

# Engineering is Out of This World!

## *Acoustical Engineering*



NASA is developing a new rocket called the Space Launch System, or SLS. The SLS will be able to carry astronauts and materials, known as payloads. **Acoustical engineers** are helping to build the SLS.

Sound is a vibration. A vibration is a rapid motion of an object back and forth.

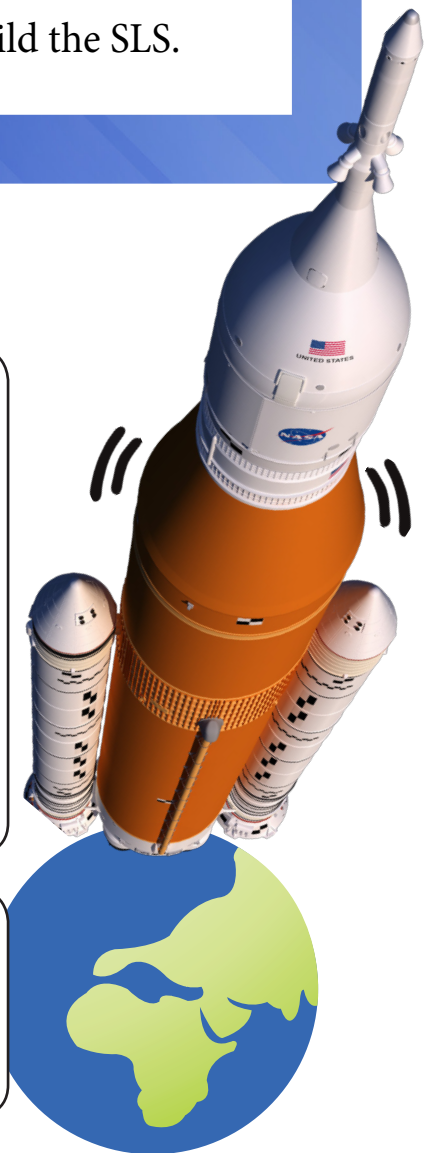
Hold a piece of paper up right in front of your lips. Talk or sing into the paper.

What do you feel? \_\_\_\_\_

What do you think is causing the vibration?  
\_\_\_\_\_



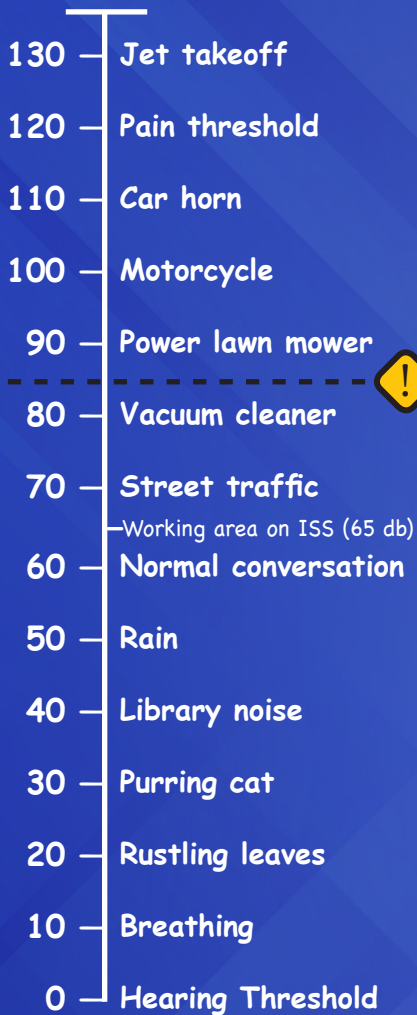
If too much noise, or **acoustical loading**, is caused by air passing over the SLS rocket, the vehicle could be damaged by the vibration!



**NAME:** \_\_\_\_\_

(Continued from front)

## Typical Sound Levels in Decibels (dB)



Hearing protection is recommended at 85 decibels.

Experiment with the paper.

**Does talking louder or softer change the vibration?**

---

**Is the vibration affected by the pitch of your voice? (Hint: Pitch is how deep or high the sound is.)**

---

**Change the angle of the paper. What happens?**

---

**Why do you think NASA hires acoustical engineers? (Hint: Think about how loud rockets are!)**

---

**How do you think the noise on an airplane compares to the noise on a rocket?**

---

NASA is currently researching ways to reduce the noise made by airplanes.

**In what ways does an airplane make noise? (If you haven't flown, think of riding in your family car or standing on a busy street corner.)**

---

---