

THE LANDFILL & WASTE CRISIS MYSTERY

NO PREP

The Landfill & Waste Crisis Mystery

Part 1 – Mission Briefing & Case Overview

Name: _____ Date: _____

Case File #1420 – The Landfill & Waste Crisis Mystery

Every day, millions of tons of trash are thrown away. Food wrappers, bottles, packaging, clothing, electronics, and more are tossed into bins and taken “away.” But scientists are seeing serious environmental damage linked to where that waste ends up.

Across the world, landfills are growing, oceans are filling with debris, wildlife is being harmed, and soil and water are becoming polluted. Some communities are surrounded by trash, toxic chemicals are leaking into groundwater, and ecosystems are being disrupted.

In many regions:

- Landfills are overflowing
- Plastic waste is spreading into oceans and rivers
- Wildlife is eating or becoming trapped in trash
- Chemicals are leaking into soil and water
- Communities are living near waste sites

No single cause has been identified. What is clear is that human waste habits are reshaping the planet.

You are a science detective assigned to investigate this environmental crisis.

Your Mission

- Identify what the waste & landfill crisis is and why it happens
- Explain how trash affects land, water, and ecosystems
- Describe the impacts on animals, humans, and the environment
- Propose solutions to reduce waste and protect the planet

Waste & Landfill Crisis?

Provided then answer:

What is the crisis?

Is it different from one affected by landfills and waste?

Is it difficult to control and reverse?

Teach With
Fergy



Gamify your students' learning with this interactive and engaging Mystery Activity.

SCROLL
to take a look inside!

DETECTIVE FILE ON HOW HUMANS IMPACT THE ENVIRONMENT

★ A complete student case file with guided worksheets for every step of the investigation.

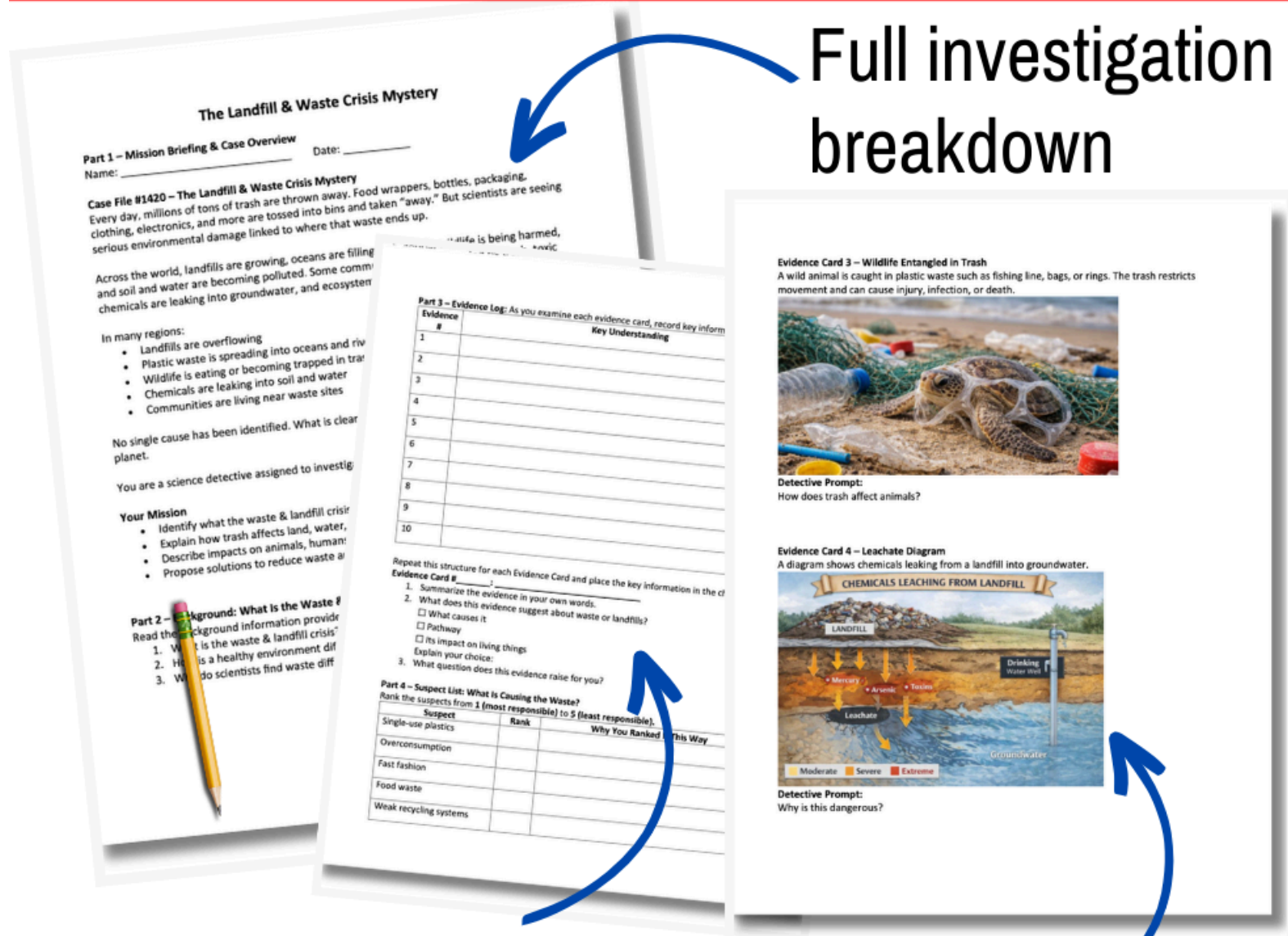
★ 10 detailed evidence cards based on real Landfill & Waste Crisis research and real-world examples that include images, graphs, and text.

★ A full teacher answer key with sample responses and support for grading.

What You Get

NO-PREP. JUST PRINT TO GO!

Full investigation breakdown



Interpretation & Recording Data

10 Evidence Cards to Determine Culprit

HOW THIS ACTIVITY HELPS YOU

- Saves prep time with a fully structured, print-and-go investigations.
- Drives high engagement while still meeting academic goals as students are interested in what they're doing.
- Builds deep understanding with **real-world relevance** as they analyze real evidence, make connections, and using CER to explain human impact.

10-PART INVESTIGATION

Students:

1. Step into the role of a Science Detective.
2. Examine real scientific evidence from around the world.
3. Track the hidden pathways of the Landfill & Waste Crisis.
4. Interrogate suspects (single-use plastics, overconsumption, food waste, etc.) and identify the main culprits.
5. Build a scientific case using Claim-Evidence-Reasoning.
6. Propose real solutions that matter.

★★★★★ The added images and graphs enhanced the activity. My students were engaged and motivated during the case study, and it was an effective introduction to the topics. - Mystery Resource Buyer

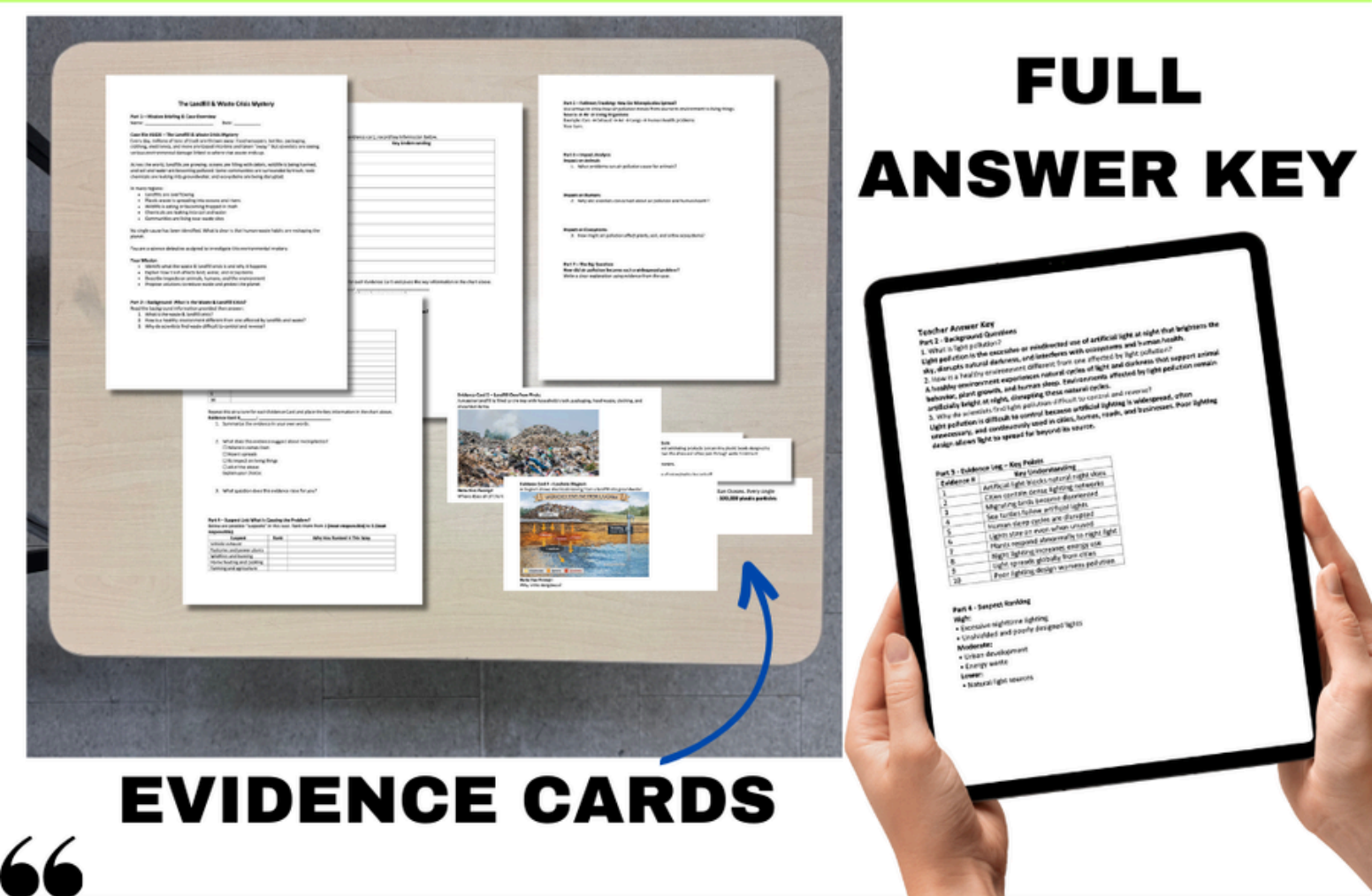
HOW THIS MYSTERY WILL HELP YOU



- Prep-FREE and fully editable Mystery Investigation - just print/upload and assign with no materials.
- **Evidence Cards** can be printed with and without images or projected on board.
- Engages every learner through hands-on, high-interest mystery investigations that boost motivation and participation.
- **Builds essential skills** such as graph interpretation, problem-solving, teamwork, creativity, and communication.

What Will Your Students Learn?

FULLY EDITABLE AND READY-TO-GO INVESTIGATION



“

★★★★★ This product will make a great addition of Environmental Mystery Mondays for my Environmental Issues Curriculum, with no teacher prep needed. - Mystery Resource Buyer

”

- ✓ How waste and landfills disrupt soil, water systems, habitats, and ecosystems
- ✓ Why trash harms wildlife, human health, and entire environments
- How to analyze data and evidence to identify patterns and draw conclusions
- How to use Claim-Evidence-Reasoning (CER) to support scientific arguments
- ✓ How to trace cause-and-effect relationships in complex environmental systems

Upgrade to the Environmental Science Detective Mystery Bundle

Get all my Environmental Science Mystery Activities plus all additional ones I create in the future.

ENVIRONMENTAL SCIENCE DETECTIVE MYSTERY BUNDLE

MICROPLASTICS MYSTERY DETECTIVE FILE ON PLASTIC POLLUTION & HUMAN IMPACT



DEFORESTATION & HABITAT DESTRUCTION MYSTERY



THE RESOURCE DEPLETION & MINING MYSTERY



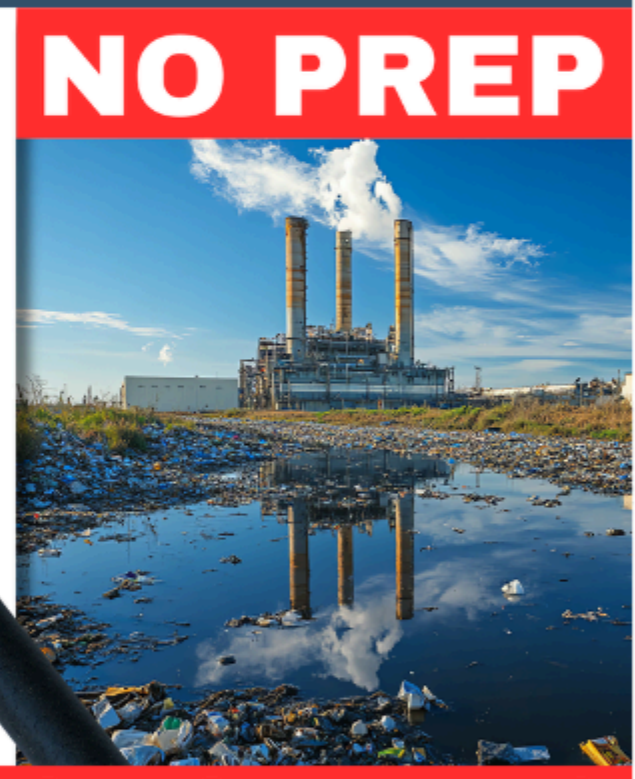
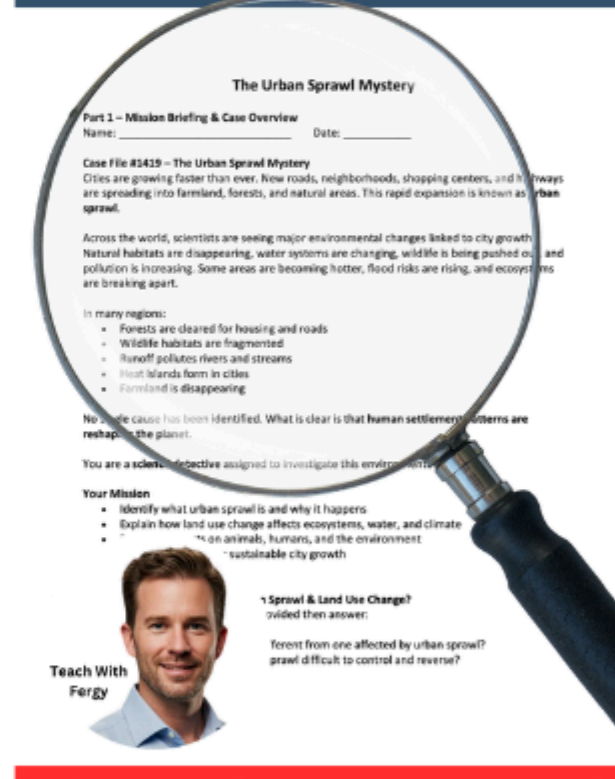
THE AIR POLLUTION MYSTERY DETECTIVE FILE ON AIR POLLUTION & THE ENVIRONMENT



THE INVASIVE SPECIES MYSTERY



DETECTIVE FILE ON HOW HUMANS IMPACT THE ENVIRONMENT



DETECTIVE FILES ON HOW HUMANS IMPACT THE ENVIRONMENT

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Part 1 & 2

The Landfill & Waste Crisis Mystery

Part 1 – Mission Briefing & Case Overview

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Case File #1420 – The Landfill & Waste Crisis Mystery

Every day, millions of tons of trash are thrown away. Food wrappers, bottles, packaging, clothing, electronics, and more are tossed into bins and taken “away.” But scientists are seeing serious environmental damage linked to where that waste ends up.

Across the world, landfills are growing, oceans are filling with debris, wildlife is being harmed, and soil and water are becoming polluted. Some communities are surrounded by trash, toxic chemicals are leaking into groundwater, and ecosystems are being disrupted.

In many regions:

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Part 2 – Background: What Is the Waste & Landfill Crisis?

Read the background information provided then answer:

1. What is the waste & landfill crisis?
2. How is a healthy environment different from one affected by landfills and waste?
3. Why do scientists find waste difficult to control and reverse?

Part 1 – Mission Briefing & Case Overview

Students are introduced to landfills and waste and take on the role of science detectives.

They learn their mission and begin the investigation with a real-world hook.

Part 2 – Background: What is the Landfill and Waste Crisis?

Students read a short background passage and answer guiding questions to build foundational understanding before analyzing evidence.

Part 3 & 4

Part 3 – Evidence Log

Students begin examining the evidence cards and record key information, observations, and insights in their evidence log.

Part 3 – Evidence Log: As you examine each evidence card, record key information below.

Evidence #	Key Understanding
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Repeat this structure for each Evidence Card and place the key information in the chart above.

Evidence Card # _____: _____

- Summarize the evidence in your own words.
- What does this evidence suggest about waste or landfills?
 - ☐ What causes it
 - ☐ Pathway
 - ☐ Its impact on living thingsExplain your choice:
- What question does this evidence raise for you?

Part 4 – Suspect List: What Is Causing the Waste?

Rank the suspects from 1 (most responsible) to 5 (least responsible).

Suspect	Rank	Why You Ranked It This Way
Single-use plastics		
Overconsumption		
Fast fashion		
Food waste		
Weak recycling systems		

Evidence Card 2 – Plastic in the Ocean
Plastic bottles, bags, and packaging float on the surface of the ocean.



Detective Prompt:
How did this trash get here?

Evidence Card 4 – Leachate Diagram
A diagram shows chemicals leaking from a landfill into groundwater.



Detective Prompt:
Why is this dangerous?

Evidence Card 6 – E-Waste Pile
Old phones, computers, chargers, batteries, and other electronics are stacked together in a dumping area.



Detective Prompt:
What happens to electronics after use?

Part 4 – Evidence Analysis

Students summarize each piece of evidence, identify what it reveals about landfills and waste, and generate questions, building critical thinking and reasoning skills.

Part 5-7

Part 5 – Pathway Tracking: How Does Waste Affect the Environment?

Use arrows to show how trash moves and causes environmental damage.

Example:

Product → Trash → Landfill → Leachate → Groundwater → Human health

Your turn:

Part 6 – Impact Analysis

Impact on Land & Habitats

How does waste and landfill growth affect land, soil, and wildlife habitats?

Impact on Water

How does waste affect rivers, groundwater, and oceans?

Impact on Animals & Humans

How does waste affect wildlife and people?

Part 7 – The Big Question

How did trash become such a widespread problem?

Use evidence from the case.

Part 5 – Suspect List

Students rank possible sources of the landfill and waste crisis, defend their choices, and determine which human activities are most responsible for the problem.

Part 6 – Pathway Tracking

Students trace how the landfill and waste crisis leads to other environmental problems.

Part 7 – Impact Analysis

Students analyze how the landfill and waste crisis affects animals, humans, and ecosystems, using

EVIDENCE CARDS

➤ All Evidence Cards come in two versions - *With images and graphs and Without* and can be printed or projected as needed.

➤ Students analyze each Evidence Card and record the following in their **Evidence Log**

1. Summarize the evidence in their own words.
2. Determine what this evidence suggests
 - ☐ What causes it
 - ☐ Pathway
 - ☐ Its impact on living things
3. Explain what question(s) this evidence raises for them?

**Images
&
Graphs**

Evidence Card 9 – Incinerator Smoke

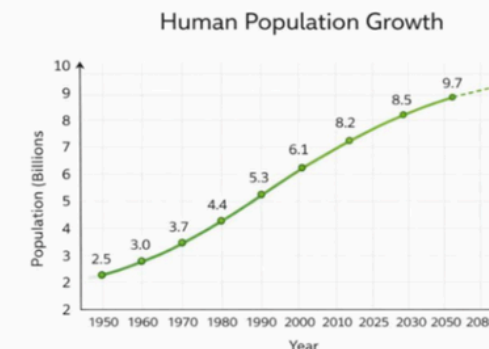
Trash is being burned at a waste incineration facility, releasing this smoke. Burning waste reduces landfill space but can release harmful gases and contribute to global warming.



Detective Prompt:
What might be released into the air?

Evidence Card 10 – Population Growth Chart

A chart shows the global human population increasing over time. As resources are used, and more products are consumed.



Detective Prompt:
How does population growth affect waste?

Evidence Cards – No Images

Evidence Card 1 – Landfill Overflow Photo

A massive landfill is filled to the top with household trash, packaging, food waste, clothing, and discarded items.

Detective Prompt:
Where does all of this trash come from?

Evidence Card 2 – Plastic in the Ocean

Plastic bottles, bags, and packaging float on the surface of the ocean.

Detective Prompt:
How did this trash get here?

Evidence Card 3 – Wildlife Entangled in Trash

A wild animal is caught in plastic waste such as fishing line, bags, or rings. The trash restricts movement and can cause injury, infection, or death.

Detective Prompt:
How does trash affect animals?

Evidence Card 4 – Leachate Diagram

A diagram shows chemicals leaking from a landfill into groundwater.

Detective Prompt:
Why is this a problem?

Evidence Card 5 – E-Waste Pile

Piles of old electronics are stacked together in a dumping area.

Detective Prompt:
Why is this a problem?

Evidence Card 6 – E-Waste Pile

Old phones, computers, chargers, batteries, and other electronics are stacked together in a dumping area.

Detective Prompt:
What happens to electronics after use?

**No
Images**

Part 8-10

Part 8 – Claim-Evidence-Reasoning (CER)

Claim

What is the main cause of the waste crisis in this case?

Evidence

List two pieces of evidence from the case.

Reasoning

Explain how your evidence supports your claim.

Part 9 – Solutions & Action Plan

Personal Actions (Things individuals can do)

1.

2.

Community / School Actions

1.

2.

Government or Industry Actions

1.

2.

Part 10 – Reflection

1. One thing that surprised me in this case was:

2. One change I would make after learning this information is:

Part 8 – The Big Question

Students synthesize all their learning to explain the main cause of the landfill and waste crisis in this case.

Part 9 – Claim-Evidence-Reasoning (CER)

Students write a structured scientific argument, making a claim, supporting it with evidence, and explaining their reasoning.

Part 10 – Reflection and Solutions

Students propose realistic actions at the personal, school, and government levels, moving from awareness to problem-solving.

Full Teacher Answer Key

Teacher Answer Key

Background Questions

- What is the waste & landfill crisis?
The waste crisis is the growing amount of trash that is harming land, water, wildlife and human health.
- How is a healthy environment different from one affected by landfills and waste?
Healthy environments have clean soil, safe water, and balanced ecosystems; pollut environments have contaminated land, water, and damaged habitats.
- Why do scientists find waste difficult to control and reverse?
Because people produce trash every day and many materials do not break down.

Evidence Log – Key Points

Evidence #	Key Understanding
1	Landfills are filling quickly.
2	Plastic waste spreads into oceans.
3	Animals are harmed by trash.
4	Chemicals leak into groundwater.
5	Clothing waste is increasing.
6	Electronics create toxic waste.
7	Food waste is widespread.
8	Recycling systems are limited.
9	Burning trash causes air pollution.
10	More people = more waste.

Suspect Ranking

High:

Overconsumption
Single-use plastics

Moderate:

Fast fashion
Food waste

Lower:

Weak recycling systems

Pathway Tracking – Sample Answers

Product → Trash → Landfill → Leachate → Groundwater
Plastic → River → Ocean → Wildlife ingestion
Food → Landfill → Methane → Climate impact

Impact Analysis

Land & Habitats:

Soil contamination, habitat loss, reduced biodiversity

Water:

Groundwater pollution, ocean debris, river contamination

Animals & Humans:

Ingestion, poisoning, health risks

Big Question – Sample Answer

Trash became a widespread problem because people use and throw away large amounts of products every day. Evidence shows landfills overflowing (Evidence 1), plastic in oceans (Evidence 2), and population growth (Evidence 10). Because waste is produced constantly and many items cannot be recycled, the problem continues to grow.

CER Sample

Claim:

Overconsumption is the main cause.

Evidence:

Evidence 1 and 5

Reasoning:

Buying and discarding products leads to landfill growth and pollution.

Solutions

Personal:

Use reusable items, recycle correctly

Community:

Recycling programs, cleanups

Government:

Waste reduction laws, packaging rules

Background Reading: What Is the Waste & Landfill Crisis?

Every day, people throw away packaging, food, clothes, electronics, and many other items. We often assume trash disappears once it is thrown away, but scientists are increasingly concerned about the waste and landfill crisis—the growing amount of trash that is damaging land, water, ecosystems, and human health.

Most waste ends up in landfills, which are large areas of land designed to store trash. Some waste is burned, and some escapes into the environment. Plastic, electronics, and other materials do not break down easily and can remain in the environment for decades. As populations grow and consumption increases, more trash is produced.

Healthy environments depend on clean soil, safe water, and balanced ecosystems. When waste builds up, these systems can be damaged.

How Is a Healthy Environment Different from One Affected by Landfills and Waste?

A healthy environment has clean land, clear water, and thriving plants and animals. Natural systems recycle materials, and ecosystems stay balanced.

An environment affected by waste has polluted soil, contaminated water, and damaged habitats. Animals may eat trash or become trapped, and chemicals can leak into the ground and water.

Another key difference is stability. Healthy environments recover from change, while polluted environments are weaker and more fragile.

Why Is the Waste & Landfill Crisis Difficult to Control and Reverse?

The waste crisis is difficult to control because people produce trash every day. Many products are designed for single use, and recycling systems cannot handle all waste.

Some materials, like plastics, can take hundreds of years to break down. Once they are thrown away, it is hard to remove. Some materials can stay in the environment for years.

Waste is also constantly being created. As populations grow and consumption increases, more trash is produced. Because the problem is widespread and ongoing, scientists and governments face major challenges in trying to reduce waste and protect the environment.

Background Reading

As a special bonus, I want to send you a few resources that you can use in your classroom tomorrow. Completely free and geared towards what you teach!



Just



and then choose what you teach!

thanks
**for your interest
in this resource!**



devon@teachwithfergy.com

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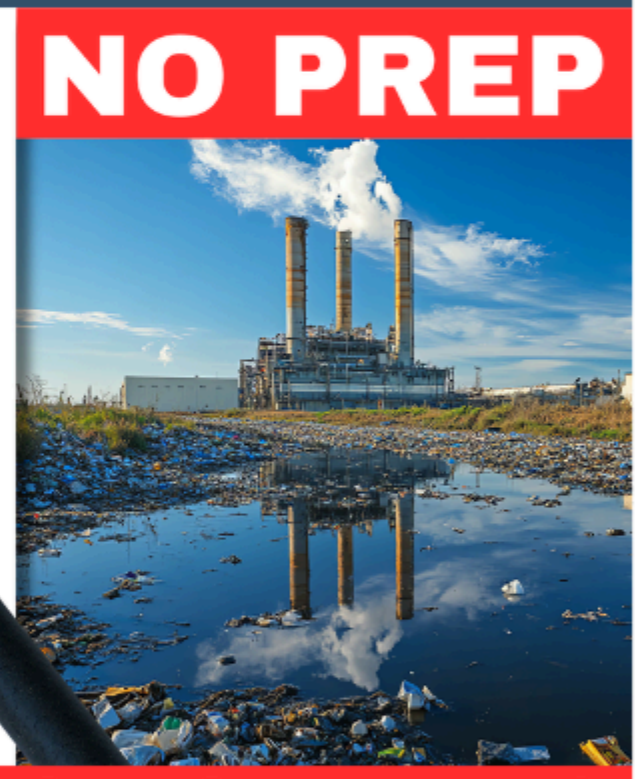
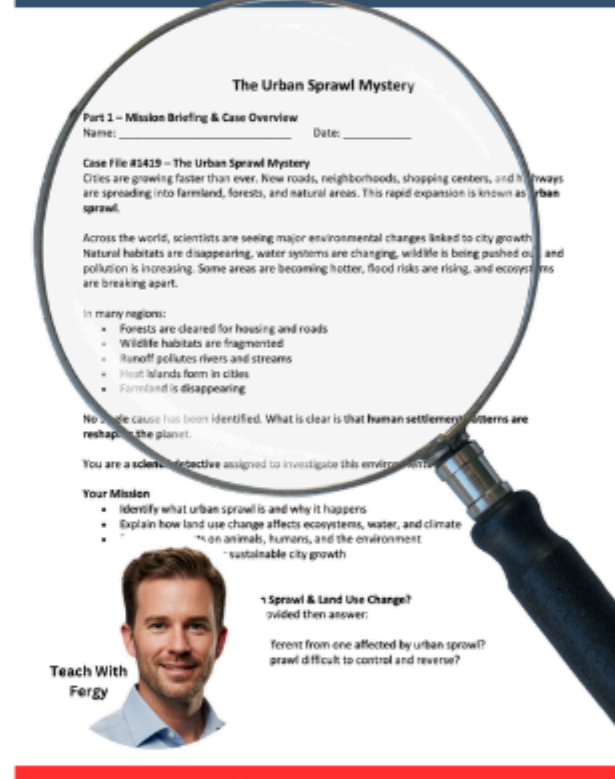
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