EXPLORING SOUND
Pre-test

Name _____

A. Directions: Pick the definition in column B that best matches the word in column A. Write the letter of the definition on the blank line.

A	B
1. echo _____	a. Sounds above the human range of hearing.
2. decibel _____	b. A unit used to measure the loudness of a sound.
3. vacuum _____	c. The emptiness of space.
4. ultrasonic _____	d. Sounds below the human range of hearing.
5. infrasonic _____	e. When a sound bounces off a smooth surface and is heard more than once.
6. reverberation _____	f. The unit used to measure the frequency of a sound.
7. hertz _____	g. Repeated reflections of sound waves against a smooth surface.

B. Directions: The following questions need a short answer.

1. Sound travels at different speeds in different substances. Why does it travel faster in metals than in air?

2. How do bats and dolphins find their food or navigate in darkness?

3. In outer space there is no sound. Why?

EXPLORING SOUND
Program Quiz

Name _____

1. Which travels faster, sound or light?

2. Sound travels at different speeds in different substances. Why does it travel faster in metal than in air?

3. How do animals, like bats and porpoises, use ultrasonic sounds to find their way or to catch food?

4. In outer space, there are no sounds. Why?

5. The hertz is used to measure the frequency of sound. If something is rated at 150 hertz, what does that mean?

6. What is an echo?

7. What are the three primary types of musical instruments?

8. What is a decibel?

Name _____

EXPLORING SOUND
Vocabulary

Directions: Match the term in column A with its definition in column B.

Column A

1. decibel _____
2. compression _____
3. rarefaction _____
4. Doppler effect _____
5. vacuum _____
6. frequency _____
7. hertz _____
8. ultrasonic _____
9. infrasonic _____
10. echo _____
11. interference _____
12. reverberation _____
13. pitch _____
14. rhythm _____
15. oscilloscope _____
16. wavelength _____
17. crest _____
18. trough _____
19. kilohertz _____
20. megahertz _____

Column B

A. A device used to electronically show the crest and trough of sounds.
B. The unit used to measure the frequency of sound.
C. Sounds that are above 20,000 vibrations per second.
D. The emptiness of space.
E. A unit used to measure the loudness of a sound.
F. Repeated reflection of sound waves against a smooth surfaces.
G. When sound bounces off a smooth surface and is heard more than once.
H. F.M. radio stations broadcast at these frequencies.
I. One thousand hertz.
J. Sounds that are below the human range of hearing.
K. The part of a sound wave where molecules are pushed together.
L. How high or low a sound is.
M. The lowest point of a wave.
N. A regular pattern of tones.
O. The change in frequency of a sound due to the source or listener moving.
P. The high point of a wave.
Q. When two sounds come together or overlap.
R. The part of a sound wave where molecules spread out.
S. The number of waves produced in a certain time.
T. The distance between one crest and the next crest or one trough and the next trough.

EXPLORING SOUND
Post Test

Name _____

Directions: Answer the following questions in the space provided.

1. Which is faster light or sound? Give an example that proves your idea.

2. Bats and dolphins use special techniques for locating their food. Describe this process.

3. What are the three primary types of musical instruments?

4. What are decibels?

5. What is an echo?

6. Why are there no sounds in outer space?

7. What is the Doppler effect?

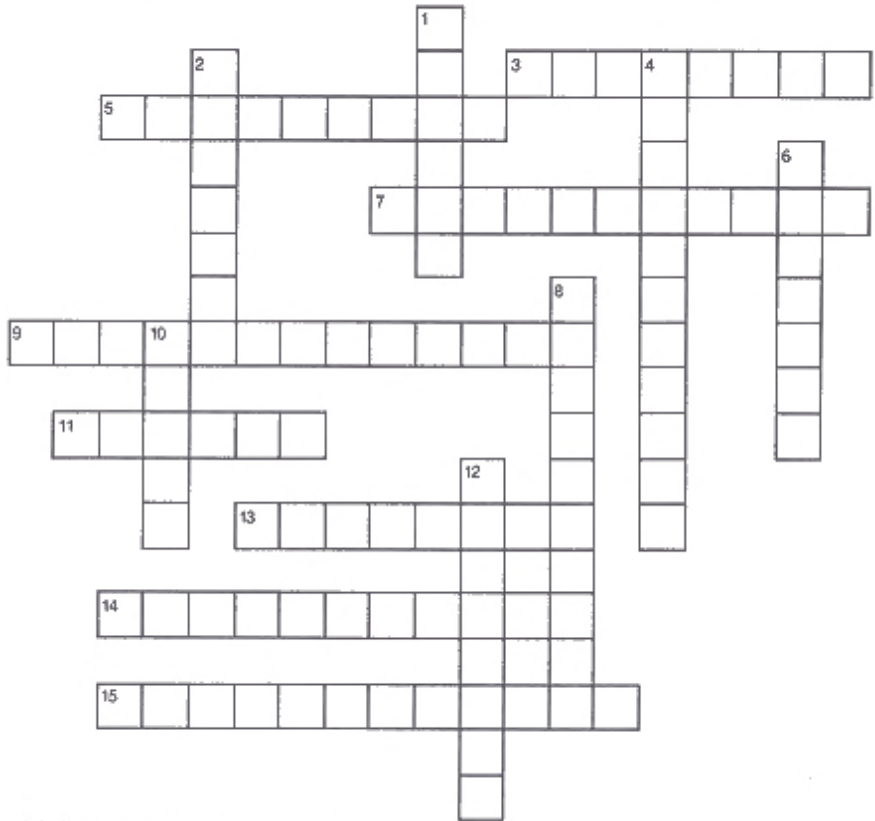
8. What does an oscilloscope do?

9. Sound travels faster in liquids and metals than in air. Why?

10. Radio signals are broadcast at units in kilohertz or megahertz. What does that mean?

SOUND AND MUSIC CROSSWORD

Name _____



Across

3. Has a higher frequency than the fundamental frequency
5. The control of noise and the vibrations that cause noise
7. The lowest frequency in a musical sound
9. Type of wave in which matter vibrates in the same direction that the wave travels
11. Eight notes on the musical scale
13. As the amplitude of sound waves increases, the _____ of the sound increases.
14. Area where sound waves are pushed together
15. The combination of two or more sound waves can cause _____ .

Down

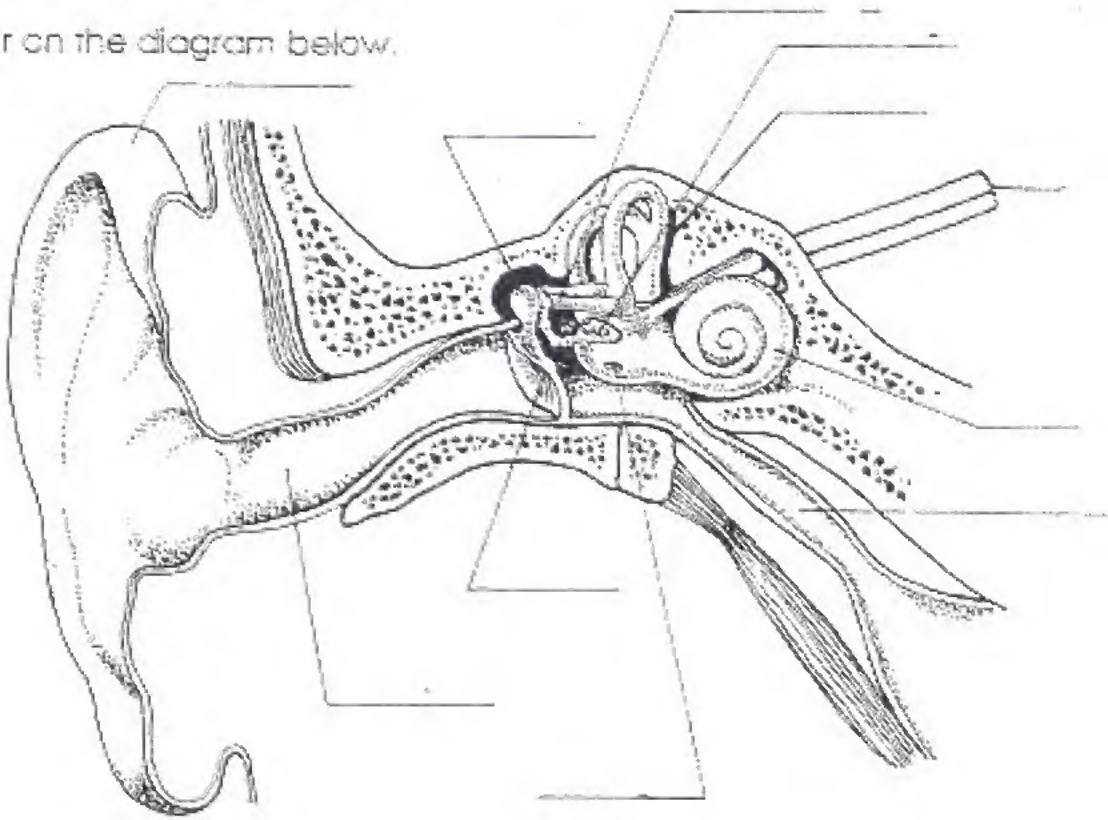
1. Sound does not travel through a _____ .
2. This effect is a change in wave frequency caused by the motion of the source of the wave.
4. Area where sound waves are pushed apart
6. Produced when overtones have frequencies that are whole number multiples of the fundamental
8. Sounds that cannot be heard by human beings
10. This depends on the frequency of the sound waves.
12. The intensity of sounds are measured in units called _____ .

STRUCTURE OF THE HUMAN EAR

Name _____

Label the parts of the ear on the diagram below.

a. auditory canal
b. eardrum
c. hammer
d. anvil
e. semicircular canals
f. cochlea
g. auditory nerve
h. Eustachian tube
i. stirrup
j. earlobe
k. oval window



Fill in the blanks with the correct answers.

Sound waves beat against a large membrane of the outer ear called the eardrum or _____. In the _____ these vibrations are transferred by the three small bones, _____ _____ and _____ _____, which increase the force of the vibration. The _____ presses against the _____ which is smaller than the tympanic membrane. The _____ connects the throat to the middle ear and serve to equalize air pressure. Hearing actually takes place on the other side of the oval window, in the _____. The fluid-filled chamber of the inner ear is called the _____. It accepts the wave motion that then travels through the vestibular and tympanic canals. Where the sound waves beat against the sides of the canals, _____ bend and _____ _____ transmit impulses. The _____ carries this information to the brain where it is interpreted.

The upper part of the inner ear contains three _____. These are positioned at _____ _____ angles to each other and are filled with _____ _____ _____. The semicircular canals help to maintain _____.