence about the natural world.” - The Learning Design Group (2015)**

Students do not immediately begin constructing thoughtful arguments. This is a skill that can be taught. The Claim-Evidence-Reasoning (CER) framework is a helpful tool when teaching this skill. The claim is a statement that answers the overarching or focus question. The second part of the CER is evidence which includes observations and measurements. Evidence can be collected from student-run investigations, teacher demonstrations, videos, or online research. Students then analyze the data and search for patterns that support their claim. Reasoning is the most challenging part of the CER for students. This is where students explain how and why the

evidence supports their claim. They will usually use scientific principles as part of their reasoning (i.e. the law of conservation of energy).

Students will require support as they begin using the CER framework to construct arguments and explanations. The CER graphic organizer helps students organize their thoughts and evidence. It can be used with sentence starters to help students construct appropriate responses. Classroom discussions and science talks are a necessity. This provides an opportunity for students to share evidence from research or investigations as well as evaluate that evidence. When introducing the CER it is beneficial to use real world, non-science examples such as developing a CER for the best candy bar or the best ride at Knott's. This will allow them to connect the CER to information that is familiar.



Finally, a good way to begin the transition is to give students 2 - 4 claims to choose from as well as 3 - 4 reasoning statements. Through a science talk students choose the best claim and reasoning statements for the evidence they collected. In a following CER, remove the choices and just provide sentence starters and the graphic organizer. Finally, remove the sentence starters and provide only the graphic organizer.

### CER resources:

CER Teaching Channel [video](#)

CER [anchor chart in color](#) or [black and white](#)

CER example [rubric 1 and 2](#)

CER [science example](#)

CER [website](#)

CER [lesson plans](#)

CER [graphic organizer](#)

## ENGINEERING ZONE

January's engineering activities focus on winter fun! Remember, anytime students are working on an engineering activity, it is important for them to follow the engineering design process. Click [HERE](#) for a video on the steps. Click on the links below for the engineering projects.

### Fun, Forces, and Sleds

Frosted forest. This challenge also has a strong focus on triangles.



Mr. Haro's students design and build a wall for the "five little pumpkins."