Properties of sound

Sound has properties that are similar to light. Like light, sound can be absorbed and reflected. We have seen that sound travels through a medium. Generally speaking, sound waves travel best through solids, better through liquids, and worse through gases. Too much sound can be a problem, however. Exposure to loud and prolonged sound is called noise pollution. The volume of sounds can be ranked according to the amount of decibels they produce. Some workers in the construction field wear ear plugs to prevent damage to their hearing. Extreme loud sounds can even cause pain and break your ear drums. The louder the sounds and the longer you hear them, the more damage they cause. Unfortunately, hearing loss is permanent. Once it is lost, you cannot get it back and you will need to rely on hearing aid devices.

To avoid sound echoing in large auditoriums, architects design the room so that the sound is absorbed, or doesn't allow for echo. Materials with the most small air spaces muffle the sound the best because they absorb sound rather than allowing it to travel.

When we consider how sound is affected by the shape or material, we call that *acoustics*. When we say that a church has good acoustics this means that the sound that comes from the stage projects well to the audience without echoes. Curtains, carpets, panels, and ceiling tiles are all used to create good acoustics but there has to be balance. Too much absorption material used would make it difficult for the audience to hear actors on the stage in a theatre. If no sound absorption materials were used then there could be echoing and noises from the audience would travel and create distractions.