Wilton-Lyndeborough Cooperative School District-SAU #63
District Curriculum Coordinator

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Professional Learning

I attended the regional curriculum, instruction, and assessment meetings where we discussed intervention strategies that each district is using, state testing protocols, the new science standards, competency-based education, and data resources. It is helpful to learn ideas from other districts and to share what we are doing. At the state wide meeting, we learned that the commissioner is working toward removing the fee for students taking community college courses at our high schools for credit. We currently have some students taking these dual enrollment courses at WLC and this would be a savings for them and perhaps encourage others to participate. Currently, the fee is $150.00 per course for credit.

During the mid-December FRES faculty meeting, I introduced the teachers to the new state science test. The test will be taken by grade 5 instead of grade 4, and continue in grades 8 and 11. The test will be taken on the computer in the same way as the math and reading tests, which will continue in a similar format as last year. The science test is designed for students to act as scientists. The test items will appear in clusters focused around a natural phenomenon. There is a sample eighth grade item attached to this report, which includes the phenomenon of fog, along with the explanation of the related cluster of tasks. It is very rigorous, requiring students to analyze information, use graphs, and draw conclusions based on data. The Mystery Science lessons that grades 1-5 are using do include a focus on a natural phenomenon, so the students will be somewhat familiar with the approach.

Curriculum development

Principal O'Connell and I will launch a science curriculum study committee in January. We plan to meet monthly to discuss the transition to the Next Generation Science Standards, how our use of Mystery Science is meeting students' needs, and any need for additional resources in the future.

Principal Bagley and I are analyzing the Scope and Sequence documents produced by the WLC departments to determine how each course content aligns with other courses and if any revisions might be in order.

Assessment

Students will take an Interim Assessment for science, as well as math and reading, to both practice the format and to gauge their ability to answer the questions/tasks. This is an expanded feature of the New Hampshire State Assessment that will produce immediate data to help guide instruction and learning. The state test is no longer referred to as SBAC/Smarter Balanced Assessment Consortium, as the consortium has been dispersed and test items were shared with other testing and research vendors. NH will continue to use the American Institute for Research as the test vendor

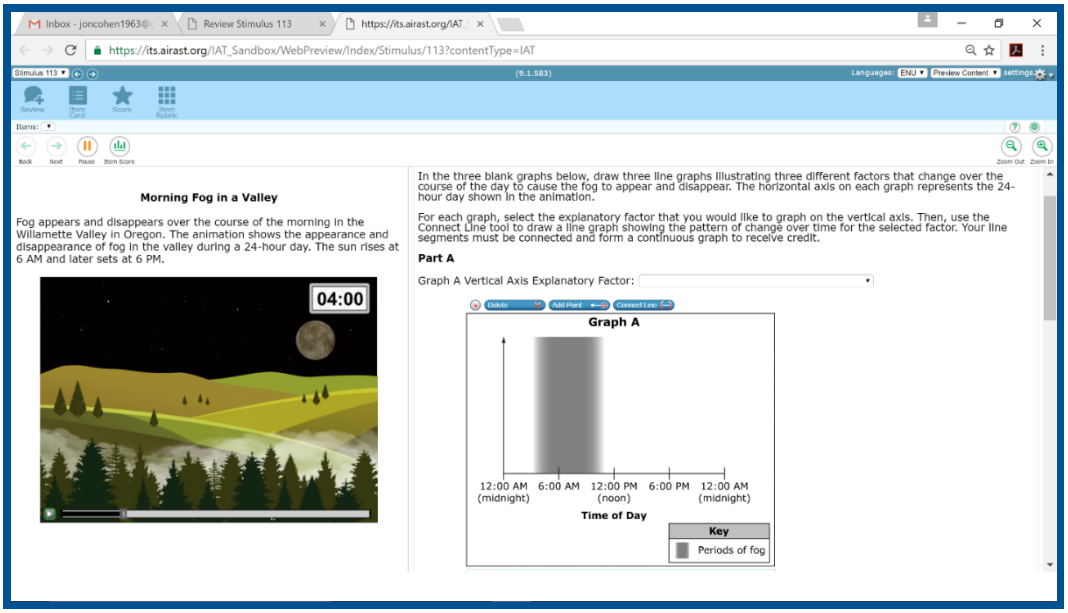
Respectfully submitted,
Julie Heon, Curriculum Coordinator

Sample Science Task

We offer a sample item cluster as an example of the clusters that we are building in other states and the capabilities that would be available to the Department under this contract.

Here we present a cluster measuring a middle school level performance expectation related to the cycling of matter and energy in the water cycle. The student will develop a model to explain that solar energy is driving the cycling of water. We begin with a phenomenon: fog regularly forms and then dissipates over the course of a morning in an Oregon valley. The phenomenon is communicated verbally and with an animation, as shown in Exhibit D1.2-27. The introduction and animation appear on the left side of the screen, and the items appear on the right.

Exhibit D1.2-27: Sample Science Item

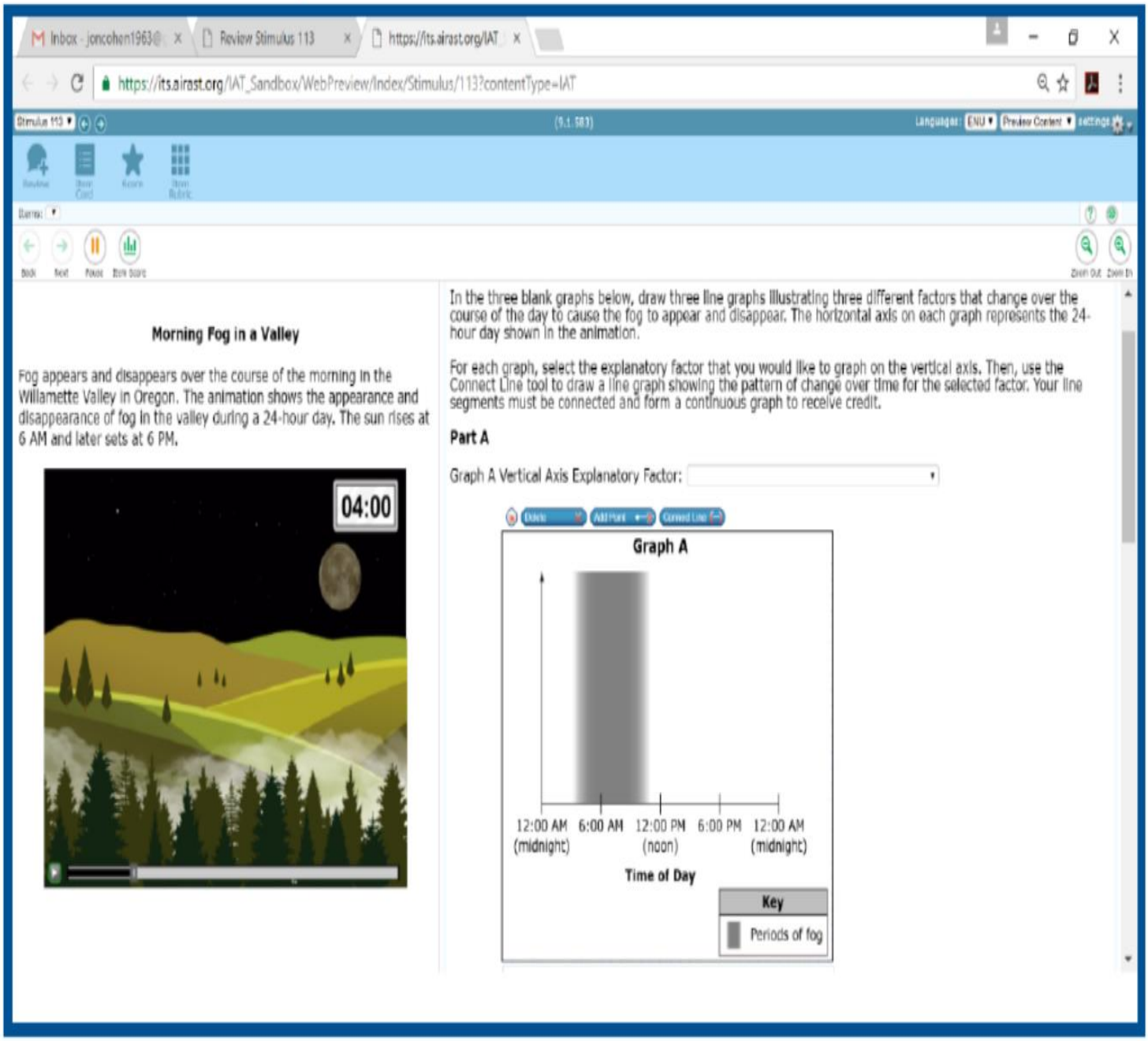


In this cluster, the student is asked to develop a mathematical model by identifying and graphing three factors that combine to create the phenomenon. Each empty graph has a 24-hour period on the horizontal axis. The period during which the fog is visible is marked on the graph. Using the drop-down menu, the student selects which factors to graph from a list containing distractors. Each graph is heuristic, rather than requiring specific quantities. Even though the student is asked to graph, the scoring rubric is looking for patterns reflecting conceptual understanding rather than mathematical understanding of the phenomenon.

Exhibit D1.2-28 illustrates one of many (virtually infinite) correct answers. The student should graph the amount of sunlight, the temperature, and the proportion of water in the air that is in a gas form. The final item asks the student to indicate the causal sequence of the fog's formation and dissipation. Note that students can graph the factors in any order, as long as the graphs have the right characteristics (for example, solar energy increasing over the course of the morning as the fog dissipates).

Exhibit D1.2-27: Sample Science Item

Middle School Sample

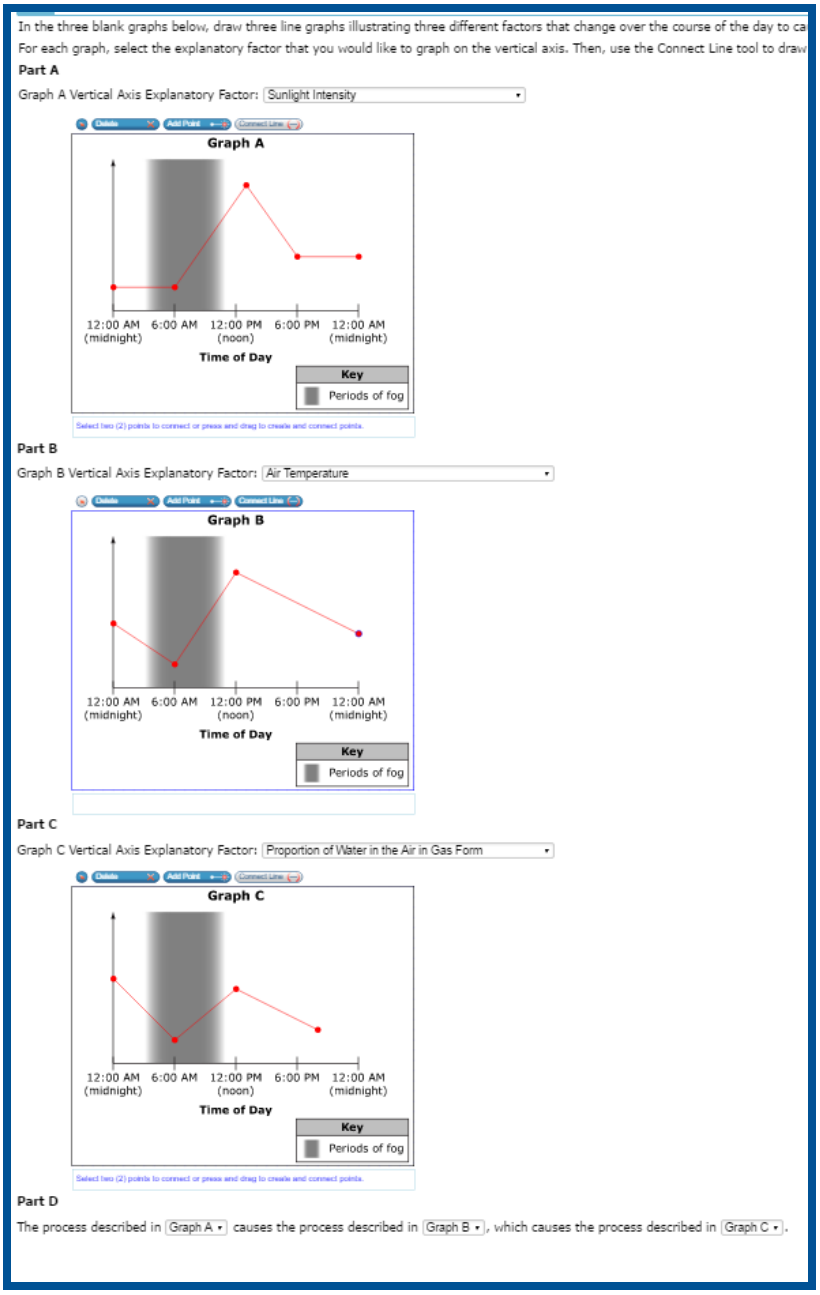


Fog appears over the course of the morning in the Willamette Valley in Oregon. The animation shows the appearance and disappearance of fog in the valuey during a 24-hour day. The sun rises at 6 AM and later sets at 6 PM.

In the three blank graphs below, draw three line graphs illustrating three different factors that change over the course of the day to cause the fog to appear and disappear. The horizontal axis on each graph represent the 24-hour day shown in the animation.

For each graph, select the explanatory factor that you would like to graph on the vertical axis. Then, use the Connect Line tool to draw a ling graph showing the pattern of change over time for the selected factor. Your line segments must be connected and form a continuous graph to receive credit.

Exhibit D1.2-28: Items and Sample Answer



These interactions are actually a single item, and the scoring depends on the collection of responses rather than any single interaction. Our technology enables a scoring rubric to look across multiple interactions.

Using this approach, we engage students in actual scientific activities—in this case, modeling for the purpose of explanation. The performance expectation calls on students to actually employ a model, and they do that in this cluster. Moreover, they use a model that explains energy and matter transfers within part of the water cycle, thereby weaving in elements of all three dimensions of the performance expectation.

The questions are truly open-ended constructed-response items. *These items are also immediately and accurately machine scored.* Our tools allow our test developers to develop these sophisticated item clusters without requiring the assistance of software developers.

Finally, the features of the student responses that receive credit *and* the inference that the test developer would like to make from that evidence are explicitly captured as part of the item in the scoring assertions. Exhibit D1.2-29 presents the scoring assertions for this response to this item. These scoring assertions embody evidence-centered design as a physical part of the item.

Exhibit D1.2-29: Scoring Assertions for Fog Cluster