



Innovate
Public Schools

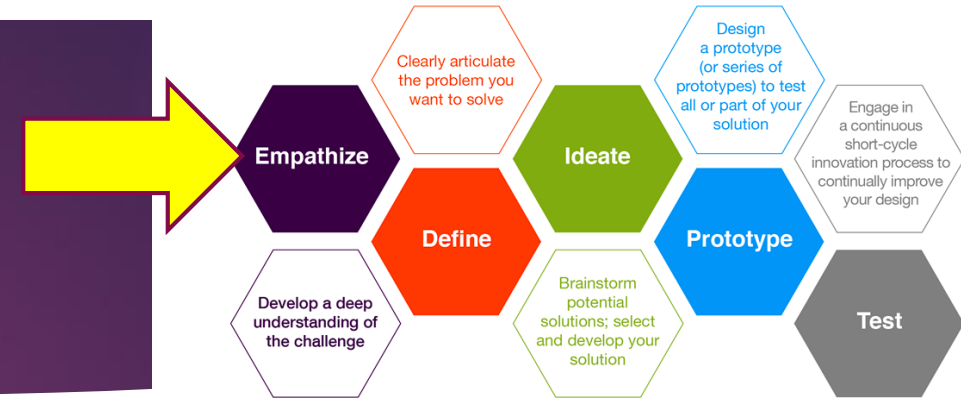
School Innovations Fellowship Program

JENNIFER EVANS

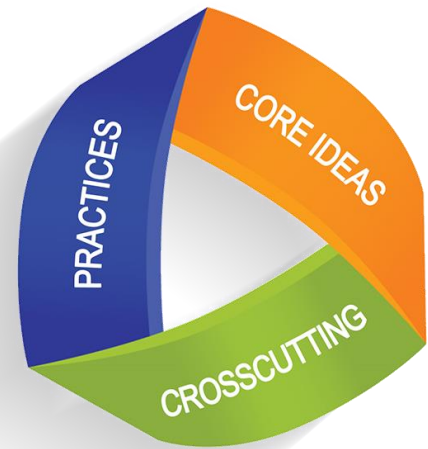
ROD KELLEY ELEMENTARY SCHOOL
SCIENCE LEADERSHIP TEAM & SCIENCE LAB

Step 1: Empathize

DESIGN THINKING

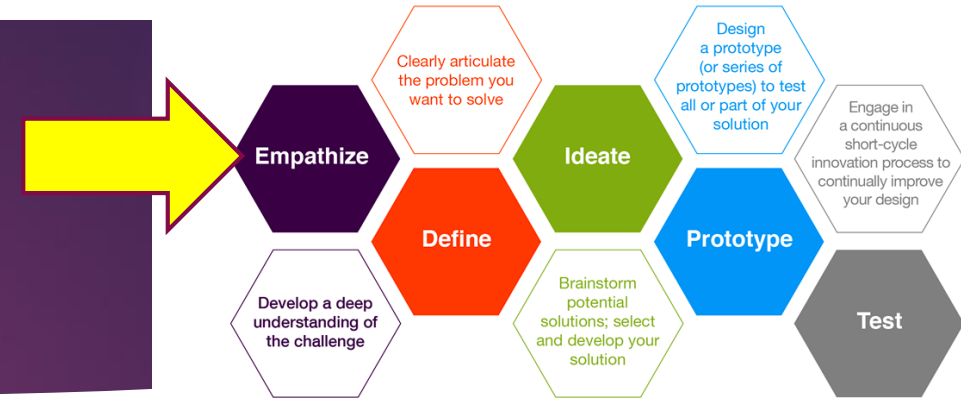


- ▶ NGSS: Next Generation Science Standards
 - ▶ Adopted September 4, 2013 in California
 - ▶ Three-dimensional standards
 - ▶ SEP: Science & Engineering Practices
 - ▶ CCC: Crosscutting Concepts
 - ▶ DCI: Disciplinary Core Ideas
 - ▶ Zero state-adopted programs (*as of fall 2018*)
- ▶ CAST: California Science Test
 - ▶ Fifth graders are assessed on 3rd, 4th, & 5th grade standards

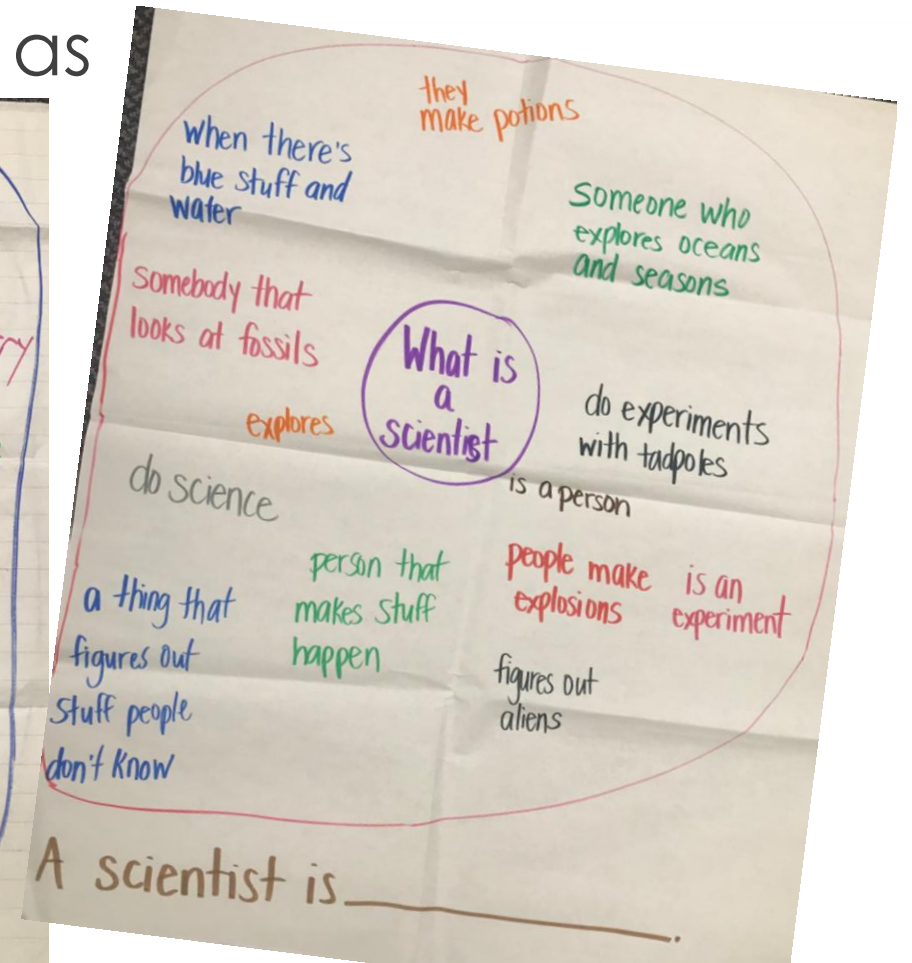
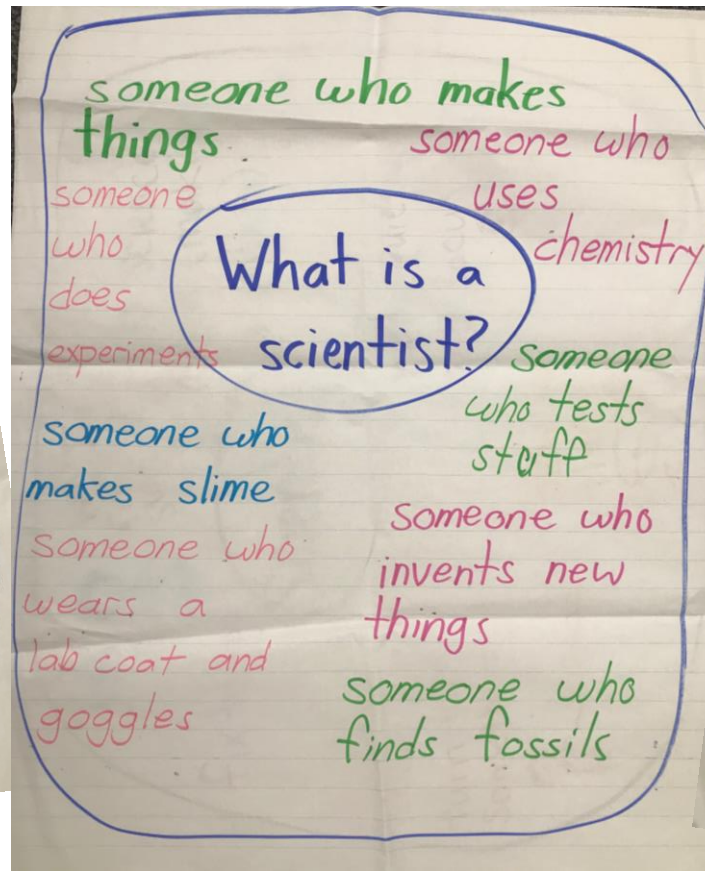
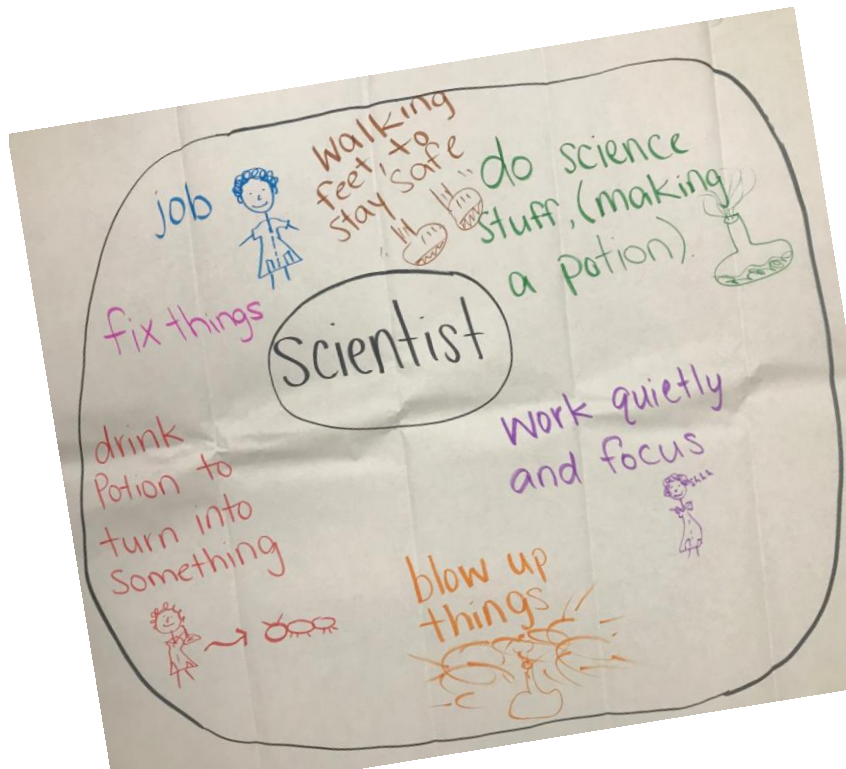


Step 1: Empathize

DESIGN THINKING

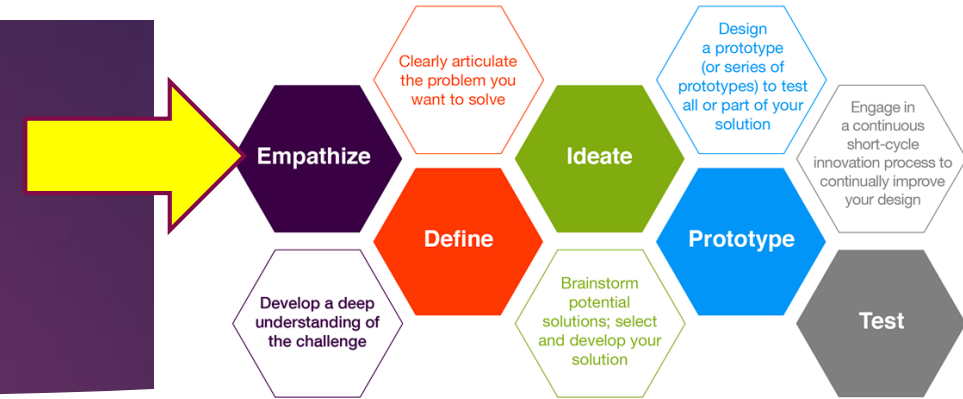


- Do kinder & 1st graders see themselves as **scientists**?



Step 1: Empathize

DESIGN THINKING



► Do 2nd & 3rd graders see themselves as **scientists**?

Grades 2-3

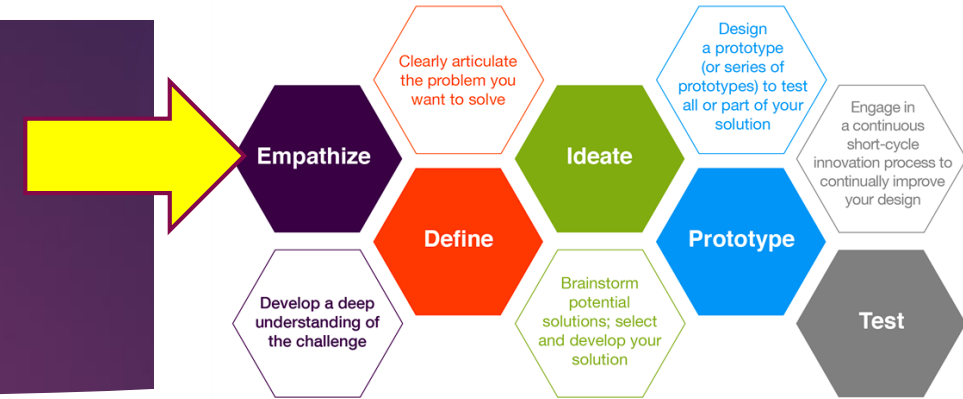
Draw and label a picture of a scientist.



Draw and label a picture of a scientist.



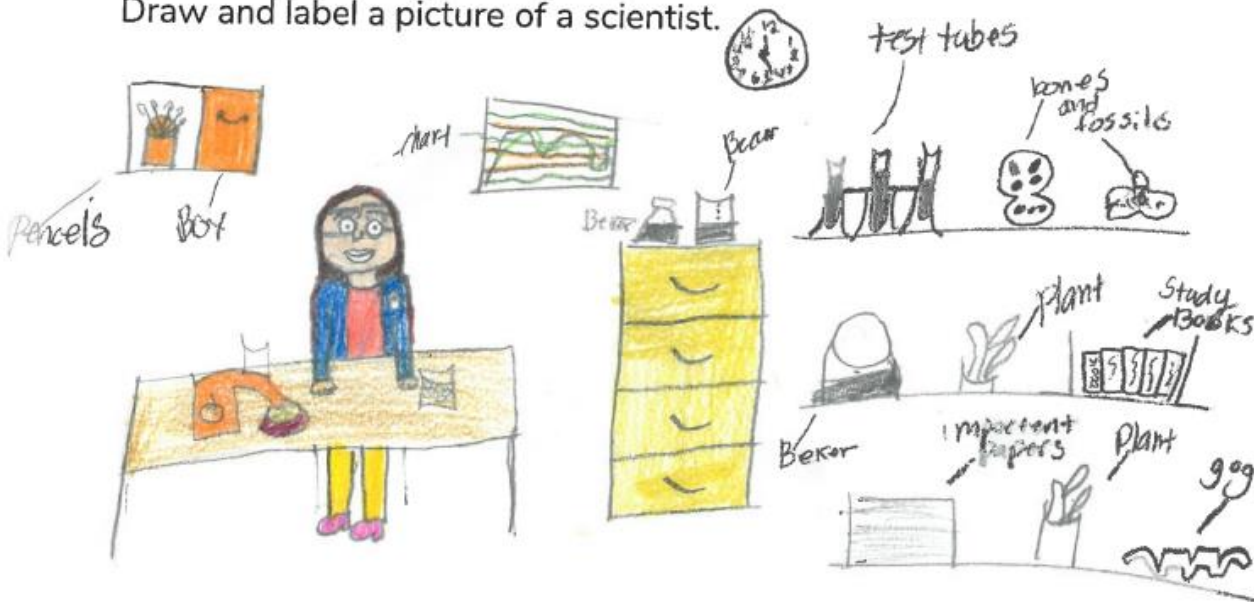
Step 1: Empathize



► Do 4th & 5th graders see themselves as **scientists**?

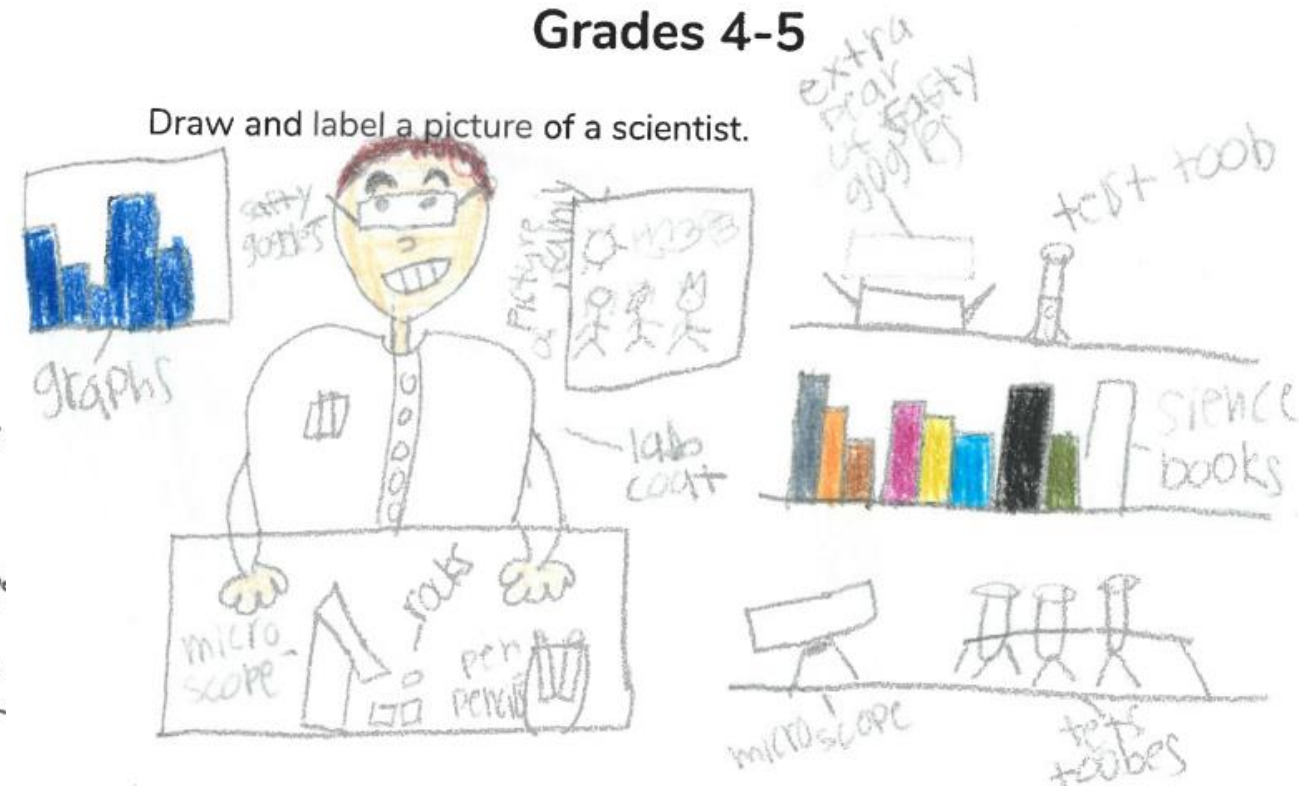
Grades 4-5

Draw and label a picture of a scientist.

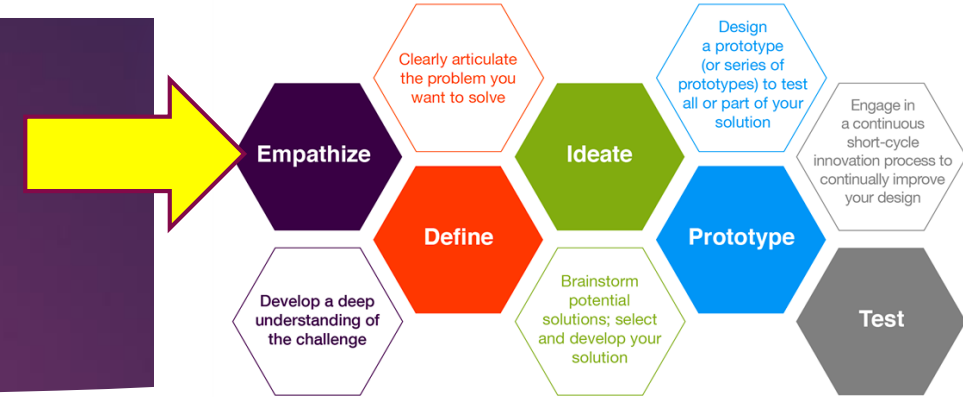


Grades 4-5

Draw and label a picture of a scientist.



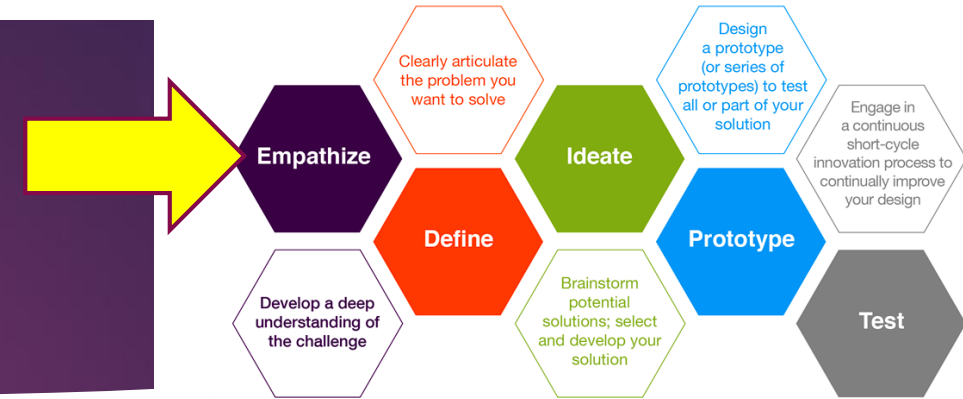
Step 1: Empathize



- ▶ **Teachers:** When you were a young student, what do you remember about learning science? Fond memories? Disturbing memories?
 - ▶ Hands-on, dissections
 - ▶ Field trips, assemblies
 - ▶ Arts and crafts, making and doing stuff
 - ▶ Building models
 - ▶ **No memories until middle school**
 - ▶ **Not always understanding**

Step 1: Empathize

DESIGN THINKING



► **Teachers:** How do you think you can ensure that your students are “in the picture” as scientists?

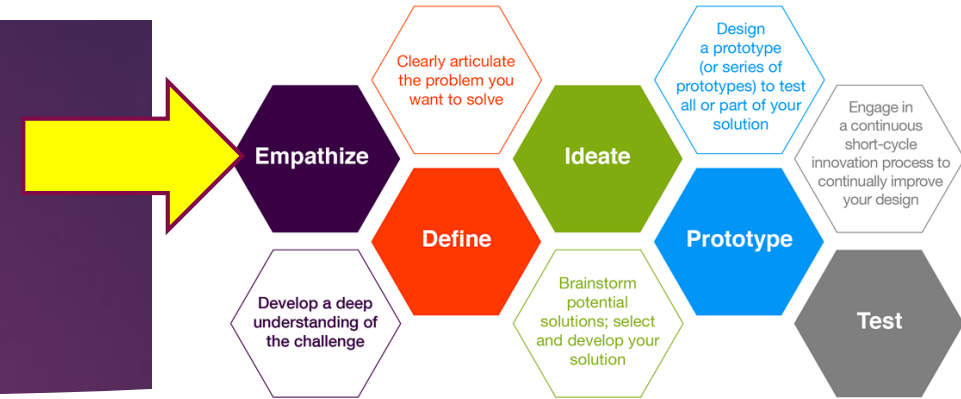
- Hands-on, engagement
- Students DO science, not just the teacher
- Inclusive lessons that address existing biases
- Validate hypotheses & opinions
- Use a variety of modalities
- Give opportunities to pursue interests



Race, Equity, and Leadership in Schools: A Conversation with Beverly Daniel Tatum

Step 1: Empathize

DESIGN THINKING

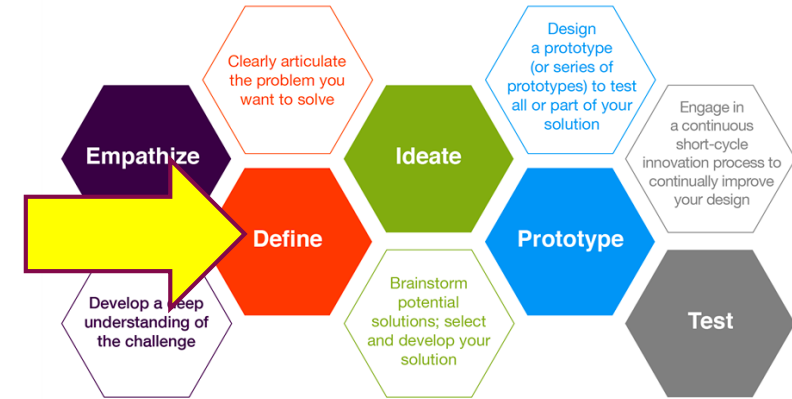


► **Teachers:** What do you need to fully implement NGSS?

- Time to unpack standards and plan
- Training
- Curriculum
- Supplies
- Materials boxed together for lessons
- Science lab
- Parent volunteers

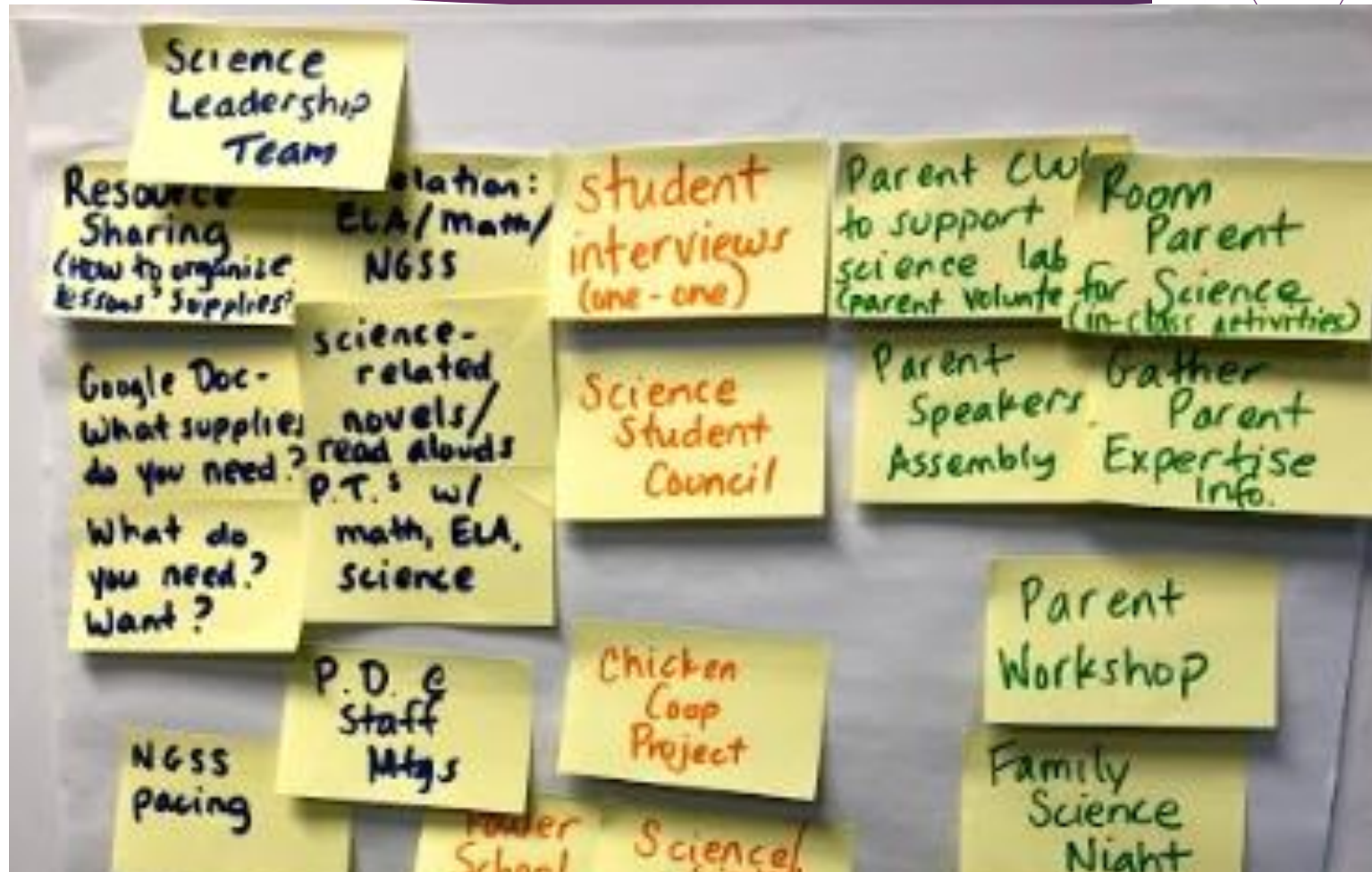
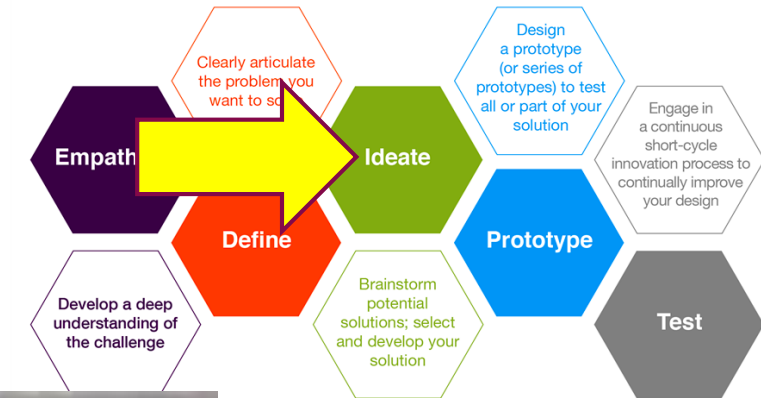
Step 2: Define

DESIGN THINKING



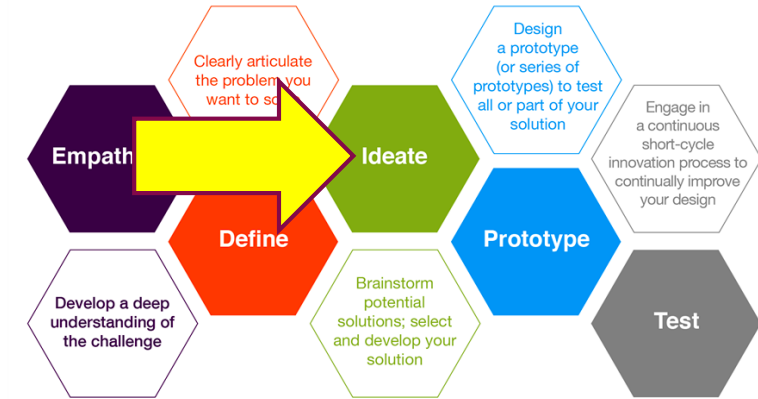
- ▶ Teachers know that the NGSS exist, but they have limited knowledge and familiarity.
- ▶ Teachers WANT to teach science, but they feel time and financial constraints.
- ▶ Most students have a positive attitude toward science.
- ▶ Students enjoy hands-on activities, but teachers struggle to buy supplies and prepare for multi-dimensional lessons.
- ▶ Students and teachers would benefit from a science lab.

Step 3: Ideate



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DESIGN THINKING

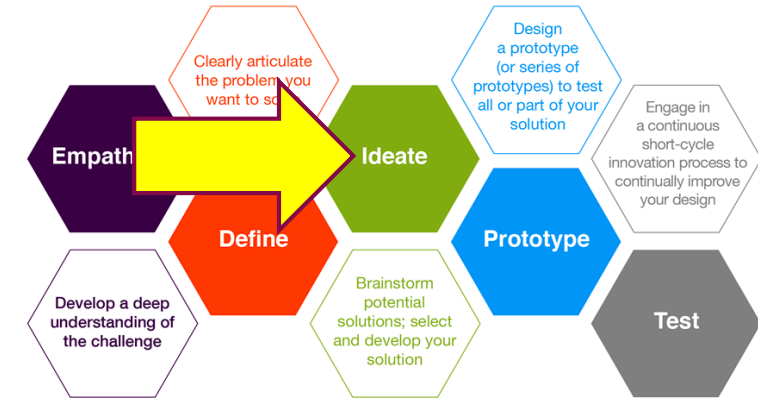


Teachers
&
Staff

- ▶ Science Leadership Team
- ▶ Resource Sharing--How do we organize lessons? Supplies?
- ▶ ELA/Math/NGSS correlation
- ▶ Science-related novels & read aloud books
- ▶ Shared Google Doc: What supplies do you need? Want?
- ▶ Performance Tasks with ELA, math, & science
- ▶ Science Professional Development at staff meetings
- ▶ NGSS deep-dive
- ▶ NGSS pacing
- ▶ Release day(s)
- ▶ Monger's Garden
- ▶ Academic Coach

Step 3: Ideate

DESIGN THINKING

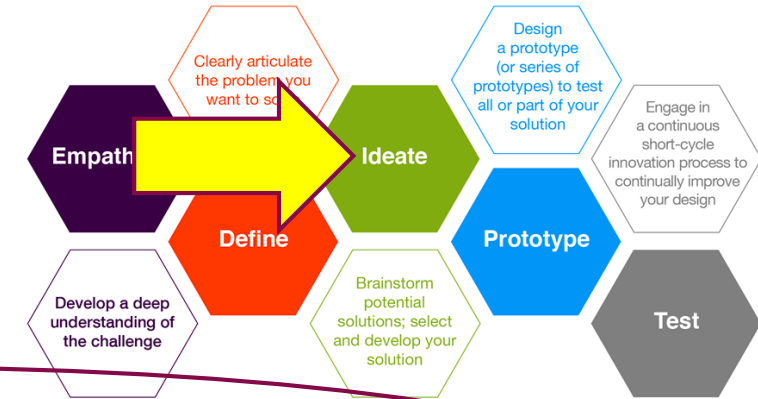


- ▶ Student Interviews (one on one)
- ▶ Kid-friendly NGSS focus for Science Fair
- ▶ Chicken Coop Project
- ▶ Power School (after school program)
- ▶ Science/Scientist Club
 - ▶ lunch?
 - ▶ after school?
- ▶ Science-related field trips
- ▶ Science Student Council

Students

Step 3: Ideate

DESIGN THINKING

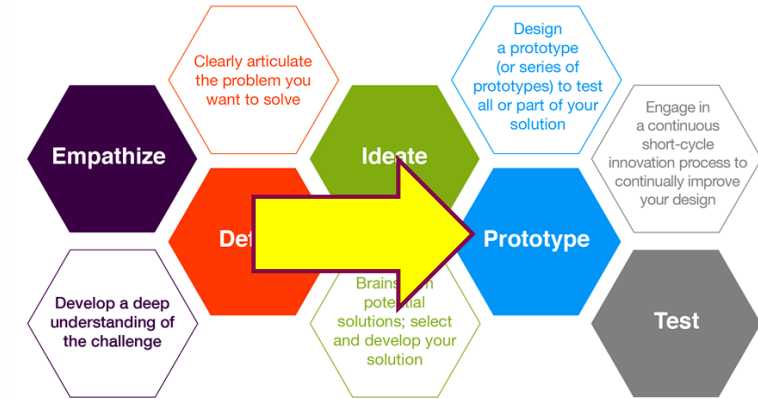


Parents

- ▶ Parent Club supports science lab with supplies and volunteers
- ▶ Science Room Parents for in-class activities
- ▶ Parent speakers for class presentations and/or assemblies (*use parent expertise*)
- ▶ Parent workshops
- ▶ Family Science Night
- ▶ Science-related community service projects
- ▶ Astronomy Night
- ▶ Apply for Gilroy Rotary Grant to support the lab

Step 4: Prototype & Reiterate

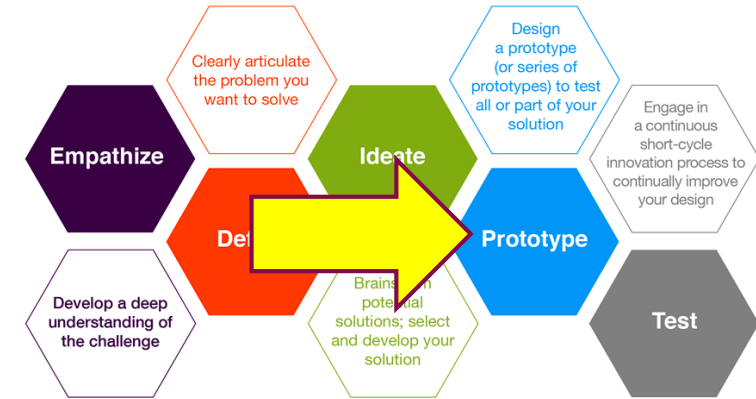
DESIGN THINKING



Science Leadership Team
&
Science Lab

Science Leadership Team

DESIGN THINKING



► How might we create and foster a unified vision for science instruction?

Science Leadership Team Agenda Rod Kelley, Room October

- I. Welcome and Introductions
A. Colleen, Andrea, Haley, Al
- II. Team's Purpose & Objectives
A. How might we create and
instruction?
- B. How does science instruc
NGSS?
1. Concerns:
a) How do we fo

Science Leadership Team Agenda Rod Kelley, Room November

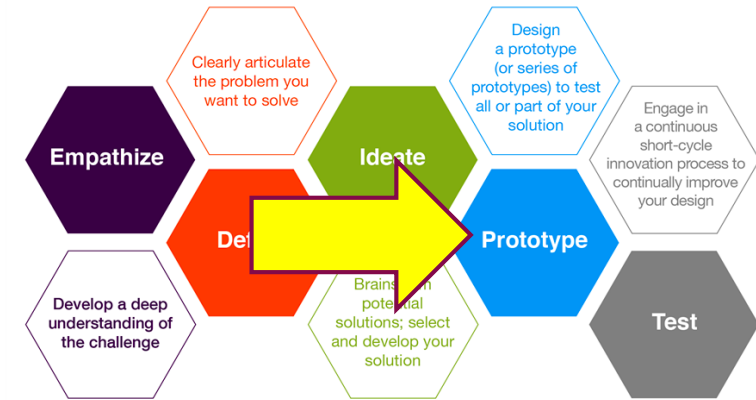
- I. Welcome and Introductions
A. Azucena, Lenore, Colleen, / I.
- II. Review Team's Purpose & Object
A. How might we create and
instruction?
- III. Science Instruction Updates by G
A. [Staff Meeting Results 11/7](#)
B. Staff Meeting focus on Life
instruction?
given at staff m

Science Leadership Team Agenda Rod Kelley, Room 22, 3:00-4:00pm December 13, 2018

- Welcome and Introductions
- Review Team's Purpose & Objectives
A. How might we create and foster a unified vision for science
instruction?
- Half-day release days so each grade can plan science lessons
A. Release dates:
 1. Monday, December 17 (Alicia is on campus as a resource)
 - a) Am (8-11am): Fourth Grade
 - b) Pm (11am-2:30pm-lunch): Fifth Grade
 2. Tuesday, December 18 (Alicia isn't on campus)
 - a) (8-11am): Second Grade

Science Leadership Team Tasks & Accomplishments

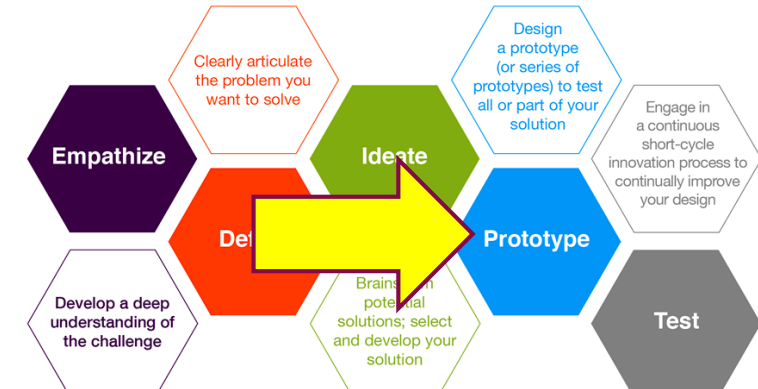
DESIGN THINKING



- ▶ Brainstorming teaching and learning experiences, successes, challenges, new activities for possible implementation
- ▶ Grade level status updates of NGSS implementation
- ▶ Model lessons by District Academic Coach
- ▶ NGSS focus at staff meetings (standards deconstruction by DCI)
- ▶ Alignment of ELA curriculum (Benchmark Advance) and NGSS
- ▶ Grade level release days
- ▶ Gather data from Lead Team Members and staff
- ▶ Gallery Walk of all NGSS grades K-5 (Physical & Earth and Space)

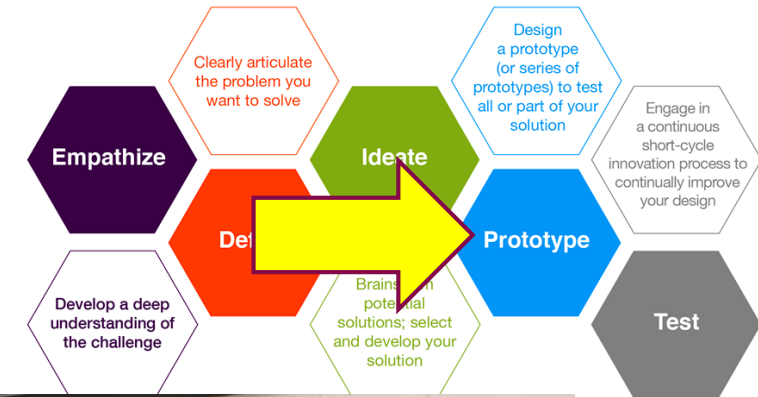
Science Lab

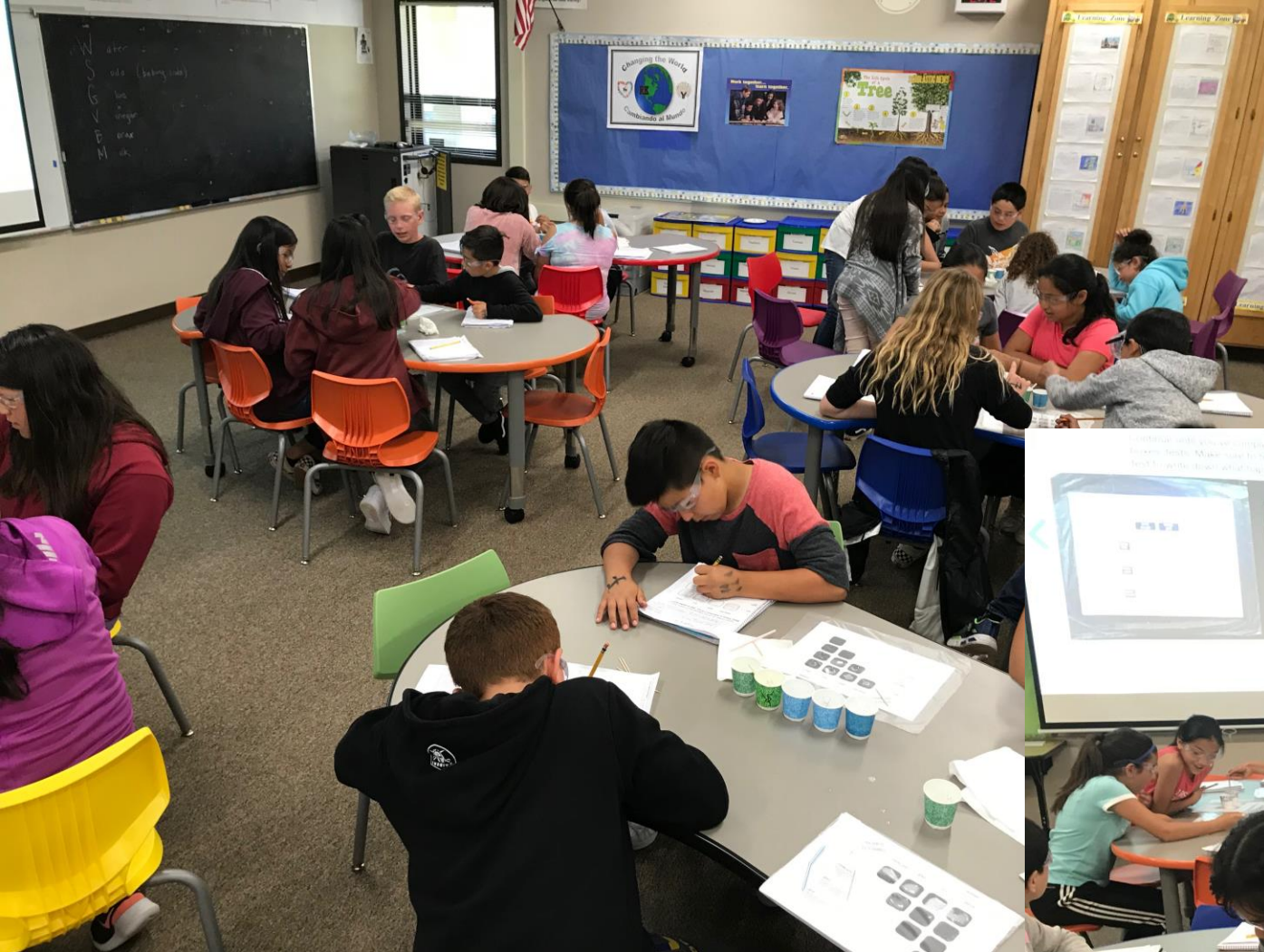
DESIGN THINKING



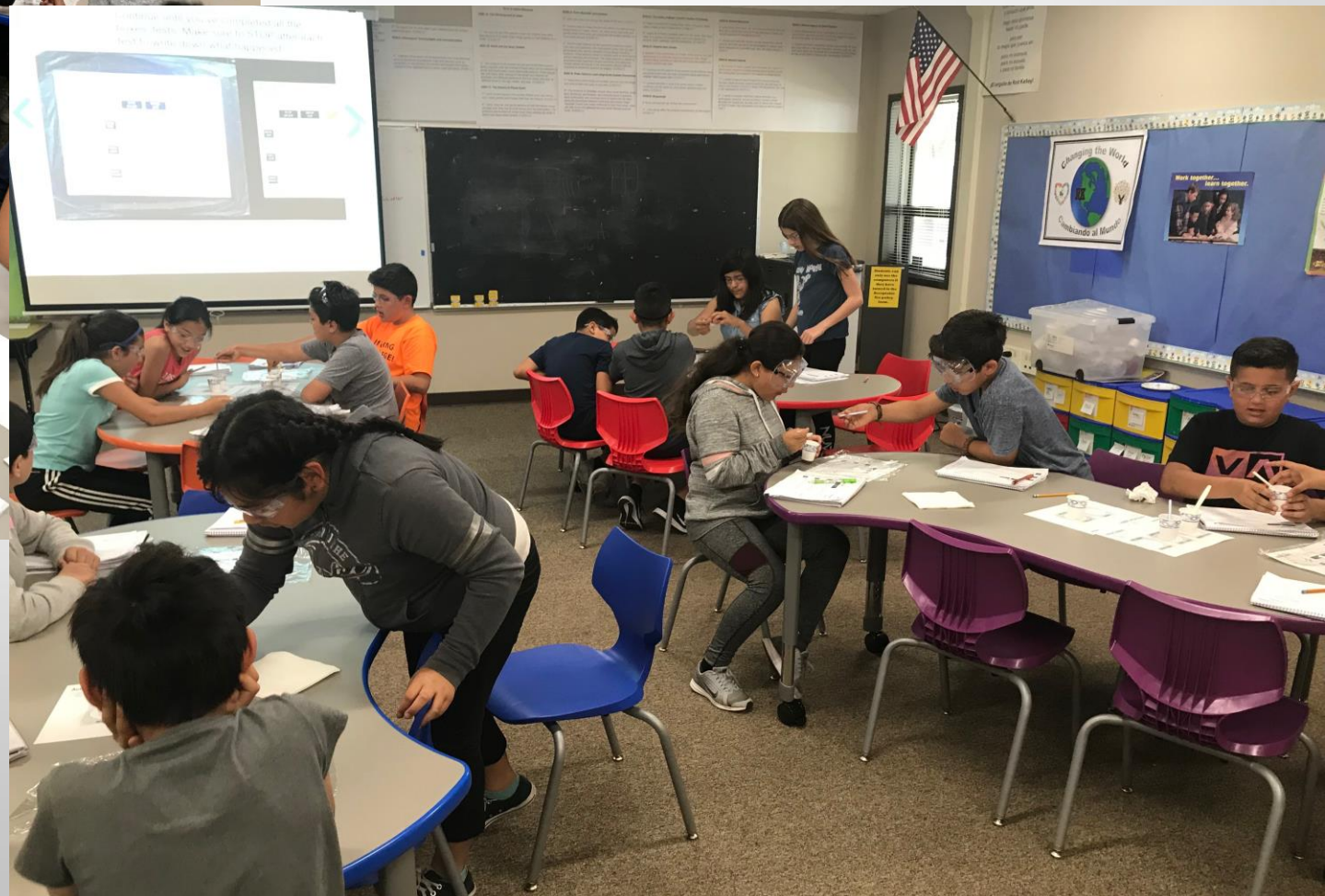
Science Lab

DESIGN THINKING



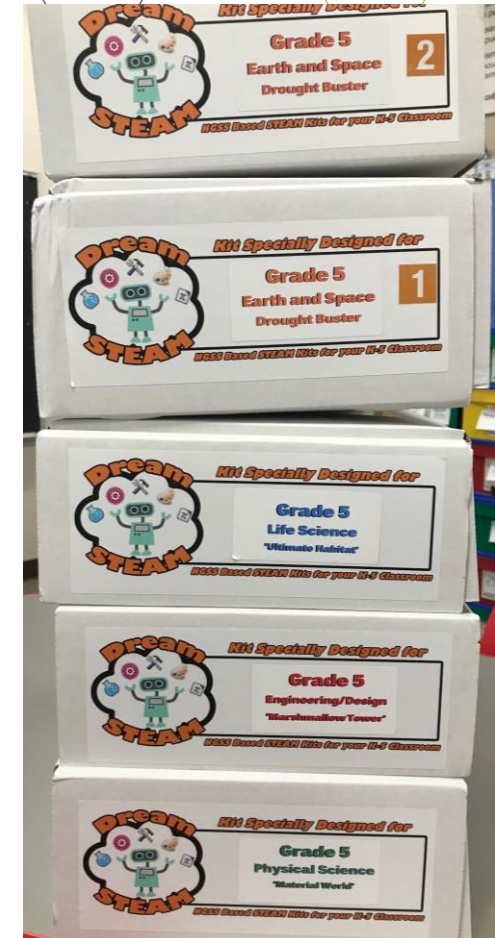
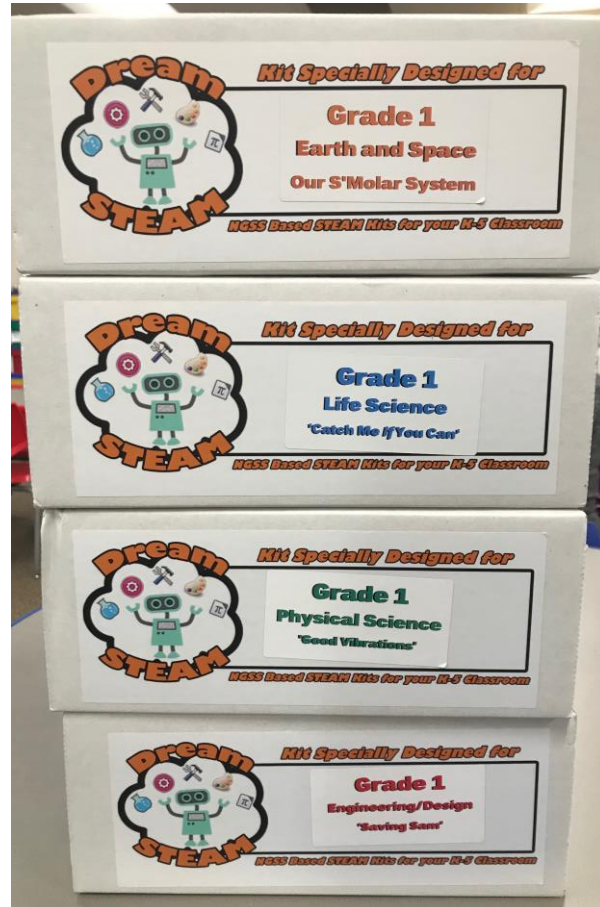
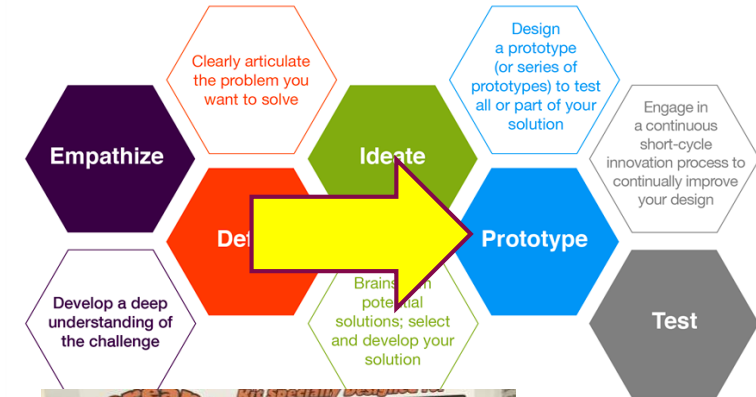


Student Scientists in Action!



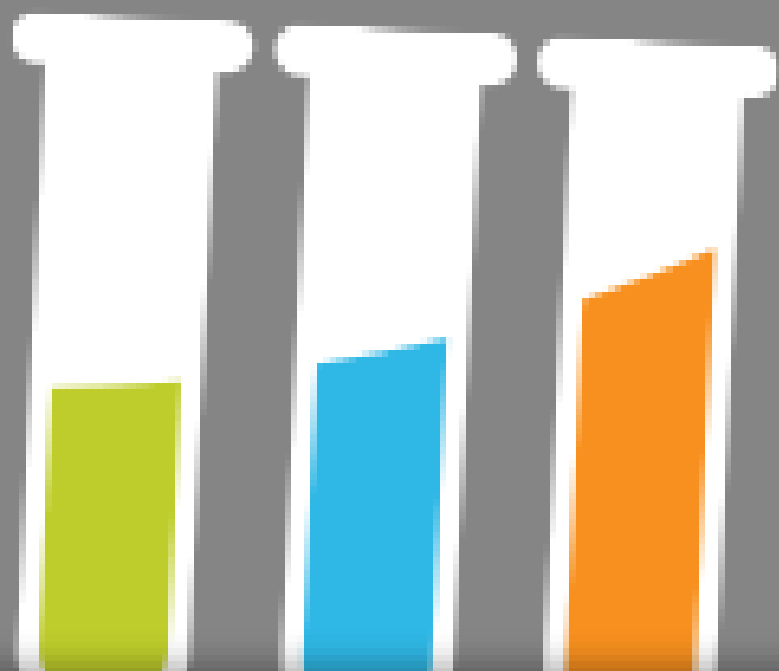
Dream STEAM Kits

DESIGN THINKING



Next Steps

- ▶ Science Lab Safety PowerPoint to present to teachers and students ✓
- ▶ Schedule 30 minute/class “Welcome to the Lab” (first time lab visit for classes) ✓
- ▶ Determine weekly schedule for regular class lab use ✓
- ▶ Use all of the Dream STEAM kits and evaluate for following year supply purchases ✓
- ▶ Invite parent volunteers to participate in science lessons
- ▶ Form a Content-Area Leadership Team for 2019-2020
 - ▶ Math? Reading? Writing?



Q&A

