

Name: _____ Date: _____

Sounds All Around Design & Evaluation Worksheet

Part 1: Establish a Baseline

Fill in the set of reproducible sounds (a-i).

Listen with one ear blocked, a blindfold and no ear trumpet.

FOR THE LISTENER: How well could you hear the sounds with one ear blocked?

	Not at all	Poor	Fair	Good	Outstanding
a.(H/L)_____	1	2	3	4	5
b.(H/L)_____	1	2	3	4	5
c.(H/L)_____	1	2	3	4	5
d.(H/L)_____	1	2	3	4	5
f.(H/L)_____	1	2	3	4	5
g.(H/L)_____	1	2	3	4	5
h.(H/L)_____	1	2	3	4	5
i.(H/L)_____	1	2	3	4	5

FOR THE OBSERVER: Evaluate the listeners.

Could the listener identify the sound and its source direction?

	1. The listener could not hear the sound and identify the direction.	2. The listener could hear the sound, but did not correctly identify the direction.	3. The listener could hear the sound and correctly identified the direction.
a.(H/L)_____	1	2	3
b.(H/L)_____	1	2	3
c.(H/L)_____	1	2	3
d.(H/L)_____	1	2	3
f.(H/L)_____	1	2	3
g.(H/L)_____	1	2	3
h.(H/L)_____	1	2	3
i.(H/L)_____	1	2	3

Part 2: Plan It!

Design your ear trumpet to help you hear the sounds and identify their source direction. Label the parts and identify the materials you plan to use.

Design #1

Design #2 (Improved version)



Design approval _____

Design approval _____

Part 4: Build It!

Once your design is approved, proceed to create it with the available materials.

Part 3: Test It!

Fill in the set of reproducible sounds (a-i).

Listen with one ear blocked, a blindfold and the design #1 ear trumpet.

FOR THE LISTENER: How well could you hear the sounds with one ear blocked?

	Not at all	Poor	Fair	Good	Outstanding
a.(H/L)_____	1	2	3	4	5
b.(H/L)_____	1	2	3	4	5
c.(H/L)_____	1	2	3	4	5
d.(H/L)_____	1	2	3	4	5
f.(H/L)_____	1	2	3	4	5
g.(H/L)_____	1	2	3	4	5
h.(H/L)_____	1	2	3	4	5
i.(H/L)_____	1	2	3	4	5
Rank the “ocean-effect”	1	2	3	4	5
Rank the over-all performance	1	2	3	4	5

FOR THE OBSERVER: Evaluate the listeners.

Could the listener identify the sound and its source direction?

	1. The listener could not hear the sound and identify the direction.	2. The listener could hear the sound, but did not correctly identify the direction.	3. The listener could hear the sound and correctly identified the direction.
a.(H/L)_____	1	2	3
b.(H/L)_____	1	2	3
c.(H/L)_____	1	2	3
d.(H/L)_____	1	2	3
f.(H/L)_____	1	2	3
g.(H/L)_____	1	2	3
h.(H/L)_____	1	2	3
i.(H/L)_____	1	2	3

Part 4: Improve It! Evaluation of Design #2

What materials did you add or take away from your original ear trumpet design?

Fill in the set of reproducible sounds (a-i).

Listen with one ear blocked, a blindfold and the design #2 ear trumpet.

FOR THE LISTENER: How well could you hear the sounds with one ear blocked?

	Not at all	Poor	Fair	Good	Outstanding
a.(H/L)_____	1	2	3	4	5
b.(H/L)_____	1	2	3	4	5
c.(H/L)_____	1	2	3	4	5
d.(H/L)_____	1	2	3	4	5
f.(H/L)_____	1	2	3	4	5
g.(H/L)_____	1	2	3	4	5
h.(H/L)_____	1	2	3	4	5
i.(H/L)_____	1	2	3	4	5
Rank the “ocean-effect”	1	2	3	4	5
Rank the over-all performance	1	2	3	4	5

What changes did you make to your original hearing-aid device? Why were these changes necessary? Did they improve your ability to hear the sound and detect its source direction?

FOR THE OBSERVER: Evaluate the listeners.

Could the listener identify the sound and its source direction?

	1. The listener could not hear the sound and identify the direction.	2. The listener could hear the sound, but did not correctly identify the direction.	3. The listener could hear the sound and correctly identified the direction.
a.(H/L)_____	1	2	3
b.(H/L)_____	1	2	3
c.(H/L)_____	1	2	3
d.(H/L)_____	1	2	3
f.(H/L)_____	1	2	3
g.(H/L)_____	1	2	3
h.(H/L)_____	1	2	3
i.(H/L)_____	1	2	3

Part 5: Conclusion

1. Compare your evaluations. How much better did the ear trumpet help you hear the sounds? Did the ear trumpet help your partner determine the direction from which the sound was coming?

2. What modifications did you make to your original design? Did these changes improve your ear trumpet? Refer to your evaluations.

3. Would you use your ear trumpet if you had permanent hearing loss? Why or why not? What activities would be difficult to do if you had to use an ear trumpet?

4. What would you do to make a better hearing-aid device?