

# Climate Change - Reducing Food Waste and Composting as a Solution

Fifth Grade - Unit PowerPoint

Sustainability for Young Learners Courses

Lessons 1-5

# Primary Standards Covered

- 5-ESS3-1: Human Impacts on Earth Systems: Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.
- 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

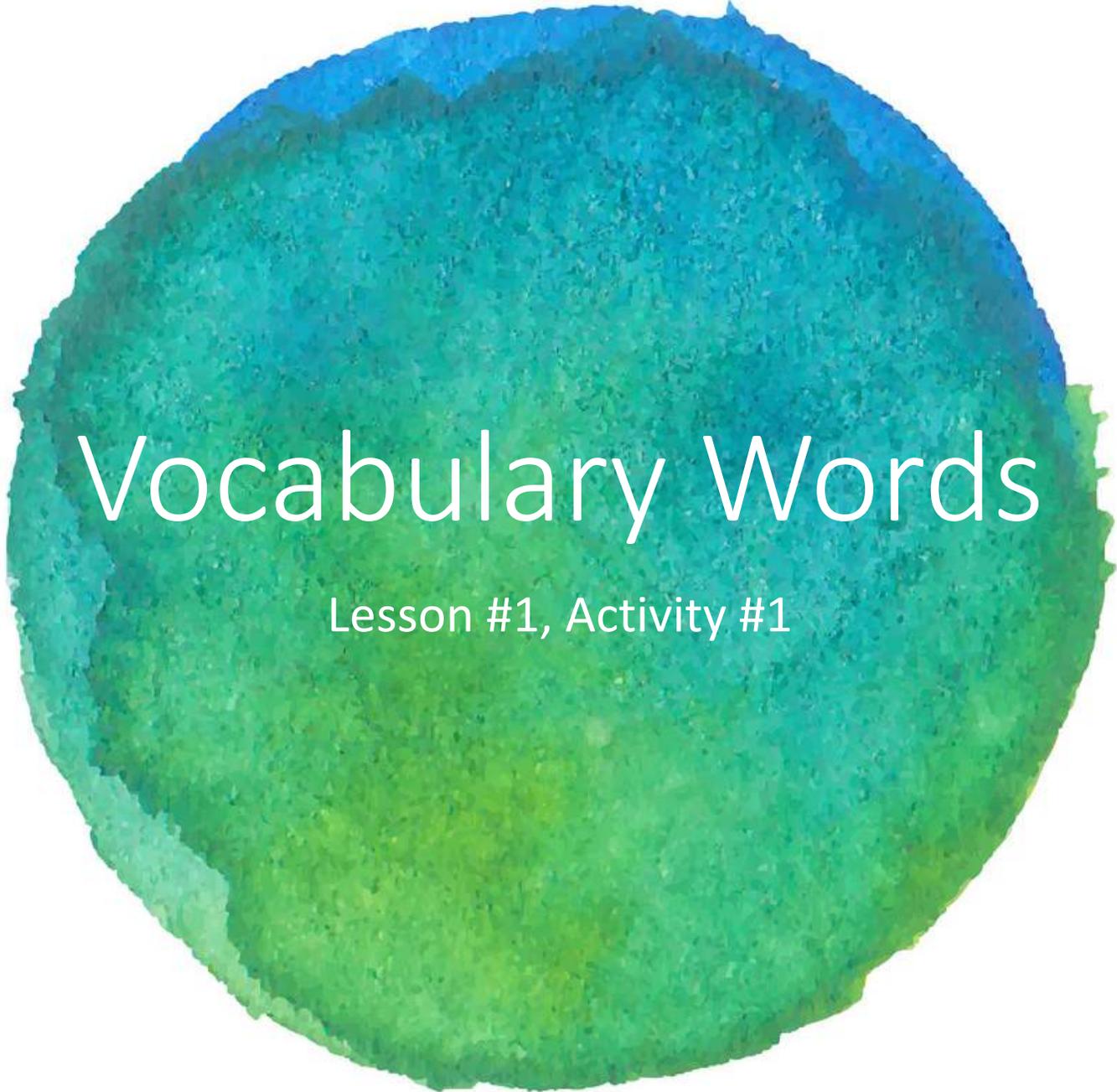
# Standard Connections Covered

- RI.5.9 Literacy Connection - Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-ESS3-1)
- W.5.8 Literacy Connection - Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-ESS3-1)
- 5-LS2-1 Science Connection - The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem.



# Introduction to Climate Change & Vocabulary Words

Lesson #1



# Vocabulary Words

Lesson #1, Activity #1

# Climate Change

- A change in global and regional climate patterns attributed to an increase in atmospheric carbon dioxide from the burning of fossil fuels.



# Fossil Fuels

- Any carbon-containing fuel formed from the remains of prehistoric plants and animals. Ex: coal, petroleum, and natural gas



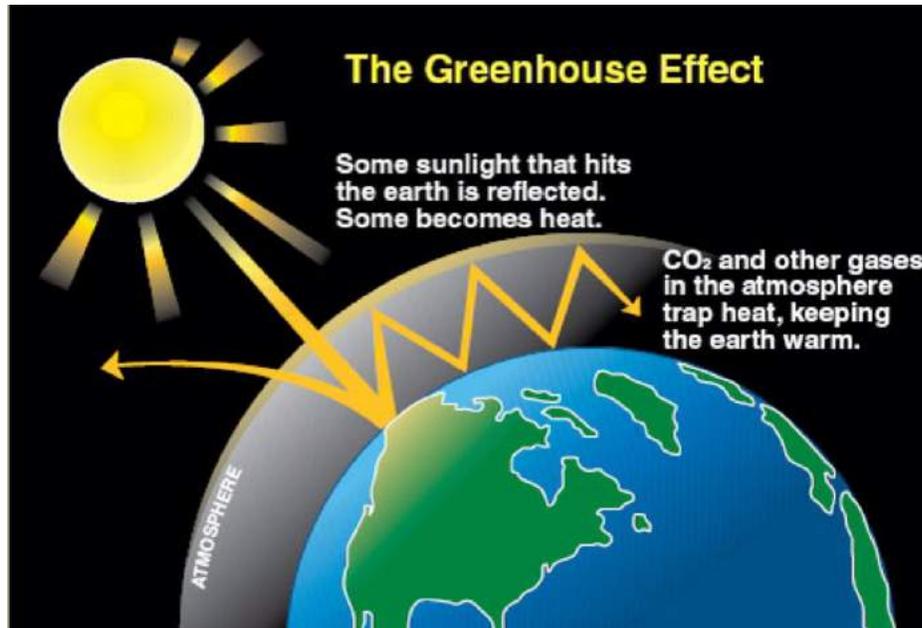
# Carbon Dioxide – CO<sub>2</sub>

- A heavy colorless gas that is formed by burning fuels, such as oil or gas and by the breakdown or burning of animal and plant matter, and by the act of breathing that is absorbed from the air by plants in photosynthesis.



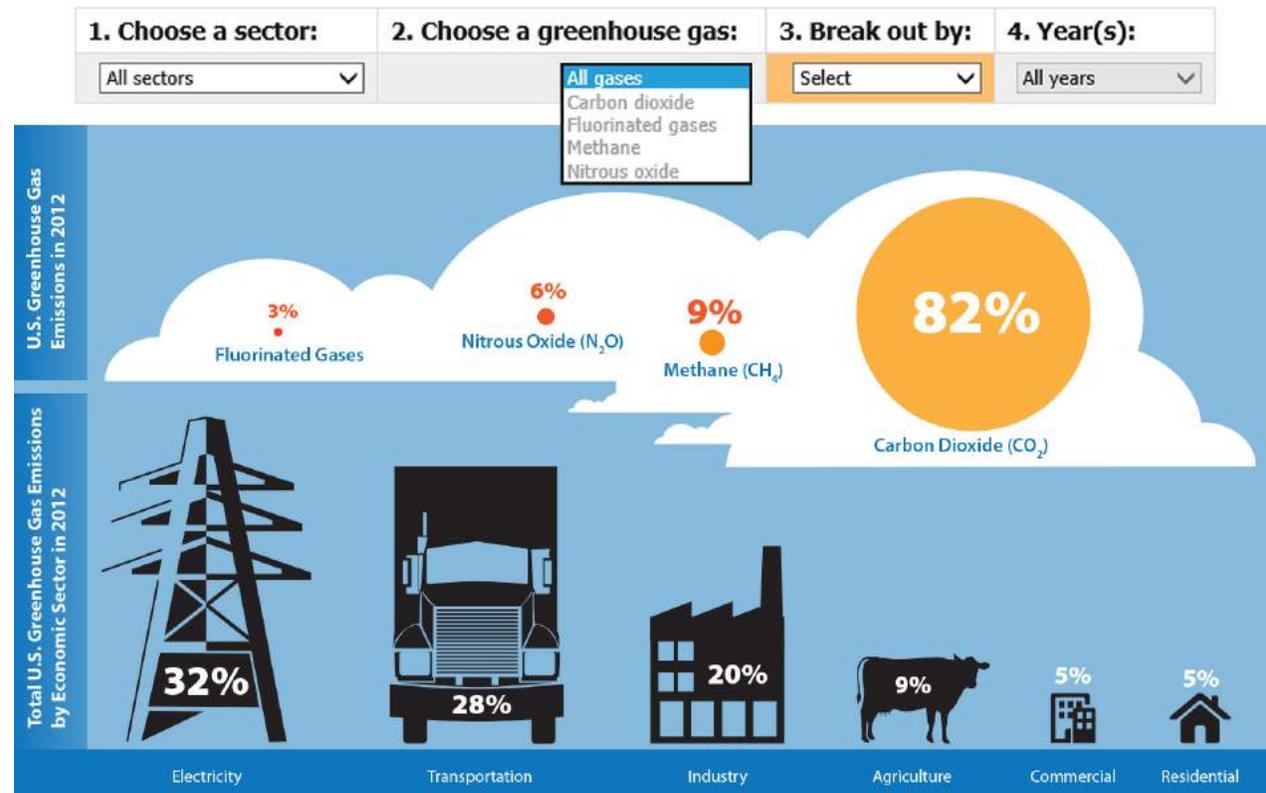
# Greenhouse effect

- The warming of the earth's surface that takes place when heat from the sun is held in by the earth's atmosphere. The greenhouse effect can be caused by too much carbon dioxide being released into the air from the burning of fossil fuels.



# Greenhouse gas emissions

- Any atmospheric gas that absorbs and emits radiant energy and contributes to the greenhouse effect.



# Food waste

- Roughly one third of the food produced in the world for human consumption every year — approximately 1.3 billion tons — gets lost or wasted.
  - This is due to growing too much food, buying too many perishable food items, and farmers throwing away crops because the food might be too “ugly” to sell.



# Composting

- A mixture of decaying leaves, vegetables, or manure that is used to improve garden soil.



# Deforestation

- The act or process of cutting down a large section of trees in a forest. Deforestation drives out animals and insects that live in and among the trees.



# Pollution

- Pollution happens when the environment is contaminated, or dirtied, by waste, chemicals, and other harmful substances. There are three main forms of pollution: air, water, and land.



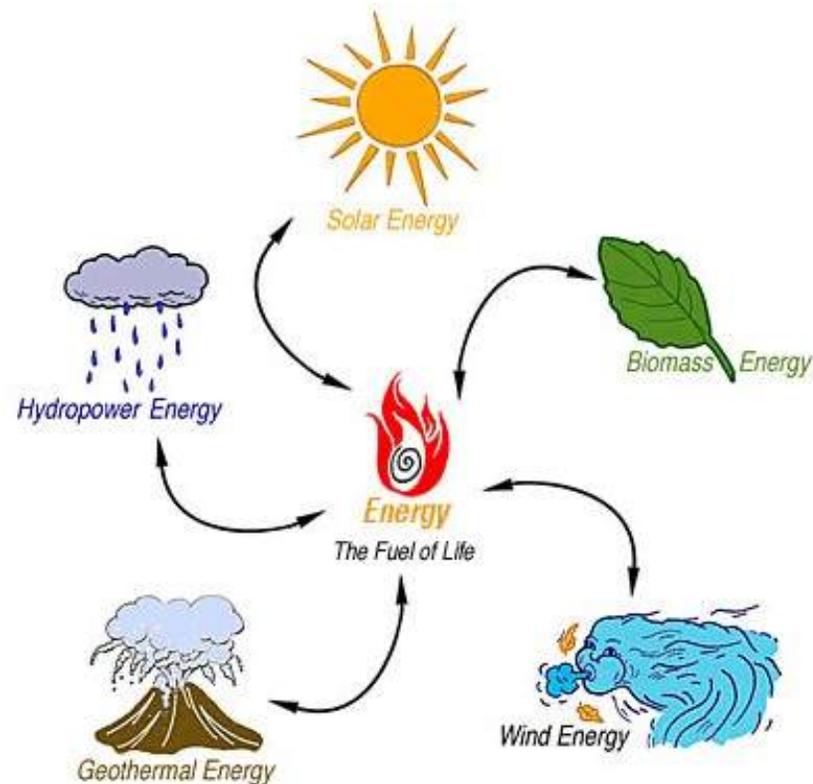
# Non-renewable resources

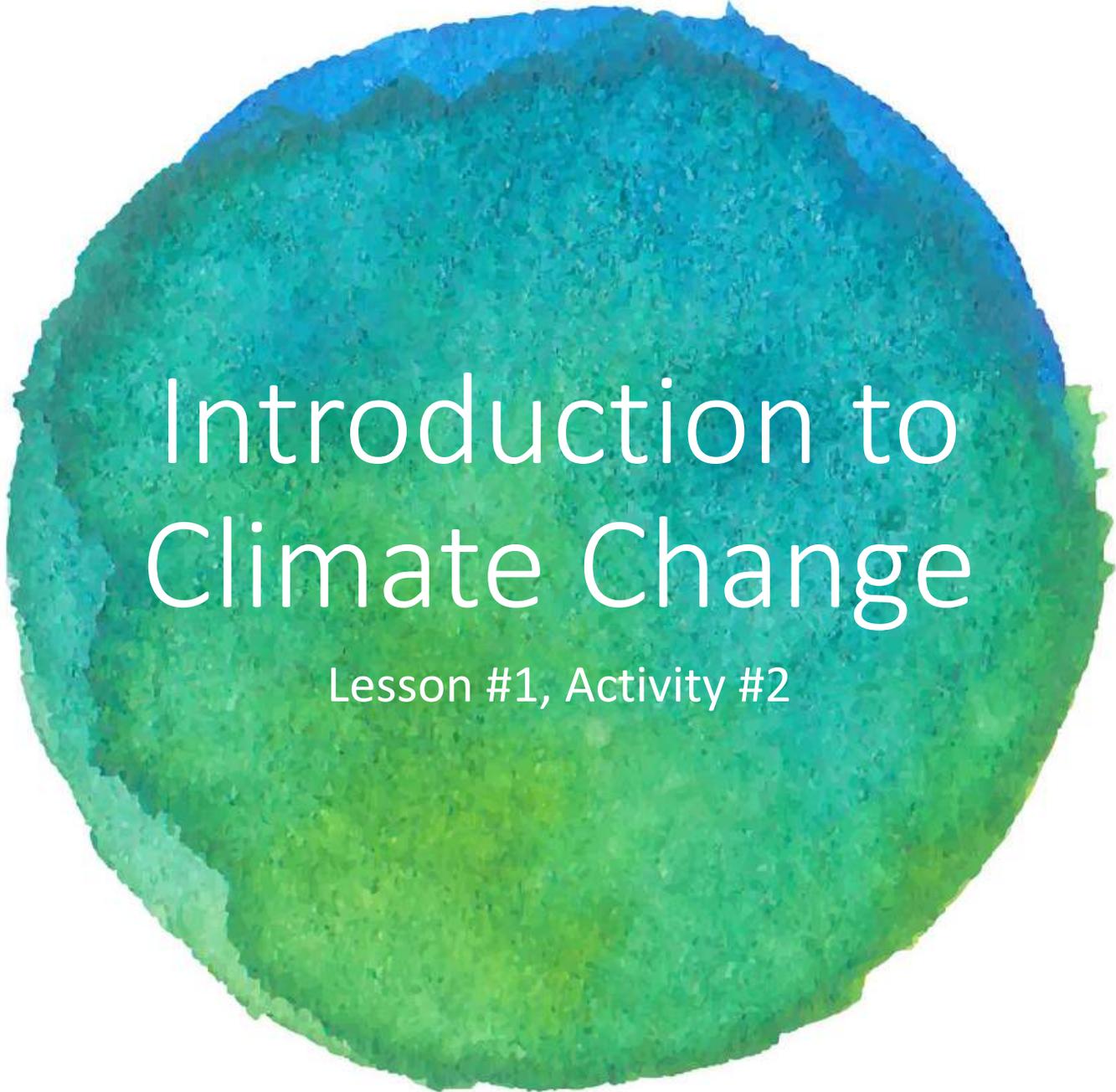
- Resources that have a limited supply and cannot be replaced by natural means at a pace that meets its consumption.



# Renewable Resources

- Any source that can or will be replenished naturally over a short amount of time to meet consumption needs. Ex: wood or solar (sun)





# Introduction to Climate Change

Lesson #1, Activity #2

# Video: Climate Change: Earth's giant game of Tetris, TED-Ed

- [Click here to watch the video](#)

- Link to the video:

[https://www.youtube.com/watch?time\\_continue=153&v=ztWHqUFJRTs](https://www.youtube.com/watch?time_continue=153&v=ztWHqUFJRTs)



# Causes and Effects of Climate Change, National Geographic

- [Click here to watch the video](#)
- Link to the video: [https://www.youtube.com/watch?v=G4H1N\\_yXBiA](https://www.youtube.com/watch?v=G4H1N_yXBiA)



# Climate Change Informational Handout

- Students will fill out the following handout

**STUDENT WORKSHEET**

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**CLIMATE CHANGE INFORMATION**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. What is climate change? \_\_\_\_\_

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2. Why is the Earth warming? \_\_\_\_\_

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3. How does climate change affect our **oceans**? \_\_\_\_\_

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4. How does climate change affect our **weather**? \_\_\_\_\_

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5. How does climate change affect our **food**? \_\_\_\_\_

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6. How does climate change affect our **health**? \_\_\_\_\_

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# Class Review - Climate Change Informational Handout

## **Question #1: What is Climate Change?**

### **Answers:**

- A change in global and regional climate patterns attributed to an increase in atmospheric carbon dioxide from the burning of fossil fuels.
- When the climate heats up or cools due to human impacts.

# Class Review - Climate Change Informational Handout

## **Question #2: Why is the Earth Warming?**

### **Answers:**

- Burning fossil fuels emits more carbon dioxide, which heats the Earth.
- Cutting down forests reduced the amount of carbon dioxide that plants can remove from the atmosphere

# Class Review - Climate Change Informational Handout

**Question #3: How does climate change affect our *oceans*?**

**Answers:**

- When the Earth is warmer, the Earth's ice caps melt. This causes sea levels to rise and floods to happen in areas close to the ocean.
- Some ocean animals and plants die because the oceans are warming.

# Class Review - Climate Change Informational Handout

**Question #4: How does climate change affect our *weather*?**

**Answers:**

- Warmer temperatures make weather more extreme
- This can cause drought, floods, and major storms.

# Class Review - Climate Change Informational Handout

**Question #5: How does climate change affect our *food*?**

**Answers:**

- Growing crops becomes more difficult.
- There is less water available to water the crops.
- Crops are unable to grow in some areas, where they previously were grown.

# Class Review - Climate Change Informational Handout

**Question #6: How does climate change affect our *health*?**

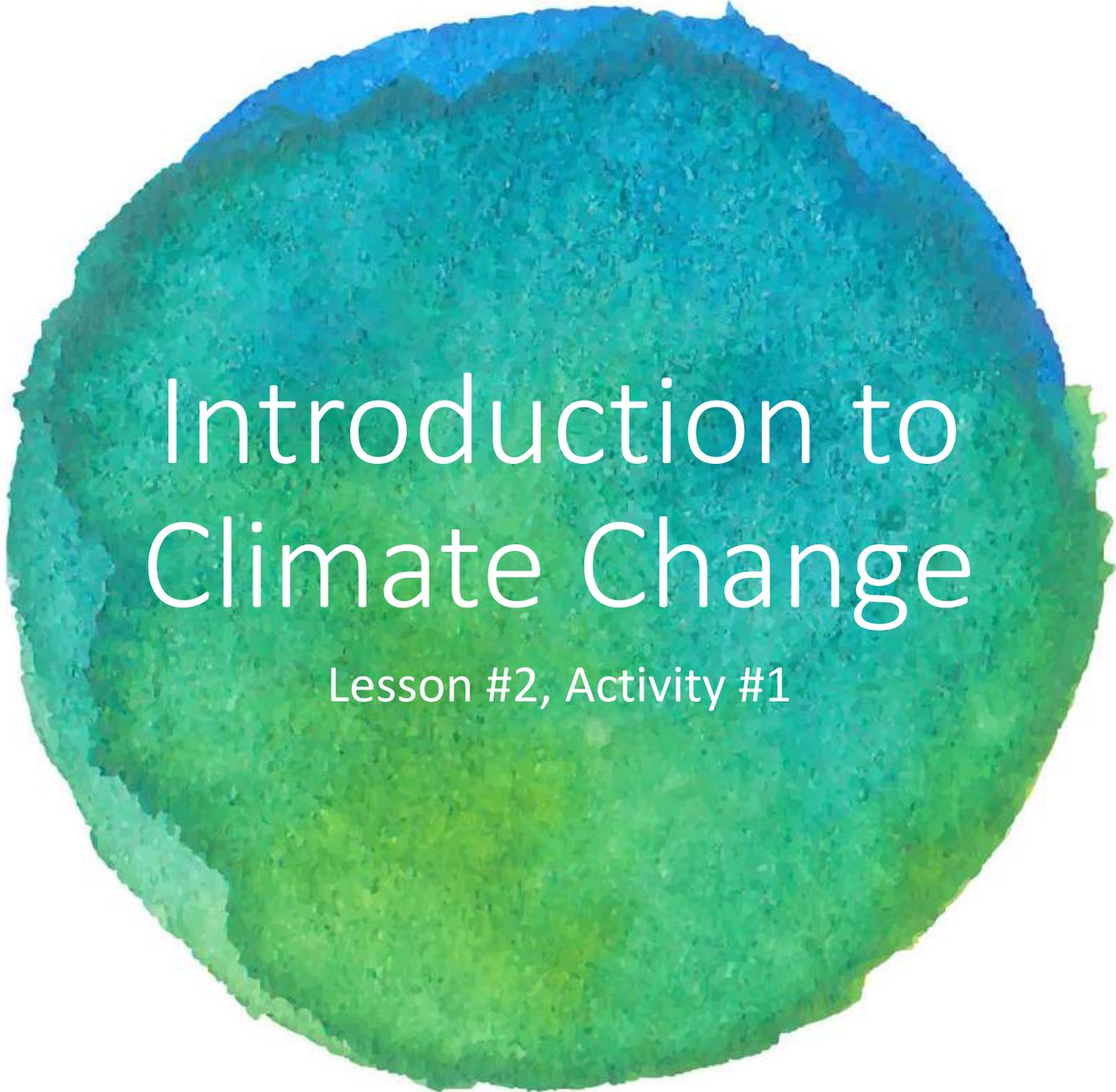
**Answers:**

- Warmer weathers increase smog and can cause illnesses.
- Pollution in our air is bad for people to breathe.



# Web Search and Report Out

Lesson #2



# Introduction to Climate Change

Lesson #2, Activity #1

# Climate Change and Impacts – Web Search & Handout

- Students will fill out the following worksheet while completing the research assignment.

STUDENT WORKSHEET - PAGE 1 OF 2

## CLIMATE CHANGE ARTICLE RESEARCH SUMMARIES

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Article title #1: \_\_\_\_\_

Summary of Article #1 (2-3 sentences): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Three key facts from Article #1:

1. \_\_\_\_\_  
\_\_\_\_\_

2. \_\_\_\_\_  
\_\_\_\_\_

3. \_\_\_\_\_  
\_\_\_\_\_

Article title #2: \_\_\_\_\_

Summary of Article #2 (2-3 sentences): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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STUDENT WORKSHEET - PAGE 2 OF 2

Three key facts from Article #2:

1. \_\_\_\_\_  
\_\_\_\_\_

2. \_\_\_\_\_  
\_\_\_\_\_

3. \_\_\_\_\_  
\_\_\_\_\_

Article title #3: \_\_\_\_\_

Summary of Article #3 (2-3 sentences): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Three key facts from Article #3:

1. \_\_\_\_\_  
\_\_\_\_\_

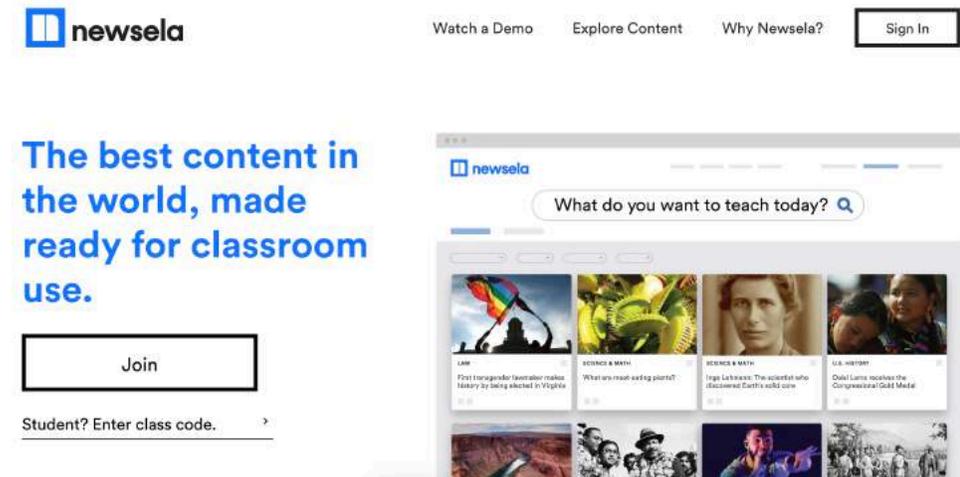
2. \_\_\_\_\_  
\_\_\_\_\_

3. \_\_\_\_\_  
\_\_\_\_\_

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# Climate Change and Impacts – Websites and Key Words to Search

- Websites:
  - [NASA's Climate Kids Website](#)
  - [Newsela Website](#)
- Key Words to Search for:
  - Climate change
  - Greenhouse effect
  - Food waste
  - Pollution
  - The impacts of climate change
  - Why is climate change important?
  - Solutions to climate change





# Small Group Report Out

Lesson #2, Activity #2

# Small Group Report Out

- Students will get into small groups of 4-6 students and share what they have learned from their research.





# Food Waste 101

Lesson #3

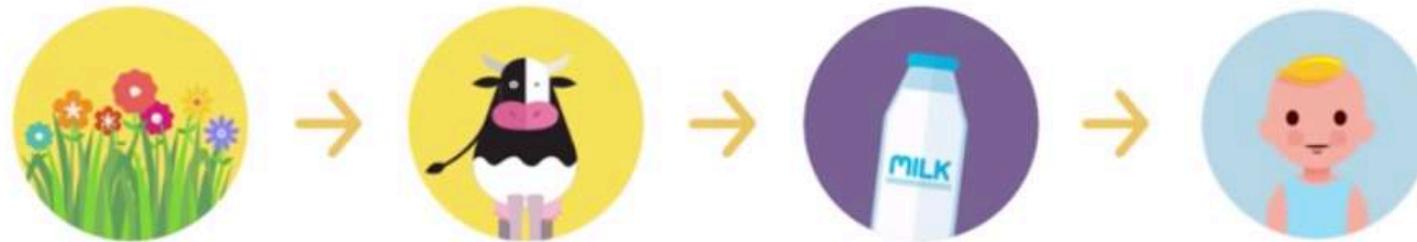


# Food Waste 101

Lesson #3, Activity #1

# *Video #1 - Saving Food Educational on food waste*

- [Click here to watch the video](#)
- Link to the video: <https://www.youtube.com/watch?v=0eqxgvZNn0I>



## *Video #2 - Just Eat It: A Food Waste Story (Trailer)*

- [Click here to watch the video](#)
- Link to the video: <https://www.youtube.com/watch?v=rjm6VP9L4W8>



## *Video #3 - Just Eat It: Second Helpings – Leftovers, Deleted Scene 2, Field Waste, Cauliflower*

- [Click here to watch the video](#)
- Link to the vide: <https://www.foodwastemovie.com/video/>
- This is the second video under the “Leftovers” section.



# Class Discussion – Food Waste



# Class Discussion – Food Waste





# Food System & Waste Mapping Activity

Lesson #3, Activity #2

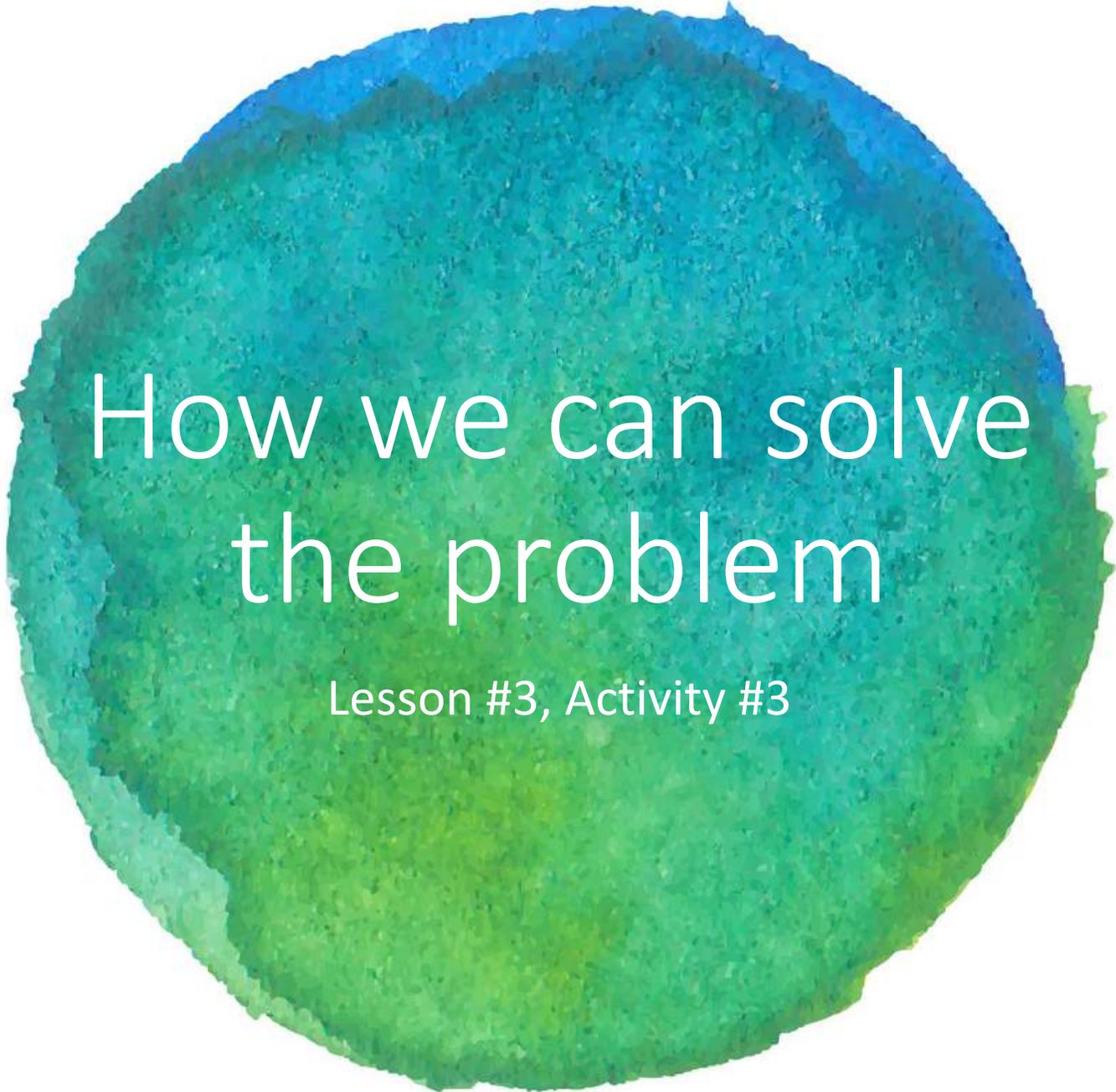
# Students Mapping out the Food System

- Students will use a blank sheet of paper to map out how a carrot goes from the farm to the student's fridge.



# Class Mapping out the Food System

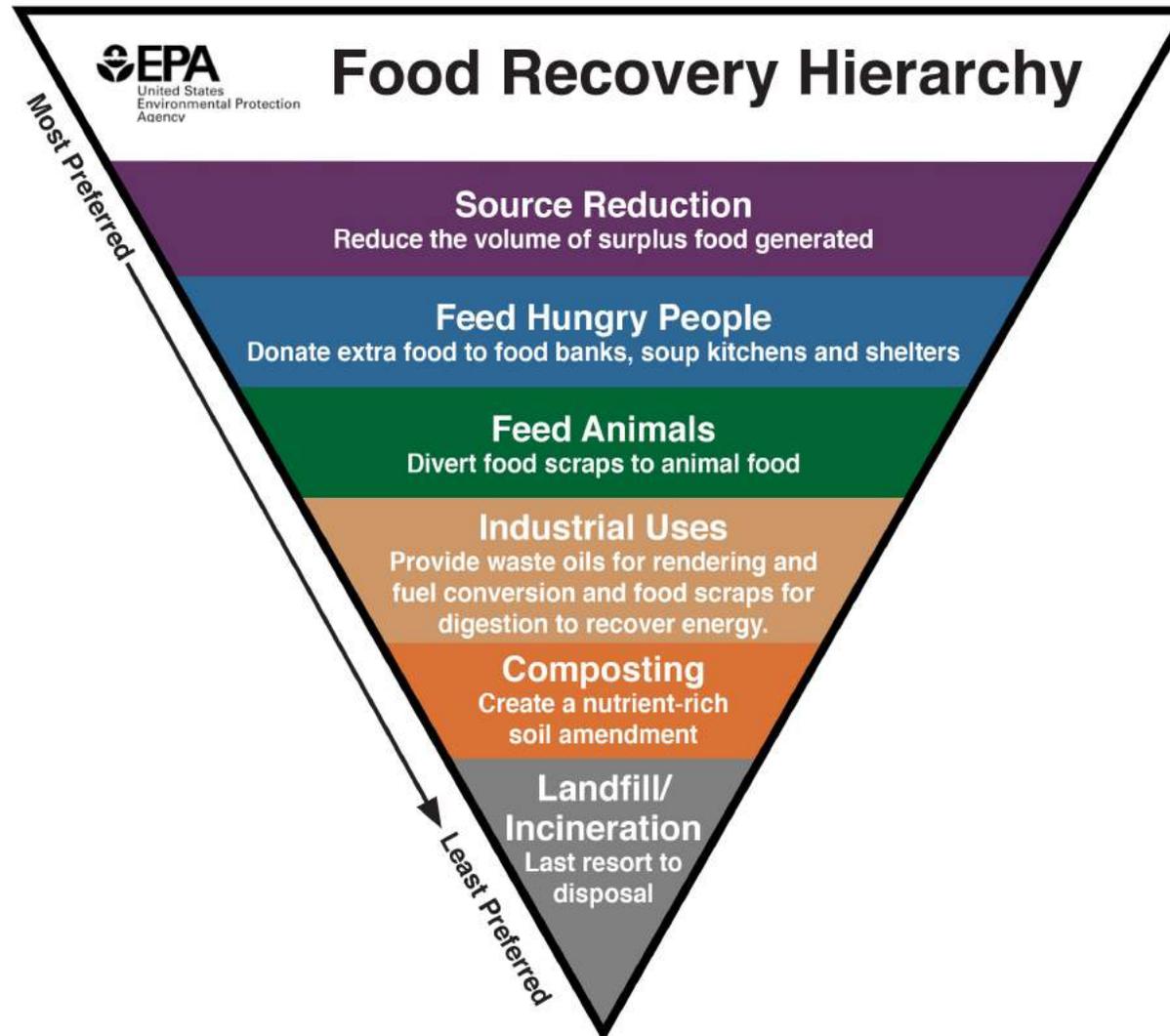




# How we can solve the problem

Lesson #3, Activity #3

# EPA's Food Recovery Hierarchy



# Video - Food Share Table Guide for Elementary Schools by StopWaste

- [Click here to watch the video](#)
- Link to the video: <https://www.youtube.com/watch?v=PxqSyPZmZEg>



# Discussion - Food Share Table Guide for Elementary Schools by StopWaste





# Composting and Other Climate Solutions

Lesson #4



# Composting 101

Lesson #4, Activity #1

# Video #1 – How Compost is Made

- [Click here to watch the video](#)
- Link to the video: <https://www.recyclenow.com/recycle/recycle-school/composting/how-compost-made>



## Video #2 – Discover Denver Composts

- [Click here to watch the video](#)
- Link to the video:  
<https://www.denvergov.org/content/denvergov/en/trash-and-recycling/composting/compost-collection-program.html>

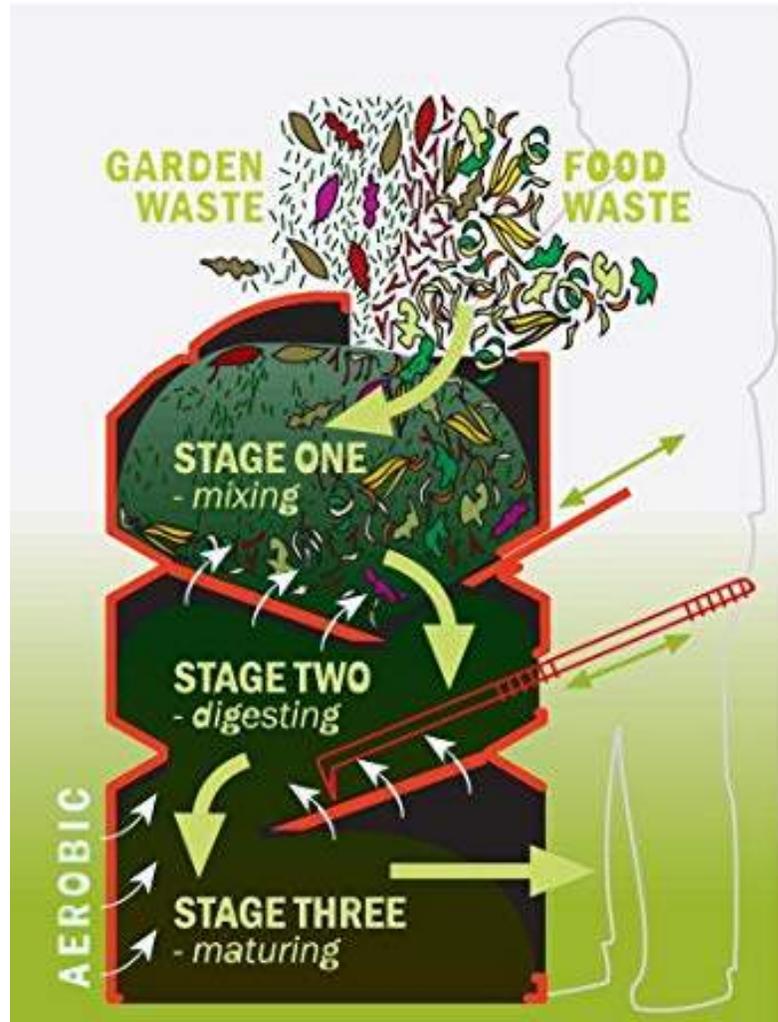


## Video #3: What do you put in your food waste caddy?

- [Click here to watch the video](#)
- Link to the video: <https://www.youtube.com/watch?v=g1KvUWuPI7o>



# Composting Questions and Discussion





# What can be Composted and a Composting Activity

Lesson #4, Activity #2

# What Can be Composted

- All food scraps
- Non-recyclable paper
- Year debris



 Look for BPI certified compostable paper products. These items are accepted in Denver's green compost carts.



# Composting Activity – Can this be Composted?



# Composting Activity – Can this be Composted?



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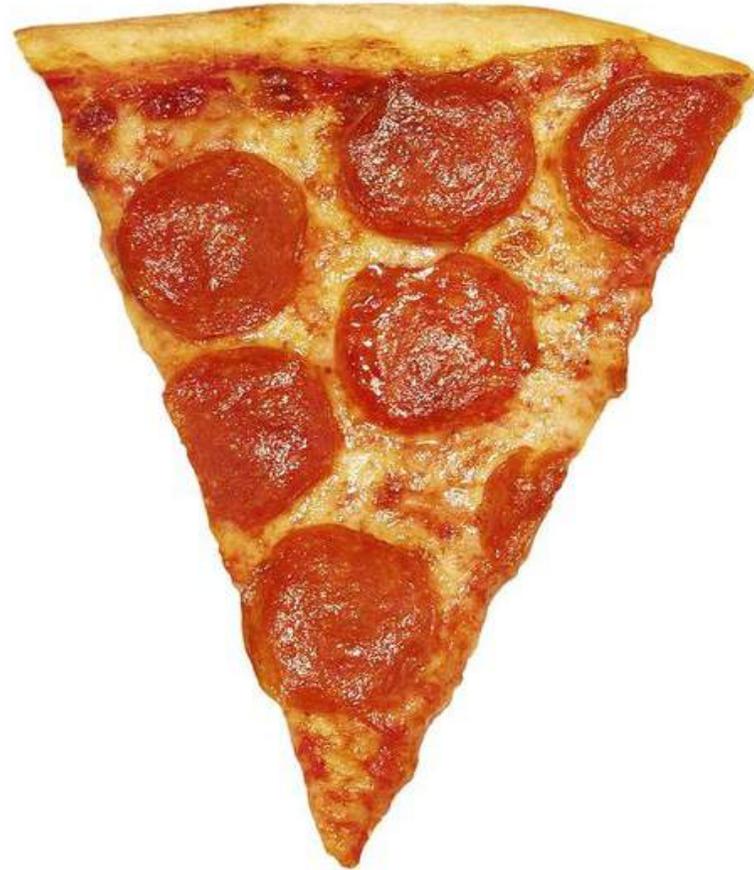
# Composting Activity – Can this be Composted?



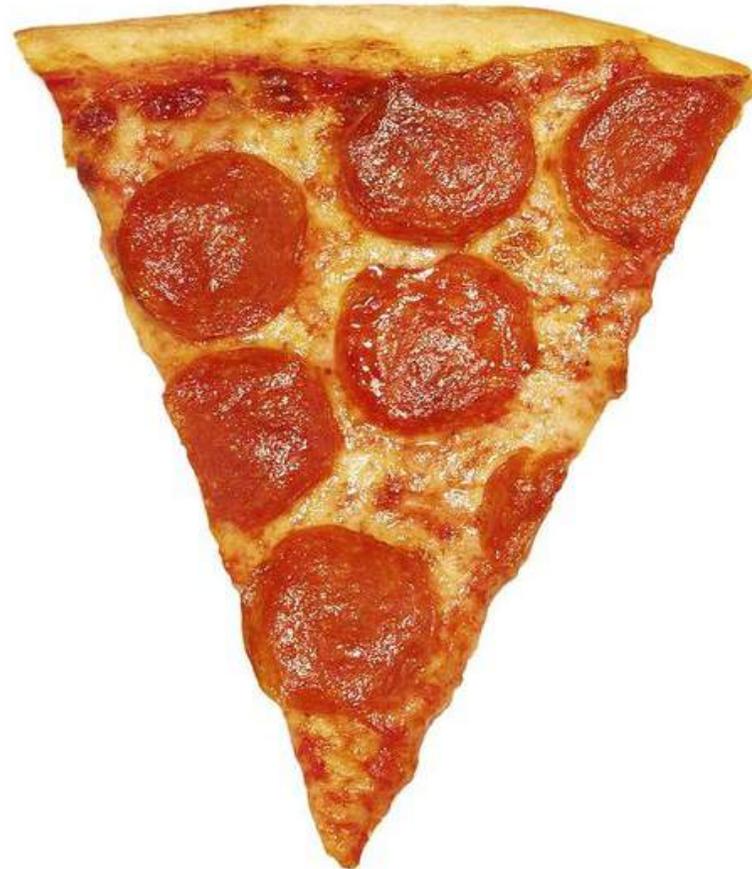
# Composting Activity – Can this be Composted?



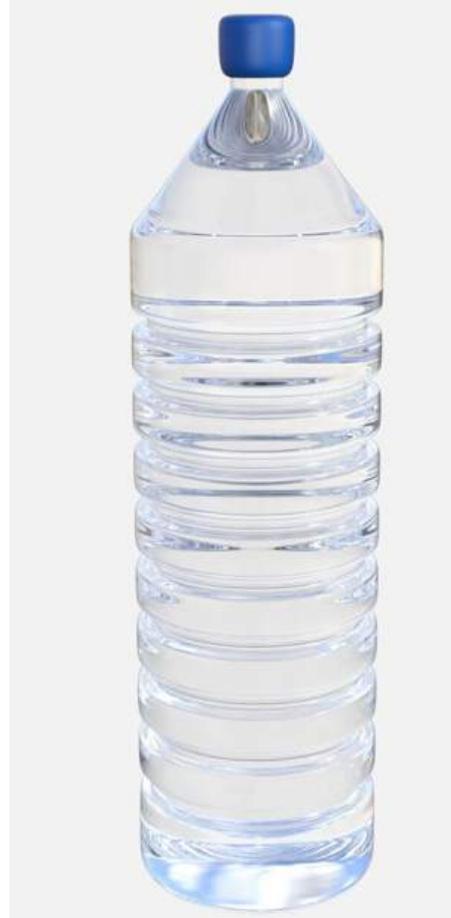
# Composting Activity – Can this be Composted?



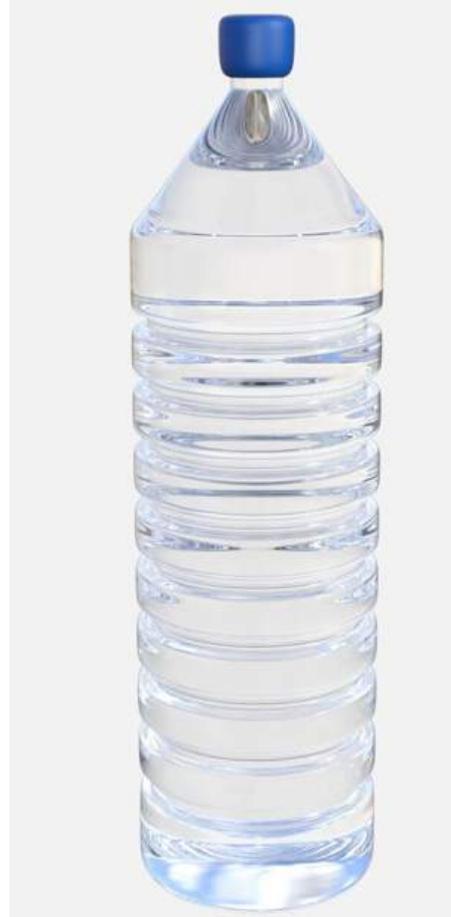
# Composting Activity – Can this be Composted?



# Composting Activity – Can this be Composted?



# Composting Activity – Can this be Composted?



This can be recycled

# Composting Activity – Can this be Composted?



# Composting Activity – Can this be Composted?



# Composting Activity – Can this be Composted?



# Composting Activity – Can this be Composted?



# Composting Activity – Can this be Composted?



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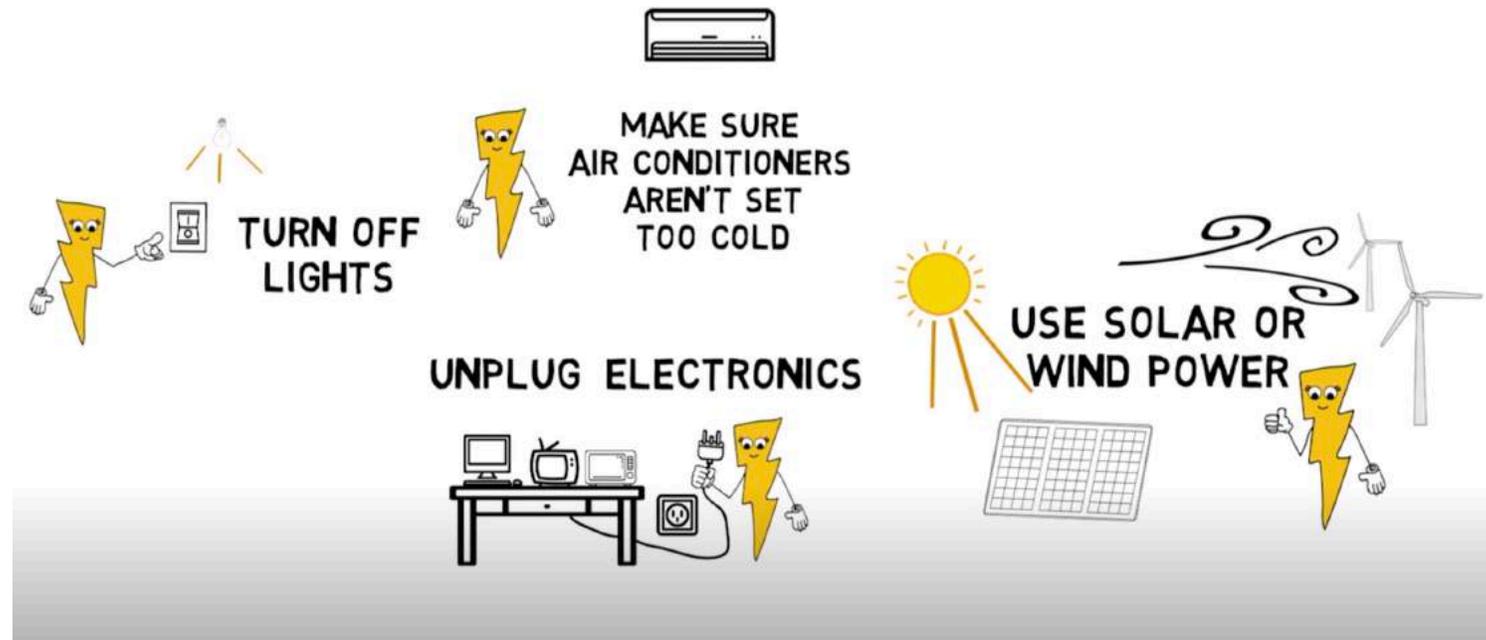


# Other Solutions to Climate Change

Lesson #4, Activity #3

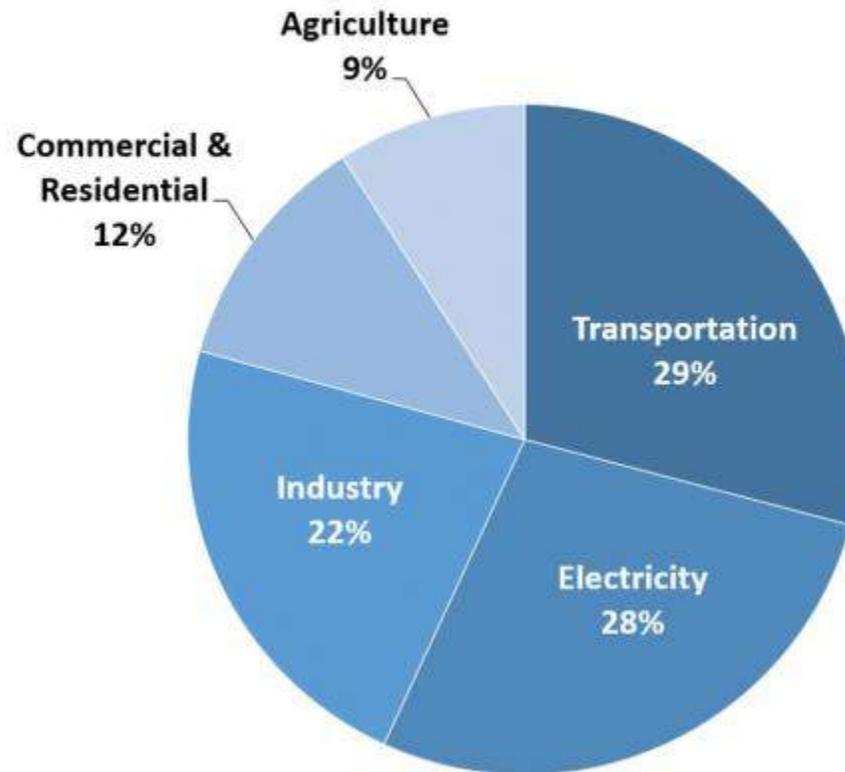
# Video - Kids Go Green: Reducing Air Pollution

- [Click here to watch the video](#)
- Link to the video: <https://www.pbslearningmedia.org/resource/ee18-sci-airpol/kids-go-green-reducing-air-pollution/>



# Total U.S. Greenhouse Gas Emissions by Economic Sector in 2017

Total U.S. Greenhouse Gas Emissions  
by Economic Sector in 2017



Source: EPA

# Student Worksheet: Four Simple Solutions to Reduce the Effects of Climate Change

- Students will fill out the following worksheet.

**STUDENT WORKSHEET**

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**FOUR SIMPLE SOLUTIONS TO REDUCE THE EFFECTS OF CLIMATE CHANGE**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Directions: Write about four different solutions that you can implement into your life to help reduce the effects of climate change. Write two sentences for each solution, explaining the solution and how you will incorporate these solutions into your own life.

Solution #1: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Solution #2: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Solution #3: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Solution #4: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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# Letter to the Editor

Lesson #5



# Writing a Letter to the Editor

Lesson #5, Activity #1





# Report Creation and Letter Rewrite

Lesson #6

Optional Lesson



# Creating the report

Lesson #6, Activity #1

# Letter to the Editor – Report Creation

Here are the steps:

1. Re-write your Letter to the Editor on a lined piece of paper, including all the corrections that your teacher made.
2. Glue the lined piece of paper onto a larger piece of paper at the bottom of the poster.
3. Write the title at the top of the poster.
4. In the middle of the poster, draw a visual representation of what you wrote about in the Letter to the Editor.

# Thank you for your time.



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Master of Sustainability Leadership