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My initials:		
FIRST	MIDDLE	LAST
A	A	A
B	B	B
C	C	C
D	D	D
E	E	E
F	F	F
G	G	G
H	H	H
I	I	I
J	J	J
K	K	K
L	L	L
M	M	M
N	N	N
O	O	O
P	P	P
Q	Q	Q
R	R	R
S	S	S
T	T	T
U	U	U
V	V	V
W	W	W
X	X	X
Y	Y	Y
Z	Z	Z

**I am a:**

Girl

Boy

**I was born in:**

MONTH BORN
<input type="radio"/> January
<input type="radio"/> February
<input type="radio"/> March
<input type="radio"/> April
<input type="radio"/> May
<input type="radio"/> June
<input type="radio"/> July
<input type="radio"/> August
<input type="radio"/> September
<input type="radio"/> October
<input type="radio"/> November
<input type="radio"/> December

**Today the date is:**

MONTH	DAY	YEAR
<input type="radio"/> January		<input type="radio"/> 2010
<input type="radio"/> February		<input type="radio"/> 2011
<input type="radio"/> March	0	<input type="radio"/> 2012
<input type="radio"/> April	1	<input type="radio"/> 2013
<input type="radio"/> May	2	<input type="radio"/> 2014
<input type="radio"/> June	3	<input type="radio"/> 2015
<input type="radio"/> July		<input type="radio"/> 2016
<input type="radio"/> August		<input type="radio"/> 2017
<input type="radio"/> September		<input type="radio"/> 2018
<input type="radio"/> October		<input type="radio"/> 2019
<input type="radio"/> November		<input type="radio"/> 2020
<input type="radio"/> December		

**Marking Instructions**

- Use a No. 2 pencil or a blue or black ink pen only.
- Do not use pens with ink that soaks through the paper.
- Make solid marks that fill the response completely.
- Make no stray marks on this form.

**CORRECT:** ●

**INCORRECT:** ○, ⊗, ⊕, ⊖

For each question, fill in the bubble for the **BEST** answer.

**1. What is sound?**

- A Vibrations
- B A form of energy
- C Something that can travel through any kind of stuff
- D All of the above

**2. The volume of a sound describes:**

- A how loud it is.
- B how long it lasts.
- C how much it echoes.
- D how high-pitched it is.

**3. An acoustical engineer might design:**

- A a computer.
- B a hat with ear flaps.
- C scientific instruments to record animal sounds.
- D an acoustical engineer would not design any of these.

**4. The pitch of a sound is:**

- A how loud the sound is.
- B how high the sound is.
- C how long the sound lasts.
- D all of the above.

**5. Covering your ears with your hands will probably \_\_\_\_\_ sounds.**

- A damp
- B vibrate
- C increase
- D not affect

**6. Acoustical engineers are helping to design a concert hall. What are they MOST likely to work on?**

- A The lights that shine on the stage
- B The musical instruments the musicians play
- C The machines to open and close the curtains
- D The material covering the walls to stop echoes

PLEASE DO NOT WRITE IN THIS AREA



[SERIAL]

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52 Graph A and Graph B show diagrams of two different sounds.

51 Use the diagrams to answer questions 7 to 10.

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48 7. What property of sound do both of these graphs show?

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- (A) Pitch
- (C) Volume

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- (B) Music
- (D) All of the above

43

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41 8. Which sound reaches a higher pitch?

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- (A) The sound shown by Graph A.

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- (B) The sound shown by Graph B.

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- (C) Both sounds reach the same pitch.

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- (D) These graphs do not show pitch.

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9. Which sound reaches the highest volume?

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- (A) The sound shown by Graph A.

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- (B) The sound shown by Graph B.

25

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- (C) Both sounds reach the same volume.

23

22

- (D) These graphs do not show volume.

21

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11. The duration of a sound is:

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17

- (A) how high the sound is.

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- (B) how loud the sound is.

14

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- (C) how long the sound lasts.

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- (D) where the sound comes from.

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12. What can sound travel through?

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- (A) air
- (C) the ground

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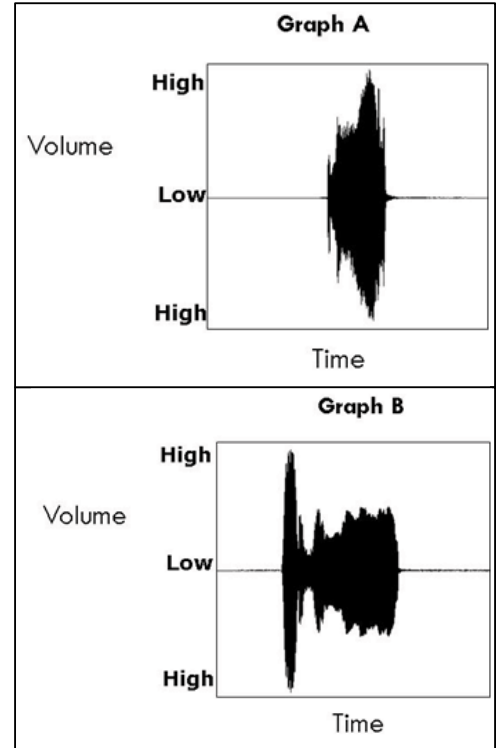
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- (B) walls
- (D) all of the above

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10. Which sound has a higher volume when it starts?

- (A) The sound shown by Graph A.

- (B) The sound shown by Graph B.

- (C) Both sounds start with the same volume.

- (D) These graphs do not show volume.

13. When a sound has a short duration it means that:

- (A) the pitch of the sound is low.

- (B) the sound does not last long.

- (C) the sound does not have much energy.

- (D) the vibrations making the sound are fast.

14. What does it mean when a sound has a high volume?

- (A) The sound has a pitch.

- (C) The sound has lots of energy.

- (B) The sound lasts a long time.

- (D) All of the above.

15. The picture shows a guitar. How could you make one of the strings on the guitar have a higher pitch?

- (A) Loosen the string
- (B) Tighten the string.
- (C) Play the guitar louder.
- (D) Replace it with a thicker string.



16. What happens when you make a string on the guitar have a higher pitch?

- (A) The string gets longer.
- (B) The string gets louder.
- (C) The string vibrates faster.
- (D) The string vibrates more slowly.

17. Which string on the guitar will have the lowest pitch?

- (A) The thickest string
- (B) The thinnest string
- (C) The shortest string
- (D) The most stretched string

18. A student is playing a violin. She plays a note that lasts 5 seconds. She then plays the same note for 2 seconds. What is different about the two notes?

- (A) Pitch
- (B) Volume
- (C) Duration
- (D) The notes are the same



19. A tuning fork makes a loud sound if you strike it against a table. What could you do to make the sound quieter?

- (A) Put the tuning fork into water.
- (B) Wrap the tuning fork with cloth.
- (C) Put clay on the ends of the tuning fork.
- (D) All of the above.

20. If you hear a very loud sound outside, can you completely stop the sound from coming into your house?

- (A) Yes, by playing music very loudly.
- (B) Yes, by closing all windows and doors very tightly.
- (C) No, you can only make the sound quieter.
- (D) No, the sound will find a crack where the air comes in.

21. Which of the following is a way to damp sounds from a radio?

- (A) Put the radio under a blanket
- (B) Turn down the volume control
- (C) Cover your ears with your hands
- (D) All of the above

22. How are higher-pitched sounds different from lower-pitched sounds? Higher-pitched sounds:

- (A) are louder.
- (B) last for a longer time.
- (C) are made by faster vibrations.
- (D) all of the above.

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A scientist is studying bird songs.

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Observers sent him these four graphs.

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Use the graphs to answer questions 23 to 26.

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23. Which of these graphs show a pitch decreasing at least once?

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- (A) Graphs A and D
- (C) All of the graphs

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- (B) Graphs A, B, and D
- (D) None of the graphs

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24. Which of these graphs could represent the same bird song?

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- (A) Graphs A and B
- (C) Graphs A and D

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- (B) Graphs B and C
- (D) None of the graphs

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25. Which graph shows a sound where the beginning pitch is higher than the ending pitch?

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- (A) Graph A
- (C) Graph C

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- (B) Graph B
- (D) Graph D

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26. Which graph shows a sound where the beginning pitch is lower than the ending pitch?

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- (A) Graph A
- (C) Graph C

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- (B) Graph B
- (D) Graph D

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27. A man is designing a system to represent whale sounds. What are some things he should think about?

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- (A) What properties of the whale sounds are important to represent.

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- (B) What kinds of systems other people have designed to represent sounds.

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- (C) How to make the system for representing sounds easy for others to understand.

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- (D) All of the above.

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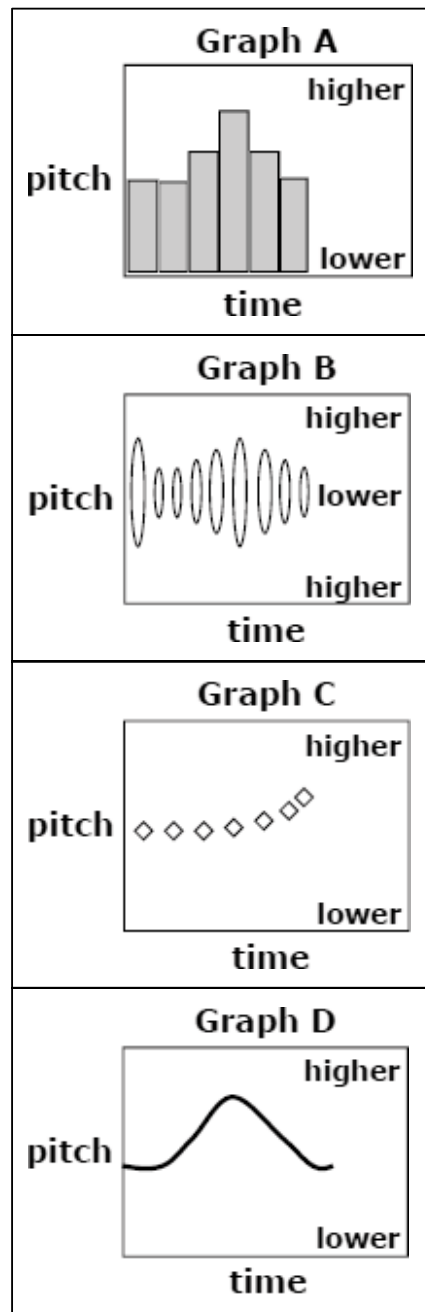
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