

In Your Shoes

By Jesi Duve and Jane Northrup; reprinted with permission of Jesi Duve, Holy Family Catholic Schools, Dubuque, IA

Audience: Middle School

Content Areas: Mathematics, Science

Description: This lesson plan illustrates the consumption and disposal of shoes by an individual, small group and entire school. Activities provide visual representations of space used by old shoes as well as ideas for re-using and recycling shoes by businesses.

Objectives:

- To recognize alternatives to throwing away shoes
- To recognize excesses
- To recognize that old shoes can be turned into new products

Materials:

- *Stuff: The Secret Lives of Everyday Things*, By John C. Ryan and Alan Thein Durning
- Whiteboard/Markers
- Crayons/Markers
- Masking Tape
- Scissors
- Shoe cut-outs
- Shoe data sheet
- Garbage bag
- Yard stick
- Computer/projector

This lesson is designed to be taught over the course of two-three 30 minute class periods. It is important that before you begin your lesson, you have students count the number of pairs of shoes they own and bring that information to school.

Session 1:

- Begin the class by brainstorming the various parts of shoes and what comes with shoes when you purchase them (ie.: box, stuffed paper, etc).
- Read *Shoes* from *Stuff: The Secret Lives of Everyday Things*. Discuss the important points from the article.
 - On average, how many shoes do men and women own? How does that compare to the number of shoes you own?
 - The materials used to construct a shoe.
 - In what country the various parts of the shoe were made.

- What is done with excess materials?
- Having counted the number of shoes each student owns, the class will come up with a grand total.
- For every ten pairs of shoes, the students will cut out and color a paper shoe to visually represent these 10 shoes on our graph. (See Appendix A.) For example if your class has 360 total pairs of shoes, you should cut out and color 36 paper shoes.
- If you are doing this lesson as an all-school activity, you should place all paper shoes in a highly visible area such as a cafeteria.
- Once all shoes have been placed, calculate how many pairs of shoes are owned by your school and place that number near your graph.

Session 2

- Place students in small groups (3-4 students). Each group should have a Shoe Data Sheet (see Appendix B), pencil and calculator.
- Using the information you collected from your class, have each group fill in the number of shoes your classroom owns. If your school is not doing this as an all school activity, use your classroom total as an average for all classrooms.
- Students can also fill in the number of shoes students from your school own based on the school graph from the previous day or use your classroom total and multiply that by the number of classrooms in your school.
- Using 1.5 lbs as an average weight of a pair of shoes, estimate the number of pounds of shoes your classroom's students own and then the number of pounds of shoes your school's students own.
- Next, students determine how much space discarded shoes use. Using a large trash bag, have 10 volunteers remove their shoes and place them in the bag.
- Have another couple volunteers measure the length, width and height of the shoe filled garbage bag using a yardstick.
- Students should then use this information to calculate how many square inches or feet all of the shoes in your school take up. *Remember that the measurement the students just got is for 10 pairs of shoes!*
- Once the Shoe Data Sheet is filled out, compare calculations as a class to make sure everyone is accurate.
- As an extension and to give a great visual representation to the students, measure the length, width and height of a hallway or classroom to determine how much of that space your school's shoes would take up!

Session 3

- Discuss alternatives to throwing your shoes away.
- Hang the following signs across the front of the room: creek stomping/mowing, hand me-down, consignment shop/selling, charitable organization, trash and other.
- Have students make a bar graph using their shoes to show what they do with their shoes.

- Help the students to understand that even if they give their shoes to a younger brother/sister, they probably go to the trash next. Or, if they give them to Goodwill and someone purchases them, that person probably throws them away. Most shoes will end up in the landfill.
- Show Nike's Made For Trash Shoes video:
www.youtube.com/watch?v=jparZdtSeEo
- There are also other videos on YouTube that show how Nike is now collecting and recycling their shoes to make playgrounds, tennis courts, etc.

Appendix A



Appendix B

	# pairs of shoes I own	# pairs of shoes my class owns	# pairs of shoes my school owns
Pairs			
	X 1.5 pounds	X 1.5 pounds	X 1.5 pounds
Pounds			

	10 pairs of shoes	Total shoes in classroom	Total shoes in school
LxWxH	<i>Measurements:</i>	<i>*divide by 10, then multiply by cubic inches.</i>	<i>*divide by 10, then multiply by cubic inches.</i>
Cubic Inches			
Cubic Feet?			

-----Cut here-----

	# pairs of shoes I own	# pairs of shoes my class owns	# pairs of shoes my school owns
Pairs			
	X 1.5 pounds	X 1.5 pounds	X 1.5 pounds
Pounds			

	10 pairs of shoes	Total shoes in classroom	Total shoes in school
LxWxH	<i>Measurements:</i>	<i>*divide by 10, then multiply by cubic inches.</i>	<i>*divide by 10, then multiply by cubic inches.</i>
Cubic Inches			
Cubic Feet?			

SAMPLE COMPLETED DATA SHEET

	# pairs of shoes I own	# pairs of shoes my class owns	# pairs of shoes my school owns
Pairs	16	364	8496
	X 1.5 pounds	X 1.5 pounds	X 1.5 pounds
Pounds	24	546	12744

	10 pairs of shoes	Total shoes in classroom	Total shoes in school
LxWxH	<i>Measurements: 25x21x18</i>	<i>*divide by 10, then multiply by cubic inches.</i>	<i>*divide by 10, then multiply by cubic inches.</i>
Cubic Inches	9450 cubic inches	36.4 x 9450 = 343980 cubic inches	849.6 x 9450 = 8028720 cubic inches
Cubic Feet? <i>(1728 cubic inches in 1 cubic foot)</i>	5.5 cubic feet	199 cubic feet	4646 cubic feet