

Introduction:

In this task, students are asked to consider how magnets could be helpful in cleaning up oil spills. Throughout the task, students use their understanding of magnetic forces, experimental design, and asking questions to probe the research questions and ideas being posed.

This task is intended to be used as a classroom-embedded performance assessment, independent of any particular curriculum or instructional materials.

STANDARDS:

This task is intended to assess the NGSS Performance Expectation (PE):

3-PS2-3: Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.

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 scenario **uses simple language to establish a real-world, meaningful scenario that has global relevance.** ■■■

The task **meaningfully requires students to use grade-appropriate SEPs and DCIs together in service of sense-making** in Questions 3 and 4.

Throughout the task, **students use multiple SEPs** as a way to coherently and more comprehensively address the problem at hand. ■■■

The task **involves reasoning throughout the questions, making it more likely that students will use CCCs as part of their process for responding**—this is particularly true in Question 3, when students are asked to pose their own questions. ■■■

The task includes opportunities for **students to make their own ideas an important part of engaging with the task.** ■■■

! OPPORTUNITIES FOR IMPROVEMENT

The task **often assesses different SEPs, DCIs, and CCCs than those that are included in the scoring guide.** ■■■

Student responses to the task are **heavily language oriented**, which might obscure some students' thinking. ■■■

How does this task support all students?

✓ This task supports diverse learners in several ways. The task revolves around a meaningful phenomenon-based problem that has global relevance that is made clear to students—oil spills that negatively impact the animals and ecosystems in the ocean. The authenticity of this problem can engage a wide range of students and can engage meaningful sense-making because it is a problem that can be approached from different perspectives with no clear single solution. Additionally, questions 3 and 4 allow students to bring their own ideas to the table as a meaningful part of the task, supporting student agency and identity as scientists. The task itself includes clear supports through visual text boxes and scaffolding to help ensure that students are clear about expectations for performances.

The emphasis on writing might prevent some students from making their thinking visible.

What are the major takeaways?



SUMMARY POINTS:

- Overall, this task is a multi-dimensional task that requires students to use [SEPs](#) and DCIs in service of [sense-making](#), and CCCs are likely to be engaged as part of students' reasoning.
- The task is a particularly compelling example of attending to [features that can support all students](#) in engaging with the task, through task structure, scenario content, and question design.



SUGGESTED IMPROVEMENTS

This task would be improved if:

1. The scoring guidance was modified to reflect more specifically what student responses would likely demonstrate.
2. Other ways of communicating student thinking—diagrams, discourse, etc—were specifically cued or mentioned as part of the task.

How should this task be used?

This task could be used as an embedded summative performance assessment following a unit about magnets, provided that there are other opportunities for students to address other aspects of the DCI and related SEPs and CCCs. It provides important opportunities to continue learning and developing the targeted dimensions, as well as providing an opportunity to monitor student learning of previously learned ideas. Notably, this task can likely serve as a meaningful transfer task to determine whether students can use their understanding of magnets in a context that is quite different than many instructional sequences focused on magnets.