

# Communication Chapter 4- Let Us Entertain You

## National Science Education Standards

### Chapter Challenge

The use of sound and light in the entertainment industry provides the scenario for this chapter. Students are challenged to design a sound and light show that demonstrates the physics principles they learned yet is low budget. They are limited to using only sounds that come from human voices or homemade instruments and light from conventional household lamps.

### Chapter Summary

To gain understanding of science principles necessary to meet this challenge, students work collaboratively on activities to learn about wave motion, sound waves, light rays, and how mirrors and lenses change the direction of light rays and result in formation of images. They learn to use the iterative process of engineering design, refining designs based on the physics they learn. These experiences engage students in the following content from the National Science Education Standards.

## Content Standards

### Unifying Concepts

- Evidence, models and explanations
- Constancy, change, and measurement

### Science as Inquiry

- Identify questions and concepts that guide scientific investigations
- Use technology and mathematics to improve investigations
- Design and conduct scientific investigations

### Science and Technology

- Abilities of technological design
- Identify a problem or design an opportunity
- Propose designs and choose between alternate solutions

### Physical Science

- Structure and properties of matter
- Motions and forces
- Interactions of energy and matter