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**Using an Anchoring Phenomenon to Drive Equitable Three – Dimensional Teaching and Learning**

Professional Learning Module

Participant Packet

Winter 2025

**SESSION A**

**Session A: Notes**

**Session A Focus Question Meta Moment:**

What is the definition of “phenomena” in the context of science education?

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| What stood out to you as you watched the video? |  |
| Using evidence from [*Using Phenomena in NGSS-Designed Lessons and Units*](https://www.nextgenscience.org/sites/default/files/Using%20Phenomena%20in%20NGSS.pdf), how would you make the case for phenomena-based instruction? |  |
| STEM Teaching Tool #28   * How might the experience we just engaged in address the criteria found in this tool? * How might this tool be supportive while planning and evaluating your science resource? |  |

**Session A: Overall Reflection**

**Session A: Next Steps – Considerations for Implementation**

A vision statement can…

* Serve as your North Star or guiding light – what we are working towards.
* Ensure everyone is aligned with a common goal.
* Guide decisions about curriculum, instructional resources and professional learning.
* Be living, breathing, changing document that is regularly revisited.

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| As we consider this instructional shift from learning about to making sense of an anchoring phenomenon, what would you identify as the most important point (MIP) from session A? |  |

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| Construct your vision statement by considering the following questions.   * Why is it important and necessary to use phenomena-based instruction in the classroom? * What shifts should be occurring within the classroom to incorporate phenomena-based instruction? * What impact will this have on our communities (students, families and educators)? |  |

**SESSION B**

**Session B: Symmetrical Like Experience to the Classroom**

**Session B Focus Question Meta Moment:**

How does the launch of an anchoring phenomenon engage all students in sensemaking?

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| Symbol denoting the participants are in the teacher hat.  How do you usually teach Earth’s systems (weathering, erosion and deposition)?   * What do you want students to learn? * How might you sequence the learning experiences? * What science ideas might students struggle with? |  |
| A yellow construction hat to signify the participant is looking at this through an adult learner lens as their build their own science content knowledge.  What do you know and wonder about Earth’s surface? |  |
| A yellow construction hat to signify the participant is looking at this through an adult learner lens as their build their own science content knowledge.  Focus Question:  Has the Earth’s surface always looked this way? Why or why not? | I think that Earth’s surface (has/has not) always looked this way because… |
| A yellow construction hat to signify the participant is looking at this through an adult learner lens as their build their own science content knowledge.  Mississippi River Delta Simulation:  How does land change to form a delta? Record your notices and wonders during the simulation. | **5,000 years ago**  **3,000 years ago**  **1,000 years ago**  **Near Present Day** |
| A yellow construction hat to signify the participant is looking at this through an adult learner lens as their build their own science content knowledge.  Looking at the two maps of the delta. Consider how this might have happened. Where did the new land come from?  This is a satellite image of the Mississippi River Delta 2,000 years ago.  This is the current view of how the Mississippi River Delta appears today taken from a satellite image.  There is a change from 2,000 years ago where new land forms due to the movement of water and sediment where the Mississippi River meets the  ocean water. | Use words and pictures, draw your thinking. |
| Symbol denoting the participants are in the teacher hat.  In what ways is beginning a learning experience like this, similar or different from how you have introduced learning experiences in the past? |  |
| Symbol denoting the participants are in the teacher hat.  As a learner engaged in the launching of an anchoring phenomenon, what aspects stood out to you the most and why? |  |

**Session B: Overall Reflection**

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| What is something that you “got” after today’s experience? |  |
| What is something that you still “need” to know after today’s experience? |  |

**Session B: Next Steps – Considerations for Implementation**

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| **Vision Statement:**  Return to your vision statement to add or revise your vision in a different color after completing this session. | **Storyline Tool #1: Anchoring Phenomenon Routine:**  How is your instructional resource leveraging, or not, the use of an anchoring phenomenon towards sensemaking? Use the [Storyline Tool #1: Anchoring Phenomenon Routine](https://oercommons.org/courseware/lesson/76025/overview) to analyze your upcoming unit.   * Go through each criterion and determine if the criterion is included in your resource. * If you find evidence of the criterion, note what it looks like. |

**SESSION C**

**Session C: Notes**

**Session C Focus Question Meta Moment:**

How might utilizing an anchoring phenomenon assist students in growing their science ideas and skills within the context of the *Kentucky Academic Standards for Science*?

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| How does the writer’s vision statement in the KAS for Science support phenomenon driven instruction?  Capture any wonders you might have. |  |

**Session C: Symmetrical Like Experience to the Classroom**

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| Symbol denoting the participants are in the teacher hat. Lesson 2 Focus Question  What causes deltas to form? | I think the deltas form at the end of the river because… |
| A yellow construction hat to signify the participant is looking at this through an adult learner lens as their build their own science content knowledge. Your Prediction   * When the water starts running, what do you think will happen to the sand, pebbles and rocks at the top of the stream table? * What about the land near the bottom of the table? |  |
| A yellow construction hat to signify the participant is looking at this through an adult learner lens as their build their own science content knowledge.  Stream Table Before:  Draw what the stream table looks like **before** the investigation begins. | Use labels to communicate your observations. |
| A yellow construction hat to signify the participant is looking at this through an adult learner lens as their build their own science content knowledge.  Stream Table After:  Draw a bird’s-eye view of the stream table **showing where materials were moved** from one place to another.  On the stream table…   * where are earth materials being taken away? * where are earth materials being built up? | Use labels to communicate your observations. |
| A yellow construction hat to signify the participant is looking at this through an adult learner lens as their build their own science content knowledge.  How is your stream model the same/different from the Mississippi River and its delta? |  |
| Symbol denoting the participants are in the teacher hat. How did this learning experience help you build your own science ideas? |  |
| Symbol denoting the participants are in the teacher hat. How are the science ideas intentionally revealed and developed over the course of the learning? |  |

**Session C: Notes**

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| Record any takeaways from the discussion around *Kentucky Academic Standards (KAS) for Science* and theappendices. |  |
| Critical Components of Sensemaking (NSTA) | Phenomena: |
| Critical Components of Sensemaking (NSTA) | Student Ideas: |
| Critical Components of Sensemaking (NSTA) | Practices: |
| Critical Components of Sensemaking (NSTA) | Science Ideas: |

**Session C: Overall Reflection**

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| What do you want to let go of? |  |
| What do you want to carry with you as you continue moving forward? |  |

**Session C: Next Steps – Considerations for Implementation**

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| **Vision Statement:**  Return to your vision statement to add or revise your vision in a different color after completing this session. | **Storyline Tool #1: Anchoring Phenomenon Routine:**  Using the unit you analyzed in Session B, select the context for using the [Storyline Tool #1: Anchoring Phenomenon Routine](https://oercommons.org/courseware/lesson/76025/overview)  that best meets your needs.  • Planning to teach existing curriculum materials  • Adapting or designing new curriculum materials  Complete the analysis and next step columns to begin thinking about the shifts need to strength the launch of the anchoring phenomenon. |

**SESSION D**

**Session D Focus Question Meta Moment:**

Why is a storyline centered around an anchoring phenomenon crucial for achieving coherence from the students’ perspective?

**Session D: Notes**

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| Key Ideas  Coherence from the Students’ Perspective: Why the Vision of the Framework for K-12 Science Requires More than Simply “Combining” Three Dimensions of Science Learning |  |
| KDE’s Markers for High-Quality Science Instructional Resources:  How did the resource we examined align to the first two KDE markers? |  |

**Session D: Overall Reflection**

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| **Triple Track Perspective:**  Look at the storyline through three different perspectives. What is the impact of the storyline in making sense of the anchoring phenomenon from each perspective? | Adult Learner:  Teacher:  Student: |

**Session D: Next Steps – Considerations for Implementation**

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| **Vision Statement:**  Return to edit your final vision statement.  Plan how you are going to share this vision for science with colleagues, parents and students in your community. | **Storyline:**  This session was about coherence from the students’ perspective. To ensure coherence, build the story for your upcoming unit of instruction. You may use the same process found in this session. |

**SESSION E**

**Session E Focus Question Meta Moment:**

How might exploring and identifying local phenomena support both teachers and students?

**Session E: Notes**

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| What does “local” and “making something local” mean to you? |  |
| Grade 4 Video   * How are students talking about local phenomena in their classroom?      * How is the teacher supporting their discussion around local phenomena? |  |
| STEM Teaching Tool #57  Why should students study locally relevant phenomena? |  |

**Session E: Overall Reflection**

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| **Elevator Speech**  Imagine you're in a brief conversation with a colleague or school administrator who asks about your recent professional development. Create a brief, 45-60 second elevator speech highlighting the most important insights and skills you've gained from our professional development sessions and how they will impact your teaching.  Focus on being concise, specific, and enthusiastic. Highlight how these insights will transform your teaching methods and engage your students more effectively. | Share your elevator speech with someone in your district. |

**Session E: Next Steps – Share more bundles with us.**

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| QR code that links directly to a google  form to share bundles created to the Kentucky Department of Education.  [**Kentucky Atlas of Phenomena**](https://kyscienceatlas.org/how-to)  Share a phenomenon bundle with us. Complete the form in its entirety to help grow the Kentucky Atlas of Phenomena site. |