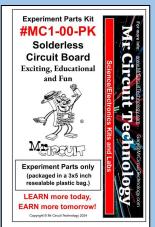
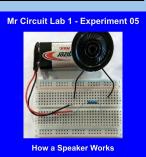
Exciting, Educational and Fun



"HOW A SPEAKER WORKS"





LESSON PLAN

Table of Contents

Page 01 - Explanation of the Experiment

Page 02 - Purpose of the Experiment and Parts Needed

Page 03 - Do the Experiment (part 1 of 3)

Page 04 - Do the Experiment (part 2 of 3)

Page 05 - Do the Experiment (part 3 of 3)

Page 06 - Crossword Puzzle

Page 07 - Word Search Puzzle

Page 08 - Written 10-Question Multiple Choice Quiz

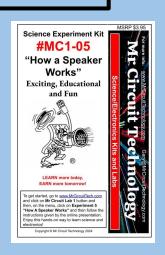
Page 09 - Answers to Crossword

Page 10- Answers to Word Search

Page 11 - Answer Key to Written Quiz

Page 12 - Poster to put up on classroom wall

Page 13 - Price List for Parts Kits for your to order more. Send Purchase Order to Gary@MrCircuitTechnology.com or order online at www.MrCircuitTechnology.com





PREPARATION: You can put the Page 12 poster up on your classroom wall to announce the fact that you are going to do the Science-Electronics Experiment.

Step 1 - Make a copy of pages 1 through 8 for each student. The students can read and do these pages on their own or you can guide them.

Step 2 - Hand out Parts Kit #MC1-00-PK (that has the Solderless Circuit Board) and Parts Kit #MC1-05-PK (that has the experiment parts) with a 9-Volt battery. Give these items to each student along with the 8 pages.

Step 3 - When your students have completed the experiment, collect all the Parts Kits and batteries for later use.

Step 4 - Collect all the Written Quizzes for grading and use the Answer Key to grade them.

For Tech Support or any questions, you can email us or call 805-295-1642



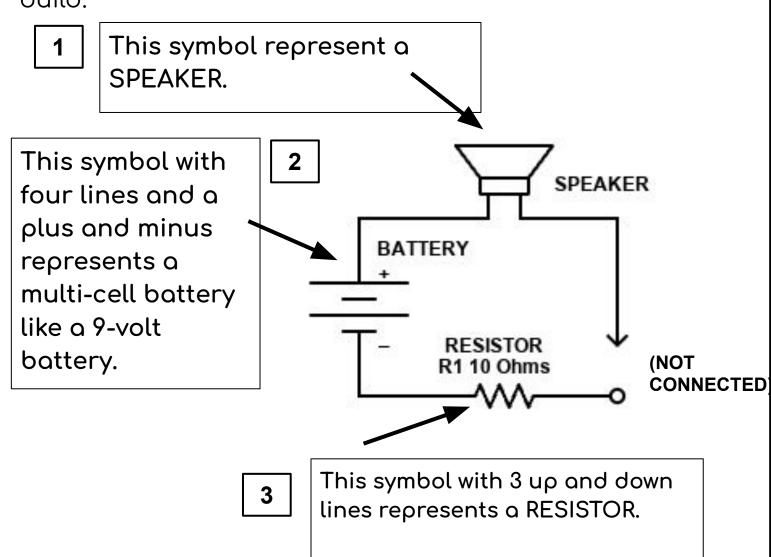
How A SPEAKER Works (Page 1)

EXPLANATION OF EXPERIMENT

MC1-05-R-1

*** You are going to build a circuit to observe a SPEAKER transforming electrical energy into sound..

Here is the **SCHEMATIC DIAGRAM** of the circuit you will build.



The electron current in this circuit flows out of the negative side of the battery to the RESISTOR then through the SPEAKER back to the positive side of the battery.

(Continue to Page 2)



How a SPEAKER Works (Page 2)

PURPOSE OF THIS EXPERIMENT

MC1-05-R-2

*** To observe a SPEAKER converting electrical energy into sound.

PARTS NEEDED FOR EXPERIMENT

In this experiment, you will use

A speaker has a magnet and a coil of wire inside of it. The coil moves the speaker cone when electric current flows through the coil.





a BATTERY SNAP

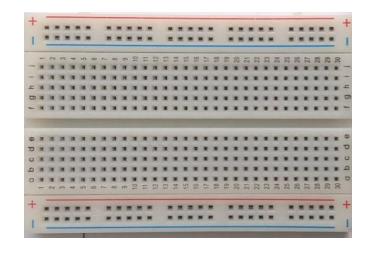


10 Ohms

a RESISTOR



and a SOLDERLESS CIRCUIT BOARD.





You will also need a good 9 Volt battery

(Continue to Page 3)



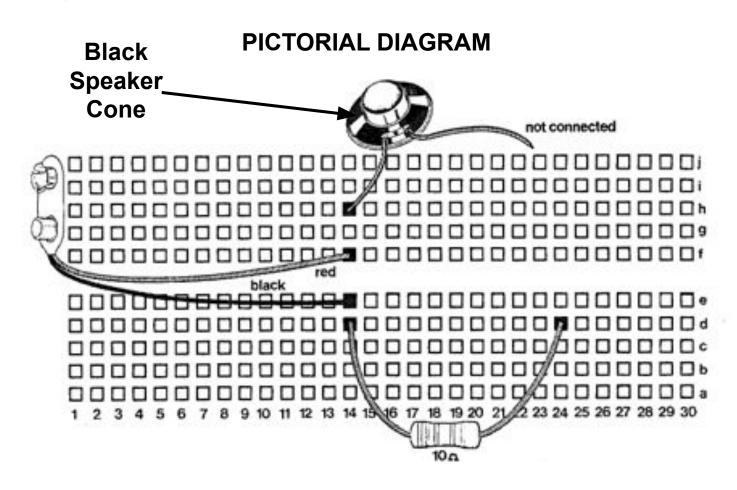
How a SPEAKER Works (Page 3)

DO THE EXPERIMENT (part 1 of 3)

MC1-05-R-3

*** You are going to build a circuit to demonstrate a SPEAKER converting electrical energy into sound..

Step 1 - Take out a **Battery Snap** and install it with its Red lead in hole **14f** and its Black lead in hole **14e** as shown in the pictorial diagram.



Step 2 - Install the SPEAKER with one lead into hole **14h** and leave the other lead loose.

Step 3 - Install a 10 Ohm resistor (color bands Brown, Black, Black, Gold) as shown on the pictorial into holes **14d** and **24d**. (This resistor protects the SPEAKER from too much current. (Continue to Page 4)



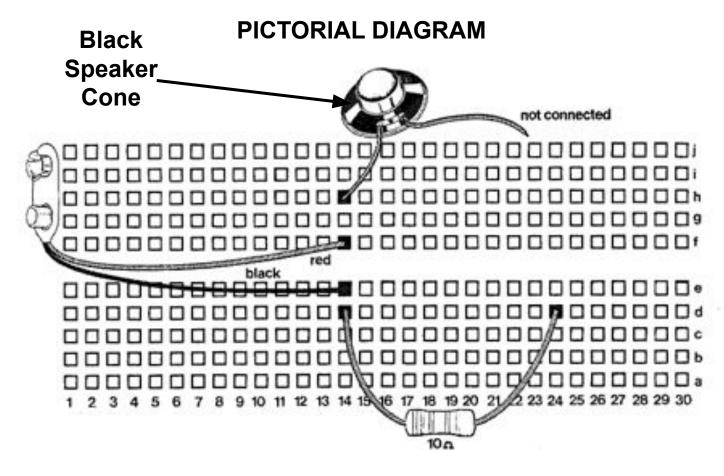
How a SPEAKER Works (Page 4)

DO THE EXPERIMENT (part 2 of 3)

MC1-05-R-4

Step 4 - Connect the Battery to the Battery Snap. You should **NOT** hear any sound from the SPEAKER.

Step 5 - Now touch the loose lead to the lead of the 10 Ohm resistor that is in hole 24d. You should hear one click sound as you make the connection and one click sound as you disconnect the lead again.



Note: The reason your hear a sound is because current flowing through the coil of wire inside the SPEAKER causes the speaker cone to move which causes the air to move. Each time the speaker cone moves, you hear a click.

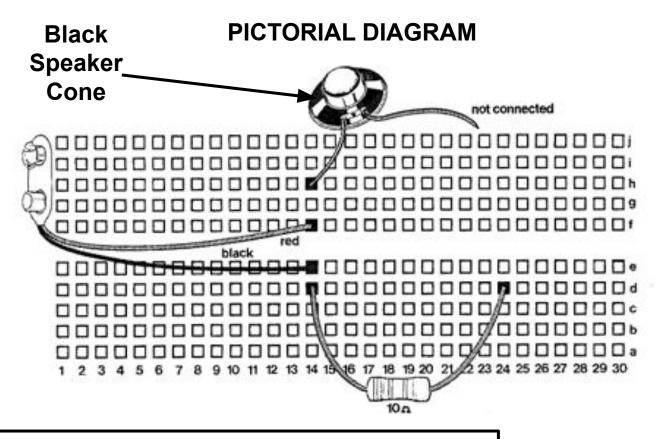
(Continue to Page 5)



How a SPEAKER Works (Page 5)

DO THE EXPERIMENT (part 3 of 3)

MC1-05-R-5



CONCLUSION

*** You should have observed that a SPEAKER is an electronic device that makes a sound when the cone moves. When the cone stops moving, the sound stops.

To make the SPEAKER cone move, electric current has to flow through the SPEAKER coil. If the current is turned on and off, the SPEAKER will make a click each time the cone moves.

If you reverse the battery leads, the SPEAKER will still make a click but the cone just moves in the opposite direction. If the SPEAKER is connected to an AC current like music, the SPEAKER will emit a musical sound..

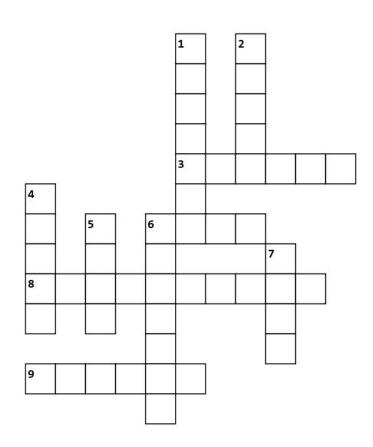
(End of Experiment 5)



CROSSWORD

(Page 6)

Experiment 5 - "How a SPEAKER Works"



Across

3. A SPEAKER converts ele	ectrical into sound.
6. If you leave the battery SPEAKER, the sound will _	
8. When a comes from the SPEAKER.	_ is made, a sound
9. A SPEAKER has a coil of	f wire and a inside of it.

Down

The 10 Ohm RESISTOR is in the circuit to _____ the SPEAKER from too much current.
 If we leave the battery connected, the SPEAKER will product a steady tone. True or False
 When you touch the SPEAKER wire to the resistor, you hear a ______.
 What part of the SPEAKER moves when current flows through it?
 What electronic device converts electrical energy into sound?

7. Inside a SPEAKER there is a wire

current.

WORD SEARCH

(Page 7)

Experiment 5 - "How a SPEAKER Works"

N E E U D V X E Z S P E A K E R P U D L Z J P O E Y V O T B J E R R B E B R Z B M P G B U B W L Z B Q G O N N F W O J V A Z X T V R R I F M N V V E I X T Y Y C G C E R M J S O N Q E V W S H V C U C T P F T W B T Y C A D U Z Z I I Z E M D G O E A W G Z C V W X S K B L O V N N B N T R T I H K F M G L H B R Z Q R N W Y O S D T Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F P N S Y O V V I R E A L H C O B X E I X C V C U C T P F T W B F Y R P D W I Y O G W G U C A X E C V C X G Y U F R P N S Y O V V I R E A L H C O B X E I X C V C X G Y U F R P N S Y O V V I R E A L H C O B X E I X C V C X G Y U F R P N S Y O V V I R E A L H C O B X E I X C V C X G Y U F R P N S Y O V V I R E A L H C O B X E I X C V C X G Y U F R P N S Y O V V I R E A L H C O B X E I X C Y C Y C Y C Y C Y C Y C Y C Y C Y C																				
P G B U B W L Z B Q G O N N F W O J V A Z X T V R R I Y N U T A Q O H I T S V G O R L B L N A O T I E H T I W B E Y X N V E X H I F M N V V E I X T Y Y C G C E R M J S O N Q E V W S H V C U C T P F T W B T Y C A D U Z Z I I Z E M D G O E A W G Z C V W X S K B L O V N N B N T R T I H K F M G L H B R Z Q R N W Y O S D T Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 6. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound.	N	Ε	Ε	U	D	Y	Χ	Ε	Ζ	S	Р	Ε	A	K	Ε	R	Р	U	D	L
Z X T V R R I Y N U T A Q O H I T S V G O R L B L N A O T I E H T I W B E Y X N V E X H I F M N V V E I X T Y Y C G C E R M J S O N Q E V W S H V C U C T P F T W B T Y C A D U Z Z I I Z E M D G O E A W G Z C V W X S K B L O V N N B N T R T I H K F M G L H B R Z Q R N W Y O S D T Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 6. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound.	Ζ	J	Р	0	Ε	Y	0	Τ	В	J	Ε	R	R	В	Ε	В	R	Ζ	В	M
O R L B L N A O T I E H T I W B E Y X N V E X H I F M N V V E I X T Y Y C G C E R M J S O N Q E V W S H V C U C T P F T W B T Y C A D U Z Z I I Z E M D G O E A W G Z C V W X S K B L O V N N B N T R T I H K F M G L H B R Z Q R N W Y O S D T Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 5. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound.	Р	G	В	U	В	M	L	Ζ	В	Q	G	Ο	N	N	F	M	0	J	\bigvee	A
V E X H I F M N V V E I X T Y Y C G C E R M J S O N Q E V W S H V C U C T P F T W B T Y C A D U Z Z I I Z E M D G O E A W G Z C V W X S K B L O V N N B N T R T I H K F M G L H B R Z Q R N W Y O S D T Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 5. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound.	Ζ	Χ	Τ	\bigvee	R	R	Ι	Y	N	U	Τ	A	Q	0	Н	Ι	Τ	S	\bigvee	G
R M J S O N Q E V W S H V C U C T P F T W B T Y C A D U Z Z I I Z E M D G O E A W G Z C V W X S K B L O V N N B N T R T I H K F M G L H B R Z Q R N W Y O S D T Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 5. When you touch the SPEAKER wire to the resistor, you hear a 6. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound.	0	R	L	В	L	N	A	0	Τ	Ι	Ε	Н	Τ	Ι	M	В	Ε	Y	X	N
W B T Y C A D U Z Z I I Z E M D G O E A W G Z C V W X S K B L O V N N B N T R T I H K F M G L H B R Z Q R N W Y O S D T Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 6. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound.	V	Ε	X	Н	Ι	F	M	N	V	V	Ε	Ι	X	Τ	Y	Y	C	G	C	Ε
W G Z C V W X S K B L O V N N B N T R T I H K F M G L H B R Z Q R N W Y O S D T Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 5. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound.	R	M	J	S	0	N	Q	Ε	V	M	S	Н	\bigvee	C	U	C	Τ	Р	F	Τ
I H K F M G L H B R Z Q R N W Y O S D T Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 5. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound. 8. If we leave the battery connected, the SPEAKER will product a steady tone. True or	M	В	Τ	Y	C	A	D	U	Ζ	Z	Ι	Ι	Z	Ε	M	D	G	O	Ε	A
Q M H F B T A V F S J U N O W D F Y O J E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 5. When you touch the SPEAKER wire to the resistor, you hear a 6. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound. 8. If we leave the battery connected, the SPEAKER will product a steady tone. True or	M	G	Ζ	C	V	M	X	S	K	В	L	0	\bigvee	N	N	В	N	Τ	R	Τ
E Y R P D W I Y O G W G U C A X E C V C X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 6. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound. 8. If we leave the battery connected, the SPEAKER will product a steady tone. True or	Ι	Н	K	F	M	G	L	Н	В	R	Z	Q	R	N	M	Y	0	S	D	Τ
X G Y U F O O Z C H E O L J E B Q L E Z I R C Z H G J P L A F R G E S D P H O D K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 5. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound. 8. If we leave the battery connected, the SPEAKER will product a steady tone. True or	Q	М	Н	F	В	Τ	A	V	F	S	J	U	N	0	M	D	F	Y	0	J
IRCZHGJPLAFRGESDPHOD KEFPNSYOVVIREALLHCOBX ENUVOBXMLVZRQVAHLSQS UEWHNSALTCTENHFZIUXO EHSMULUTGGVNZHPKCHFT VJZIVBPRLMDOWEZKKFPU YMKQTBGXEJMCEICH 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 6. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound. 8. If we leave the battery connected, the SPEAKER will product a steady tone. True or	E	Y	R	Р	D	M	Ι					G	U	C	A	X	Ε	C	V	
K E F P N S Y O V V I R E A L H C O B X E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 5. When you touch the SPEAKER wire to the resistor, you hear a 6. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound. 8. If we leave the battery connected, the SPEAKER will product a steady tone. True or	X	G	Y	U	F	0	O	Ζ	С	Н	Ε	O	L	J	Ε	В	Q	L	Ε	Z
E N U V O B X M L V Z R Q V A H L S Q S U E W H N S A L T C T E N H F Z I U X O E H S M U L U T G G V N Z H P K C H F T V J Z I V B P R L M D O W E Z K K F P U Y M K Q T B G X E J M C E I C H I L A Q 1. What electronic device converts electrical energy into sound? 2. Inside a SPEAKER there is a wire 3. What part of the SPEAKER moves when current flows through it? 4. If you leave the battery connected to the SPEAKER, the sound will 5. When you touch the SPEAKER wire to the resistor, you hear a 6. When a is made, a sound comes from the SPEAKER. 7. A SPEAKER converts electrical into sound. 8. If we leave the battery connected, the SPEAKER will product a steady tone. True or	I	R	С	Ζ	Н	G	J					R	G	Ε	S	D	Р	Н	0	D
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3. If we leave the battery connected, the SPEAKER will product a steady tone. True or	6 . W	/hen	a _					isı	mac	le, a	so	und	cor	nes	fro	n th	ie S	PE	٩KE	R.
3. If we leave the battery connected, the SPEAKER will product a steady tone. True or	7. A S	SPE/	λKΕ	Rc	onv	erts	ele	ctric	cal_									into	sol	ınd.
	9 . A SI	PEA	KEF	R ha	ıs a	coil	of v	vire	and	da			<i>*</i>				7.0	ins	side	of it.

10. The 10 Ohm RESISTOR is in the circuit to ______ the SPEAKER from too much



QUIZ for Exp 05 or STEM KIT #05 in the Mr Circuit Electronics Training Lab 1

(Page 8)

This Quiz covers the training learned by completing

"How a Speaker Works" Experiment 5



	Circle the letter for your answer to each questi	ion and then hand this quiz in to your teacher.	
A	#1 What would happen in this circuit if you	#6 What is the name of the part we learn about	A
	reverse the polarity of the battery snap?	in Exp. #5?	
В	A. the speaker will burn out	A. a speaker	В
С	B. it will not work at all	B. a capacitor	С
_	C. the speaker will whistle	C. a resistor	
D	D. it will work just fine	D. a photocell	D
Α	#2 What do you think the purpose of the 10	#7 What is the function of the part we learn	Α
	Ohm resistor is in this circuit?	about in Exp. #5?	
В	A. to increase the amount of current	A. reduce the amount of current flow	В
С	B. to reduce the amount of current	B. to store electrons and protons	C
_	C. to increase the capacitance	c. transform electrical energy to sound waves	
D	D. to decrease the inductance	D. to look nice in a circuit	D
۸	#3 When you reverse the polarity of the battery	#8 What part of a Speaker moves when current	_
Α	snap in this circuit, it affects the of	flows through it?	A
В	the speaker.		В
0	A. cone	A. the bracketB. the magnet	
С	B. magnet C. volume	C. the handle	C
D	D. sound quality	D. the cone	D
			1
Α	#4 Why does the sound stop when you leave the battery connected?	#9 What sound comes out of a speaker when a steady DC current is connected to its coil?	A
В			В
•	A. the magnet gets weak	A. it makes a steady tone	
С	B. the speaker burns outC. the cone stops moving	B. it makes a click and then becomes silentC. it plays music	C
D	D. the current increases	D. it sounds like a siren	D
			- 1
Α	#5 Why does the speaker make a 'click' when	#10 What kind of device is a Speaker?	Α
D	you connect and when you disconnect the battery?		_D
В	A. the cone moves each time	A. rectifying device	В
С	B. the speaker is alive	B. electromechanical device	С
	C. the magnet is weak	C. photoelectric device	

(Form SQ05)

D. semiconductor device

D. the speaker is round

D

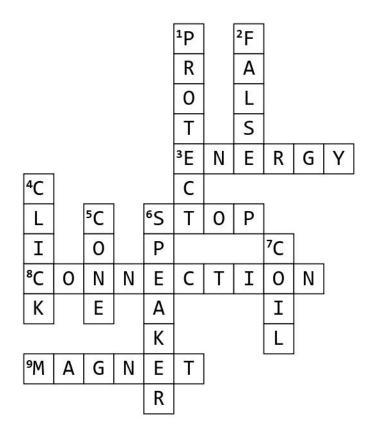
Score

D



ANSWERS FOR CROSSWORD

Experiment 5 - "How a SPEAKER Works"



Across

3. A SPEAKER converts ele	ectrical into sound.
6. If you leave the battery SPEAKER, the sound will _	
8. When a comes from the SPEAKER.	_ is made, a sound
9. A SPEAKER has a coil of	f wire and a inside of it.

Down

- 1. The 10 Ohm RESISTOR is in the circuit to the SPEAKER from too much current.
- **2.** If we leave the battery connected, the SPEAKER will product a steady tone. True or False
- **4.** When you touch the SPEAKER wire to the resistor, you hear a ______ .
- **5.** What part of the SPEAKER moves when current flows through it?
- **6.** What electronic device converts electrical energy into sound?
- 7. Inside a SPEAKER there is a wire



current.

ANSWERS FOR WORD SEARCH

Experiment 5 - "How a SPEAKER Works"

N Z P Z	E J G X	E P B T	U O U V	D E B R	Y Y W R	X O L I	E T Z Y	Z B B N	S J Q U	P E G T	E R O A	A R N Q	K B N O	E E F H	R) B W I	P R O T	U Z J S	D B V V	L M A G	
O V R W W I Q	R E M B G H M	L X J T Z K	B H S Y C F	L I O C V M B	N F N A W G	A M Q D X L A	O N E U S H V	T V Z K B	V W Z B R	E E S I L Z J	H I H I O Q U	T X V Z V R	T C E N O	W Y U M N W	B Y C D B Y	E C T G N O F	Y G P O T S Y	X C F E R D	N E T A T T	
E X I K E U E V Y	Y G R E N E H J	R Y C F U W S Z K	P U Z P V H M I	D F H O N U V	WOGSBSLBBB	I O J Y X A U P G	Y Z P O M L T R	O C L V L T G L		D	G O R R R E N O C	U L G E Q N Z W E	E A V	A E S L A F P Z C	X B D H Z K K	E Q P C L I C K I	C H O S U H F L	V E O B Q X F P A	C Z D X S O T U Q	
3.	 What electronic device converts electrical energy into sound? Inside a SPEAKER there is a wire What part of the SPEAKER moves when current flows through it? 																			
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(Page 11)

D

QUICK-CHECK ANSWER KEY for Experiment 05 QUIZ for Mr Circuit Electronics Training ("How a Speaker Works")

Place this sheet over top of the STUDENT QUIZ (offset a little to the left and then offset to the right) to compare the answers on this sheet to the answers that the student marked. Put an 'X' for each wrong answer.

marl	ked. Put an 'X' for each wrong answer. Count the right answers and record the so	convert y marker and selective & As Gabon Includes good by you Corru STEM Automotive HVAC Electronics	
A B	#1 What would happen in this circuit if you reverse the polarity of the battery snap?	#6 What is the name of the part we learn about in Exp. #5?	AB
C	A. the speaker will burn out	A. a speaker	
C	B. it will not work at all	B. a capacitorC. a resistor	C
(D)	C. the speaker will whistleD. it will work just fine	D. a photocell	D
^	#2 What do you think the purpose of the 10	#7 What is the function of the part we leave] ^
A	#2 What do you think the purpose of the 10 Ohm resistor is in this circuit?	#7 What is the function of the part we learn about in Exp. #5?	A B
$\left(B\right)$	A. to increase the amount of current	A. reduce the amount of current flow	
С	B. to reduce the amount of current	B. to store electrons and protons	(c)
_	C. to increase the capacitance	C. transform electrical energy to sound waves	
D	D. to decrease the inductance	D. to look nice in a circuit	D
AB	#3 When you reverse the polarity of the battery snap in this circuit, it affects the of the speaker.	#8 What part of a Speaker moves when current flows through it?	A B
	A. cone	A. the bracket	
С	B. magnet	B. the magnet	C
D	C. volume	C. the handle D. the cone	(D)
ט	D. sound quality	D. THE COHE	
Α	#4 Why does the sound stop when you leave	#9 What sound comes out of a speaker when a	Α
В	the battery connected?	steady DC current is connected to its coil?	$ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
<u>ر</u>	A. the magnet gets weak	A. it makes a steady tone	
(C)	B. the speaker burns out	B. it makes a click and then becomes silent	C
\searrow	C. the cone stops moving	C. it plays music	<u>_</u>
D	D. the current increases	D. it sounds like a siren	D
AB	#5 Why does the speaker make a 'click' when you connect and when you disconnect the battery?	#10 What kind of device is a Speaker?	A B
	A. the cone moves each time	A. rectifying device	$ \bigvee $
С	B. the speaker is alive	B. electromechanical device	
_	C. the magnet is weak	C. photoelectric device	

D. semiconductor device

D

D. the speaker is round

BUILD A BETTER FUTURE by UNDERSTANDING SCIENCE-ELECTRONICS

SPEAKERS CONVERT ELECTRICAL ENERGY INTO SOUND



BASIC ELECTRONICS LAB 1

"HOW A SPEAKER WORKS"

(Poster MC1-05-P01)

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