

Unit A: Sound Printing

Learning Objectives

Upon completion of this unit, students will be able to:

1. Explain how various characteristics such as wall thickness and tunnel architecture affect sound.
2. Design and 3D print a sound tunnel to amplify or distort sound from a mobile phone.

Classroom

Topic	Format	Learning Aids	Preparation
HOMEWORK REVIEW	Discussion		
SOUND PRINTING	Lecture Design and 3D print a sound tunnel that will direct sound from your mobile phone to increase its volume or distort it.	Sound Printing (PPTX) ↓	Print speaker notes

Computer Lab

	Format	Learning Aids	Preparation
TWO-WEEK ASSIGNMENT <i>Sound Printing</i>	Hands-on Students will design and 3D print an object that will amplify sound from their cellphone. Use lab time to aid and advise students as needed, encouraging model complexity. Encourage them to use information they have learned from their case study research or from other student presentations.	Sound Printing assignment	

Assignment: Sound Printing

This assignment reinforces and extends classroom learning for **Unit A: Sound Printing**. Students will design and 3D print an object that will amplify sound from their cellphone.

Deliverable

Requirements

3D PRINTED AMPLIFIER

1. Measure your phone.
2. Decide where to put the amplifier.
3. Design the space that the sound travels through.

PRESENTATION & DOCUMENTATION

Your presentation should demonstrate use of Design Thinking. As you work, be sure to address your problems, challenges and lessons learned. Include the following:

Material use: What design challenges have you encountered as a result of your material? If you could have chosen another material, what would you have chosen?

Technology: What design challenges have you encountered as a result of your 3D printing technology? If you had access to other fabrication technology, what would you have chosen? Why?

Wall thickness: Have you encountered problems with thin areas in your model? Were any supporting parts affected? How did you fix this?

Details: Does your design contain areas with small embossed or engraved features? Are they necessary for your design to function? Have you encountered issues with details getting lost?

Holes and Gaps: Have you encountered any tiny holes or gaps? How did you fix this?

Scaling: Have you been able to resolve some of your issues by increasing the scale of your model? Or have you had to significantly alter your design?

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