ENVIRONMENTAL IMPACTS

- Human activity has led to the destruction of habitats and ecosystems.
- Scientists are worried that if no changes are made, biodiversity will continue to degrade.
    - Biodiversity is necessary for the survival of the planet.

What human activities pose a threat to biodiversity?

ENVIRONMENTAL IMPACTS

- Habitat destruction is one of the main causes of biodiversity loss.
- Clearing land for agriculture, industry, and residential areas are all causes of habitat destruction.

If development must happen, what measures can be taken to reduce the impact on a habitat?

ENVIRONMENTAL IMPACTS

- Air pollution, water pollution, and land pollution release toxins into ecosystems.
- Improper waste disposal and emissions from factories are examples of harmful pollutants.

What is an example of proper waste disposal?

ENVIRONMENTAL IMPACTS

- Climate change has contributed to temperature changes in many regions.
  - Disrupts ecosystems
  - **Example:** Melting sea ice that polar bears depend on for hunting
- Carbon dioxide emissions from vehicles and industries are the primary cause of climate change.

? ? ?

How might climate change and the introduction of invasive species be connected?

ENVIRONMENTAL IMPACTS

- Climate change has a profound impact on the biodiversity of both land and aquatic life.

- The rising temperatures caused by climate change are linked to an increasing number of storms, forest fires, and droughts.

ENVIRONMENTAL IMPACTS

- Forest fires are extremely harmful to animal habitats.
  - The fires release carbon emissions into the atmosphere.
- Trees naturally reduce carbon emissions, and forest destruction only worsens the effects of climate change.

ENVIRONMENTAL IMPACTS

- Marine life is particularly sensitive to rising temperatures.
    - Even small temperature changes can destroy coral reefs.

Why are coral reefs important?

Think about it!

Find a recent news headline that mentions something that has happened related to a threat to biodiversity. Record it below with the date of the news article.

News headline:

Date:

What does this headline tell you about the topic?

ENDANGERED SPECIES

- Endangered species are any type of plant or animal that is in danger of disappearing forever.

- Plants and animals can become endangered for many reasons.

What are some reasons why living things may become endangered?

ENDANGERED SPECIES

- Species can become endangered either through a loss of habitat or through a loss of genetic variation.
    - This can be caused by pollution in habitats, natural disasters, and overhunting.

ENDANGERED SPECIES

- Human activities, like construction, deforestation, agriculture and mining, can contribute to habitat destruction.
    - **Example:** The Amazon rainforest has so much biodiversity, but is often clear-cut for logging and making room for cattle.

ENDANGERED SPECIES

- Genetic variation refers to the diversity within a species.

- When species populations become low, animals are forced to inbreed.
    - Animals that inbreed are much more likely to develop diseases.

? ? ?

What endangered species do you know of?

Think about it!

Research an example of an endangered species. Explain where it is endangered and why. Include a picture from the Internet.

Endangered species:

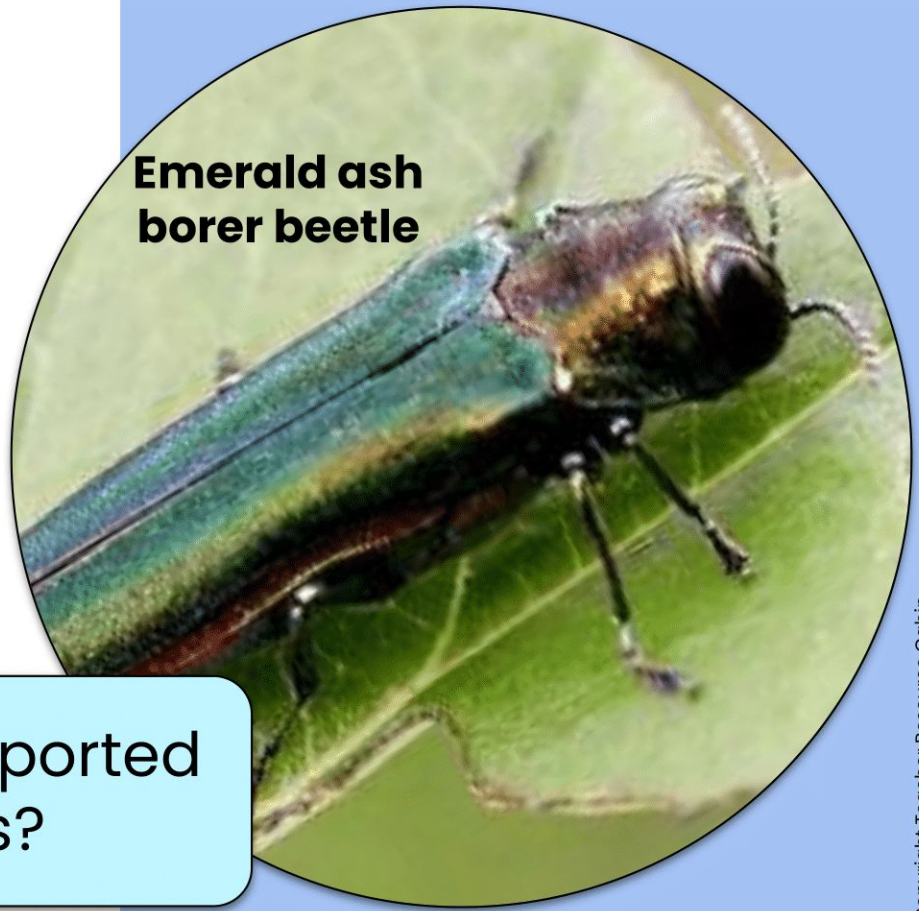
Insert image here!

Description:

INVASIVE SPECIES

- A species brought into a new habitat is a non-native species.

- An invasive species is a non-native species that causes damage to the new environment.



How do species get transported to different locations?

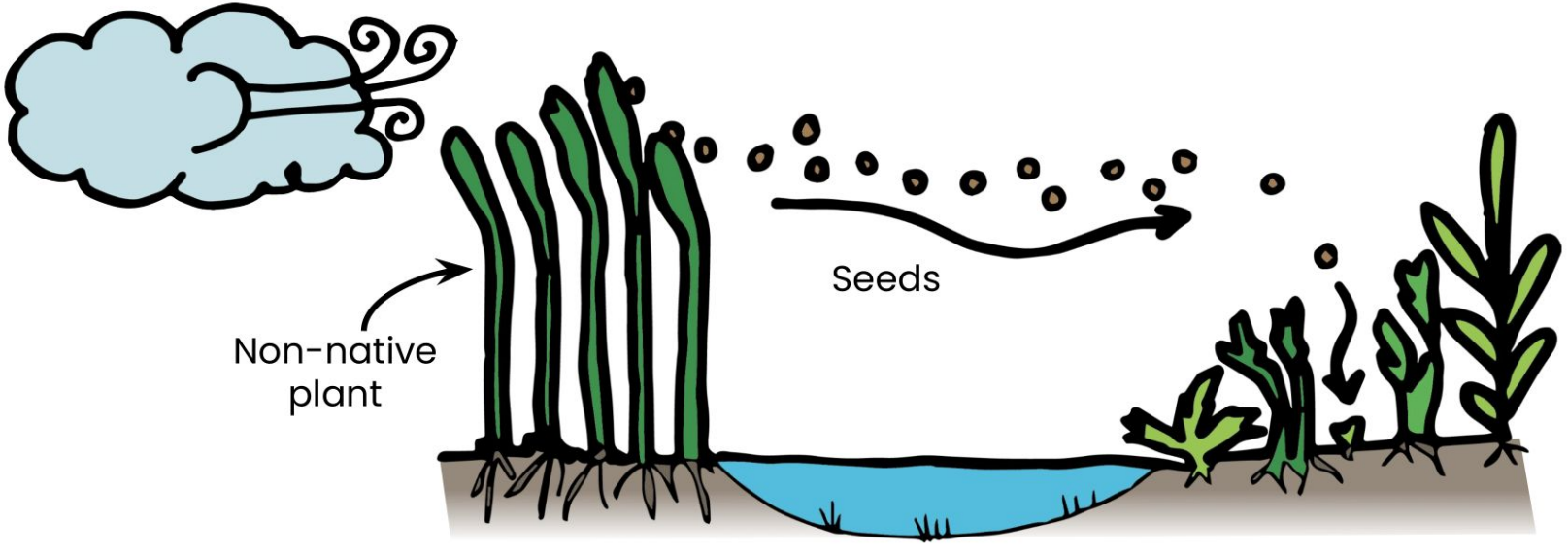
INVASIVE SPECIES

A species can be brought into a new habitat in many ways:

- An insect gets trapped in a shipping crate.
- An aquatic species attaches to a boat.
- People bring wild animals as “pets” to a new location.
- Seeds from plants transfer to a new area by air or water.

INVASIVE SPECIES

The diagram below shows how seeds from plants transfer to a new area by air.




CLIMATE
CHANGE

? ? ?

What do you know about climate change and the greenhouse effect?

CLIMATE CHANGE

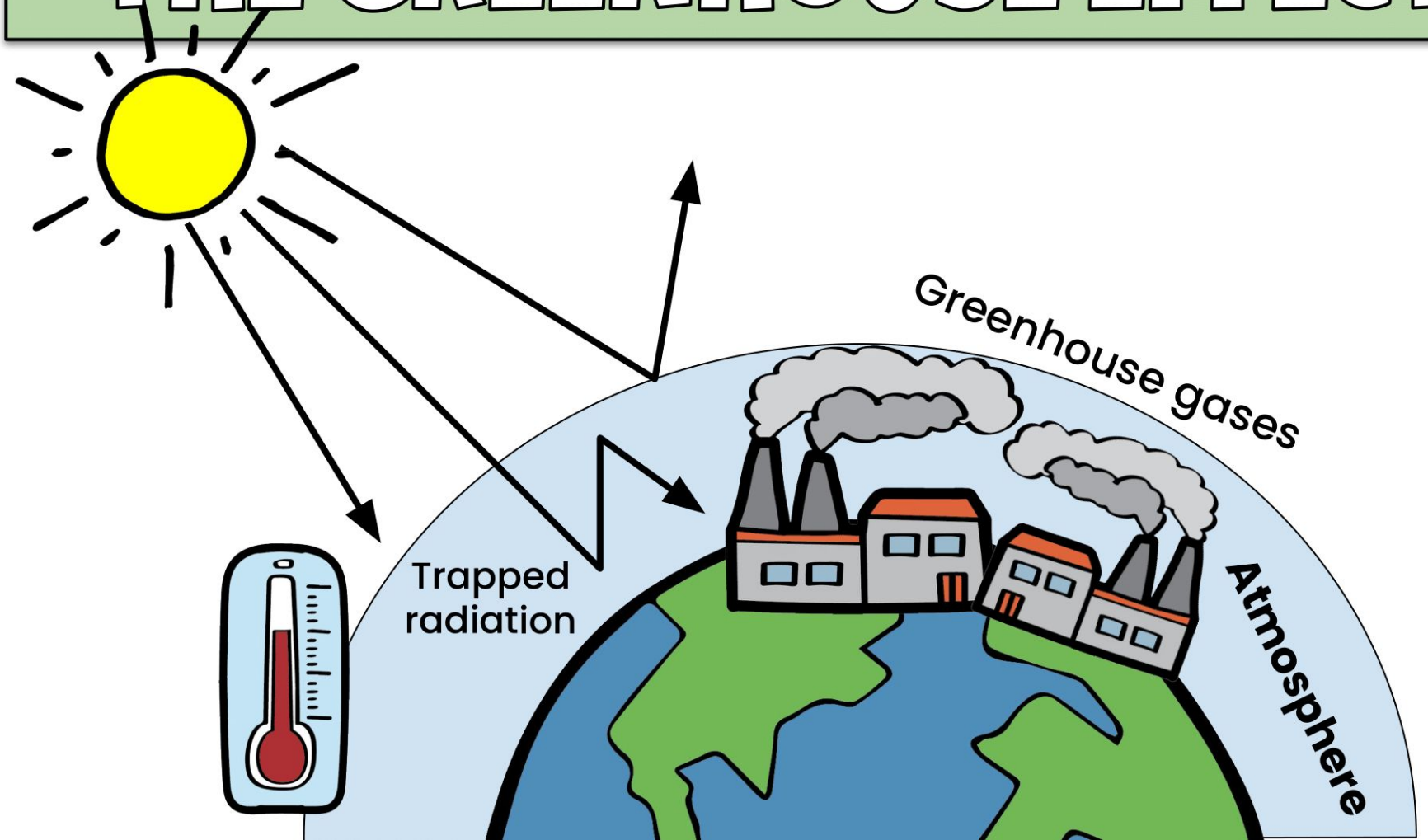
- Climate change refers to the change in the world's weather patterns, primarily caused by:
  - The use of fossil fuels
  - The greenhouse effect

CLIMATE CHANGE

- When fossil fuels are burned, oxygen combines with carbon to form carbon dioxide (CO_2).

- The overuse of fossil fuels and the excess of CO_2 in the environment has contributed to the greenhouse effect.

THE GREENHOUSE EFFECT



CLIMATE CHANGE

- Climate change has caused:
  - Glaciers to melt
  - A global rise in sea levels
  - More intense heat waves
- Scientists predict that if climate change continues, there will be more wildfires, tropical storms, and long droughts.

CLIMATE CHANGE

- The shift in **temperatures** and **weather patterns** has forced species to adapt at an unprecedented rate.
    - Poses a threat to biodiversity as species that fail to adapt are at risk of extinction

How might animals adapt to climate change?

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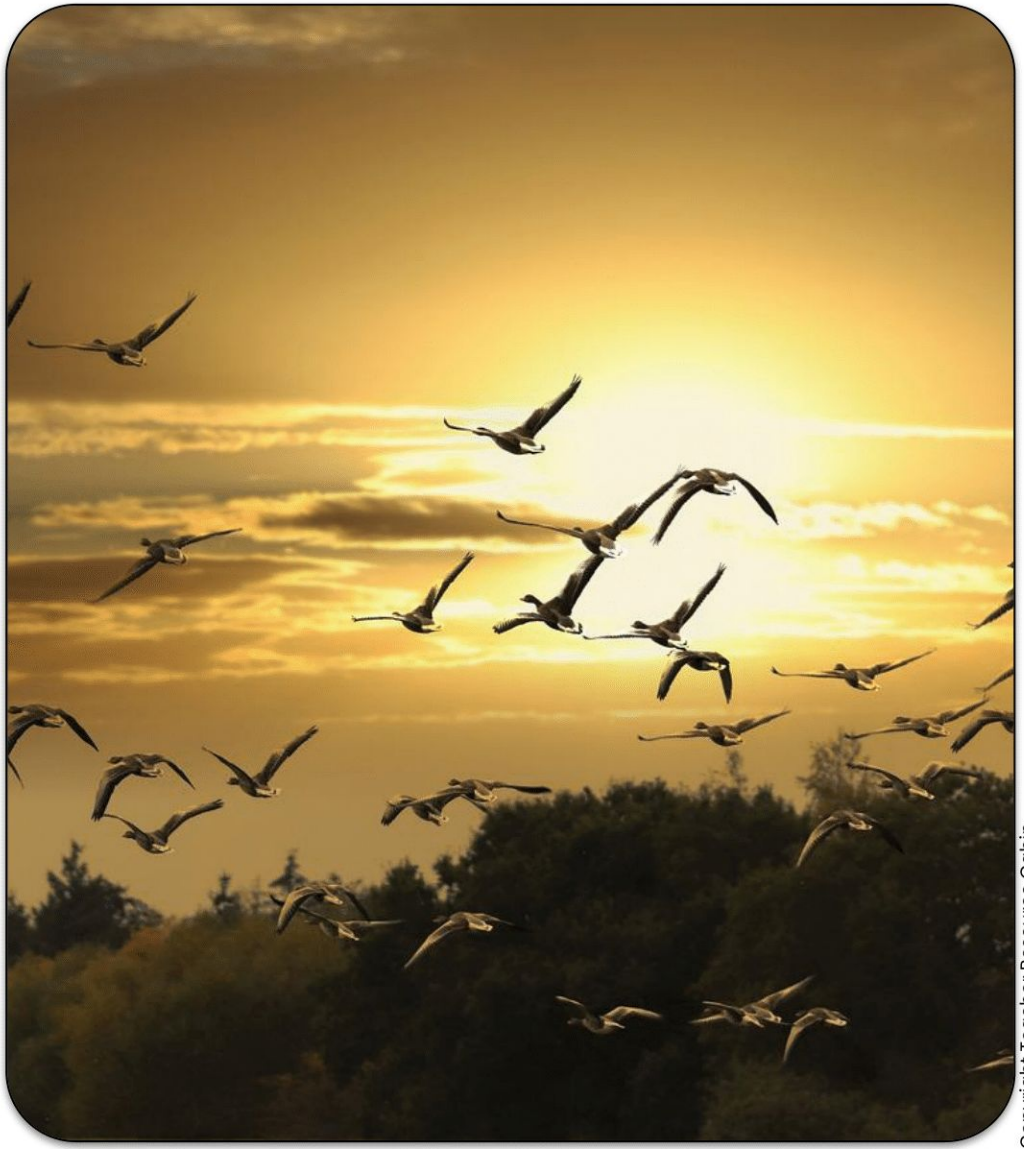
How could climate change impact bird migration patterns?



GREENHOUSE GASES

- Greenhouse gases are gases that trap heat in the Earth's atmosphere.

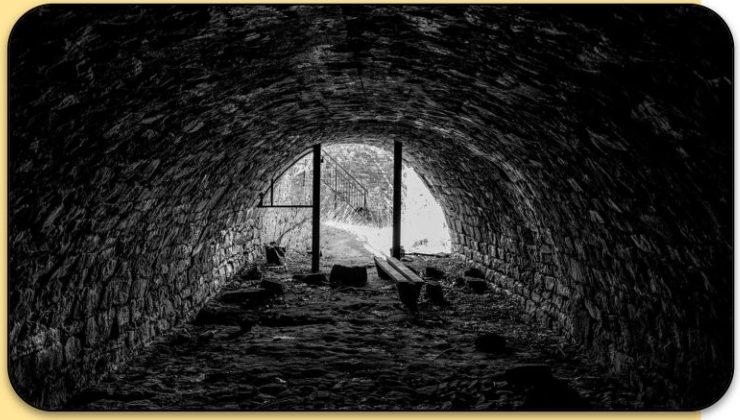
- Greenhouse gases allow energy from the Sun to enter Earth's atmosphere, however, they also prevent heat (thermal) energy from leaving the atmosphere.

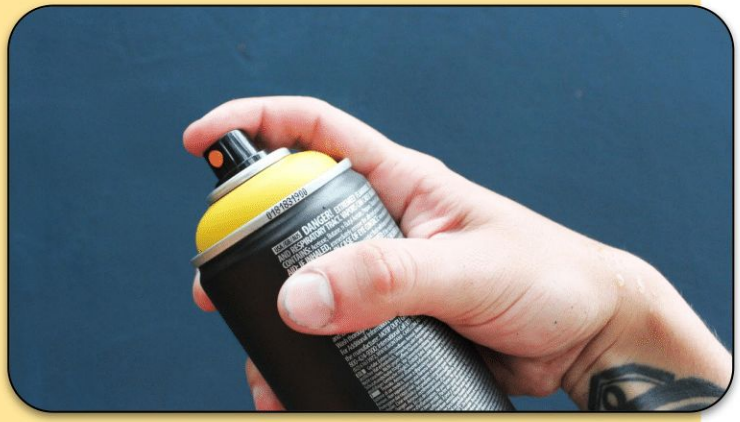
GREENHOUSE GASES

- **Carbon dioxide**: Enters the atmosphere through the burning of fossil fuels
  - Main contributor to global warming

- **Methane:** A gas released from fossil fuels and naturally in wetlands and from livestock

GREENHOUSE GASES





- **Nitrous oxide**: Released from industrial and agricultural practices, and wastewater

- **Fluorinated gases:** Very powerful greenhouse gases that trap more heat in the atmosphere than other gases
  - Many fluorinated gases are banned
  - Not produced naturally

Think about it!

Describe each type of greenhouse gas and where the gas comes from.

Carbon Dioxide	
Methane	
Nitrous Oxide	
Fluorinated Gases	

Think about it!

Is it true or false? Click and drag the T/F boxes.

Fluorinated gases are caused by cow manure.	
Climate change and the greenhouse effect are the same.	
Carrying capacity is the maximum population an ecosystem can support.	
Invasive species can enter ecosystems naturally.	
An endemic species is a species at risk of extinction.	
Food webs are more complex than food chains.	
Secondary succession is when new land is formed for a habitat.	
Agricultural practices can be modified to be sustainable in the long-term.	

T

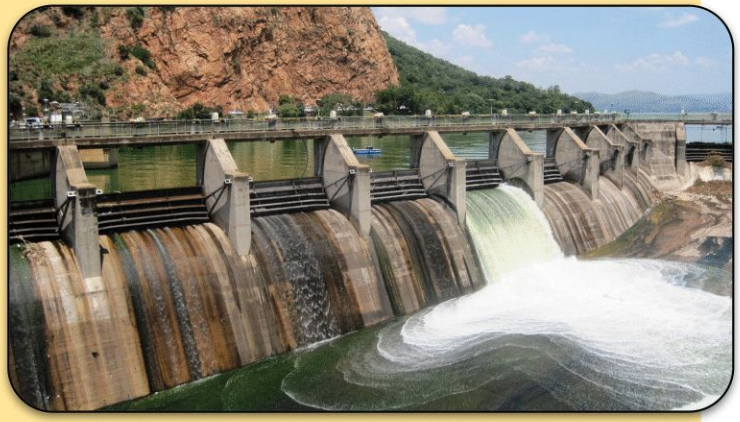
F

Conservation of Energy

- A renewable energy source or renewable resource is something that can be used more than once.
  - Replaced naturally and quickly

- **Examples:** Oxygen, water, the Sun, wood

Conservation of Energy



- Renewable energy is a reliable source of energy because the Sun always rises, the wind always blows, and water always flows.

- Using renewable resources for energy can be costly and is not available in all areas unless the infrastructure is already in place.

WASTE MANAGEMENT

- There are generally two methods of dealing with garbage:
  - Disposed of and left in a landfill
  - Incinerated (burned)

Which method do you think has less of an impact on the environment?

WASTE MANAGEMENT

- Burning garbage and filling landfills have harmful environmental consequences.
  - Leaches chemicals into the air, ground, and water

Why do people burn garbage?

WASTE MANAGEMENT

- Recycling is a strategy to reduce the total amount of garbage and convert the waste into a reusable material.
- People can reuse or repurpose existing items instead of wasting them.

? ? ?

Is recycling the best solution to waste?

Explain your thinking.