

RESEARCH BRIEF



Office of Research, Assessment, Data, Accountability, and Reporting



FAST FACTS: Self-Efficacy – Science by Grade and Student Group

Definition: Students' confidence in their Science skills.

ODE calculates a **Self-Efficacy – Science domain score** among 5th, 8th, and 11th graders that has a possible range of 0 to 100. This score is based off students' responses to 8 to 10 items on the [SEED Survey](#) (on a 5-point scale with response options being: Not confident; A little confident; Somewhat confident; Mostly confident; Very confident). Example items¹ are:

5 th Grade Example Items	8 th Grade Example Items	11 th Grade Example Items
<p>Think about what you learned in your science classes. How sure are you about doing each of the following?</p> <ul style="list-style-type: none"> I can describe different ways to heat or cool water. I can design an experiment to show how sunlight affects the growth of a plant. I can describe ways the hydrosphere and atmosphere interact. 	<p>Think about your science classes in grades 6, 7, and 8. How confident are you about doing each of the following?</p> <ul style="list-style-type: none"> I can describe how the length of a vibrating string affects the sound it makes. I can construct an argument based on evidence for how environmental and genetic factors influence the growth of an organism. 	<p>Think about what you learned in your high school science classes. How confident are you about doing each of the following?</p> <ul style="list-style-type: none"> I can create a diagram that shows how bees and plants need each other for survival. I can use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.

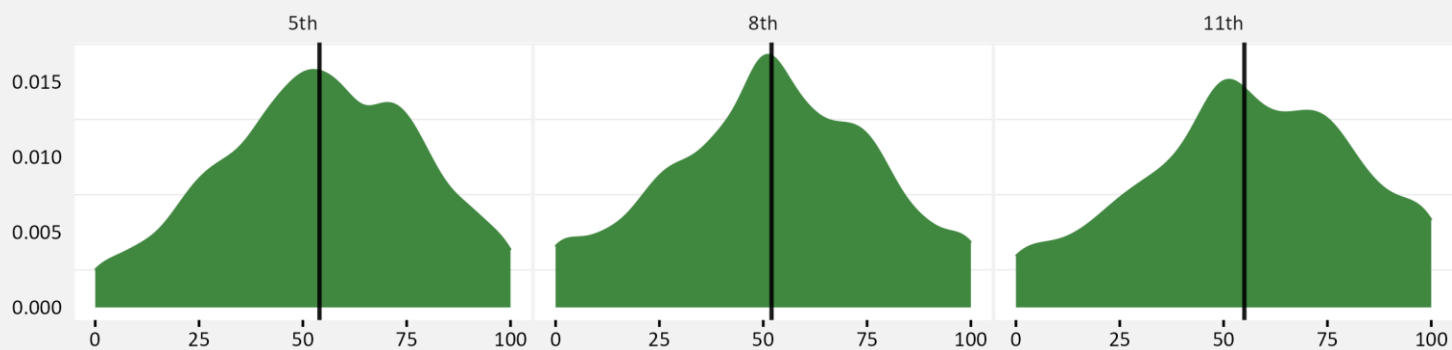
3% of students had a score of 100,
meaning that they were very
confident in all the Science skills

2% of students had a score of 0,
meaning that they were not
confident in any of these Science
skills

¹ The full list of items can be found in [Understanding SEED Domain Scores](#).

**Self-Efficacy – Science decreased from 5th to 8th grade,
and increased from 8th to 11th grade.**

Figure 1: Distribution of Student Domain Scores



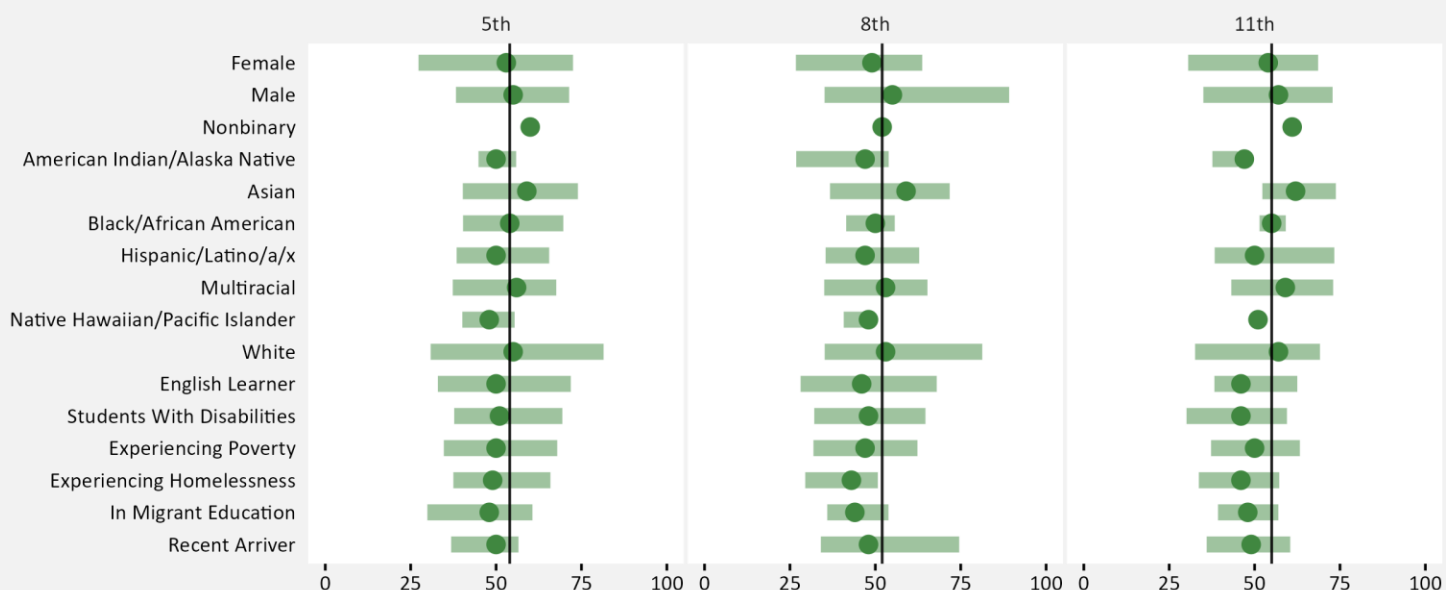
Note. The vertical black line indicates the state-level score for all students combined

Grade	State Domain Score	Equivalency
5 th	54	Roughly equivalent to responding 'Mostly confident' to 1 item and 'Somewhat confident' to 7 items.
8 th	52	Roughly equivalent to responding 'Mostly confident' to 1 item and 'Somewhat confident' to 9 items.
11 th	55	Roughly equivalent to responding 'Mostly confident' to 2 items and 'Somewhat confident' to 7 items.

Some student groups had lower domain scores across all three grades:

- Female students
- American Indian/Alaska Native students
- Hispanic/Latino/a/x
- Native Hawaiian/Pacific Islander
- Students who are English Learners
- Students with disabilities
- Students experiencing poverty
- Students experiencing homelessness
- Students in Migrant Education
- Students who are recent arrivers

Figure 2: Domain Score by Student Group



Note. The dark green circle indicates the state-level score for each group, and the light green box indicates the score range across districts in Oregon with at least 10 responses. The vertical black line indicates the state-level score for all students combined.

Resources

SEED Survey

- [SEED Survey](#)
- [Understanding SEED Domain Scores](#)
- [2024-2025 State Level SEED Survey Domain Score Data](#)
- [2024-2025 District Level SEED Survey Domain Score Data](#)

Additional Resources

- [Student Success Plans](#)
- [K-12 Science Education Best Practice Guide](#)
- [Integrating TSEL in K-12 Science Education](#)
- [Science Resources webpage](#)
- [Tribal History/Shared History: Science resources](#)
- [Oregon's Science Standards](#)
- [Oregon Science Educator Update](#)
- [Oregon STEM Hubs](#)
- [STEAM Toolkit](#)