

Introduction:

This task, intended to be administered as a summative transfer assessment completed at the end of Bend 2 of the NextGen Storylines unit "[Why don't antibiotics work like they used to?](#)", asks students to consider how the environmental features of Tibet may have interacted with the traits of people living there over time. As students work through the task, students have to consider information about the patterns of survival and prevalence of people with different sized blood vessels to use as evidence to support ideas about how the elevation of Tibet has shaped traits in populations that have lived there over time.

STANDARDS:

This task is intended to assess the NGSS Performance Expectations:

HS-LS4-1: Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.

HS-LS4-4: Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

HS-LS4-5: Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

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 provides routine opportunities for students to **make facets of their thinking visible**, not just right and wrong answers, providing better evidence of student understanding.

The questions in the task are **centered around a specific, real-world observation** that is intriguing and compelling.

Throughout the vast majority of the task, students must bring their understanding of parts of **DCIs, CCCs and SEPs together to make sense** of the phenomenon presented.

The task includes a combination of scaffolded questions as well as those that require more autonomous sense-making, ensuring that **all students can show what they know and can do**.

The task seems **well-aligned to the aspects of the three-dimensions targeted that were included as part of curriculum (opportunity to learn)**.

! OPPORTUNITIES FOR IMPROVEMENT

While the task scenario is interesting, it is implicitly problematized—in other words, it **does not make the uncertainty students need to figure out explicitly clear to all students**. This may impact how relevant and engaging students find the task.

Much of the task can be successfully completed using **MS-level SEP and DCI elements and below grade level CCC elements** without this being explicitly acknowledged in the scoring guidance—in other words, the task does not necessarily elicit the distinguishing aspects of HS-level SEPs, CCCs, or DCIs, but doesn't make this clear for those interpreting student progress.

The task is very **reading- and writing-heavy**, which may limit how well students with developing English language skills can show what they know and can do, even if they have a deep understanding of the SEPs, DCIs, and CCC.

The scoring guidance provides support for scoring the task, but **does not support teachers and students in interpreting student performance relative to the targeted standards**.

The task **does not make clear which aspects of the targeted PEs are and are not assessed**.

How does this task support all students?

✓ The task is grounded in an interesting [phenomenon](#) that students will likely find meaningful and sufficiently engaging and rich for the entirety of the task. The task includes some clear scaffolding to help students dive more deeply into what the data are showing and how to both interpret and critique evidence and claims—this can help [engage a wide range of students](#) with varying grasps on the SEPs and DCIs in sense-making while still leaving room for students to demonstrate facets of their understanding.

! The task relies heavily on language—the scenario is text-heavy, and the emphasis on justifying answers, while completely understandable from a content perspective, may frequently requires long written responses without clear options that would more easily allow students with more limited English language abilities to show their thinking in other ways (e.g., diagrams, discourse, etc).

What are the major takeaways?



SUMMARY POINTS:

Overall, this task provides a meaningful assessment experience for students by asking them to [make sense](#) of something interesting, surfacing facets of their understanding as they make sense of the phenomenon. The task surfaces evidence of students' understanding of and ability to use the three dimensions, and particularly the [SEPs](#) and DCIs, to make sense of phenomena, in ways that are approaching the HS expectations.



SUGGESTED IMPROVEMENTS

1. The task could provide more ways for students to make their thinking visible.
2. The scoring guidance could offer more support for interpreting student progress relative to the standards, including any instructional implications.
3. The task could clearly identify which aspects of the targeted PEs are assessed and not assessed, and note when targeted student understanding is intentionally different from the grade-specified SEP, DCI, and CCC elements (e.g., if future lessons or units are expected to build deeper understanding; if the task is intentionally designed to surface student thinking early in NGSS implementation, when prior teaching and learning in K-8 may not have been three-dimensional; etc.)

How should this task be used?

This task can be used as intended—a classroom summative transfer assessment after students have completed the associated instructional unit—provided that it is made clear to teachers and students how student performance does and does not reflect the complete expectations associated with the targeted PEs. This assessment might be especially useful the unit is taught either relatively early in high school. This task might also be a helpful assessment used to assess **part of or progress toward** the targeted PEs, SEPs, and DCIs. It should not be used—without modifications—as the sole or major summative assessment intended to indicate student proficiency on all parts of the targeted PEs due to the gaps between what is elicited by the task and the expectations associated with the PES.