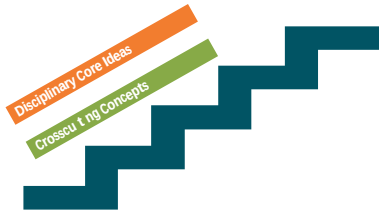
I A L F A
AF O E L L
B 6 7

SCIENCE AND LANGUAGE ASSESSMENT SHIFTS

P N S E D



Science and Language Assessment Shifts

PHENOMENON

MODALITIES

3-D LEARNING

REGISTERS

LEARNING PROGRESSIONS

Assessment Task 1

PHENOMENON

This task is anchored in the unit phenomenon of garbage. Tasks anchored in the unit phenomenon are par t cularly bene f - cial for ELLs, who have had mul t ple and sus- tained opportuni t es to develop pro f ciency with the language associated with the phenomenon during instruc t on.

3-D LEARNING

This task engages students in three-dimensional learn- ing that blends a science and engineering prac t ce, disciplinary core idea, and crosscu t ng concept. To respond to this task, students use the crosscut- t ng concept “Pa t erns” to interpret the data in the tables in order to generate evidence for the argument. Students also engage in argument from evidence, one of the science and engineering prac t ces. Finally, students use their understanding of the disciplinary core idea that materials are iden t fed by their proper t es as the reasoning that links their evidence to their claim.

LEARNING PROGRESSIONS

This task, which is part of the f rst instruc t onal unit of the school year, includes sca f olds related to the prac t ce of engaging in argument from evidence. Students are reminded that an argument “should include a claim, evidence, and reasoning.” They are also provided two boxes, one for the claim and one for the evidence and reasoning. Finally, students are provide ŏ = - e ˆ M include a ⊥ or the evidence andtr ar ŧ M

Assessment Task 2

You are in the school cafeteria, and you smell food coming from the kitchen.

a. Develop a model of how the smell of food travels from the kitchen to your nose. Your model should include both and their *interac t ons*.

b. Based on your model, explain in words (1) how the smell of food travels from the kitchen to your nose and (2) why you cannot see the smell.

3-D LEARNING

This task engages students in three-dimensional learning that blends science and engineering prac t ces, a disciplinary core idea, and a crosscu t ng concept. Speci f cally, the task engages students in the prac t ces of developing models and construc t ng explana t ons. To respond to the task, students need to understand a disciplinary core idea related to the par t cle nature of gas. Students also engage with the crosscu t ng concept of "Scale, Propor t on, and Quan t ty," as they explain that the gas par t cles are too small to see.

LEARNING PROGRESSIONS

This task, which is part of the f rst instruc t onal unit of the school year, includes a sca f old related to the prac t ce of developing models. Students are reminded that a model of a system "should include both components and their interac t ons." This sca f old is removed over the course of the year as students become more pro f cient with the prac t ce of developing models.

PHENOMENON

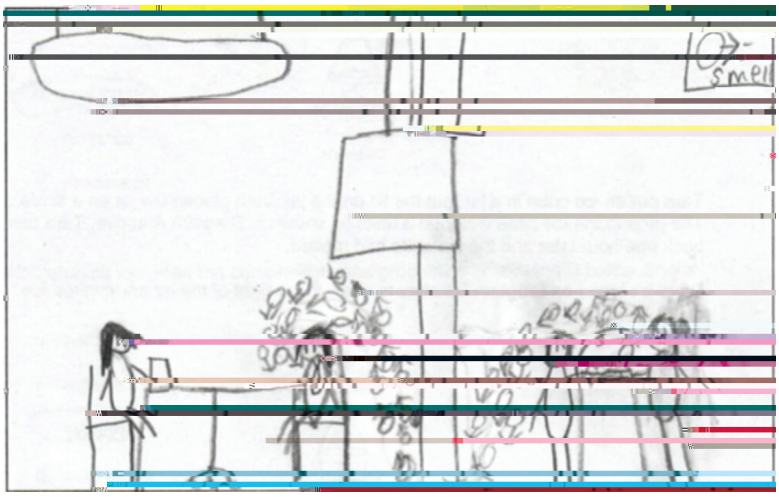
This task is anchored in the phenomenon of smell traveling from the kitchen to the nose, which is not explicitly addressed in the unit. In the unit, students develop models of smell produced by decomposing food materials. This "extension task" assesses the same science and engineering prac t ce of modeling, crosscu t ng concept of scale, propor t on, and quan t ty, and disciplinary core idea related to the par t cle nature of gas covered in the unit but in the context of a di f erent phenomenon.

It is important to assess students using tasks anchored in phenomena di f erent from the unit phenomenon to assess the extent to which students can apply what they learned to a less familiar context. Ideally, extension tasks should be anchored in other local phenomena that students are likely to be familiar with. Extension tasks may introduce new language demands for ELLs.

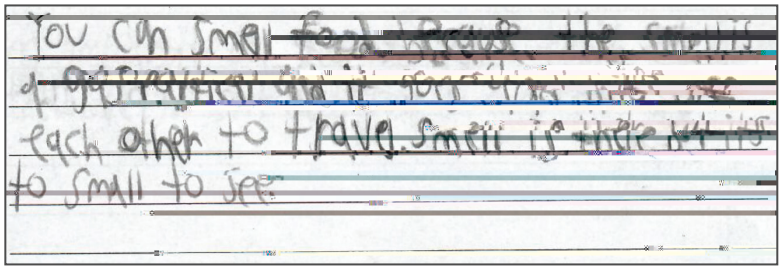
Assessment Task 2: Student Response

You are in the school cafeteria, and you smell food coming from the kitchen.

a. Develop a model of how the smell of food travels from the kitchen to your nose. Your model should include both and their *interac t ons*.



b. Based on your model, explain in words (1) how the smell of food travels from the kitchen to your nose and (2) why you cannot see the smell.



MODALITIES

In this task, the student responds using both visual and linguis t c modali t es. First, the student uses dots and arrows to show how gas par t cles travel from the kitchen to the nose. Then, they explain in words, based on their model, how the smell of food travels and why they cannot see the smell.

While important for all students, using mul t ple modali t es is especially bene f cial to ELLs, who have sophis t cated science ideas but are s t ll developing the language to communicate those ideas in English.

REGISTERS

To respond to this task, students can draw from everyday and specialized registers. In this re- sponse from an ELL, the student uses the every- day expression “hits o f each other” to describe how gas par t cles move freely. The student also refers to a singular gas par t cle (“a gas par t - cal”), although the visual model shows mul t ple gas par t cles traveling across the room.

What’s important is that assessment criteria keep the focus on stu- dents are a t emp t ng to communicate (in other words, their meaning), not only they are communica t ng.

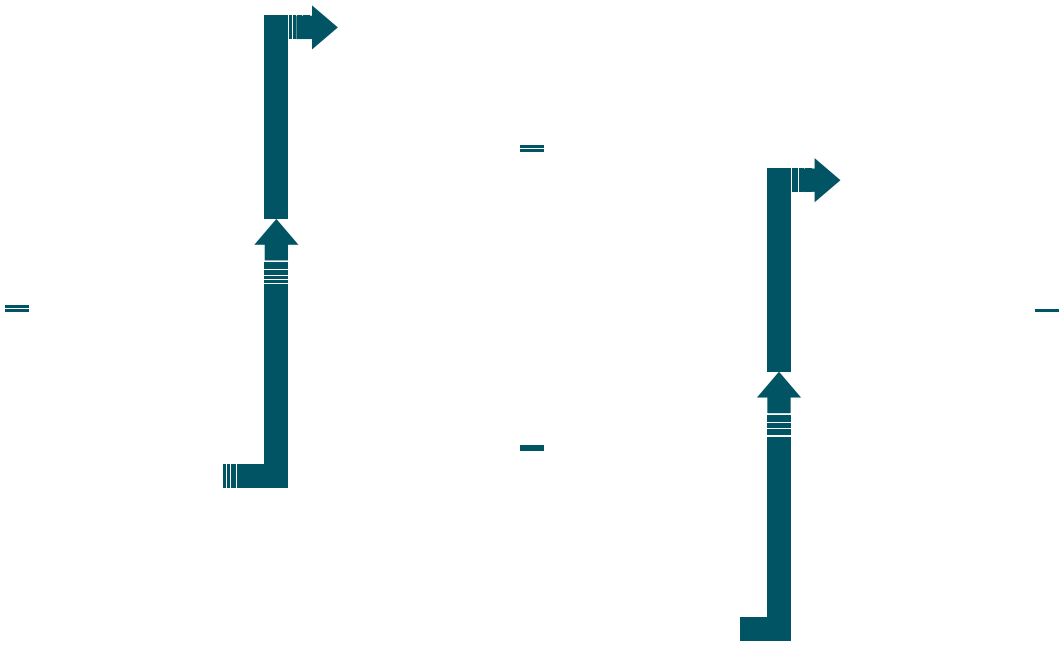
INTERACTIONS

To respond to this task, the student engages in a one-to-many interac t on in visual and wri t en modali t es. In the visual modality, the student communicates explicitly by including a key (top right) that explains the meaning of the dots and arrows in the model.

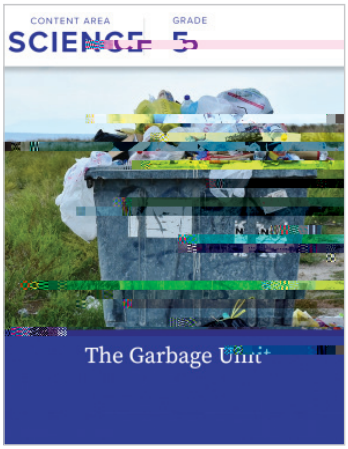
Forma t ve assessment tasks throughout a unit could also include opportuni t es for students to interact with the teacher, small groups, and the whole class using visual as well as oral and wri t en linguis t c modali t es.

Conclusion

E N SP- S L S .A .E ELL ( ), ELL



Additional Resources



Science And Integrated