

This infographic highlights research-based strategies for online instruction. While these strategies may be used and adapted for all content areas, the reading and math icons denote a specific research basis for using a strategy in either or both content areas.



## GROUP DISCUSSIONS

- Use online synchronous group discussions to monitor student understanding, confidence, interest, and misconceptions about content.
- Facilitate discussions by asking “why” questions and questions that lead students to explain their or a peer’s problem-solving approach.
- Prompt students and their families to engage in conversations around text to support reading and comprehension skills.

### Example Questions to Guide Math Discussions

Support Instructional Decision Making	Direct and Redirect Student Focus
<ul style="list-style-type: none"> <li>■ Can anyone restate what Student A is trying to say?</li> <li>■ I think I know what you are trying to say. Can you think of another way to say that?</li> <li>■ Do you agree with Student A’s reasoning?</li> <li>■ Did anyone get another answer? Did anyone do the problem another way?</li> </ul>	<ul style="list-style-type: none"> <li>■ Can someone explain Student A’s approach in another way?</li> <li>■ Does anyone have a different approach?</li> <li>■ Does anyone have anything to add to Mark’s explanation?</li> <li>■ What assumptions did you make when you solved this problem?</li> </ul>

### Research Take-Away

Online synchronous discussions about problem-solving and other math concepts can increase students’ math performance, particularly on state assessments, and teachers’ ability to monitor student understanding.



Reading



Math

## INTERACTIVE PROGRAMS

- Use interactive programs, such as videos, games, and virtual reality programs, to supplement (rather than replace) teacher-led instruction.
- Select interactive math programs that provide students with several different representations of concepts and problems through repeated practice. Programs should allow students to externalize these representations to understand the problem and the solution and should also include images that clarify terms and concepts and provide clarifying hints.
- Consider if and how interactive reading programs align with learning goals and fit within each unit. When appropriate, use programs that allow for authentic online reading with integrated tools, such as those for annotation and audio recording.

### Guiding Questions for Selecting Interactive Programs

**What do I want my students to learn?**

**Where does the program best fit within the unit?**

**How does the program support the broader curriculum?**

**How can the program help students make connections across content areas?**

### Research Take-Away









Interactive programs that use videos, games, virtual reality features, or other engaging elements support student learning and engagement but should be used in addition to teacher instruction.



## SELF-REFLECTION

- While self-reflection exercises are more commonly used for younger students and for those that may be struggling, all students can benefit from opportunities to practice monitoring and assessing their own learning.
- Use online resources to guide students in self-reflection (e.g., journaling, asynchronous discussion groups, blogging) and provide opportunities for both open-ended responses and content-focused review.

### Example Strategies for Student Self-Assessment

	Ask students to highlight the best section of their work and explain why they think it is the best		Have students identify where they have met each of the Success Criteria
	Ask students to highlight the sentence or section of their work that they are most pleased with and tell you why		Ask students to identify an area where they are uncertain and what help they need
	Pause during the lesson and ask students to discuss how their learning is going		Introduce exit cards where students write and submit answers to prompts such as: <i>What was the most important thing you learned today?</i>
	Provide some sentence starters and prompts to help students think about their learning and identify areas for improvement		Use 3,2,1 at the end of a lesson: 3 things I learned, 2 questions I have, 1 insight I had

### Research Take-Away

Self-reflection during online math instruction supports student development, particularly among middle school and struggling students. When students spend time on self-reflection, their engagement, confidence, and performance on unit and course assessments may increase



Reading

## DIGITAL TEXT

- Incorporate instruction on digital literacy skills and model appropriate use of digital text, resources, and tools.
- Create a list of pre-approved sites that offer students access to high-quality digital text on a variety of topics.
- Example nonfiction digital texts include: [Wonderopolis](#), [Newsela](#), [BrainPOP](#), and [Tween Tribune](#).

### Research Take-Away

Providing digital texts during online learning supports student engagement and interest in both fiction and nonfiction materials. Digital texts and reading activities allow teachers to expand learning opportunities for students during online instruction.



Reading

## PARENT INVOLVEMENT

- Ensure that parents have high but realistic expectations of students' learning and reading development.
- Support parent involvement by relaying individual students' successes to their parents, having parents sign off on learning agendas, and holding parent conferences.
- Use parents as a resource for [facilitating conversations](#) about reading and text outside of class.

### Research Take-Away

Parents play an important role in supporting online instruction and learning. Parents' expectations for their students are a main factor in their ability to impact student performance and can influence students' perceptions of their own academic potential and ability.



## TEACHER COLLABORATION

- Use professional learning communities, discussion boards, or other means of collaboration to share and learn practical strategies for online instruction with other educators.
- Collect, organize, and share ideas within your grade-level, team, and/or school via an online repository or resource center.

### Recommended Teacher Collaboration Strategies

Online Learning Communities	Online Resource Repositories
<ul style="list-style-type: none"> <li>▪ <b>Identify participants:</b> Consider involving a diverse group of staff to facilitate meaningful exchanges of ideas</li> <li>▪ <b>Specify a purpose:</b> With participants' input, develop a clear set of objectives for the community's collaborative learning.</li> <li>▪ <b>Provide strong leadership:</b> Have an experienced facilitator moderate community activities to keep the environment focused on learning and knowledge-sharing.</li> <li>▪ <b>Engage in a variety of activities:</b> Foster relationships, encourage collaboration, and promote self-reflection.</li> <li>▪ <b>Provide appropriate technological resources and supports:</b> Determine how participants will interact (e.g., discussion boards, instant message, e-mail). Note any other technology requirements (e.g., file sharing) and deliver related training as needed.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Create a landing page:</b> Develop a site on which participants can access relevant resources on one or more topics.</li> <li>▪ <b>Look locally first:</b> Seek appropriate resources recommended and/or used by the district or state.</li> <li>▪ <b>Consider the source:</b> When searching for resources outside of the district or state, research the background of the author(s) and publisher.</li> <li>▪ <b>Review the content:</b> Before sharing with colleagues, vet material for validity, reliability, and credibility.</li> <li>▪ <b>Pose questions:</b> When asking participants to read a particular resource, include a list of guiding questions that can also be used to structure later discussions.</li> </ul>

Online Learning Communities content adapted from: Edmondson, S. "[10 Things that Make Online Professional Learning Communities Effective](#)." IRIS Connect, November 14, 2016. Online Resource Repositories content adapted from: [1] Elliott, J. "[The Evolution from Traditional to Online Professional Development: A Review](#)." Journal of Digital Learning in Teacher Education, 33:3, 2017. [2] Little, C. and B. Housand. "Avenues to Professional Learning Online: Technology Tips and Tools for Professional Development in Gifted Education." Gifted Child Today, 34:4, 2011. Accessed via SAGE Journal. [3] Killian, J. "[Meet the Promise of Content Standards: Tapping Technology to Enhance Professional Learning](#)." Learning Forward, 2013