

A photograph of a young boy and a woman, likely a teacher, outdoors. The boy is smiling and holding an open book, while the woman, wearing sunglasses and a plaid shirt, looks at the book with him. They are in a bright, sunny setting with other people blurred in the background.

## What does subject matter integration look like in elementary instruction? Including science is key!

### What Is The Issue?

We do not live in disciplinary silos so why do we ask children to learn in that manner? All science learning is a cultural accomplishment and can provide the relevance or phenomena that connects to student interests and identities. This often intersects with multiple content areas. Young children are naturally curious and come to school ready to learn science. Leading with science leverages students' natural curiosity and builds strong knowledge-bases in other content areas. Science has taken a backseat to ELA and mathematics for more than twenty years. Integration among the content areas assures that science is given priority in the elementary educational experience.

### WHY IT MATTERS TO YOU

- **Educators** at all levels should be aware of educational standards across subjects and be able to make meaningful connections across the content disciplines in their teaching.
- **District Staff & PD Providers** should consider how to provide professional development that allows teachers to experience exemplars and facilitate the design of integrated lessons.
- **School Leaders** should support teachers in integrated teaching by authorizing relevant professional learning experiences and setting expectations for integrated lessons.

## Things To Consider

- **Integration of science concepts with other disciplines must be meaningful to students and connect in an explicit way to other content areas.** There is a strong argument to be made that science and social studies need to be included in the curriculum in order for literacy skills to develop and improve.
- **The world is interdisciplinary while school is often disciplinary.** Learning takes place both inside and outside of school. Outside-of-school investigations and projects are driven by people's curiosity and play and often cut across disciplinary subjects. However, learning in school is often fragmented into different subject matter silos.
- **Keep subjects other than ELA and math in mind when considering integration.** Social studies and the arts provide rich opportunities for the integration of science with other content areas.
- **Crosscutting concepts support students in making sense of phenomena across science disciplines** and can be used to prompt student thinking. Crosscutting concepts can serve as a vehicle for teachers to see connections to the rest of their curriculum, particularly with English / Language Arts (ELA) and math.

## Recommended Actions You Can Take

- **Engage students in scientific practices** (such as developing models) as opposed to using science topics and themes to organize subject matter integration. Avoid science-focused literacy instruction as it tends to be reading, writing, speaking, and listening *about* science rather than engaging in science sense-making through the practices.
- **Support braided strands of disciplinary sensemaking.** Students should have an opportunity to see how multiple content areas can be interwoven. Make explicit connections between each discipline addressed in lessons and activities to highlight how content can be integrated—for example, how to think mathematically in science or how to use literacy skills and strategies when learning in science.
- **Build a work culture in which educators are able to collaborate in productive ways.** Leverage the disciplinary expertise of others.
- **Use multi-subject integrated assessments**—both formative and summative—that allow students to show coordinated understanding of science and other disciplinary content.
- **Don't let pacing guides be an obstacle to content integration. Instead, use them as a starting point for integrating concepts across disciplines.** Strict adherence to pacing guides can be at odds with the concept of integration across content areas, as they often define content to be taught, for how long, and when.

## REFLECTION QUESTION

- Reflect on an authentic project you know well. What were the range of disciplinary knowledges and practices involved with accomplishing it?
- What examples of integrated disciplinary learning experiences are already present in your context that can be leveraged?
- How can you arrange professional learning to support teachers in planning for and using integrated lessons?

## Attending to Equity

- According to the 2018 National Survey of Science and Mathematics Education (NSSME+), a typical elementary school class spends about 20 minutes a day on science instruction, compared to 60 minutes on mathematics and almost 90 minutes on language arts. Integration can ensure that *all* students have opportunities to learn science, as they are likely to experience regular learning in math or language arts.
- Integration offers many entry points into the learning experience and honors the cultural background/knowledge of all students and the communities they are growing up in.
- Cultural ways of knowing should be included in the learning experience. Culturally responsive instruction can help students engage in integrated learning that meaningfully connects to their interests and those of their community.

### ALSO SEE STEM TEACHING TOOLS:

- #2 [Contemporary Science](#)
- #29 [Designing 3D Assessments](#)
- #43 [Elementary Science](#)

