Answers to Chapter 5: Comprehension Questions

1. *What are the similarities and differences between using technology for homework to practice a process or skill and using technology for homework to deepen knowledge?*

Assign homework that involves practicing a process or skill to increase students’ fluency, accuracy, and automaticity with the procedure. There are a few different ways to enhance this practice with technology. For one, students use screencast software and video recording tools to film and narrate a process or skill. They can record themselves practicing the process of solving a math problem and talking the viewer through the steps, for instance. Additionally, students can use websites like Quizlet, which allow the user to create a set of digital flashcards and practice with them online. Homework to deepen knowledge, on the other hand, should push students to use higher-order cognitive skills—such as analyzing and utilizing information, addressing complex problems and issues, and creating patterns and mental models—to expand their knowledge of the content. Therefore, practice with flashcards will increase students’ fluency with skills but will not deepen their knowledge of content. To deepen knowledge, assign online scavenger hunts in which students evaluate content-related videos or websites, such as videos of TED Talks, tutorials at Khan Academy, or Radiolab podcasts from NPR.

2. *How can technology support the use of Venn diagrams to examine similarities and differences?*

As with many other strategies, technology can enhance the use of Venn diagrams by increasing their auditory, visual, and kinesthetic interactivity. With a traditional Venn diagram, a student would draw two overlapping circles with a pencil and then fill in the diagram by writing differences in each circle and similarities in the area of overlap. The student receives little output from the Venn diagram in response to his or her input. With a Venn diagram in IWB software, however, students can receive output in response to certain inputs. For instance, an elementary teacher might use an IWB to create a Venn diagram template to introduce the concept of carnivores, omnivores, and herbivores. He labels one circle as animals that eat meat and the other as animals that eat plants, and students come up to the IWB to drag and drop images of different animals into the three sections of the diagram. When students click on an image, the sound that animal makes plays through the IWB speakers. If a student incorrectly places an image in a section, the image bounces back out of the circle and into the image bank, prompting the student to try a different one.

3. *List three ways in which technology can be used to infuse collaboration into the examination of errors in reasoning.*

First, students can search the Internet for errors in reasoning and use social bookmarking tools such as Diigo or Delicious to catalog the sites. Bookmarking tools facilitate collaboration because students can share their bookmarks with the class and annotate the findings of other students. Provide sentence stems for students to encourage respectful and constructive feedback, such as “I think this
article might actually exemplify a different error in reasoning because ________.”

Second, divide students into small groups using Team Maker, a random group generator. Each group locates errors in the media based on guided Internet searches (provide students with a few reputable websites or databases to explore). Collective word processing software such as Google Drive allows students to perform individual searches on separate computers while creating a single catalog of errors in one shared document. Finally, students can create videos, audio recordings, or screencasts of discussions about errors and share these with the class. Videos can be shared via Vimeo or YouTube. Audio and screencast files can be exchanged via shared online repositories such as Dropbox.

4. **How do you use technology to help students practice and deepen new knowledge in your classroom?**

Answers will vary from teacher to teacher. To see responses from other educators, visit [marzanoresearch.com/classroomstrategies](http://marzanoresearch.com/classroomstrategies), click on the *Enhancing the Art & Science of Teaching With Technology* link, and become a member of our virtual learning community.