Audio Engineering Worksheet

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 the 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

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

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):

<table>
<thead>
<tr>
<th>LEFT</th>
<th>CENTER</th>
<th>RIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>bass tom</td>
<td>snare</td>
<td>hi-hat</td>
</tr>
<tr>
<td>crash cymbal</td>
<td>middle tom</td>
<td>crash cymbal</td>
</tr>
<tr>
<td>ride cymbal</td>
<td></td>
<td>high tom</td>
</tr>
<tr>
<td></td>
<td></td>
<td>kick drum</td>
</tr>
</tbody>
</table>
**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:

![Trap Set B Diagram]

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:

![Trap Set C Diagram]
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.

<table>
<thead>
<tr>
<th>LEFT</th>
<th>CENTER</th>
<th>RIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>high tom</td>
<td>bass tom</td>
<td>snare</td>
</tr>
<tr>
<td>crash cymbal</td>
<td>crash cymbal</td>
<td>hi-hat</td>
</tr>
<tr>
<td>ride cymbal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>middle tom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>kick drum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(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!)

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

3. Who created the musical image of the song?

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

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

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