

Family Guides to Support Learning

ABOUT THIS GUIDE

Parents and caregivers want their junior high student to succeed in school – to be engaged and excited about learning; to build strong relationships with their teachers and peers; and to learn each year the knowledge and skills they need to be successful academically.

But it hasn't always been easy for parents and caregivers to figure out what children should know and be able to do by the end of each grade – and how to discuss these topics with their children and their teachers.

Moreover, while families are usually able to help if kids get stuck in the early grades, the content gets more challenging as students get older. Suddenly, parents and caregivers may feel like they don't have much help to offer. But that's not the case. Research confirms that families still have a big role to play in helping students learn. It's just a different role.

In addition to providing encouragement, a study of more than 50,000 students found that relating what middle and high school kids are learning in school to their future life goals is one of the most effective ways families can help. What doesn't work? Trying to be directly involved with schoolwork. It can feel to middle school students like you're interfering or even confusing them. And this IS the time to encourage students to take more responsibility and be more independent; helping them take charge of their learning is important.

These Family Guides provide parents and caregivers with the information and tools they need to support their children academically in literacy and math, which are the building-block subjects for everything else. With these Guides, families can engage more deeply in their middle schoolers' education, advocate for them, and build partnerships with their teachers – thus developing the strong bond between students, families, and teachers that ensures kids thrive.

¹Harvard Graduate School of Education (2009). Hill: Parents need to link schoolwork to future goals. <http://www.gse.harvard.edu/news/09/05/hill-parents-need-link-schoolwork-future-goals>.

JUNIOR HIGH Science



Santa Barbara Unified
Every child, every chance, every day.

THIS GUIDE INCLUDES

- **What Junior High Students Are Learning** – What experts say is the most important content (knowledge and skills) for students to learn in science by the end of junior high.
- **Talking About Science with Your Junior High Student** Ways families can talk with their student about what they are learning in school, find related resources, and connect learnings to the world around them.
- **Tips for Talking with Teachers** – How you and your child's teachers can work together to help students grow.
- **Tools and Resources to Help** – We've chosen a few internet resources that best match each grade's content.



**STUDENT
ACHIEVEMENT
PARTNERS**



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SCIENCE

WHAT 7TH GRADERS ARE LEARNING



This course covers the Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and the Cross-cutting Concepts (CCCs) for the California Next Generation Science Standards (NGSS) as aligned with the California Preferred Integrated model for grades 6-8. The 7th grade integrated course integrates topics in Life Science, Physical Science, Earth Science, and Engineering through the guiding concept, “Natural processes and human activities cause energy to flow and matter to cycle through Earth’s systems.” Students who demonstrate understanding of this guiding concept will be able to:

- Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. (MS-PS1-4)
- Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. (MS-LS1-6)
- Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. (MS-ESS2-3)
- Evaluate competing design solutions for maintaining biodiversity and ecosystem services. (MS-LS2-5)



TALKING ABOUT SCIENCE WITH YOUR 7TH GRADER

- Encourage your 7th grader to talk to you about the science they feel they can successfully do. Which new phenomena are they learning about in class? What are some recent activities they have engaged in to make sense of the phenomena?
- Help your 7th grader find resources that they feel are relevant and helpful. Ask them to talk to their teachers about the resources and extensions related to the current science topics being investigated in their class.
- Have your student think about how the current science topic might be directly relevant to their world. For example, from Grade 7 science, where do they see chemical reactions in their everyday life?
- Encourage your 7th grader to think about everyday phenomena in the world around them. Help them be curious about what they see and experience in the natural world by using the question, "What do you notice?" and listening to their observations.





TIPS FOR TALKING WITH TEACHERS

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- Ask for specific updates on how your 7th grader is progressing in their understanding of the key content and science practices for their grade level.
- Which phenomena are 7th graders learning about in science? What are the related science concepts student will be using to make sense of the phenomena?
- What should my 7th grader be able to understand and do as a result of what they have learned?
- Is my 7th grader able to demonstrate to you that they understand what they are learning? If not, what challenges are they facing?
- How can I support and encourage my 7th grader to build a strong relationship with you and take age-appropriate responsibility for their own learning?



TOOLS AND RESOURCES TO HELP

SCIENCE

- NGSS Parent Guide: Preparing Students for a Lifetime of Success
<https://www.nextgenscience.org/sites/default/files/ParentGuide%20Grades%206to8%20-%20General.pdf>
- Beyond “misconceptions”: How to recognize and build on Facets of student thinking (STEM Teaching Tools)
<http://stemteachingtools.org/brief/37>
- CK-12 Science Simulations and Interactive Reading
<https://www.ck12.org/student/>
- The American Museum of Natural History - Science Topics
<https://www.amnh.org/explore/science-topics>
- PBS Learning Media: Science
<https://ca.pbslearningmedia.org/subjects/science/>





SCIENCE

WHAT 8TH GRADERS ARE LEARNING



This course covers the Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and the Cross-cutting Concepts (CCCs) for the California Next Generation Science Standards (NGSS) as aligned with the California Preferred Integrated model for grades 6-8. The 8th grade integrated course integrates topics in Life Science, Physical Science, Earth Science, and Engineering through the guiding concepts, “The processes that change Earth systems at different spatial scales today also caused changes in the past;” and, “Forces and Energy cause changes in our environment at all scales.” Students who demonstrate understanding of this guiding concept will be able to:

- Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. (MS-PS2-2)
- Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. (MS-PS4-1)
- Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. (MS-ESS1-2)
- Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships. (MS-LS4-2)

TALKING ABOUT SCIENCE WITH YOUR 8TH GRADER



- Encourage your 8th grader to talk to you about the science they feel they can successfully do. Which new phenomena are they learning about in class? What are some recent activities they have engaged in to make sense of the phenomena?
- Help your 8th grader find resources that they feel are relevant and helpful. Ask them to talk to their teachers about the resources and extensions related to the current science topics being investigated in their class.
- Have your student think about how the current science topic might be directly relevant to their world. For example, from Grade 8 science, where do they experience motion and forces in their everyday life?
- Encourage your 8th grader to think about everyday phenomena in the world around them. Help them be curious about what they see and experience in the natural world by using the question, “What do you notice?” and listening to their observations.





TIPS FOR TALKING WITH TEACHERS

SCIENCE

- Ask for specific updates on how your 8th grader is progressing in their understanding of the key content and science practices for their grade level.
- Which phenomena are 8th graders learning about in science? What are the related science concepts student will be using to make sense of the phenomena?
- What should my 8th grader be able to understand and do as a result of what they have learned?
- Is my 8th grader able to demonstrate to you that they understand what they are learning? If not, what challenges are they facing?
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- The American Museum of Natural History - Science Topics
<https://www.amnh.org/explore/science-topics>
- PBS Learning Media: Science
<https://ca.pbslearningmedia.org/subjects/science/>