

Introduction:

In this [classroom-embedded performance assessment](#), students work in groups and individually to make recommendations about how to reduce water usage in a fictional city (California City, California). Throughout the task, students consider information about different stakeholders' water use to engage in argument about which stakeholders can impact the water use in the city most heavily, and how they might do so.

STANDARDS:

This task is intended to assess NGSS Performance Expectation:

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

ANNOTATION KEY

EQUITY	SCENARIOS	SEPs	DCIs	CCCs	SENSE-MAKING	ASSESSMENT PURPOSE
Supporting a wide range of diverse students.	Information provided to elicit performances.	Opportunities to demonstrate science and engineering practices.	Opportunities to demonstrate understanding of disciplinary core ideas.	Opportunities to demonstrate understanding of crosscutting concepts.	Opportunities for reasoning about phenomena and problems.	Highlights how the task features connect to intended assessment use.

STRENGTHS

The task is **situated around a meaningful problem** that is rich enough for students to address throughout the task, elicits the SEPs and CCCs targeted, and could be easily modified to be about a more local city if needed. ■

The task is **engaging and offers an opportunity to monitor student progress toward learning goals while still providing a meaningful learning opportunity in and of itself.** ■ ■ ■

Students **routinely engage in grade-appropriate sense-making, including:** ■ ■ ■ ■

- **Using elements of the SEPs** analyzing and interpreting data, engaging in argument from evidence, and obtaining, evaluating and communicating information to make sense of how stakeholders are using water and what this means for the problem they are trying to solve.
- **Developing and demonstrating their understanding of the CCC systems and system models** when they consider how individual stakeholders can influence water usage in the whole city.
- **Opportunities to develop grade-appropriate parts of DCI ESS3.C.**

! OPPORTUNITIES FOR IMPROVEMENT

While the context of the task is meaningful, it might be more compelling and comprehensible to students if there was a **specific problem to address**, such as a specific negative consequence to the high levels of water usage. ■

The **task does not require students to already understand the DCI that is being assessed**—instead, students are developing that understanding by going through this task. It would be helpful if this was transparently acknowledged, to support appropriate interpretation of student responses to the task. Additionally, there are other ideas, like those related to the water cycle, that students do need to know to be successful in completing this task—it would be helpful if those were included in the guidance for interpreting student responses. ■

There are **several places where additional SEPs—beyond those identified by the assessment—are being used by students.** It would be helpful if these were explicitly called out in the guidance for interpreting student responses. ■ ■

The letter to the mayor serves as an artifact of individual student thinking, but it is very closely linked to the discussions students have previously in small groups and the large group community discussion—this **might limit how much independent, individual student sense-making is happening**, and might change the interpretive use of the individual student artifacts. ■ ■

While the group work includes several different ways for students to make their thinking visible, the **individual artifact students produce seems to emphasize writing**, which might obscure some students' science thinking. ■ ■

The task is a **very long embedded assessment to only surface student thinking centered around a single performance expectation** (that is identified). ■

✓ STRENGTHS

The task **offers several different ways for students to make their thinking visible to surface evidence of progress toward the assessment target**, including short written responses, longer written responses, individual and group artifacts, and discourse.   

The task creates several opportunities for students to **bring their own ideas to the table**, such as during their reflections on stakeholder water use, during the community discussion, and when they write their independent letters to the mayor. 

Students regularly make choices and decisions about which evidence is most compelling and what recommendations to make both in the group conversations as well as when they develop their individual artifacts. 

The task as a whole **intentionally scaffolds student experiences** by moving from small group to large group to individual work, allowing learners several opportunities to develop their thinking and receive feedback.  

The task includes clear **supports for eliciting and interpreting student performance** at each step of the task. 

How does this task support all students?

✓ This task is focused on a meaningful problem with opportunities for students to make connections to their own ideas and lived experiences. It provides opportunities for students to make their thinking visible through discourse as well as written responses, as well as socially and independently. The task includes numerous scaffolds to help students organize and participate in a complex task without compromising the level of sense-making expected. The task also includes several opportunities for students to make choices and decisions about how to engage in the task and which ideas are most compelling and relevant to the discussion.

What are the major takeaways?



SUMMARY POINTS:

Overall, this task provides a meaningful assessment of students' ability to [make sense of information](#) and make an evidence- and reasoning-based recommendations using the [SEPs](#), [CCCs](#), and some aspects of the targeted DCI.

The task includes several intentional [features to support diverse learners](#) as they engage with the task, helping to ensure that the task is surfacing what students understand and can do across all learners.



SUGGESTED IMPROVEMENTS

1. The task could focus on a more [specific problem](#), which may help students understand why this is so important, and engage more deeply. It may also help those students who are having difficulty "imagining" the scenario and the stakeholder contributions.
2. The task could more clearly identify the full range of SEPs and DCIs being used and demonstrated here, both to support teachers' interpretation of student responses as well as to justify the amount of time spent on this task.
3. The independent student artifact could be modified to be slightly farther removed from the group work, such that the group work still serves an important scaffolding purpose as well as surfaces student thinking, but does not surface the same thinking as the individual artifact.
4. The task could more clearly require students to bring previously developed DCI understanding to the table.

How should this task be used?

This task should be used as intended, as an embedded classroom performance assessment that can be used to surface students' current understanding of some SEPs (Analyzing and Interpreting Data, Obtaining, Evaluating, and Communicating Information) and CCCs (System and System models) in particular, while offering students the opportunity to also further develop these dimensions (e.g., Engaging in Argument from Evidence) as well as DCIs.