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As we live in a rapidly changing society, exposure to and fluency in Science, Technology, Engineering, and Mathematics (STEM) ensures students will gain the skills they will need to succeed in the 21st century. It is essential that students gain practice in becoming good problem solvers, critical thinkers, innovators, inventors, and risk takers.

## Teacher Tips

### Encourage Topic Interest

Help students develop an understanding and appreciation of different STEM concepts by providing an area in the classroom to display topic-related non-fiction books, pictures, collections, and artifacts as a springboard for learning.

### What I Think I Know/What I Would Like to Know Activity

Introduce each STEM unit by asking students what they think they know about the topic, and what they would like to know about the topic. Complete this activity as a whole-group brainstorming session, in cooperative small groups, or independently. Once students have had a chance to complete the questions, combine the information to create a class chart

for display. Throughout the study, periodically update students' progress in accomplishing their goal of what they want to know, and validate what they think they know.

### Vocabulary List

Keep track of new and content-related vocabulary on chart paper for students' reference. Encourage students to add words to the list. Classify the word list into the categories of nouns, verbs, and adjectives. In addition, have students create their own science dictionaries as part of their learning logs.

### Learning Logs

Keeping a learning log is an effective way for students to organize thoughts and ideas about the STEM concepts presented and examined. Students' learning logs also provide insight on what follow-up activities are needed to review and to clarify concepts learned.

Learning logs can include the following types of entries:

- Teacher prompts
- Students' personal reflections
- Questions that arise
- Connections discovered
- Labeled diagrams and pictures
- Definitions for new vocabulary