1. Sound energy travels through the air in waves.
   **FACT** – Sound must have a medium in which to travel. The air molecules transfer the energy by compression waves from one molecule to its neighbor.

2. Sound travels faster in water than in air.
   **FACT** – The particles are closer together in a liquid, than a gas thus the energy is more quickly transferred to its neighboring molecule.

3. Sound can travel in outer space.
   **FAKE** – Sound must have a medium in which to travel.

4. Loud sounds can damage your ear drum.
   **FACT** – Loud sounds can vibrate your ear drum so much that it can rupture your ear drum and can cause damage to your auditory nerves.

5. Refraction happens when a sound wave hits a solid flat surface.
   **FAKE** – When a sound wave hits a solid flat surface, it is reflected.

6. To increase the loudness of a wave, you would increase the pitch.
   **FAKE** – To increase the loudness, you would increase the amplitude.

7. A sound wave is a type of kinetic energy.
   **FACT** – Sound is the transfer of kinetic energy in the form of vibrations from one particle to the next.

8. Sound is produced by vibrating objects.
   **FACT** – If nothing is vibrating, there is no sound.

9. The pitch of a sound on a guitar can be altered by changing the length of a string.
   **FACT** – If you shorten the wavelength, you raise the pitch.

10. Unlike light, sound waves cannot be reflected.
    **FAKE** – A sound reflection is an echo.

11. Sound can travel in all directions from a source.
    **FACT** – You can still hear my voice if you turn around.

12. Loud sounds can alter an ecosystem.
    **FACT** – Predators and prey will not have the same advantages if their hearing is altered by human sounds such as traffic, construction, etc.