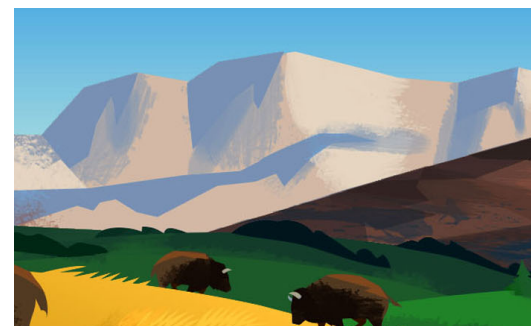


Social and Emotional Learning in Amplify Science



Social and emotional learning (SEL) as defined by the Collaborative for Academic, Social, and Emotional Learning (CASEL) is “the process through which children and adults understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions”. CASEL has identified five core competencies that support social emotional learning. Below we describe examples of how each competency is supported in Amplify Science.

1 Self-awareness

Students in Amplify Science have opportunities to build their self-awareness as they **identify personal, cultural, and linguistic assets**. For example, when the anchor phenomenon and question of each unit is introduced, students are asked to consider and share their initial ideas. In elementary units, a routine and an **overview document** guide teachers to draw out and record students’ prior knowledge (including culturally specific knowledge) in these moments. Students are also asked to make connections to their prior knowledge and personal experiences as they preview and read books and articles. In the Differentiation section of the Lesson Brief, Specific Differentiation Strategies for English Learners include suggestions in some lessons to leverage students’ native languages. In addition, the Pre-Unit Assessment Guide provided with each unit helps teachers identify and build on relevant prior knowledge students demonstrate in this formative assessment.

Students also have opportunities to build their self-awareness as they develop their interests and a sense of purpose. The anchor phenomenon and question for each unit are designed to help students experience a wide range of the purposes that science can serve, such as answering an intrinsically mysterious question (for example, what caused a liquid lake on a moon of Saturn to disappear?), understanding a problem affecting people (for example, a water shortage in a town) or animals (for example, fewer geckos surviving in a changed environment), or designing a solution for people in crisis (for example, designing nutritional bars for injured patients or rescue workers after a natural disaster). Engaging with these real and diverse contexts in which science is useful can be an opportunity for students to develop their own interests related to science and decide which purposes they most connect with. The books and articles in the program augment this range of contexts and purposes of science. Many also feature real scientists—with intentional diversity in terms of race, ethnicity, gender, age, ability, and sexuality—which may serve as role models for students.

2 Self-management

Students in Amplify Science have opportunities to develop their self-management as they **set personal and collective goals**. The self-assessments provided at the end of each chapter are an opportunity for students to reflect on what they have learned and what they still want to know more about. In middle school Engineering Internships, and in elementary units that highlight the practice of designing solutions, groups of students engage in setting design goals as they develop and improve their designed solutions. In some elementary units, students are taught the strategy of setting a purpose for reading and for investigating. To further highlight this aspect of Competency 2, teachers can guide students to set learning goals at the beginning of each unit, and return regularly to reflect on those goals.

Students also have opportunities to develop their self-management as they **demonstrate personal and collective agency**. Students have many opportunities to make meaningful choices. For example, middle school students decide on their own connections and questions to annotate (on their own) and discuss (in pairs) during Active Reading, they decide which evidence to use and how and which claim to support during Science Seminars, and they decide on goals and design strategies with their team during Engineering Internships. Elementary students decide on design strategies in engineering-focused units, and plan their own investigations in the final chapter of many investigation-focused units. As students work to explain the anchor phenomenon of each unit, they demonstrate agency as they develop their own explanations and try to come to agreement on an explanation as a class.

3 Social awareness

Students in Amplify Science have opportunities to develop their social awareness as they **recognize family, school, and community resources and supports**. Every middle school unit includes Home Investigations and every elementary unit has Family Homework Experiences in which students discuss what they are learning with family members and/or work with family members to investigate related phenomena around their home or neighborhood. Each elementary unit also includes a Family Connections Letter or Family Connections Homework in which students find out what experiences, ideas, and skills family members have related to the unit. Teachers invite students to share what they learned from their families during a class discussion of prior knowledge and experiences related to the unit.

Students also have opportunities to develop their social awareness as they take **others' perspectives**. Student-to student discussion is a key component of lessons throughout the program, and students are taught to listen carefully to their peers, and remain open to changing their minds based on evidence.



4 Relationship skills

Students in Amplify Science have opportunities to develop their relationship skills as they work to **communicate effectively**. Student-to student discussion is a key component of lessons throughout the program, and students are taught to listen carefully to their peers, share evidence for their ideas, and help involve their peers in discussions. Discourse routines, such as Think-Pair-Share, Shared Listening, and Science Seminars structure and support pair and small group discussions. During whole-class discussions, teachers are encouraged to invite students to agree or disagree with one another and use evidence to explain why. Discussion norms and sentence starters help support students in communicating clearly. Students also write explanations and arguments to communicate their ideas, with the idea of writing for an audience emphasized and modeled. To further highlight this aspect of Competency 4, teachers can work with the class to generate a set of discussion norms early in the year and help students reflect on how well the class is meeting those norms throughout the year.

Students also have opportunities to develop their relationship skills as they **practice teamwork and collaborative problem-solving**. Students work in pairs and groups throughout the program, for example as they investigate using physical models or digital simulations, during structured pair and group discussions, in group reflection routines such as Word Relationships and Write and Share. In addition, over the course of each unit, the class collaborates to solve the central problem of the unit, gathering and making sense of evidence and discussing and writing to arrive at conclusions. To further highlight this aspect of Competency 4, teachers can have students reflect on how well their group worked together and identify strengths and areas for growth at the conclusion of significant instances of group work.

5 Responsible decision-making

Students in Amplify Science have opportunities to develop their responsible decision-making skills as they **identify solutions for personal and social problems**. In many units, the central question or engineering challenge involves solving a social problem. Students work to solve problems including monarch butterflies disappearing from a school garden, a playground being too hot or too cold, frequent blackouts in a city, a town's water shortage, climate change, the need for tsunami warning systems, and elevated risk for skin cancer in certain parts of the world. There are also opportunities for students to decide on their own problems they want to address, for example in Day 10 of each Engineering Internship. To further highlight this aspect of Competency 5, teachers can have students regularly reflect on what problems in their own lives or communities could be addressed using the concepts or practices students are learning.

Students also have opportunities to develop their responsible decision-making skills as they **learn to make a reasoned judgment after analyzing information, data, and facts**. This is central to the practice of making arguments from evidence, which is a key part of every unit. Beginning in kindergarten, students learn what evidence is and how it can be used to answer questions, and they have multiple opportunities to gather evidence. Over the course of the grades, students engage with this practice with more complexity, including using evidence to decide between multiple possible claims, using reasoning to make connections between evidence and claims, evaluating the quality of evidence, and using evidence to refute possible claims. Students are supported to communicate their arguments in writing and orally through explicit teaching and guidelines, teacher modeling, models of arguments in books and articles, sentence starters, and more. To further highlight this aspect of Competency 5, teachers can have students reflect on ways this practice can be useful outside the contexts of science and engineering.

For more information,
visit amplify.com/science.

Amplify.



THE LAWRENCE
HALL OF SCIENCE
UNIVERSITY OF CALIFORNIA, BERKELEY