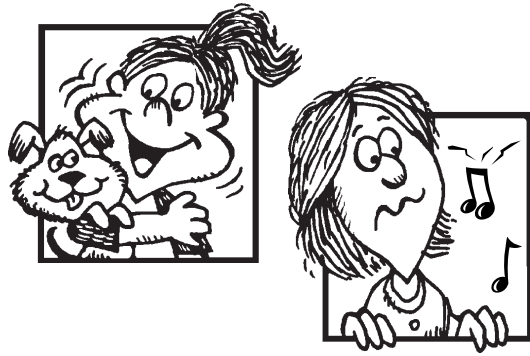


Noise and Your Ears: Worth Hearing About!



How does sound make you feel?
Unscramble these words:

HYAPP _____

DAS _____

GHENREDIFT _____

PSEYLE _____

TLEAR _____

CRATIPOTI _____

LADEXER _____

YONDENA _____

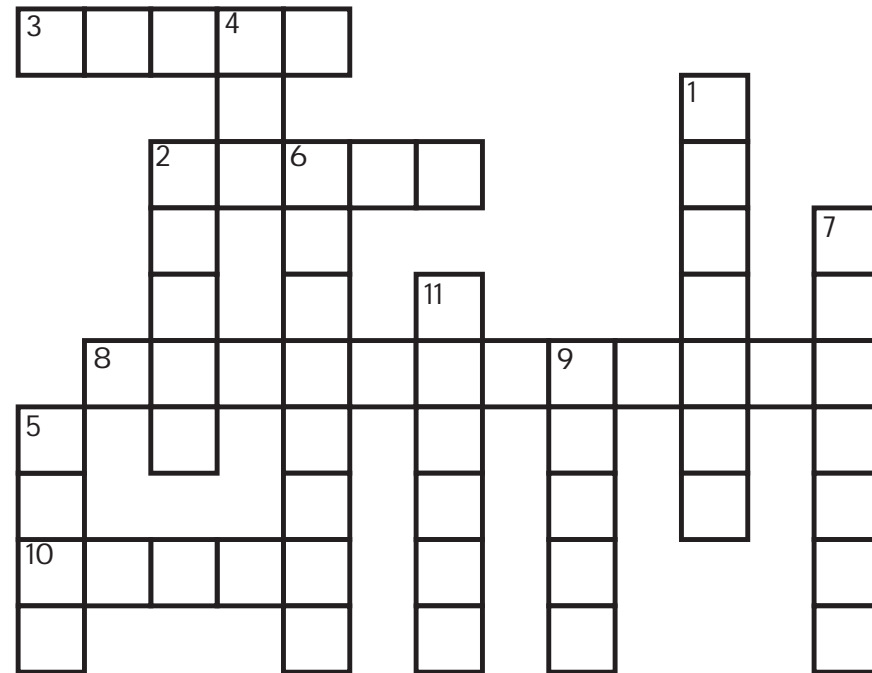
ADM _____

CEDITXE _____

CEGINTERE _____

VITMEDA _____

The Anatomy of Hearing Crossword Puzzle



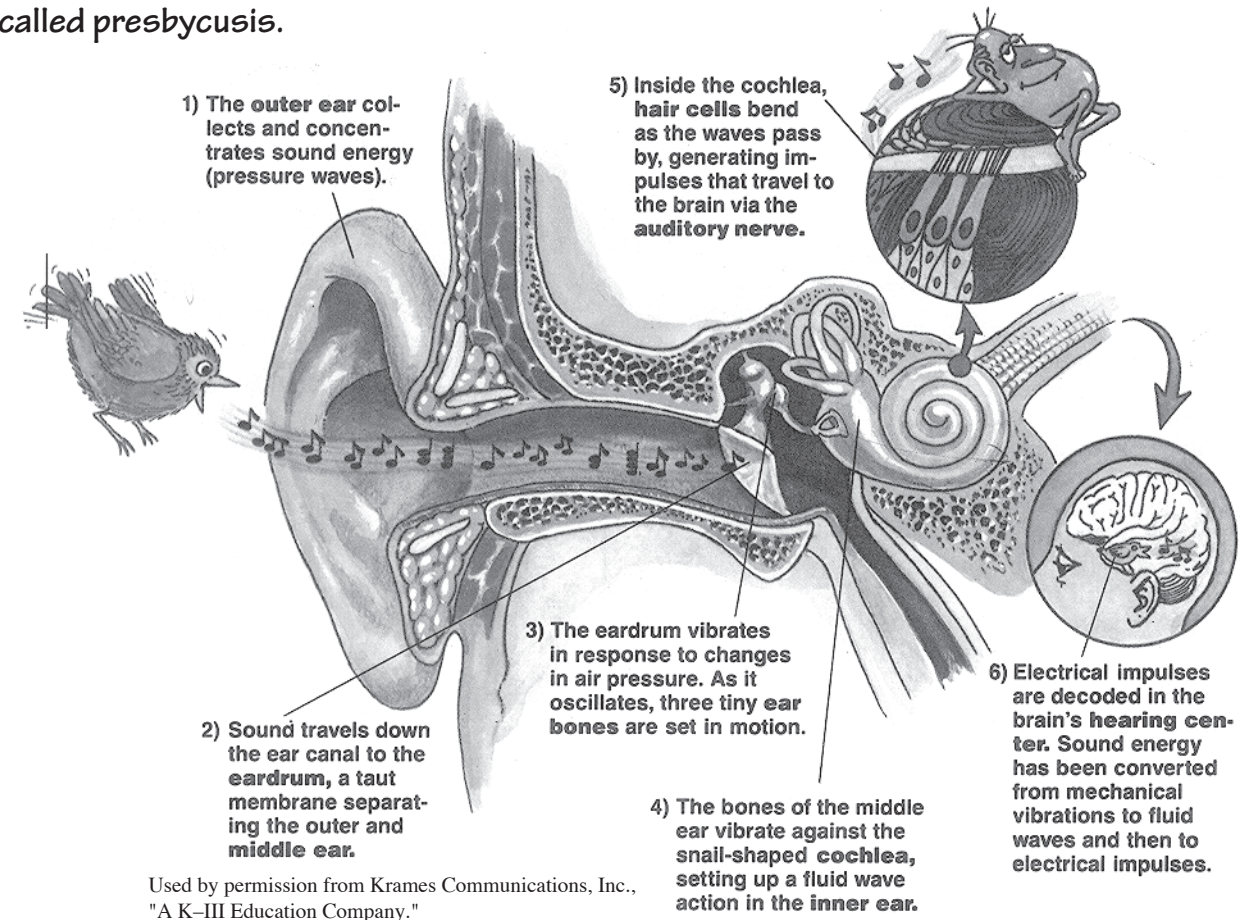
Across

- Electrical impulses are decoded and interpreted as sound in the hearing center of the _____.
- The _____ ear collects and funnels sound to the eardrum.
- The inner ear contains a complex system of fluid-filled channels called _____ canals buried in the temporal bone.
- Hair cells in the _____ ear respond to vibrations by generating electrical nerve impulses.

Down

- The bones of the middle ear vibrate against the snail-shaped _____, setting up a fluid wave action in the inner ear.
- As the eardrum vibrates, three tiny _____ are set in motion.
- The _____ is a complex organ that collects sound energy and changes it into electrical impulses the brain can understand.
- Healthy inner ear _____ cells are the key to good hearing.
- Inside the cochlea, hair cells bend as the waves pass by, generating impulses that travel to the brain via the _____ nerve.
- The _____ is a taut membrane separating the outer and middle ear.
- Sound travels down the ear _____ to the eardrum.
- The _____ ear contains three tiny bones called ossicles.

The outer ear collects sound energy and funnels it into the middle ear where it is transformed into mechanical vibrations. These vibrations, or oscillations, enter the fluid-filled inner ear as undulating waves. It's in the inner ear that thousands of hair cells change the mechanical energy of the waves into electrical impulses that the brain interprets as sound. We start life with a fixed number of hair cells. As we age, they begin to die off naturally, resulting in hearing loss called presbycusis.

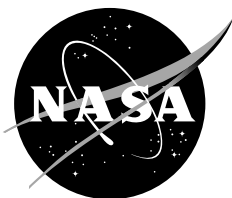


Noise and Hearing

Match these words with their definitions:

- audiogram
- presbycusis
- tinnitus
- decibel
- noise

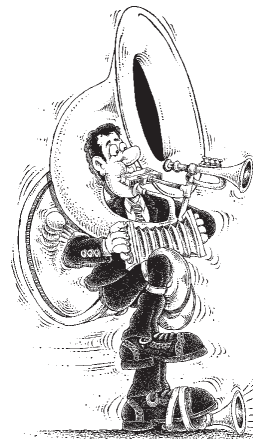
- Unwanted sound
- A chart of your hearing thresholds (measured in decibels) for tones at different frequencies
- Unit of measurement for sound intensity, or loudness
- Hearing loss caused by the natural aging process
- A constant noise (ringing, bugging, or whistling) that originates in the inner ear



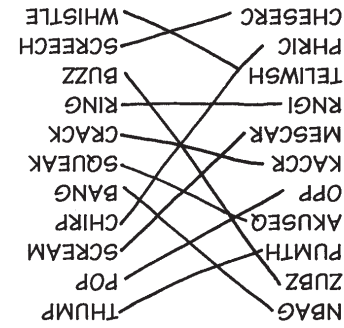
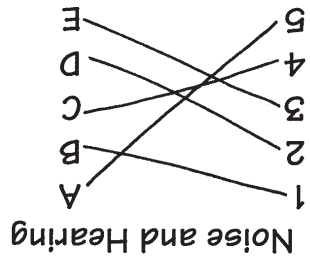
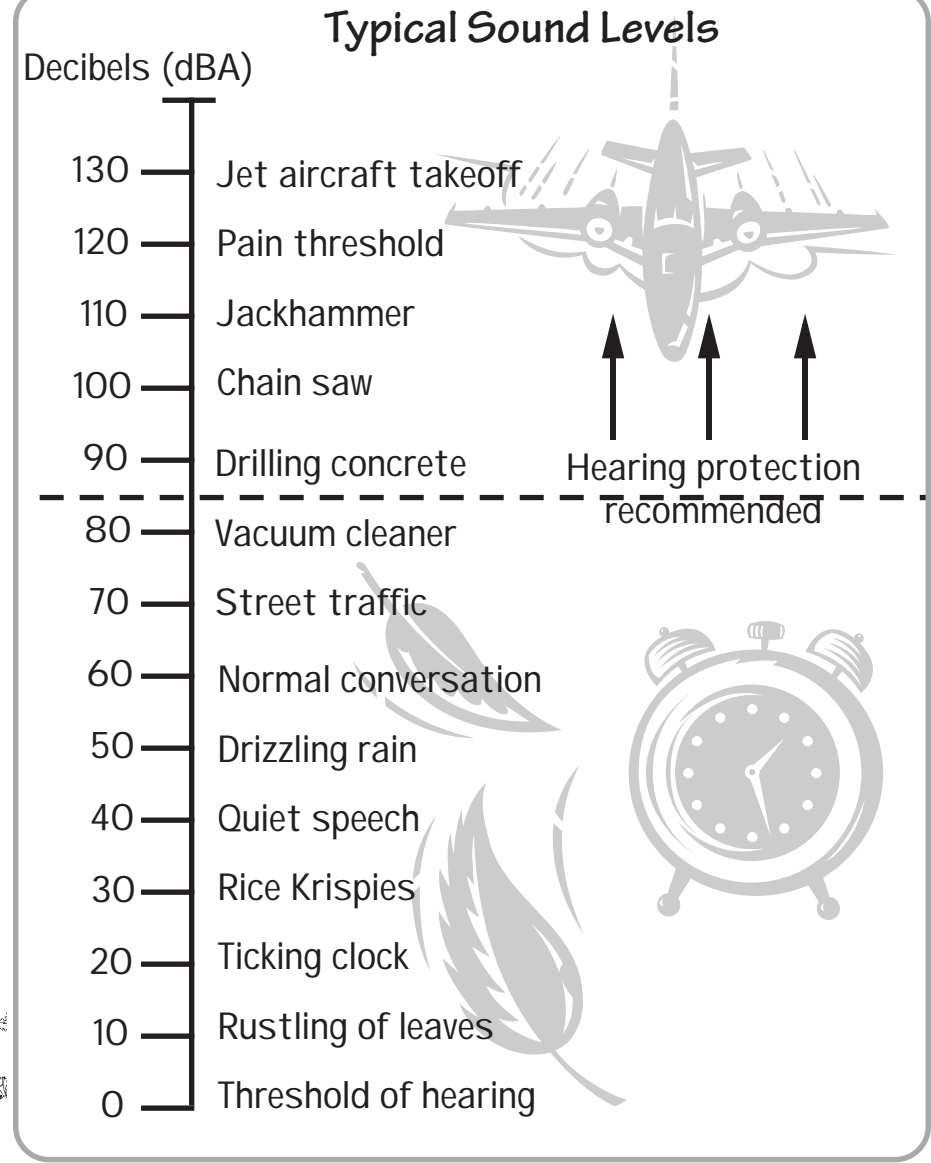
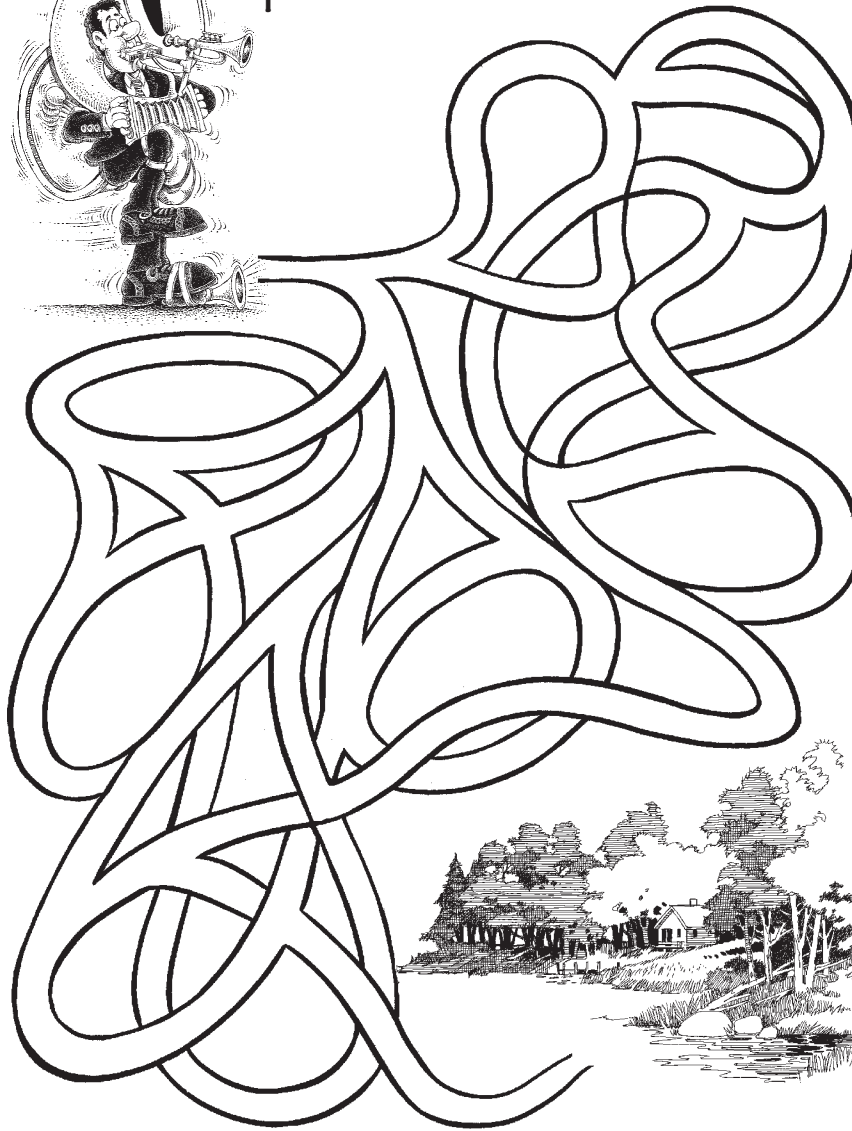
National Aeronautics and
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Acoustical Testing Laboratory
Beth Cooper
216-433-3950
E-mail: Beth.A.Cooper@grc.nasa.gov



Very loud noises can be harmful. Tell an adult if your ears hurt.



Help Joe find a quiet place to rest his ears.



- How does sound make you feel?
- HAPPY
 - SAD
 - FRIGHTENED
 - SLEEPY
 - ALERT
 - PATRIOTIC
 - RELAXED
 - ANNOYED
 - MAD
 - EXCITED
 - ENERGETIC
 - MOTIVATED

Familiar Sources of Noise

Word search grid with words hidden horizontally, vertically, and diagonally.

The Anatomy of Hearing

Word search grid with words hidden horizontally, vertically, and diagonally.

The Sounds of Noise

Match the scrambled sounds.

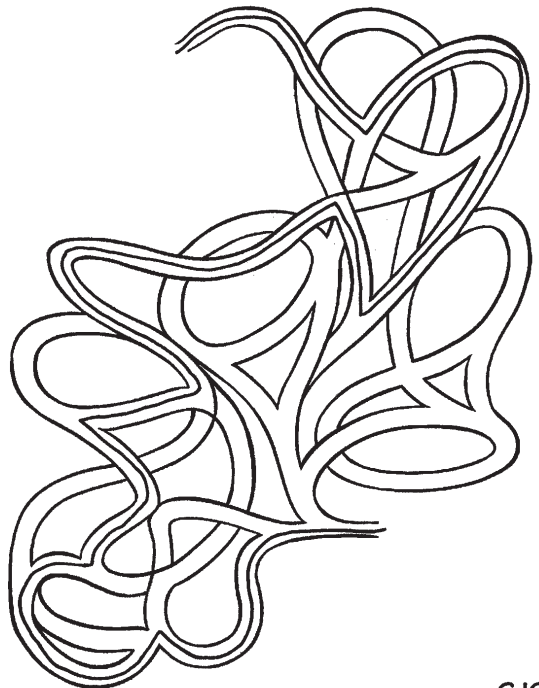
NBAG	THUMP
ZUBZ	POP
PUMTH	SCREAM
AKUSEQ	CHIRP
OPP	BANG
KACCR	SQUEAK
MESCAR	CRACK
RNGI	RING
TELIWSH	BUZZ
PHRIC	SCREECH
CHESERC	WHISTLE

Find and circle the words in the list. Each is hidden horizontally, vertically, or diagonally in a straight unbroken line of letters that read forward or backward.

MUSIC	AIRCRAFT
APPLIANCES	SNOWMOBILE
SIRENS	CAR
ALARMS	HEADPHONES
SAW	GUNSHOT
DRILL	RIFLE
LAWNMOWER	JACKHAMMER

Familiar Sources of Noise Word Search

Word search grid with words hidden horizontally, vertically, and diagonally.



Answers

Layout and design by Kelly Shankland.