

Audio Engineering Worksheet **Answers**

Part 1: Make a Musical Image

1. Listen to the song. Try to decide on which side the instruments are located.
2. Listen to the left side of song and write down the instruments you hear.
3. Listen to the right side and write down what you hear.

Tip: You may hear an instrument loudly on both sides; that instrument is in the center.

LEFT

CENTER

RIGHT

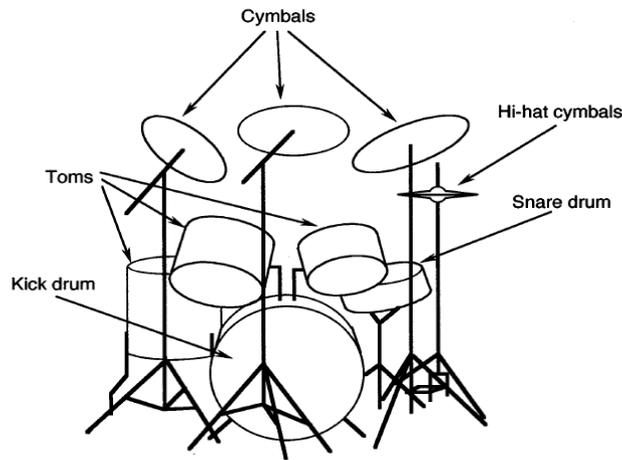
Answers will vary depending on the music listened to...

4. Draw the instruments below to create a musical image.
Are the instruments more toward the left, the center or the right?

Answers will vary depending on the music listened to...

Part 2: Mic a Trap Set

What is a trap set? One is shown in the image below. Drummers sit behind the kick drum with the snare drum to their left.



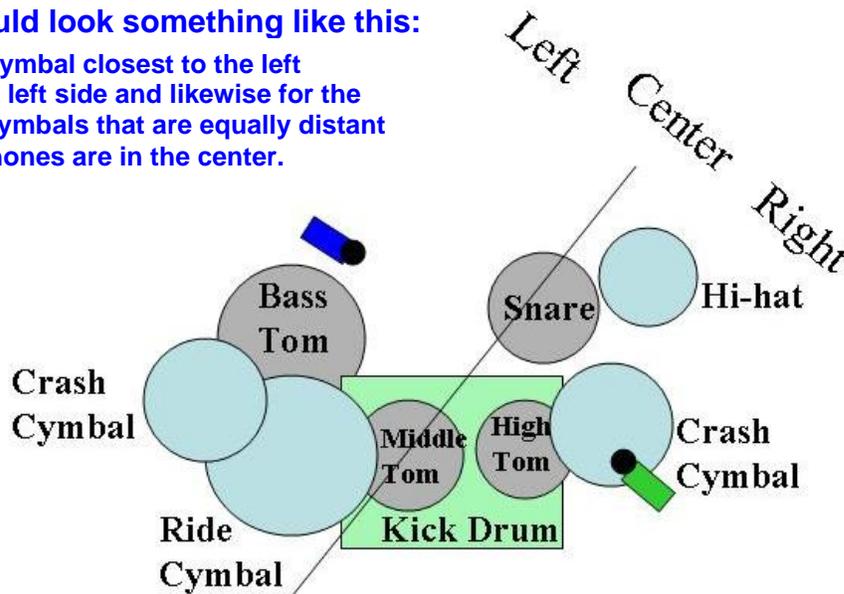
Your task is to create a musical image of this trap set. Just as an audio engineer does, place the microphones in the correct spots to create the desired musical image.

Below is a top view of a slightly different trap set:

Trap Set A

Answer: It should look something like this:

Note that a drum or cymbal closest to the left microphone is on the left side and likewise for the right. The drums or cymbals that are equally distant from the two microphones are in the center.



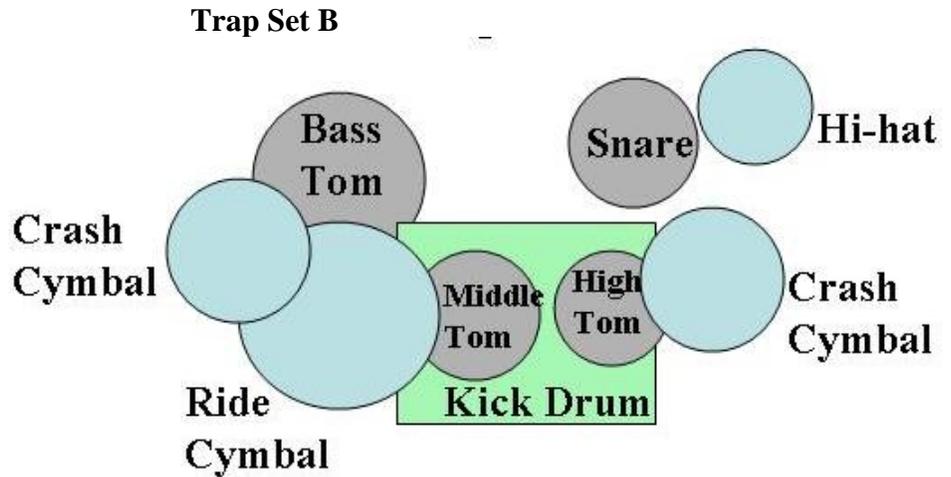
Draw two microphones and a line of equidistance on the drawing of **Trap Set A** to create the following musical image (in other words, so the instruments are correctly placed on the trap set image):

- | | | |
|--------------|---------------|--------------|
| <u>LEFT</u> | <u>CENTER</u> | <u>RIGHT</u> |
| bass tom | snare | hi-hat |
| crash cymbal | middle tom | crash cymbal |
| ride cymbal | | high tom |
| | | kick drum |

Part 3: More Mic a Trap Set

Use construction paper to cut out circles for the toms and snare, circles for the cymbals, and a big rectangle for the kick drum. Arrange the shapes on the floor to create Trap Set B. It should look like this:

Answer: For image B, the line should run vertically, somewhere between the middle and high toms, over top of the kick drum. The microphones can be placed anywhere on either side of the line as long as they are equidistant from the line.



Cut out two microphones, and use your ruler as the line of equidistance. Place them on **Trap Set B** to create the following musical image. Draw your idea on the picture of Trap Set B.

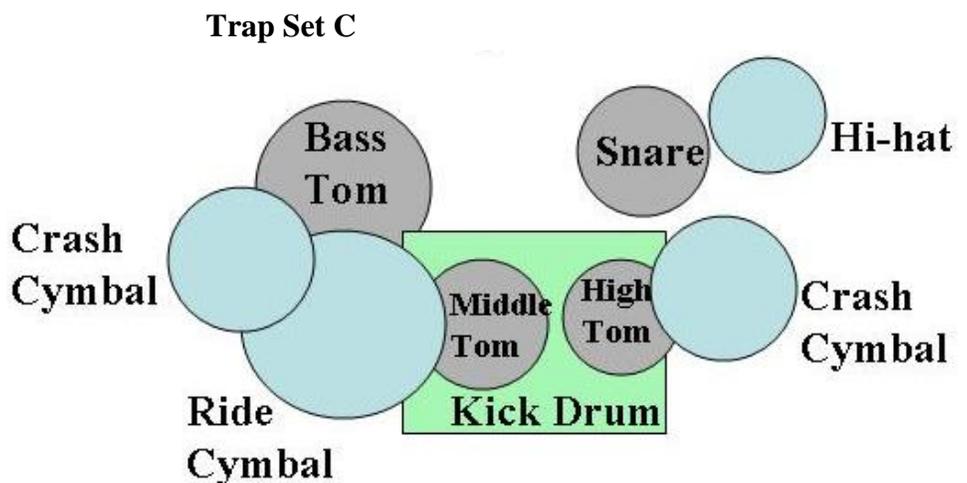
- LEFT
 bass tom
 crash cymbal
 ride cymbal
 middle tom

- CENTER
 kick drum

- RIGHT
 snare
 hi-hat
 crash cymbal
 high tom

Next, arrange the shapes on the floor to create **Trap Set C**. It should look like this:

Answer: For image C, the line should run through the bass tom over to the crash symbol on the right side. Note that the line gets pretty close to the high tom but still remains away from it. The microphones can be placed anywhere on either side of the line as long as they are equidistant from the line.



Name: _____ Date: _____

Place your two microphones and your ruler (line of equidistance) on **Trap Set C** to create the following musical image. Draw your idea on the picture of Trap Set B.

<u>LEFT</u>	<u>CENTER</u>	<u>RIGHT</u>
high tom	bass tom	snare
crash cymbal	crash cymbal	hi-hat
ride cymbal		
middle tom		
kick drum		

(Hint: There is more than one correct answer. Have fun!)

Part 4: Audio Engineering Questions

Think about a song that you like to hear. Answer the following questions:

1. Does the song use several instruments? (List them if you can identify them!)

Answers will vary; most often “yes.”

2. Does the musical image of the song come through two or more speakers when you hear it?

Answers will vary; most often “yes.”

3. Who created the musical image of the song?

Audio engineers

4. What might the song sound like if it did not have the musical image you listen to?

Answers will vary. Students should mention that it would sound different in some way.

5. What other sounds besides songs do audio engineers work with?

Examples include sound effects for movies, television, and video games.

6. How has audio engineering changed how we listen to things?

Answers will vary. Help students understand that audio engineers have advanced the way we hear recorded music and films.
