

Issue 51

Loud Sounds

With the exception of thunderclaps, most loud sounds are human-made. Many of them damage your hearing permanently in a rather short time.

For example, a jet engine close up, rock concerts, and some stereo headsets at 135 decibels damage your hearing instantly. A big motorcycle with no muffler, or an average chain saw at 110 decibels, takes 10 or 15 minutes to cause damage. A jackhammer or a big power mower at 100 decibels will cause damage in 1 to 2 hours. At 90 decibels a convertible ride along a busy freeway takes 4 hours to do damage. A screaming child can do hearing damage in 8 hours. Alarm clocks and vacuum cleaners around 75 decibels have no time limit. Not surprisingly, by the age of 40 most Americans have lost some hearing in the top two octaves of their hearing range.

In January of 1988, the Denver Broncos played the Cleveland Browns in a play-off game in Denver. The *Rocky Mountain News* reported that a sound level meter read a peak of 112 decibels when Denver recovered a Cleveland fumble. For a news note on a \$27,000 "boom-car" system that topped 150 decibels, see "Shake, Rattle, and Roll" in *Time*, March 6, 1989, p. 52.

When Kent Hrbek hit his grand-slam home run in the sixth game of the 1987 World Series, the sound level inside the Metrodome in Minneapolis reached 120 decibels! ("120 Decibels!" letter from Thomas D. Rossing, *The Physics Teacher*, Dec. 1989, p. 644.)

Even when it is not deafening, noise causes stress and is linked to headaches, ulcers, and high blood pressure. An unborn child responds to sudden loud noises with increased heartbeat or by kicking.

In a New York City classroom adjacent to elevated train tracks, the reading ability of a class of sixth graders was found to be a year behind that of sixth graders on the quiet side of the school building. Reading scores became the same on both sides after remedial steps were taken.

What is noise? How is it different from music? Can music ever be considered noise?

Does your community have noise regulations? If so, how is the noise level measured? What are the penalties for excessive noise? Do you consider them to be reasonable?

Think about this . . . Should our nation's space program include plans to establish an inhabited base on the moon or Mars? Why?

Would you be willing to take a job working on a product (e.g., robots) that you knew would put people out of work? What about working in a gun factory?