DATE

Enrich

NAME

Decibels

The human ear can detect an extremely wide range of sound levels. To measure the power of sound waves detectable by the human ear, **decibels** (dB) are used. The lowest measurement detectable is called the Threshold of Hearing, or TOH. The TOH is given a measurement of 0 decibels. A sound that is 10×10 times louder is given a measurement of 20 decibels. A sound that is $10 \times 10 \times 10$ times louder than the TOH is given a measurement of 30 decibels.

1. For each of the sounds listed in the table, determine how many times louder than the threshold of hearing it is.

Sound	Decibels	Times as Loud as TOH
Rustling leaves	10 dB	
Whisper	20 dB	
Refrigerator humming	40 dB	
Normal conversation	60 dB	
Busy street traffic	70 dB	
Vacuum cleaner	80 dB	
Subway	90 dB	

- **2.** Explain how you determined the number of times as loud as the TOH each sound is.
- 3. How many times as loud as a whisper is a normal conversation?
- 4. How many times as loud as rustling leaves is a whisper?
- 5. How many times as loud as rustling leaves is a subway?
- 6. How many times as loud as a refrigerator humming is a vacuum cleaner?
- **7.** How many times as loud as a normal conversation is busy street traffic? Explain how you found your answer.