



USING PICTURE BOOKS TO ENHANCE YOUR STEAM CURRICULUM

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- Provide authentic learning experiences

- Offer choices to engage learning

- Create opportunities for inquiry

- Assess continually

DESIGNING CURRICULAR EXPERIENCES

LESSON FOCUS

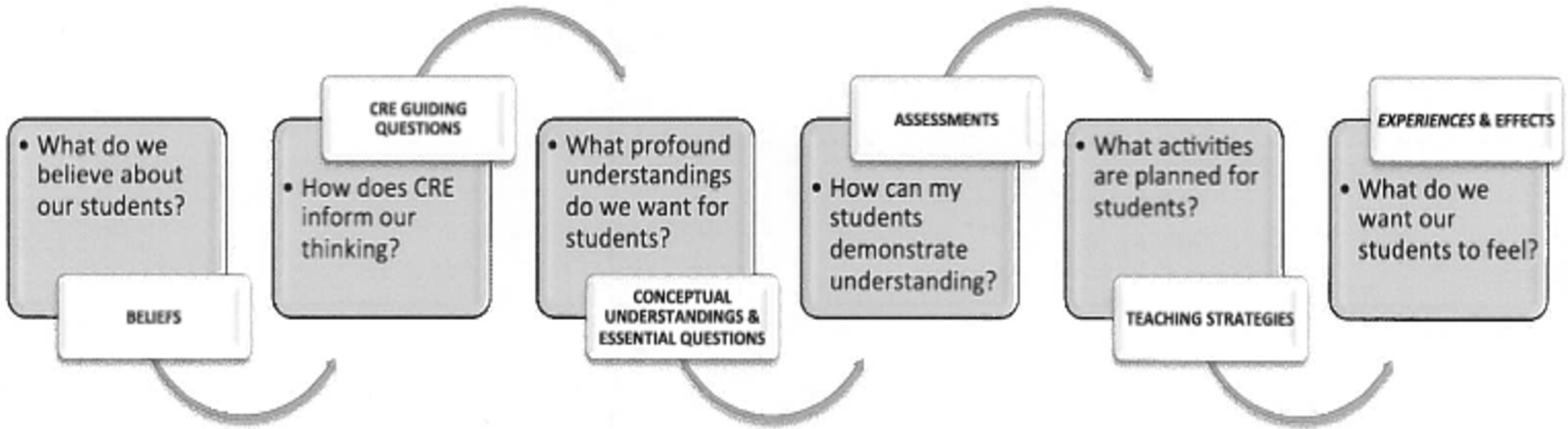
Be explicit

Focus on strong
content
knowledge

Distinguish
standards from
curriculum

Differentiate
the material

Designing Experiences!



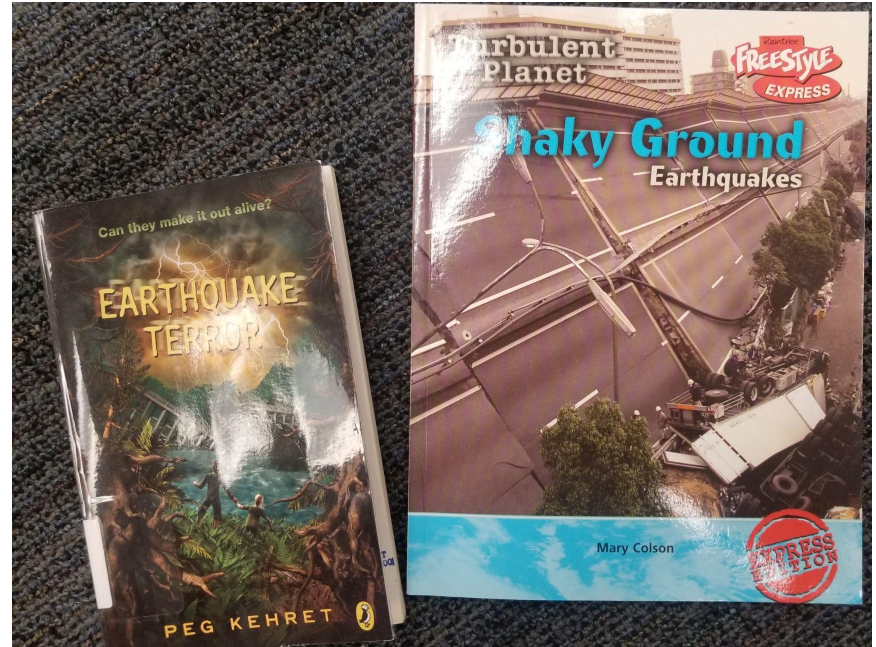
Guiding Questions for Lesson Planning with Equity in Mind

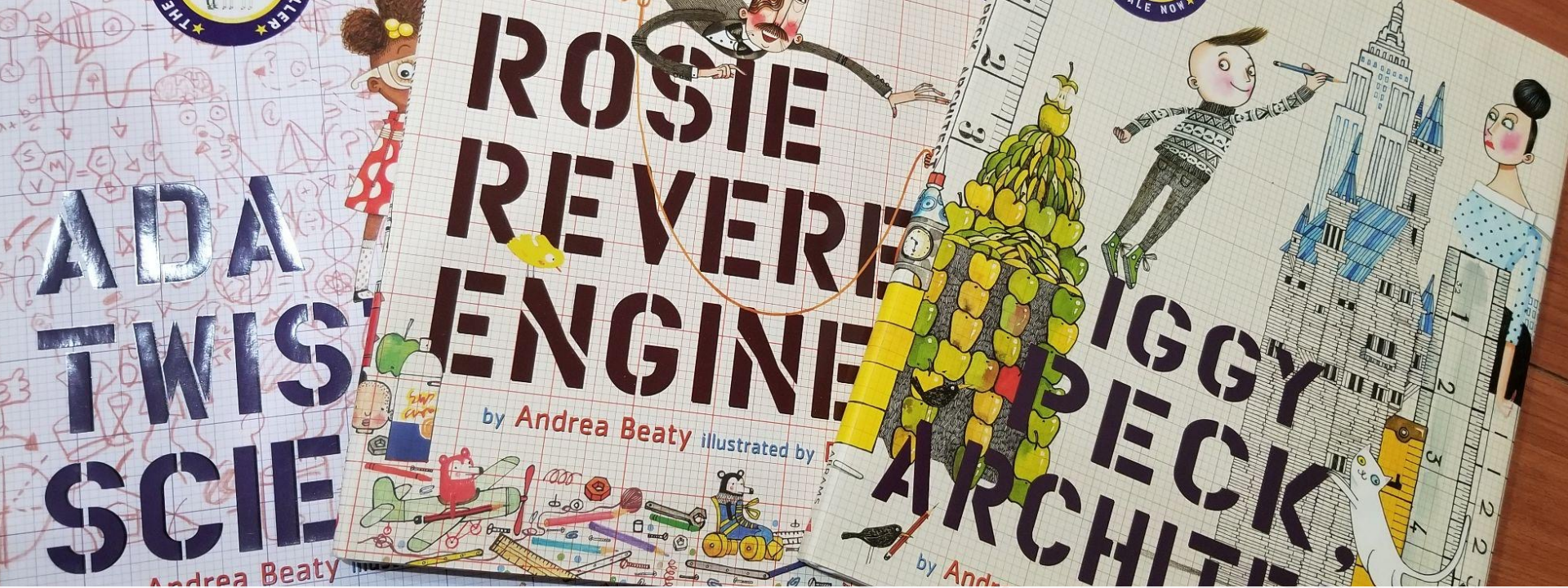
CULTURAL IDENTITY	RELATIONSHIPS
<ul style="list-style-type: none"> • In what ways does instruction make reference of culture? • How does instruction allow students to draw from their cultural knapsack? 	<ul style="list-style-type: none"> • How does the lesson and instructional design further build community in the classroom? • How do teachers leverage relationships with (1) highly engaged, (2) moderately engaged, and (3) minimally engaged students to maximize learning experiences?
ASSET-FOCUSED FACTORS	VULNERABILITY
<ul style="list-style-type: none"> • How are students' strengths (both in terms of process and content knowledge and also dispositions and interests) leveraged in instruction? • In what ways are students encouraged to understand their strengths and tendencies as learners? 	<ul style="list-style-type: none"> • What environmental risk factors does this student face? What protective factors are (or could be) in place to mitigate those risks? • How does the lesson and instructional design encourage appropriate risk-taking?
ENGAGEMENT	RIGOR
<ul style="list-style-type: none"> • How does instruction engage students behaviorally, affectively, and cognitively? • How does the instructional design model for students what engagement looks like? • How does the lesson differentiate for highly engaged, moderately engaged, and minimally engaged students? 	<ul style="list-style-type: none"> • How does the instructional design encourage students to employ higher order thinking skills beyond mere recall? • In what ways are students led to construct their own meaning and interpretations from content? • How does the instruction lead students into stretching their understandings of content?

PAIRED TEXT

Fiction with Nonfiction

- Enhances comprehension
- Vocabulary development
- Bridges gap between readers and non-readers
- Deeper understanding of content
- Good for all ages





PICTURE BOOK SERIES

- Growth Mindset
- STEAM

INQUIRY AND DISCOVERY: ENGINEERING DESIGN MODEL

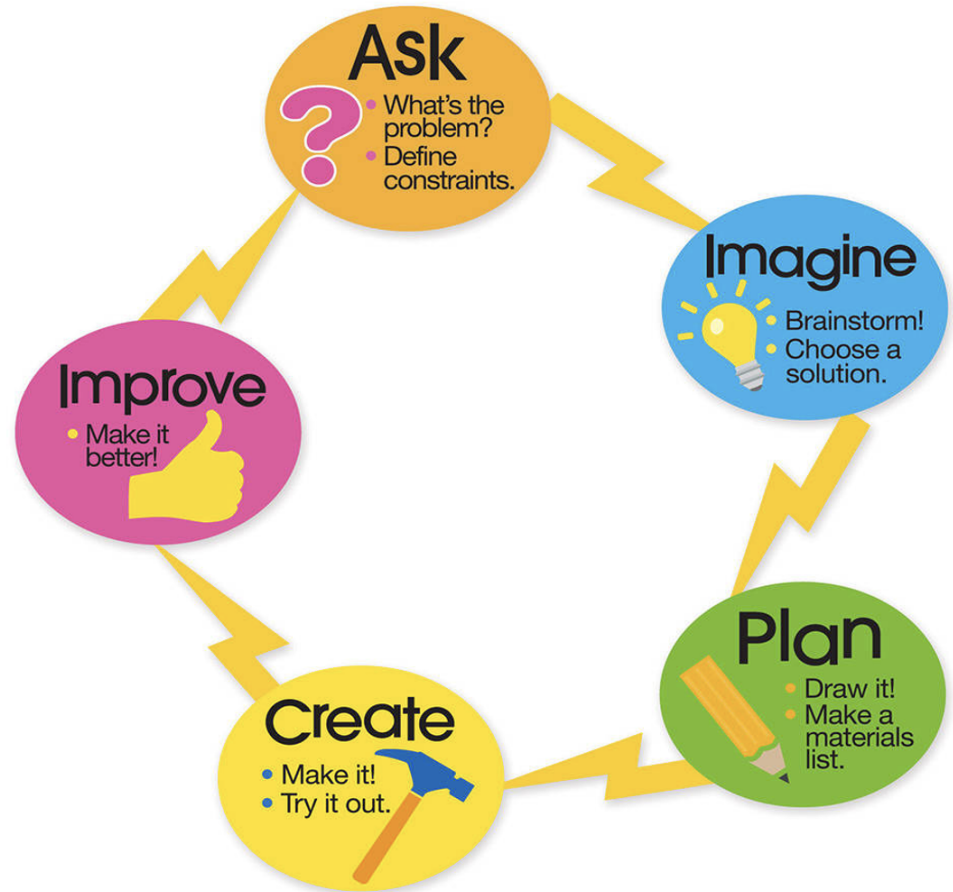
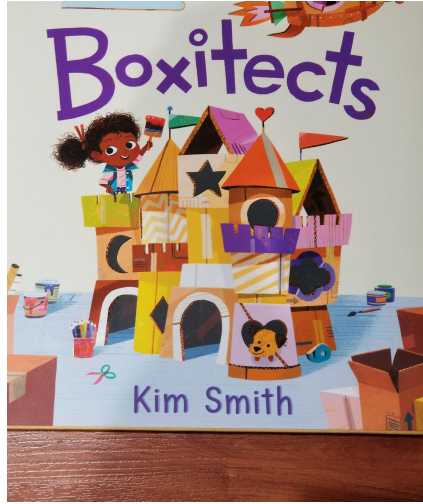
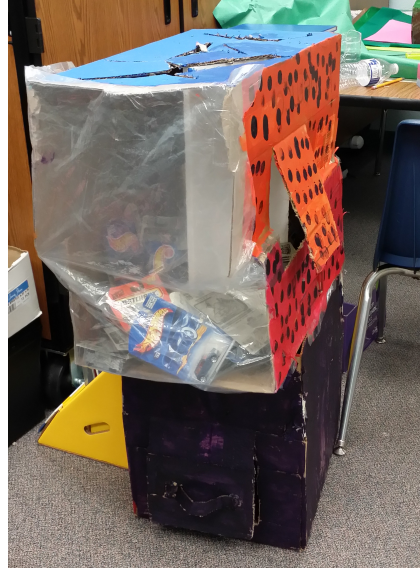


Image from ETA hand2 mind



CARDBOARD CHALLENGE

Caine's Arcade

BENEFITS



- Inquiry activities spark natural curiosity



- Utilizes flexible and collaborative grouping



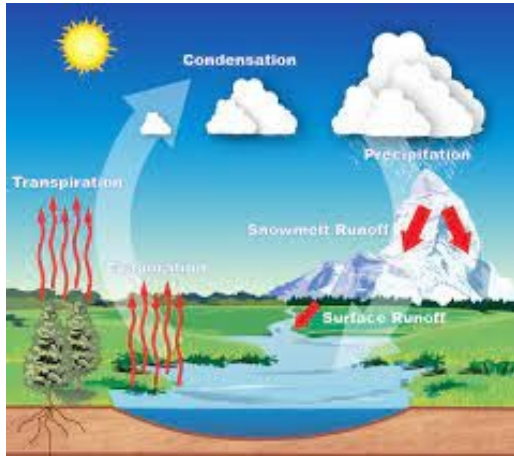
- Promotes persistence, resilience, risk taking, and innovation



- Develops authentic self assessment skills through inquiry and design

PROBLEM BASED LEARNING

- *Inquiry process that resolves questions, curiosities, doubts, and uncertainties about complex phenomena in life (Barell, 2007, p.3)*
- Effective in utilizing problems that create learning through both new experience and the reinforcement of existing knowledge



- **Problem Based Learning**

- **Water conservation**

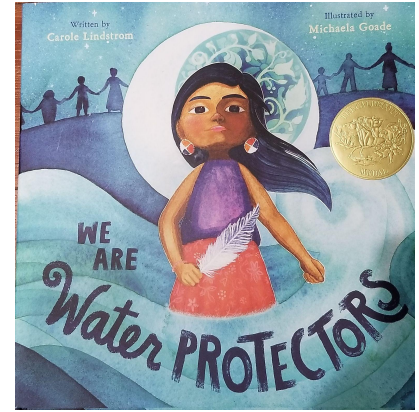
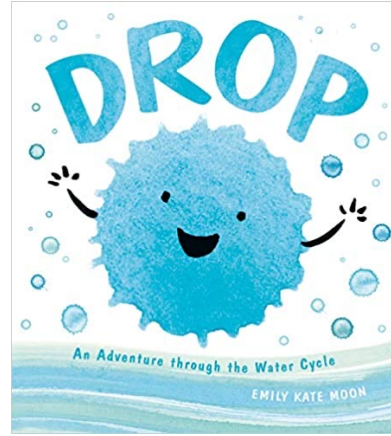
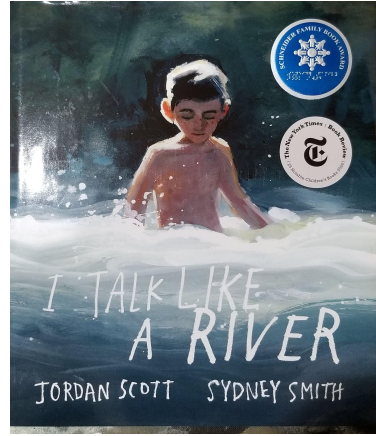
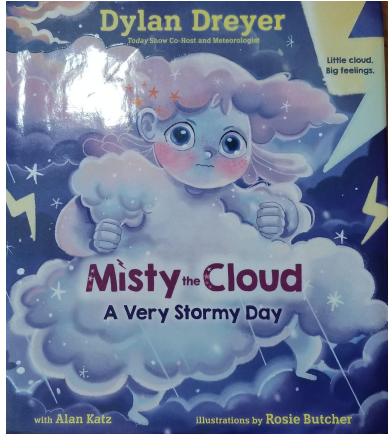
- Water shortage is a problem. You are going to find out how serious a problem it is in the world, for the country, for state, and for our county. You will need to create a plan that will help people conserve water.

- **Local Water Issues**

- How do we keep our rivers, lakes and oceans clean and free of pollution?



WATER



WATER |

2-5-8 MENU

WATER CYCLE

Directions: Choose two activities that equal a total of ten points. Put a checkmark next to each box to show when they are completed. All activities must be completed by_____.

2 points

- Create a flipbook on the water cycle. The cover should have a drawing of the water cycle, and each flap should include details about the different processes and steps of the water cycle.
- Make a crossword puzzle about the water cycle with an answer key. Have a classmate complete your puzzle.

5 points

- Write a journal entry for a water drop's journey through the water cycle.
- Create a thematic board game based on the steps of the water cycle.
- Create a scrapbook for the life of a drop of water as it goes through the water cycle. Be a creative writer when describing its adventures.
- Prepare a news report about the local water district. Consider what kinds of questions you might ask the head of the water department about the water cycle of your community.

8 points

- Create an original or rap to help the kids in your class learn the steps of the water cycle. Teach your song to the class.
- Write a fictional play that shows the drama of the changes in the rock cycle. Be creative.

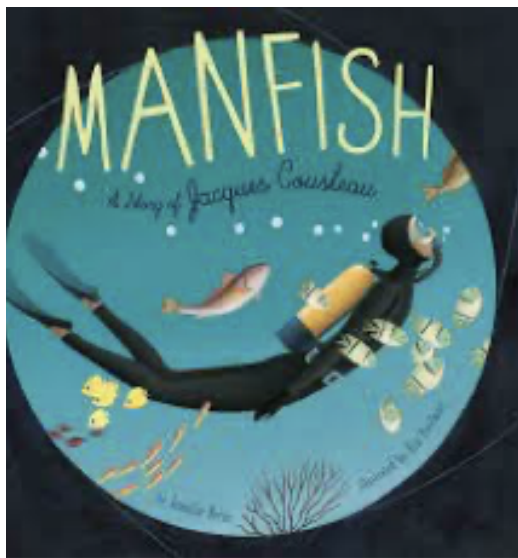
2-5-8 MENUS

Benefits

- Responsibility: Students have complete control over their own grades.
- Students *must* complete an activity of their choice from *all* the levels of Bloom's to reach their point goal.

Limitations

- One topic—this menu works best with an in-depth study of one topic.
- No free choice for students.
- Students will complete only *one* activity at a higher level of thinking.
- Short completion time—only one week.



BLUEPRINTS FOR BIOGRAPHY

Curricular Components

- Discussion Questions
- Portrait Study
- Prompt for Writing
- Primary-Source Analysis
- Point-of-View Analysis
- Experiments or Investigations



JODIE MAHONY CENTER
FOR GIFTED EDUCATION

UNIVERSITY OF ARKANSAS AT LITTLE ROCK

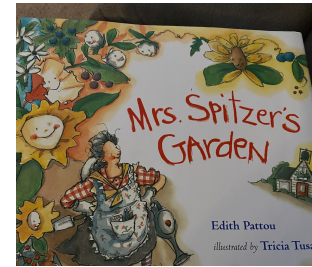
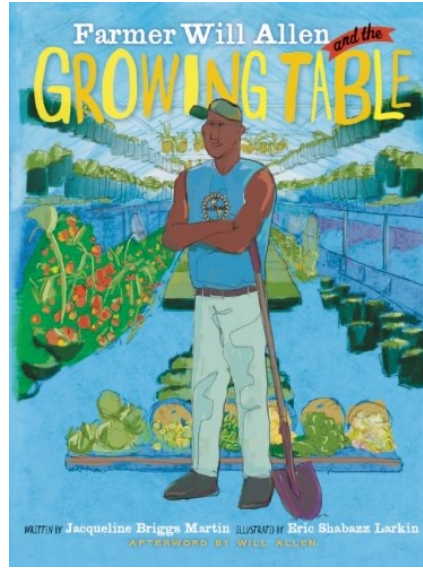
PROJECT BASED LEARNING

Create a plan for a school recycling center

- Taking responsibility for your own problems
- Utilizing recycled items for art
- Composting



- Plants and Botany
 - Life cycle of a plant
 - Community Gardens
- Farm to Table
- Hydroponic gardening
 - Grow a seed without soil
- Tree challenge
 - Design a seed cover that moves a falling seed away from the base of a tree



PLANTS

IMPLEMENTATION

- Create physical and virtual spaces that promote conversations and wondering
- Model and foster curiosity and persistence
- Provide time for students to wonder and explore content resources
- Offer opportunities for learner voice, choice, reflection and authentic learning





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