

# Lesson Plan - Food Waste - Level 2

“Address the Excess - A Recipe for Cutting Food Waste: Peter Lehner at TEDxManhattan”

## Introduction

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This lesson plan supplements the TEDxManhattan video, and is designed to be integrated in a variety of learning settings, both educational and recreational. This lesson may be tailored to suit the instructor's goals and can range from 30 minutes to an hour. If session needs to be shorter, instructors may ask students to watch the TEDxManhattan video prior to arrival.

The following plan includes:

- Lesson Goals, which describe the overarching themes found in the TEDxManhattan talk reiterated in the lesson.
- Student Objectives, which describe what the students should retain from the video and session.
- Overview, which details the flow of the lesson, including related teaching tools.
- Supplementary Resources, which are activities added to extend session, if desired.
- Pre-test and Final Test, with answer keys.

## Goals & Objectives

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### Lesson Goals

From this lesson, students will learn about:

- Food waste in the United States and globally
- How the government operates with regards to sustainability
- Law of supply and demand
- The role expiration dates play in food waste
- How to write a formal letter

### Student Objectives

After this lesson, students will be able to:

- Understand why food waste is such a pressing issue in our world today
- Know ways in which to reduce food waste
- Explain the effects of government on food waste
- Explain the relationship between the economy and food waste
- Write a formal letter

## Overview

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Before class begins

1. The instructor projects the Pre-test on the board, or creates enough copies for all students.
2. The instructor ensures that enough copies of the desired articles listed in Supplementary Resources are printed out for the students to read in pairs, with each pair receiving the articles.
3. For potential activity at the end of the lesson, find out if the school or venue will allow your group to create a compost bin.

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4. If the instructor wants students to read an article in class, they may pick one from the supplementary resource section. They should either be prepared to display their article on the board or print out enough copies for the students to read in pairs. This is optional and should only be done to further enhance the lesson.
5. The instructor is prepared to project the Final Quiz on the board, or creates enough copies for all students.

### Procedure

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Before class begins

- 1) *Have students take Pre-test (see back of the lesson).*
  - a) Pre-test will help students familiarize themselves with the information being discussed in class. It will also gauge how much they already know.
    - i) Another quiz will be taken at the end of the lesson to assess the retention and comprehension of the materials. Instructor should collect both quizzes to view results before and after lesson to measure the learning.
- 2) *Introduce concepts.*
- 3) *Ask students what they think food waste means, and how it affects our world.*
- 4) *Ask students what institutions food waste affects, as well as the impact it can have, both positive and negative.*
- 5) *Play TEDxManhattan Video: “Address the Excess - A Recipe for Cutting Food Waste: Peter Lehner at TEDxManhattan” (<http://youtu.be/UwOHpWTRsbE>).*
  - i) Just before playing the video, inform students that they will be asked to construct a thesis statement from the information that they learned from it, regarding the Government and economy in relation to food waste.
  - ii) Instruct students to take notes on important facts that Peter Lehner points out, specifically about food waste in the video, the Government’s involvement, and the economy.
- 6) *Review TEDxManhattan video.*
  - a) Ask the students what they believe food waste means after having watched the video, along with the implications of food waste.
  - b) Call on a few students to share their thesis statements with the class.
  - c) Ask the students what they learned while watching the video.
  - d) Present the following definitions
    - i) **Food losses** are defined as “the decrease in quantity or quality of food” and are the agricultural or fisheries products intended for human consumption that are ultimately not eaten by people or that have incurred a reduction in quality reflected in their nutritional value, economic value or food safety.
    - ii) An important part of food loss is “**food waste**,” which refers to the discarding or alternative (non-food) use of food that was fit for human consumption-by choice or after the food has been left to spoil or expire as a result of negligence.

(1) Source: <http://www.fao.org/docrep/015/i2776e/i2776e00.pdf>

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iii) Supply and demand: Supply-and-demand is a model for understanding the determination of the price of quantity of a good sold on the market. The explanation works by looking at two different groups – buyers and sellers – and asking how they interact.

a. Source: <http://www.csun.edu/~dgv61315/PTlect2y.pdf>

e) Depending on the level of student knowledge regarding food waste, dedicate extra time to letter writing (see below) or engage students in a small debate about the issue.

f) Alternatively, look at the links posted in the Supplementary Resources section and pick out an article to discuss as a class.

### 7) Introduce Activity

#### a) Letter Writing

i) Instruct students to choose a local outlet (business, local government, school administration, or restaurant) and draft a letter to the outlet about the food waste epidemic occurring in our country.

ii) Define and explain what a “thesis” is.

(a) **Thesis:** a statement that someone wants to discuss or prove (<http://www.merriam-webster.com/dictionary/thesis>).

iii) Each letter should be thoughtful, appropriate, fully composed, and include:

(1) A thesis statement that they have developed about food waste

(2) Evidence to support their respective theses.

(3) Include evidence specifically from the video and lesson.

(4) Mention of economic and governmental relation to the issue of food waste, using what was learned from the video.

(5) Explain how the government and economy work together in relation to the issue of food waste.

(6) Explain whatever the instructor covered in his/her lesson, in order to test the students’ understanding.

(7) A suggestion of an action the recipient could take to reduce food waste.

iv) Instruct students to refer to the sample letter or basic letter template in order to appropriately format their letters.

v) Should the instructor proofread the letters, they could be sent to the schools and restaurants chosen by the students. If the students receive a response to their letter, they should write back to the responder and see if the class can work together to accomplish what was discussed in their letter. An activity can include going to visit the restaurant to see how they handle food waste or Skyping with a government official (if possible) to discuss policies regarding food waste.

#### b) Composting

i) If the school permits, the students could then set up a compost pit or bin on campus, or take further action to spread awareness of the issue. The lesson can be extended and used in the “real world,” which would grant the students an even greater understanding of the material. An example of a step by step how-to guide to establish a composting program at your school is provided in the *Supplementary Resources Page* of this Lesson Plan.

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- 8) Have students take Final Quiz.
- 9) Conclude Class.
  - a) Have the students share what they found the most gripping about the lesson.
  - b) Ask the students to share what they want to do for the community.
    - i) Some examples: start a composting program in their school, inform families and friends about composting at home, encourage local business to donate food waste, etc.

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### Pre-Test

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(Instructor may choose to ask 6 out of the 8 questions, choosing each question as appropriate to students' base knowledge of the issue)

1. True or False: Supply and Demand is relevant to food waste.  
A. True                      B. False
2. How much of the average landfill is composed of food waste?  
a.            A. 1/4                      B. 1/5                      C. 1/3                      D. 1/6
3. True or False: The agricultural and fishing industries are impacted when food is wasted  
A. True                      B. False
4. True or False: The per capita production of solid waste in the United States equals about two kilograms (nearly 4.5 pounds) per day.  
A. True                      B. False
5. How much money a month does the average American family spend on food they don't eat?  
a.            \$500                      B. \$1000                      C. \$3,000                      D. \$2,000
6. True or false: Landfills do not pose any harmful threats to the environment or surrounding communities.  
A. True                      B. False
7. How many Americans today regularly go hungry because they are unable to attain a balanced diet?  
a.            20 million                      B. 100 thousand                      C. 50 million                      D. None
8. True or False: Food waste is constantly happening and there is always something we can do to fix this issue.  
A. True                      B. False

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### Supplementary Resources

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Sample letter to Government

(<http://www.global-greenhouse-warming.com/climate-change-letter.html>)

*Note: this letter is to be used as a guide for writing a letter to a government official. Students should be encouraged to create original content about food waste, not copy what is written here.*

Dear [name],

I am writing to express my concern about the imminent threat climate change poses to our country, to our people and the future of our children. An overwhelming number of scientists agree, and signs abound that climate change is occurring much faster than was initially predicted. We have only a few critical years before the changes become irreversible.

More than 2,000 scientists contributing to the Intergovernmental Panel on Climate Change (IPCC) have made it clear that cuts of at least 50% to 70% in global greenhouse gas emissions are necessary to allow our climate to re-stabilize. Therefore, the Government should be making every effort to reduce greenhouse gas emissions - now.

Specifically, I believe you should act to address the issues below, and I ask you to provide me with information on what the government is doing to reduce greenhouse gas emissions in the following areas:

- a. Reducing carbon dioxide emissions from coal fired power plants
- b. Reducing emissions from the transport sector
- c. Funding initiatives for alternative and renewable energy technology
- d. Incentives for the uptake of renewable energy
- e. Removal of subsidies for fossil based fuel sources

To create a secure future for our nation and our children now is the time to set a new and positive direction for our national energy policy. We need policies that will lead our nation away from fossil based fuels.

Our addiction to fossil fuels harms human health, causes global warming, degrades land and marine ecosystems, and pollutes the earth. We need energy systems that provide clean, renewable, and reliable energy that does not threaten human health or the environment. We do create our futures, and to neglect to act now would be a gross abdication of our moral responsibility.

I understand that focusing on climate change is just one of many issues during these challenging times. However, we cannot wait to address the daunting issues that climate change poses.

Sincerely, [your signature]

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### Supplementary Resources

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The instructor may present any or all of these additional resources for the students. These all provide beneficial information that may enhance the students' experience in the classroom, and allow a deeper understanding of the issue.

1. TEDActive2013: Diane Hatz Food Waste Video  
<http://www.youtube.com/watch?v=kkHIDL6-Ynk>
2. How to reduce food waste in your own home  
<http://www.endfoodwastenow.org/index.php/what-you-can-do>
3. How to Set Up a Composting System at Your School Guide  
<http://compostingcouncil.org/admin/wp-content/uploads/2013/04/Composting-at-School-0307.pdf>
4. Information on landfills  
<http://www.pbs.org/america-revealed/teachers/lesson-plan/8/>
5. Food waste in the US today
  - a) <http://www.cnn.com/2013/09/19/health/sell-by-dates-waste-food/>  
*a) Question: Using the article, describe at least one way that the government is an integral part of the economy and food industry*  
*b) Answer: Consumers wanted to know when and how the food was made.*
  - b) [http://switchboard.nrdc.org/blogs/dgunders/its\\_not\\_a\\_food\\_dating\\_system\\_i.html](http://switchboard.nrdc.org/blogs/dgunders/its_not_a_food_dating_system_i.html)  
<http://www.pbs.org/america-revealed/teachers/lesson-plan/8/>
6. Food waste's harm to the climate
  - a) <http://www.unep.org/newscentre/default.aspx?DocumentID=2726&ArticleID=9611>
7. Food waste from farms
  - a) [http://switchboard.nrdc.org/blogs/dgunders/left\\_out\\_how\\_much\\_of\\_the\\_fresh.html](http://switchboard.nrdc.org/blogs/dgunders/left_out_how_much_of_the_fresh.html)
8. Video Introducing Basic Concepts of Economics
  - a) <https://www.youtube.com/watch?v=gsa92tiWZxQ>
9. What You Can Do At Home to reduce food waste
  - a) <http://www.endfoodwastenow.org/index.php/what-you-can-do>

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### Final Quiz

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This quiz is intended to evaluate what the students learned from the Food Waste and Sustainability Lesson.

1. Name the three market solutions described in the TEDxManhattan video that are already in play helping to eliminate food waste.

- 1)
- 2)
- 3)

2. Name three policy changes that could help eliminate food waste

- 1)
- 2)
- 3)

3. Describe the theory of Supply & Demand

4. What could we accomplish by reducing one third of our food waste?



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### Answer Key

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#### Key to Pre-Test

1. A
2. B
3. B; it doesn't matter to them because they have already sold their products to grocery stores so they lose nothing in the process.
4. A
5. D
6. B
7. C
8. A

#### Key to Final Quiz

1. Selling “unpretty” products to local markets at a reduced price; Creating gourmet chutneys out of “misshapen fruits”; The Farm to Family program
2. The students can correctly answer with any three policies that come to mind.
3. A theory that explains the interaction between the supply of a given resource and the demand for that resource.
4. We could feed all 50 million American families with food that is currently being wasted.