

## Design Tool 8.1: Front Matter List

*Directions:* Use this as a reminder of what information to include in the front matter before your actual STEM lesson procedures. Include additional items if desired. Note that these do not have to occur in this particular order.

*Lesson title:* Use a catchy title that generates interest along with a subtitle that reflects what students will be doing.

*Lesson description:* Give a brief one- or two-sentence description of the STEM lesson.

*Student learning outcomes:* Describe what students should know and be able to do as a result of this lesson.

*Prerequisite knowledge:* Note here specific knowledge, skills, and competencies that students need to know before the lesson begins.

*Course standards:* List specific grade-level science and math content objectives the lesson will address. Include appropriate standards from the Next Generation Science Standards, the Common Core State Standards, and possibly the International Technology Engineering Educators Association.

*Engineering connection:* Explain how this challenge connects to engineering, and identify specific types of engineers who address this type of challenge in the real world.

*Lesson sources:* List the sources that supplied information and ideas for this lesson.

*Materials:* Make two lists—one list that contains materials used with the whole class and a list of materials that each individual team of students will need.

*Teacher preparation:* Explain how to prepare and organize materials ahead of time to promote a smooth and efficient class operation.