



SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT

Next Generation Science Standards (NGSS) Implementation Update

Board of Education Study Session

April 3, 2019



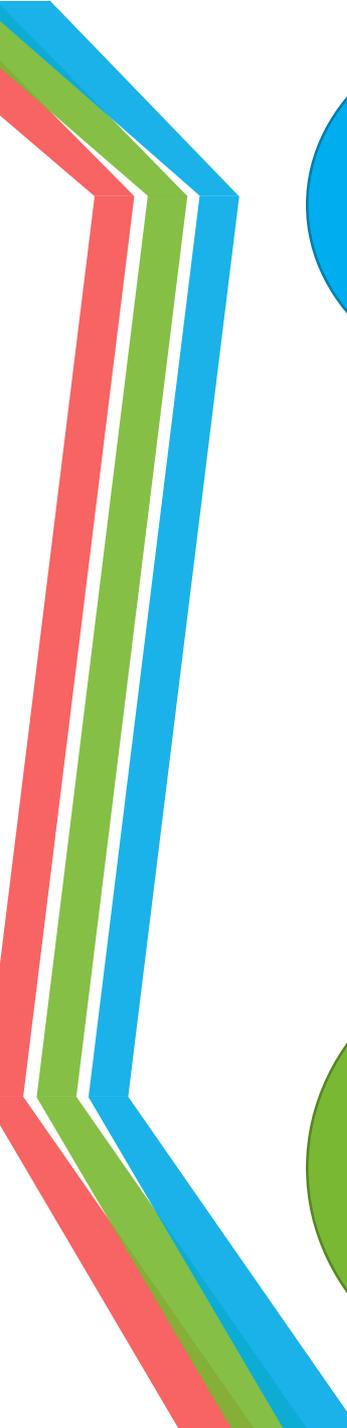
Purpose

Staff will provide an update on the SMMUSD NGSS Implementation Plan.

"All Standards, All Students"

- NGSS Standards (2013)
- NGSS Framework (2016)
- Adopted Materials (2018)
- CAST Operational (2019)





Three
Years

Three
Grade
Spans

SMMUSD NGSS Implementation Plan

Three
Instructional
Shifts

Three
Strategies

Three Strategies



Teacher
Leadership

Professional
Learning

Instructional
Materials



Three Instructional “Shifts”

Three
Dimensional

Coherence

Relevance



Looks like...

Students ...

- make sense of phenomena and design solutions
- learn through inquiry
- engage in purposeful reading, writing, speaking and listening



SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT

Early Learning & Elementary



Strategy 1: Teacher Leadership

Highlights from our Elementary Leadership Team

- ★ Analyzed feedback from teachers and UCLA adjusted based on our feedback.
- ★ Reps attended Instructional Materials Fairs and continue to support the vetting process
- ★ Powerful to have teachers from across the district talking about current practices and different needs across sites.

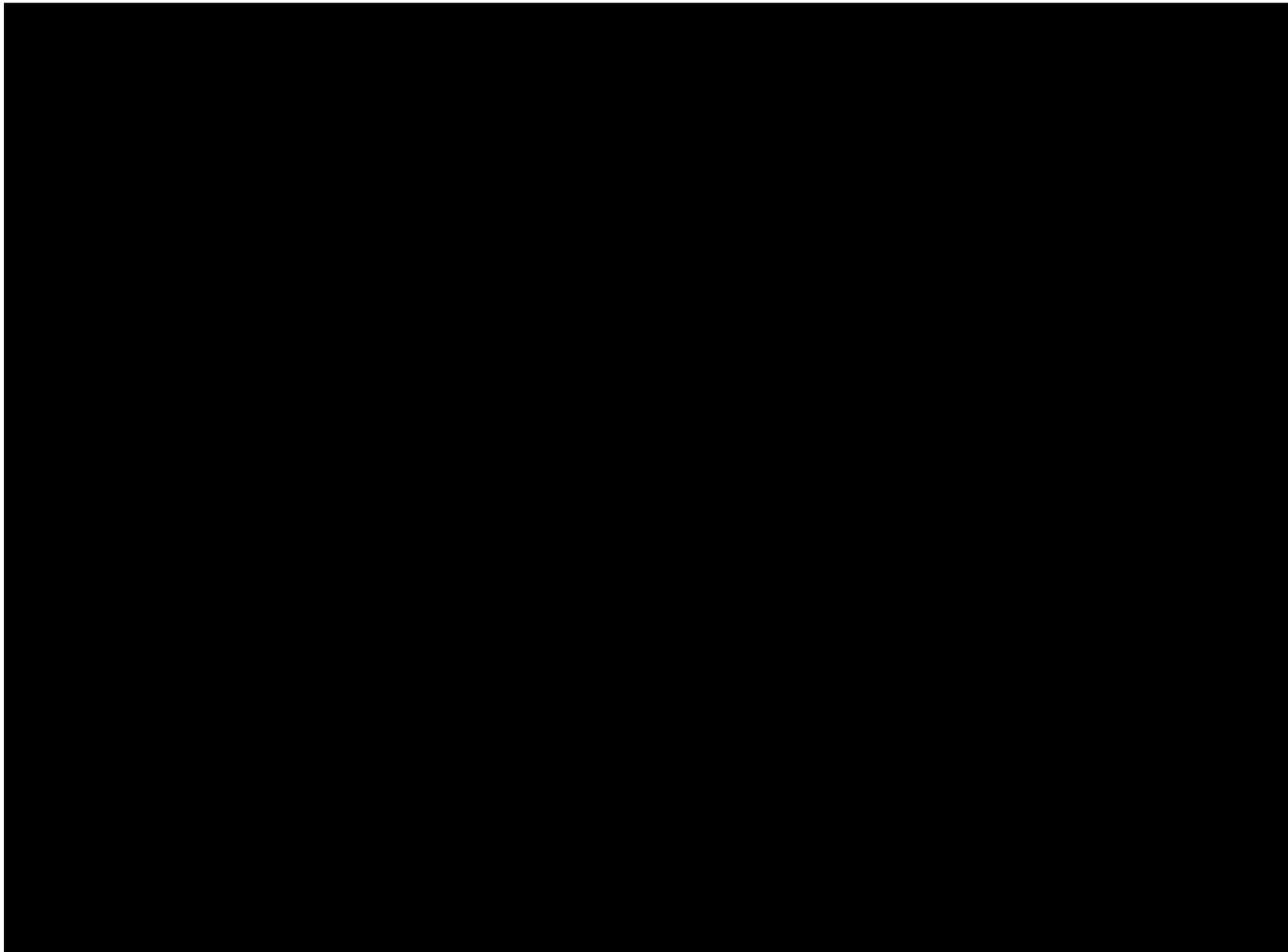




Observing, Collaborating and Making Inferences in Preschool and TK!

- ★ Observation
- ★ Data Collection
- ★ Simulation of a phenomena
- ★ Learning through Inquiry



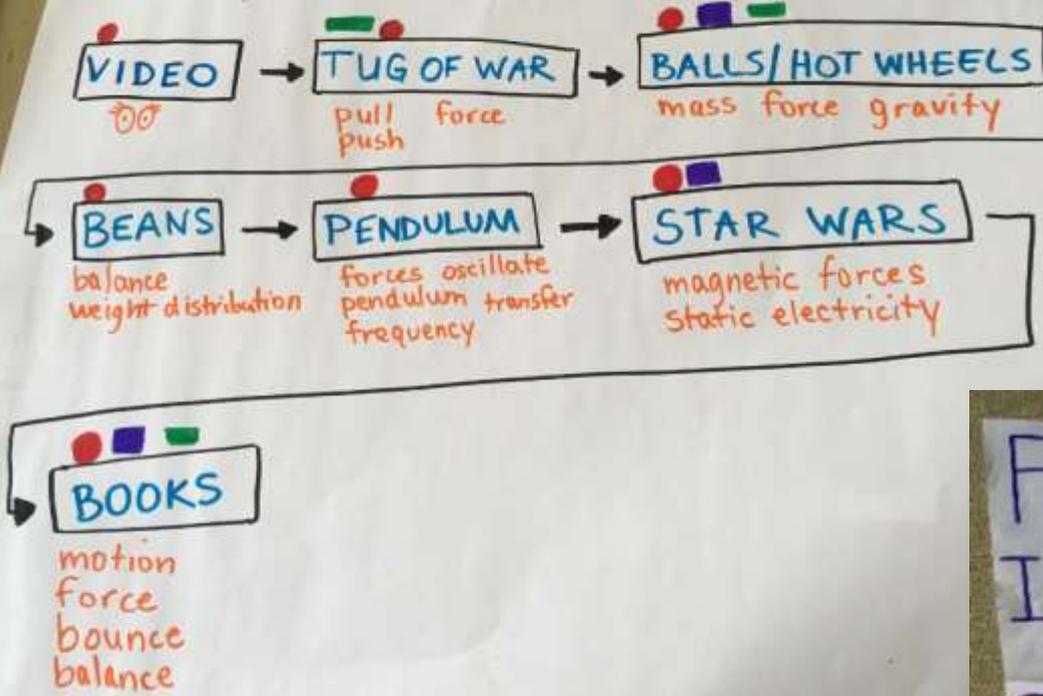


Strategy 2:
Professional
Learning

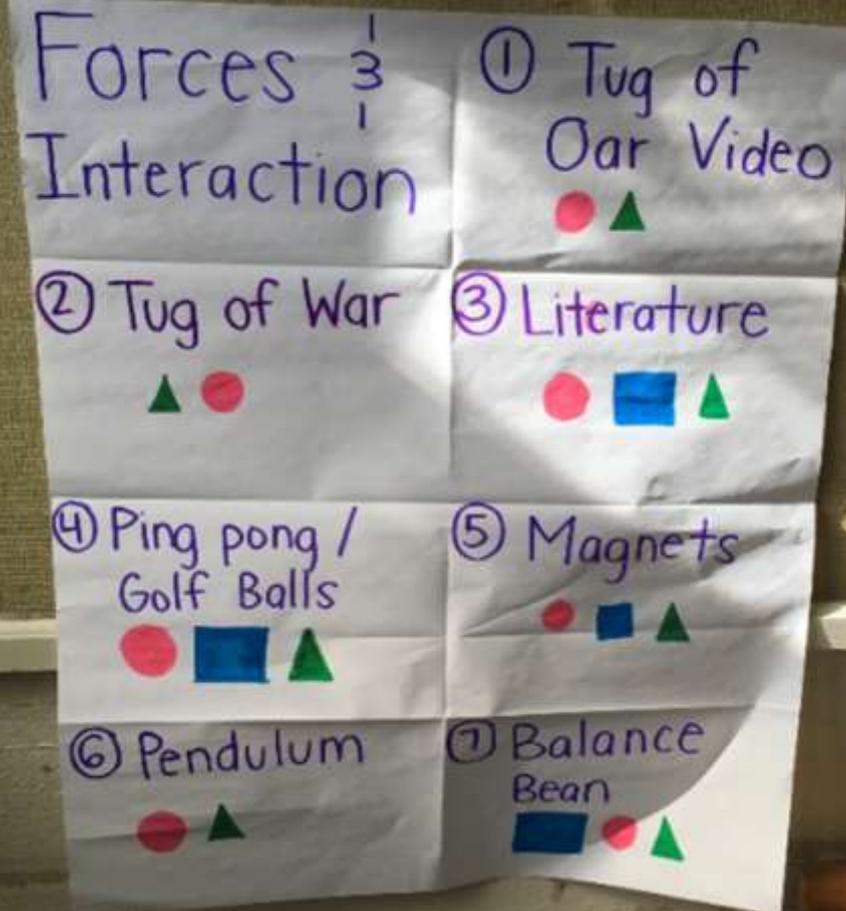
- ★ Anchoring Phenomenon
- ★ Science & Engineering Practices
- ★ Modeling



SEQUENCE ANALYSIS



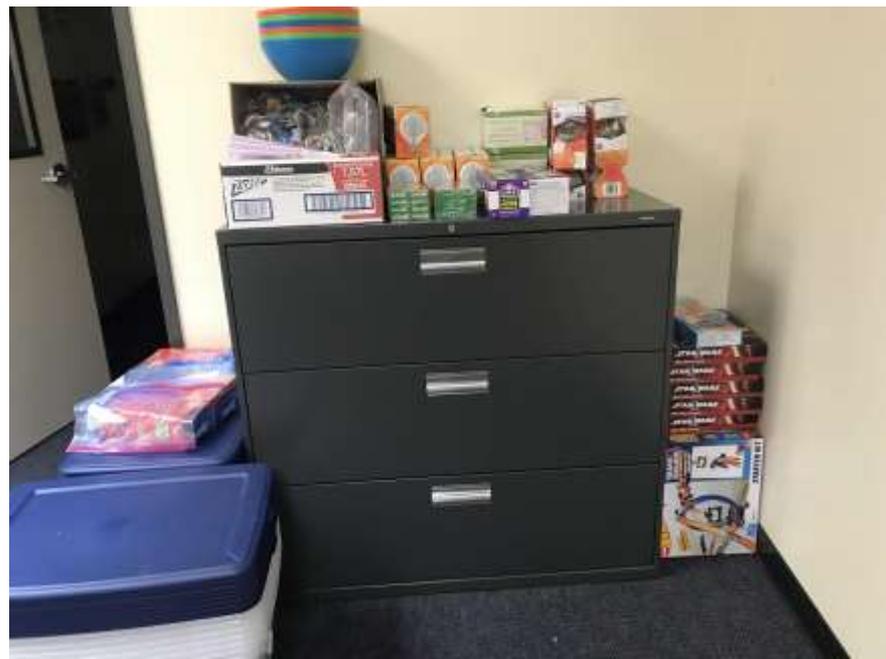
Strategy 3:
Instructional
Materials
“Storylines”



- ❖ Academic Vocabulary
- ❖ Student Agency

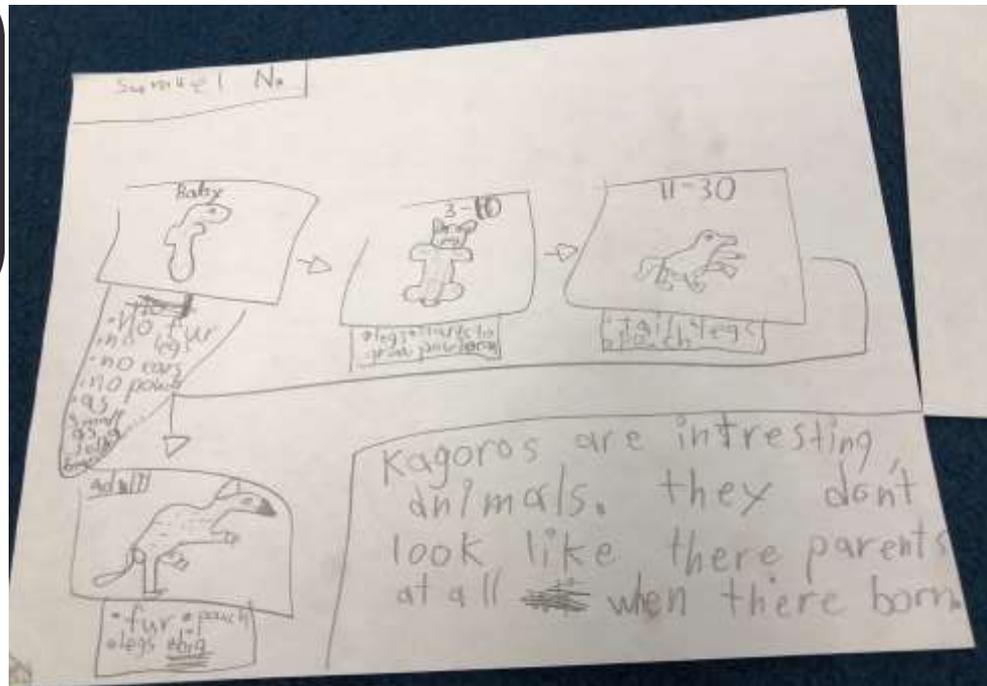
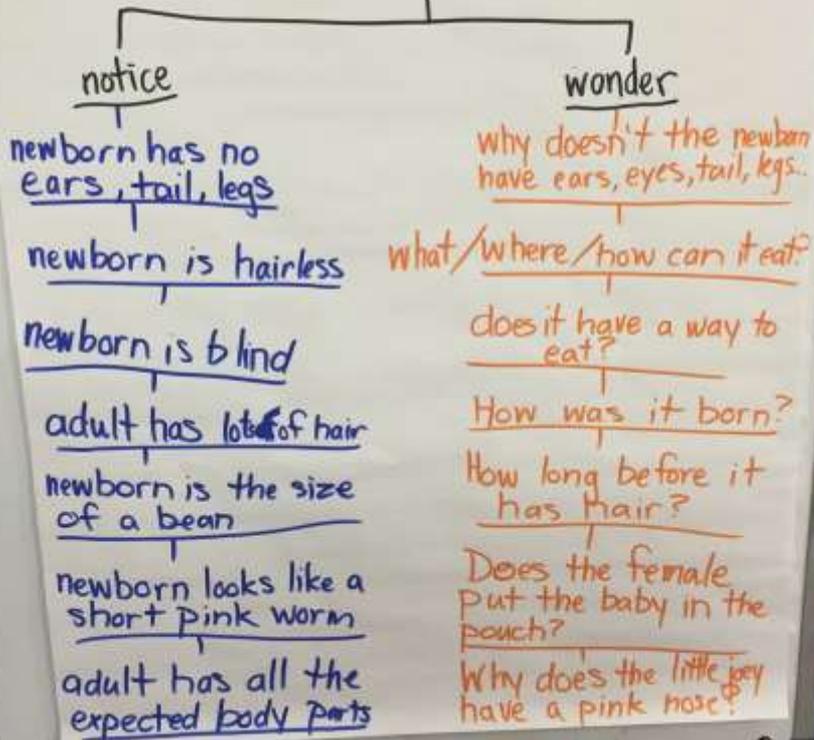


“Storyline”
materials being
distributed and
packaged in
ED Services



Anchoring Phenomenon & Initial Student Models

Baby Kangaroo/Adult Kangaroo



Life Cycle of a Kangaroo



KANGAROO

Name: Nave Page: 1



OVERVIEW

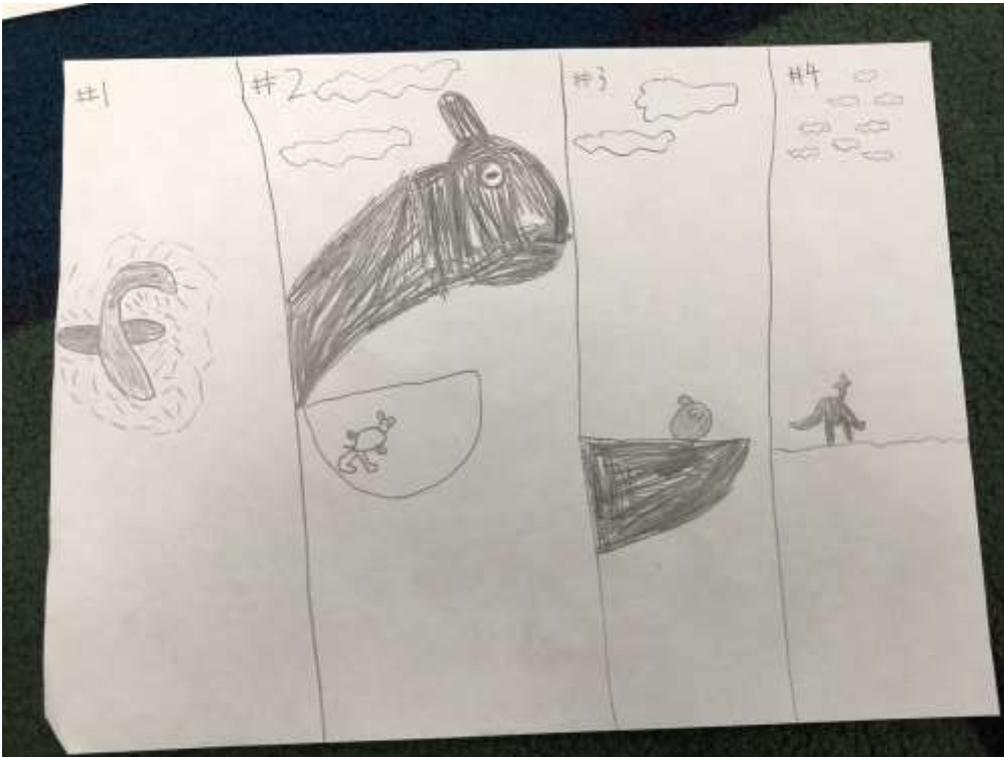
Kangaroos possess powerful hind legs, a long, strong tail, and small front legs. Kangaroos belong to the animal family Macropus, literally "big foot." Thanks to their large feet, kangaroos can leap some 30 feet (9 meters) in a single bound, and travel more than 30 miles (48 kilometers) per hour. Kangaroos use their strong tails for balance while jumping. They are the tallest of all macropids, standing over 6 feet (2 meters) tall.

Kangaroos live in Eastern Australia. They live in small groups called troops or herds ("mobs" by Australians), typically made up of 50 or more animals. If threatened, kangaroos pound the ground with their strong feet in warning. Fighting kangaroos kick opponents, and sometimes bite.

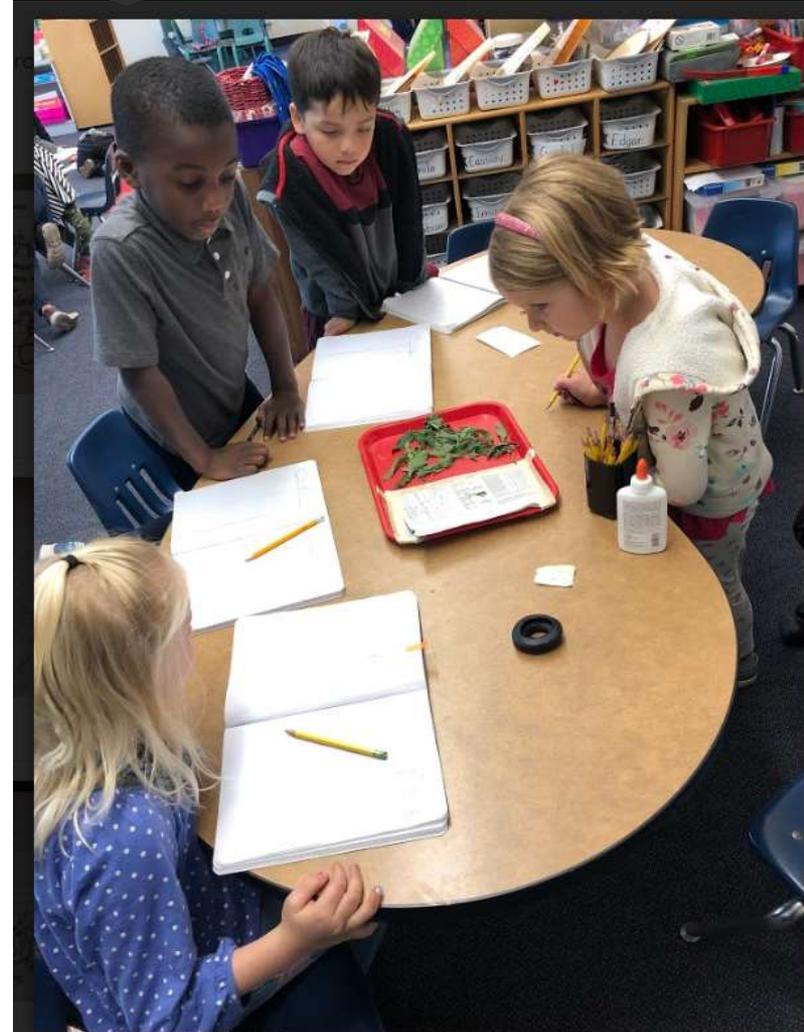
Female kangaroos sport a pouch on their belly, made by a fold in the skin, to cradle baby kangaroos called joeys. Newborn joeys are just one inch long (2.5 centimeters) at birth, or about the size of a grape. After birth, joeys travel, unassisted, through their mom's thick fur to the comfort and safety of the pouch. A newborn joey can't suckle or swallow, so the kangaroo mom uses her muscles to pump milk down its throat. At around 4 months, the joey emerges from the pouch for short trips and to graze on grass and small shrubs. At 10 months, the joey is mature enough to leave the pouch for good.

Besides humans and wild dogs called dingoes, kangaroos face few natural predators. Heat, drought, and hunger due to vanishing habitat are the biggest dangers kangaroos face.

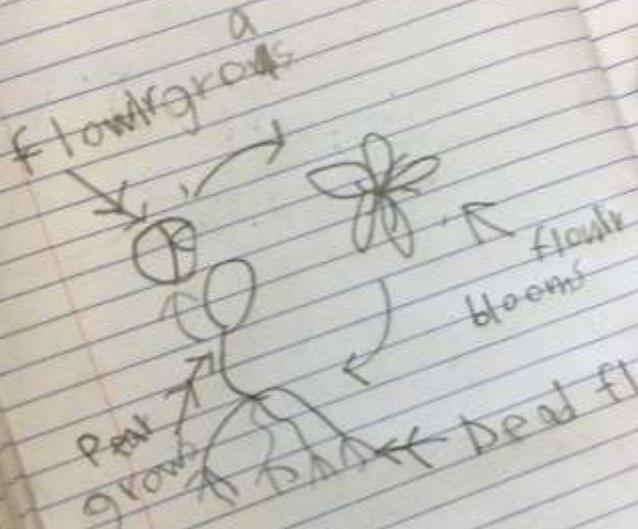
Inquiry & Model Revision



Observation & Data Collection



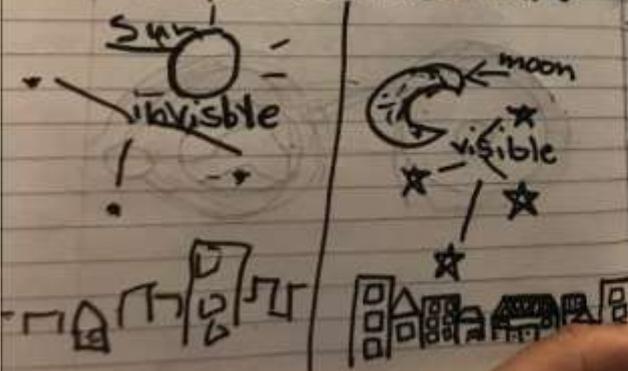
Pear Plant.



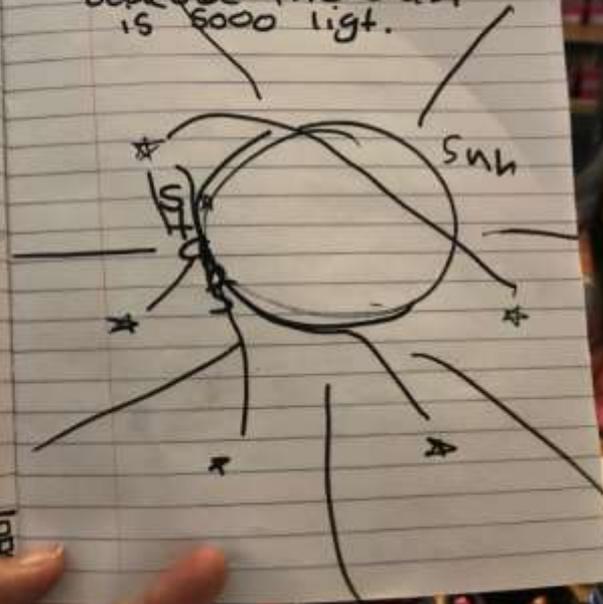
Student Models

Why do you think stars come out at night? Why can't you see them during the day?

Stars come out at night because in the day the sun is too bright to show the stars



you can't see the stars because the sun is sooo light.



Elementary Next Steps

- ❖ UCLA Science Project (Y2)
- ❖ Build Cadre of Elementary Science Leaders
- ❖ Instructional Materials Pilot

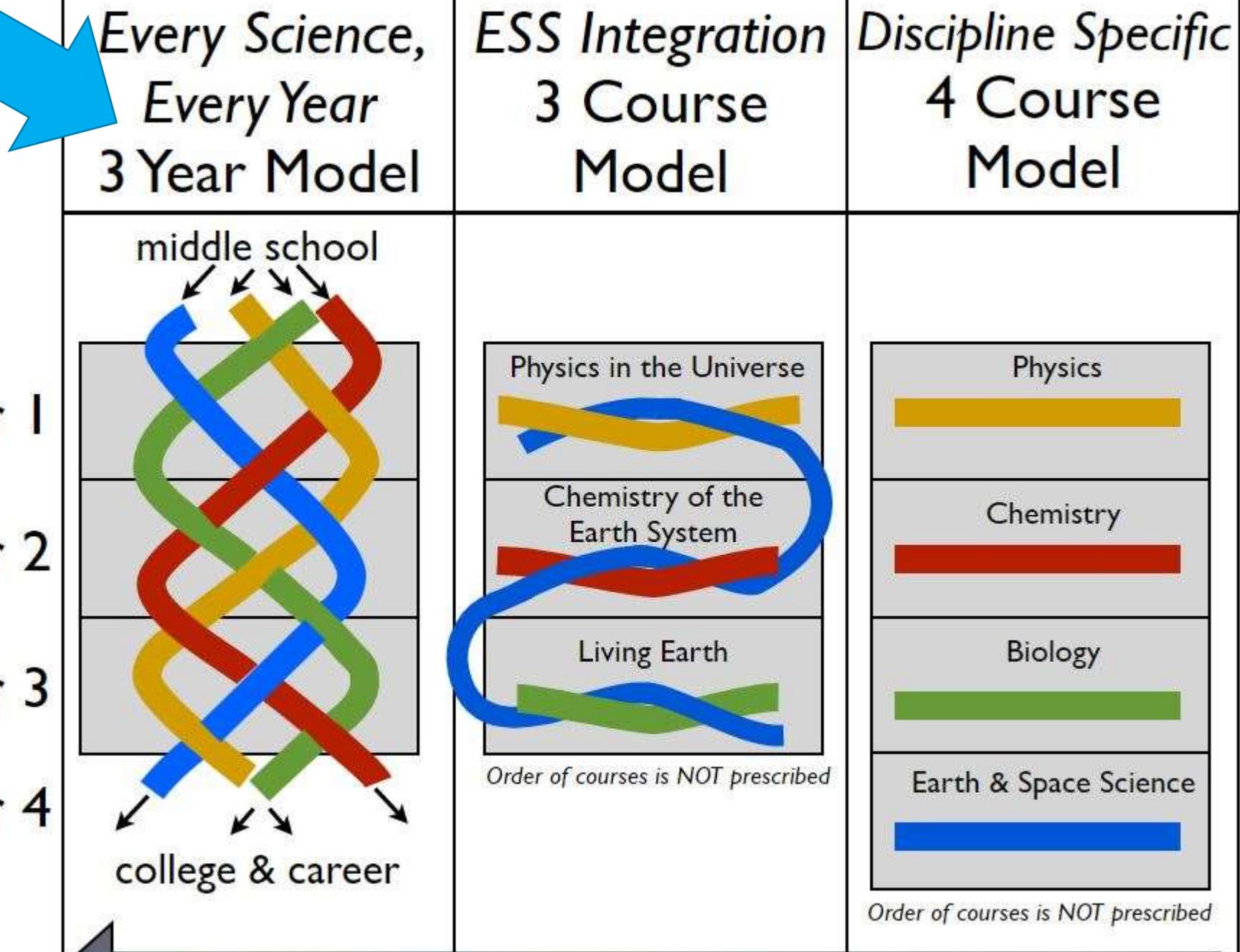




SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT

Middle School





More integration of science disciplines

Strategy 1:
Teacher
Leadership

Highlights from our Middle School Leadership Team

- ★ Integrated Model
- ★ Curriculum Development
- ★ Professional Learning with UCLA
- ★ Instructional Materials Review







Roller
Coaster
Skills!

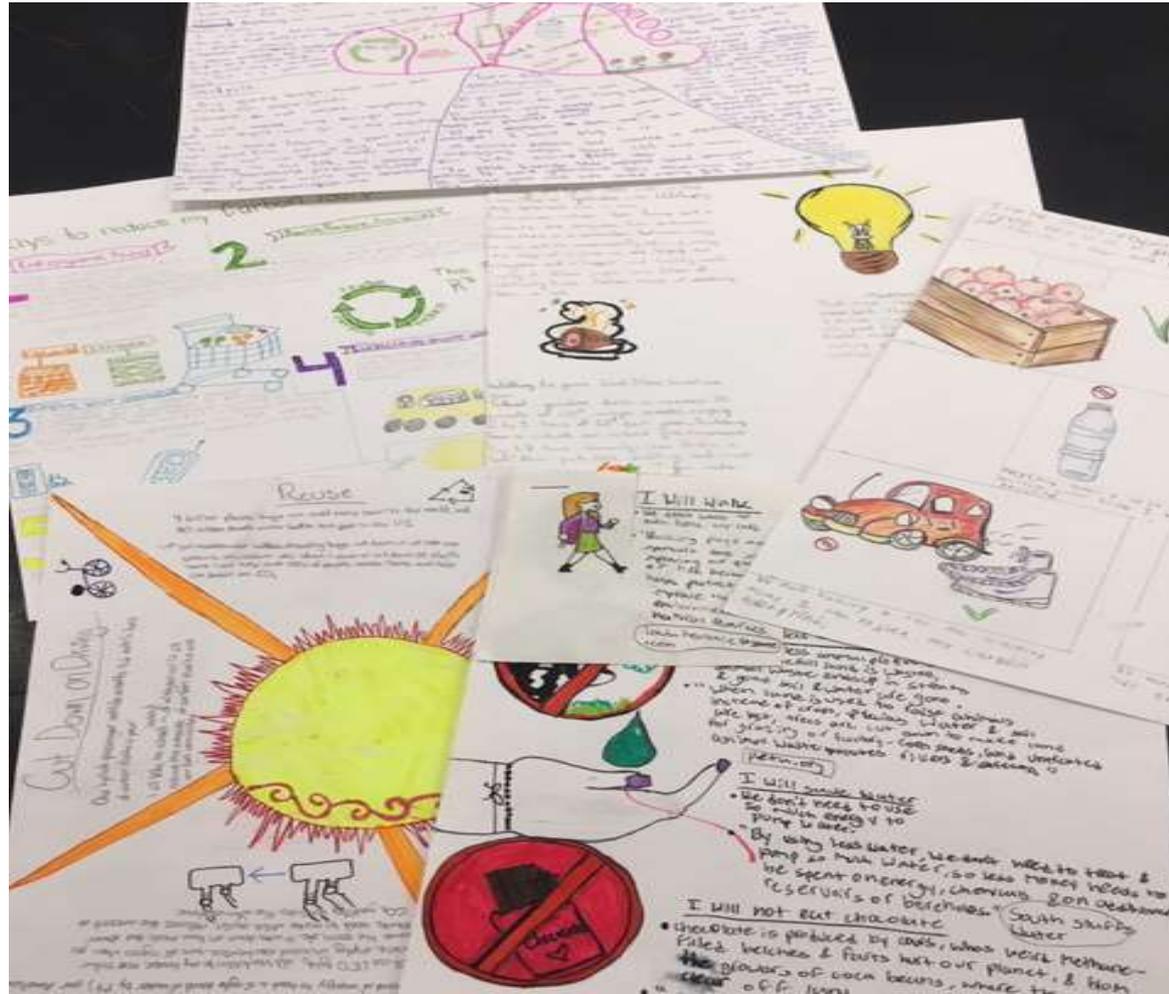


Strategy 2:
Professional
Learning

Anchoring Phenomenon: Climate Change

Through an Inquiry
Approach...

- ★ Graphs, Articles & Video
- ★ Chasing Ice & Chasing Coral
- ★ Taking Action - Pledges to Reduce Carbon Footprint



Instructional shift from this to . . . this . . .

Science education for most students

Science for *all* students

Learning about

To figuring it out

Teacher providing information to all students

Science for all students





What do you notice?

Momatiuk - Eastcott/Corbis

Some rocks weigh as much as 500 lbs.



Grab File Edit Capture Window Help

Mail - ... x Cell Pho... x NGSS U... x 1819 S... x An Icy S... x slitherin... x Search... x Cell Pho... x O'Brien... x HHMI U... x

https://undsci.berkeley.edu/interactive/#/intro/2

How Science Works

This flowchart represents the process of science, through which we build knowledge of the natural world. With this interactive, you can trace the development of a scientific idea or investigation. Most research takes a winding path, shaped by a unique combination of people and events. In contrast, journal articles or lab reports often portray science as a simple linear process.

About Educator Resources Help Glossary

hhmi BioInteractive UCOMP UNIVERSITY OF CALIFORNIA MUSEUM OF PALEONTOLOGY

How Science Works

Chelyabinsk



Unit Essential Question: *What are the effects of an asteroid collision and how can we prevent a future one?*

Lift Off: Asteroid Collisions

Task #1: An Ancient Collision

Task #2: Contact Forces

Task #3: Non-Contact Forces





Instructional Materials

- ❑ Instructional Materials Fairs
- ❑ Formation of instructional materials adoption team
- ❑ District “Toolkit” and Lens
- ❑ 2019-20 Pilot



Amplify.

Strategy 3:
Instructional
Materials
“Storylines”



Middle School Next Steps

- ❖ Continued training and time to collaborate
- ❖ Refine curriculum guides and develop benchmark assessments/tasks
- ❖ Analysis of CA Science Test
 - Standards-based grading (1-4)
 - Graphing and student needs

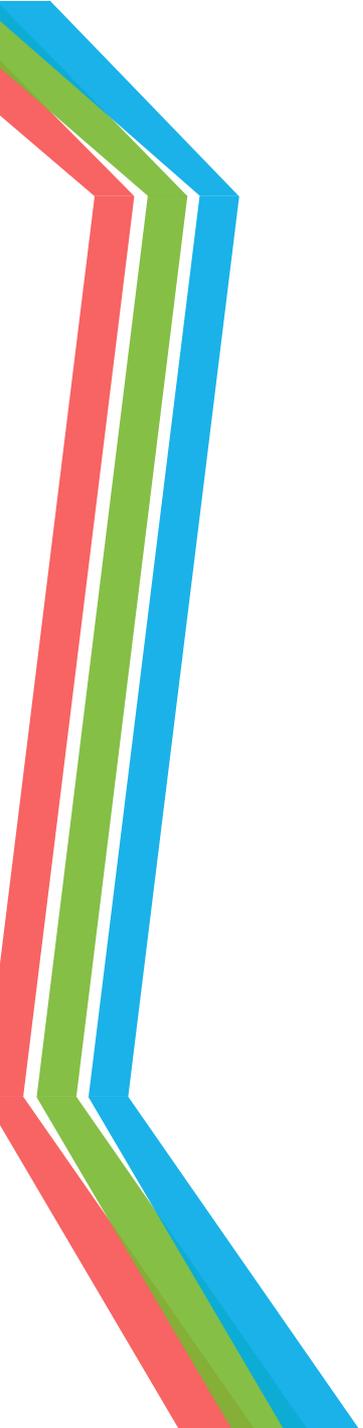


SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT

High School

To be shared
on May 16





THANK YOU