Kentucky Department of EDUCATION

Three-Dimensional Task Modification

Introduction

Designed and revised by Kentucky Department of Education staff
in collaboration with teachers from Kentucky schools and districts.

Three-Dimensional Task Modification

Session A of the *Three-Dimensional Task* module introduces the use of tools that can be used to analyze science tasks that teachers may have within their instructional materials, found on a website or developed themselves. The next logical step in this process is using the information from the analysis to modify that task, as needed.

An important component of the modification process is identifying the purpose of the task. A task that is designed to be summative may have different criteria than one designed to be formative. Information from the screener may identify components of which the teacher may not be explicitly assessing depending on the task's intended purpose. For example, the screener may identify a single mode for student response. The teacher may determine that, for the intended purpose, a single mode is appropriate and, therefore, choose not to incorporate multiple response modes.

In addition to stating the purpose of the task, specific alignment is also crucial. Clearly identifying what student understanding the task is intended to surface helps ensure the task components are worded to elicit what is desired.

Alignment, in this case, refers to the specific elements of each of the dimensions. Not every question will provide evidence of every dimension or the complete element of a dimension. The components that are bolded identifies the intended alignment.

Sample:

Question	Disciplinary Core Idea	Science and Engineering Practice	Crosscutting Concept
(question number)	**LS3.A: Inheritance of Traits** **Variations of inherited traits between parent and offspring arise from genetic differences** that result from the subset of chromosomes (and therefore genes) inherited.	**Asking Questions and Defining Problems** **Ask questions that arise from** careful observation of phenomena, **models**, or unexpected results, **to** clarify and/or **seek additional information.**	

In the sample, a hypothetical question is intended to determine student understanding of the core idea in conjunction with the practice of asking questions. However, no crosscutting concept is being

assessed. In addition, only certain components of the elements within these two dimensions are targeted; not the entire element.

Here are two resources intended to help teachers elicit students' ability to use and understand the science and engineering practices and crosscutting concepts:

- ***Integrating Science Practices Into Assessment Tasks***
- ***Prompts for Integrating Crosscutting Concepts Into Assessment and Instruction***

The SEP format templates can assist in the modification of the existing scenario to engage students more explicitly in science practices. The CCC prompts may help teachers elicit student understanding in the context of the phenomenon-based scenario.

This resource contains six examples of how a task, analyzed using the task screener, can be modified to meet an intended purpose. Each sample consists of these four components:

- The original task;
- The task screener used to inform the modifications made;
- The rationale for changes made to the task; and
- The modified task with intended purpose and alignment.

It's important to note that these are only samples of how an existing task may be modified using information from the task screener and does not imply that the modified tasks are exemplars.

Sample Tasks

Grade 1 *Light*

Grade 3 *Billy's Worms*

Grade 3 *Peppered Moths*

Grade 5 *Movement of Matter*

Grade 6 *Balloon Rocket*

High School *Blue People of Kentucky*