Three Dimensional Learning in Action
Earth and Human Activity
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Welcome

Ice Breaker
Student Journals
Exploring 3 D Learning
Earth and Human Activity – K
Be an Engineer – Project
Share
Questions or Concerns
• Pick your favorite Lifesaver flavor and find others with your flavor.
• Share a bit about yourself and what you enjoy most about teaching STEM/STEAM?
• Science Journals:
  • How do science journals help us learn?
  • Share with your shoulder partner.
Who was this?
Marie Curie
Discovered 2 new elements:
Radium & Polonium
Excerpt from Marie Curie’s Journal
Science Learning Logs

• Before our journey begins, you will need a learning log.
• The logs can be used for units, lessons and at your science and literacy Centers.
• You can purchase large manila folders to create them. They are inexpensive and easy to create and use!
• The “logs” can be used to store vocabulary or key concept cards, as well.
• Use your Learning Log to take notes throughout this presentation.
• Let’s get started.
How do science journals help us learn?
• **3 D Learning**

• What is 3 dimensional learning?
• Discuss with a shoulder partner.
• Share out
3 D Learning in Science:

Phenomena

• https://www.youtube.com/watch?v=bsAqqHQcJyU

• What is phenomena?
• Guiding questions for unit.
• Relate to ELA (anchor text) broad
Let’s explore a K standard Earth and Human Activity

• Performance Expectation: Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

• Clarification Statement: Examples of relationships could include that deer eat buds and leaves and therefore usually live in forested areas; grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.
## Science and Engineering Practices

### Developing and Using Models

Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard that represent concrete events or design solutions. Use a model to represent relationships in the natural world.

### Disciplinary Core Ideas

#### Natural Resources

Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.

### Crosscutting Concepts

#### Systems and System Models

Systems in the natural and designed world have parts that work together.
The Learner will create a paper plate diorama of an animal of their choice within their habitat. The diorama will represent the relationship between the needs of different plants or animals (including humans) and the places they live in order to demonstrate an understanding of animal habitats and environmental adaptations.
Be An Engineer:

• Grab some materials and begin your habitat.
- Share your model with a partner
- What learning occurred?
• Don’t forget to connect texts

• How a House Is Built - Gail Gibbons
• In the Small, Small Pond - Denise Fleming
• A House Is a House for Me - Mary Ann Hoberman
• A Place for Fish - Melissa Stewart
• A Beach for the Birds - Bruce McMillan
5 Essential Studies

Hernandez 2011 – Students who are not proficient in 3rd grade 4 times less likely to graduate on time.

Lesnick et al 2010 – 3rd grade scores predictive of 8th grade scores, high school, & college enrollment.

Fletcher and Lyon 1998 – 74% of 3rd graders who read poorly will still be struggling in 9th grade.

Snow et al 1998 – “A person who is not at least a modestly skilled reader by the end of third grade is quite unlikely to graduate from high school.”

Juel 1988 – 1st grade reading scores are a “reliable predictor of later reading scores.”
The Matthew Effect

- Proficient readers start at a higher point than non-proficient readers
- Proficient readers grow faster each year relative to non-proficient readers

Systems that contribute to the problem

• Leveled reading
• Less time spent on social studies and science
• Failure of foundational skills reading programs to meet the needs of all students
How can we build knowledge?

- Knowledge of content has a higher impact on comprehension than reading ability.
- If students don’t have at least a minimum level of knowledge about content of a text, they will have trouble comprehending a text – even if they can decode all the words.
Build Vocabulary

Vocabulary is highly correlated to comprehension. Not knowing words on the page is frustrating and debilitating. The more words you know, the better you are at figuring out words in context.
The Achievement Gap at Work:

Below Level: Shelter, splattered, fixed, rescue

On Level: Journal, tremors, traction, interval, volunteered, retrieve

Above level: Generation, abandoned, languished, terrified, warble, galvanized, debris, hoisted, shuddered
Students on track for college and career are learning approximately 3,000 new vocabulary words each year (Nagy & Anderson, 1984); it is impossible to learn this many words through vocabulary exercises. Children’s vocabulary size approximately doubles between grades 3 and 7. High school seniors near the top of their class knew about four times as many words as their lower performing classmates. (Smith, 1941)
“The important thing is to not stop questioning”.
Albert Einstein

• Students should discuss open-ended questions that focus on the strength of the evidence used to generate claims and the significance of the ideas.

• Students should read from multiple sources, including science-related magazine and journal articles and web-based resources, students developing explanations that summarize what they’ve read and answering key questions.
Key Shifts

• APPLY content knowledge
• INVESTIGATE, EVALUATE, REASON scientifically
• CONNECT IDEAS across disciplines
How do we shift our instruction?

• We must shift our instruction so students are required to think, read, and act like scientists.

• To do this:
  • They must engage in science questions
  • They must base explanations on evidence
  • They must connect explanations to scientific knowledge
  • They must communicate explanations effectively
So...what do we want students to do?

Students are expected to demonstrate knowledge of the Core Ideas using the following practices:

- ask questions
- develop and use models
- plan and carry out investigations
- analyze and interpret data
- design solutions
- engage in evidence based arguments
- obtain, evaluate, and communicate information
It was an honor to share with you today. Please feel free to contact me: karen.parrino@lpsb.org.

- L.S.U. grad with Master’s + 30
- Teacher Leader & Reading Specialist Certifications
- 27 years experience in early childhood education
- Kindergarten Teacher at North Live Oak in Watson, La.
- National Board Certified Teacher
- 2016 Elementary Science Teacher of the Year
- 2017 Louisiana Ag in the Classroom Elementary Teacher of the Year
- Member of the Science Standards Elementary Workgroup and Science Standards Steering Committee
- American Achieves Fellow
- STAND Lead Fellow
- A + Pel Board Member
- NSTA Preschool-Elementary Committee Member