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## ***Kentucky Academic Standards (KAS) for Science Resources to Support Implementation***

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### **What resources are available to gain a better understanding of the science standards?**

- **The Kentucky Academic Standards for Science: An Overview**  
This module guides participants through the three dimension that make up the science standards. This module includes a [Facilitator's Guide](#) that provides suggestions for structuring each section of the module, recommended learning experiences to prompt meaning dialogue and discovery and guidance on talking point to use with the provided slideshow. Additional resources needed to engage with this module are the accompanying [PowerPoint](#) and [Module at a Glance](#) document.

### **What resources are available that can support implementation of the science standards?**

Implementation of the science standards includes 1) vetting of resources you may have or find, 2) instructional design and 3) assessing student learning. The resources listed here can be used together in order to strength instruction. If after reviewing lessons, for example, you find that there is no anchoring phenomenon, you may wish to engage in the "Selecting an Anchoring Phenomenon" module to see how one may be incorporated.

#### **A. Vetting of Instructional Resources**

##### **a. [Review lessons/units of study](#)**

This tool provides key look for in existing lessons to determine if they meet the instructional requirements demanded by the intent of the science standards.

##### **b. [Review tasks](#)**

The task prescreen and task screener are tools that can be used to determine whether assessment tasks are designed for three-dimensional science standards. The task prescreen can be used as a quick review of tasks to determine if a deeper analysis is needed. The task screener provides the guidance for a deeper dive. You may also find [annotated tasks](#), based upon the task screener that exemplify the components of the task screener.

#### **B. Instructional Design**

##### **a. Selecting Anchoring Phenomena module**

This module leads professional learning communities through understanding phenomena and how to identify a phenomenon that could anchor a unit of study or a series of lessons. This module includes a [Facilitator's Guide](#) that provides suggestions for structuring each section of the module, recommended learning experiences to prompt meaningful dialogue and discovery as well as talking points to use with the provided slideshow. Additional resources needed to engage with this module are the accompanying [PowerPoint](#) and [Module at a Glance](#) document.

- b. [Using the Science and Engineering Practices](#)  
To meet the demands and rigor required of the science standards, students should actively engage in the practices of science. The resources on this site include tools and examples to help ensure that students are provided opportunities to engage in the sciences as expected.
- c. Social Justice and Equity Module  
This module is designed to help educators in identifying the range of intellectual resources students use as they make sense of phenomena. This module includes a [Facilitator's Guide](#) that provides suggestions for structuring each section of the module, recommended learning experiences to prompt meaningful dialogue and discovery as well as talking points to use with the provided slideshow. Additional resources needed to engage with this module are the accompanying [PowerPoint](#) and [Module at a Glance](#) document.
- d. [Lesson and Unit Design Supports](#)  
Here you can find links to a number of resources that can supplement your existing curriculum, provide background information as you design lessons/units and sample units demonstrating the three-dimensional approach to science education.

### C. Assessment

- a. Classroom Embedded
  - i. Task Design and Evaluation Module  
This module shows how multi-dimensional tasks may be developed as well as how the task prescreen and task screener may be used. This module includes a [Facilitator's Guide](#) that provides suggestions for structuring each section of the module, recommended learning experiences to prompt meaning dialogue and discovery as well as talking points to use with the provided slideshow. Additional resources needed to engage with this module are the accompanying [PowerPoint](#) and [Module at a Glance](#) document.
  - ii. [Demonstrating Formative Assessment in the Science Classroom](#) professional learning opportunity  
This professional learning module from KET shows the importance of multi-dimensional learning goals and their connection to classroom tasks. It includes videos and classroom developed documents.
  - iii. [Classroom Embedded Assessments](#)  
Examples of classroom-embedded assessments developed by Kentucky teachers through Math/Science Partnership. Each task includes the learning goal the task is providing evidence of, success criteria and next instructional steps. Some tasks also include student work.
  - iv. [Student Work Annotation for Extended Response Question \(ERQ\) Science Rubric](#)  
KDE, in partnership with the Kentucky Science Teachers Association, have annotated student work samples for classroom-level tasks. These annotations are based upon the science rubric for the ERQ on the K-PREP Science Assessment. The annotations demonstrate how this rubric may be used in the classroom, with an emphasis on using the language to uncover student thinking.
- b. [Through-Course Tasks](#)  
The through-course tasks, developed with guidance from and vetted by Kentucky Department of Education staff, provide examples of the level of student thinking required by science standards. Designed to be used two or three times per year, these

tasks provide schools information regarding student ability to appropriately use the science and engineering practices and crosscutting concepts which, in turn, can inform the school's curriculum.

c. [Summative Assessment](#)

This sample cluster demonstrates how students could think through a phenomenon to understand and, ultimately, explain it.

<b>What resources are available to support parents and caregivers?</b>
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[Standards Family Guides](#)

The *Kentucky Academic Standards (KAS)* Family Guides have been developed to help families familiarize themselves with the content of each grade level's standards. Each guide contains a standards overview for Reading & Writing, Mathematics, Science and Social Studies.