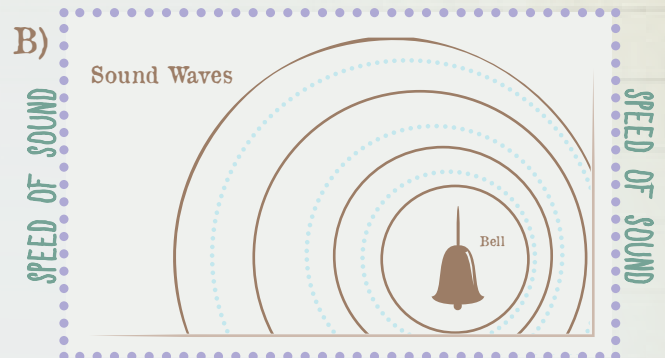


# Speed of Sound

Sound travels at different speeds, depending on how fast the vibrations are passed from particle to particle. Because of this, sound travels at different speeds through different materials.

A)

MATERIAL	SPEED OF SOUND
Rubber	60 meters/second
Air	340 meters/second
Lead	1210 meters/second
Glass	4540 meters/second
Aluminum	6320 meters/second



## THINK ABOUT IT!

(Use chart A for the following questions)

Why does sound travel at different speeds through different materials?

**All materials are made of different particles, and some particles vibrate the sound faster (or slower) than others.**

In chart A, what material does sound move through the fastest? Why do you think this happens?

**Aluminum moves sound fastest, because it is the least dense of the materials on the list. It vibrates sound very quickly.**

## CHALLENGE QUESTION

If a sound wave travels through the air a approximately 750 miles per hour, how many seconds does it take for that sound wave to travel one mile?

*Hint: Speed = Distance ÷ Time*

**First find miles per second. To do that, find the number of seconds in 1 hour.  
 $60 \times 60 = 3,600$  seconds in one hour.**

**Then, calculate how many miles per second it travels  $750 / 3,600 = .21$   
 $\approx .20$  miles per second =  $1/5$  mps**

**The sound wave travels  $1/5$  of a mile per second, so it takes**

**5 seconds to go 1 mile!**

## DID YOU KNOW?

Researchers who looked at results from the 2004 Olympics say sprinters who were closest to the gun took off faster, probably because they perceived the shot faster and louder than their competitors did.