FAST FASHION

Teaching Elementary Students

The Climate Initiative

mygreenearth

FAST FASHION

Table of Contents

Background Information

Fashion Detectives Walkthrough

Activity Guide

Educator Presentation

The Climate Initiative

mygreenearth

Is Fast Fashion Fashionable?

An Elementary Lesson on Fast Fashion, Clothing Production, and Material Decomposition

Educator Background Information

The Climate Initiative

mygreenearth

Essential Knowledge for Teaching Elementary Students

UNDERSTANDING FAST FASHION

WHAT IS FAST FASHION?

Fast fashion refers to the rapid production of inexpensive clothing that mimics current luxury fashion trends. Companies like H&M, Zara, Shein, and Fashion Nova produce new styles constantly at extremely low prices to encourage frequent purchases.

Key Characteristics:

- Cheap materials and production (designed for short-term use)
- Quick trend turnover (new styles every few weeks)
- High volume production
- Low retail prices
- Overseas manufacturing in countries with lower labor costs & labor protections

Historical context: Historically, fashion trends followed the 4 seasons of the year. Today, some fast fashion brands release 50+ "micro-seasons" annually.

The Scale of the Problem

Consumption Statistics:

- Global clothing production has doubled since 2000
- The average person buys 60% more clothing items than 20 years ago
- Each item is kept for half as long (the average item is worn 7-10 times)
- Americans annually discard approximately 81 pounds of clothing per person
- Globally, 92 million tons of textile waste is produced each year
- Only 15% of clothing is donated or recycled; 85% goes to landfills or incinerators

Production Scale:

- The fashion industry produces over 100 billion garments annually
  - That's approximately 13 items per person on Earth each year

FAST FASHION IMPACTS

Environmental Impacts

1. Water Consumption & Pollution

Water Usage:

- The fashion industry uses 1.5 trillion gallons of water annually
- One cotton t-shirt requires approximately 700 gallons of water (growing cotton + processing)
- One pair of jeans requires approximately 1,800 gallons of water

Water Pollution:

- Textile dyeing is the second-largest polluter of water globally
- Approximately 20% of industrial water pollution comes from textile treatment and dyeing
- Untreated toxic wastewater from textile factories flows directly into rivers in many developing countries
  - It contains heavy metals (lead, mercury, arsenic), chemicals, and dyes

Real-world example for students: Rivers in China, India, and Bangladesh have turned blue, green, red, and other colors from textile dye pollution. Fish and aquatic life cannot survive in these waters.

Essential Knowledge for Teaching Elementary Students

UNDERSTANDING FAST FASHION

FAST FASHION IMPACTS

2. Carbon Emissions & Climate Change

The fashion industry produces:

- 10% of global carbon emissions (more than international flights and maritime shipping combined)
- 1.2 billion tons of CO_2 annually

Sources of emissions:

- Raw material production (cotton farming, synthetic fiber manufacturing)
- Manufacturing and processing
- Transportation (shipping from overseas factories)
- Consumer use (washing, drying)
- End-of-life disposal (landfills release methane, incineration releases CO_2)

Polyester production alone releases 706 billion kg of greenhouse gases annually (equivalent to 185 coal-fired power plants running for a year).

3. Textile Waste & Decomposition

Landfill Impact:

- In the U.S., 11.3 million tons of textile waste ends up in landfills annually
  - This equals approximately 2,150 items per second
- Textiles occupy nearly 5% of all landfill space

Key teaching point: Natural fibers are biodegradable because they come from living things (plants/animals). Synthetic fibers are made from petroleum (plastic) and cannot biodegrade- they only break into smaller pieces.

Decomposition Times:

Material	Decomposition Time
Cotton (natural)	6 months - 5 years
Wool (natural)	1-5 years
Leather	Up to 50 years
Nylon (synthetic)	30-40 years
Polyester (synthetic)	200+ years

Essential Knowledge for Teaching Elementary Students

UNDERSTANDING FAST FASHION

FAST FASHION IMPACTS

4. Microplastics & Ocean Pollution

The Problem:

- 60% of clothing globally is made from synthetic materials (polyester, nylon, acrylic)
  - These fabrics are essentially plastic
- Every wash cycle releases 700,000+ microplastic fibers per load
  - These fibers flow through wastewater systems into rivers and oceans
- Microplastics are now found in the deepest ocean trenches, tallest mountains, and arctic ice

Impact on ecosystems:

- Marine animals ingest microplastics (mistaking them for food)
- Microplastics enter the food chain (fish → larger fish → humans)
- Studies have found microplastics in 83% of tap water samples worldwide
- Microplastics have been found in human blood, lungs, and placentas

Teaching simplification: "Polyester clothes shed tiny plastic pieces too small to see. These plastics end up in the ocean where fish eat them, and then we eat the fish!"

5. Chemical Pollution

Toxic substances used in textile production:

- Pesticides (cotton farming uses 6% of global pesticides and 16% of insecticides)
- Heavy metals (in dyes, finishes, buttons, and zippers)
- Formaldehyde (wrinkle-resistant finishes)
- Flame retardants
- Perfluorinated chemicals/PFCs (water-resistant coatings)
- Azo dyes used for coloration (can release carcinogenic compounds)

Impact: These chemicals contaminate soil, groundwater, and surface water near production facilities, affecting local communities and ecosystems.

Social & Human Impacts

Labor Conditions:

Factory Workers:

- Approximately 75 million people work in garment factories worldwide
  - 75% are women between ages 18-35
- Many workers earn less than minimum wage in their countries
- Average garment worker wage: $3-5 per day in countries like Bangladesh
- Work weeks often exceed 60-70 hours
- Unsafe working conditions (building collapses, fires, exposure to toxic chemicals)

Notable disasters:

- Rana Plaza collapse (2013): 1,134 garment workers killed in Bangladesh when factory building collapsed
  - This tragedy brought global attention to fast fashion labor practices

Child Labor:

- An estimated 170 million children are engaged in child labor globally (many in textile and garment production)
- Children work in cotton fields, spinning mills, and garment factories

Teaching approach for elementary: Focus on fairness rather than graphic details."The people who make our clothes often don't earn enough money to buy the clothes themselves. They work very long hours in unsafe buildings. This isn't fair, and we can help by making better choices."

Essential Knowledge for Teaching Elementary Students

UNDERSTANDING FAST FASHION

MATERIAL SCIENCE: NATURAL VS. SYNTHETIC FABRICS

Natural Fibers	Characteristics
Cotton	• Comes from cotton plant seed pods • Biodegradable (breaks down naturally) • Breathable and absorbent • Requires significant water and often pesticides to grow
Wool	• Comes from sheep (and similar animals) • Biodegradable • Insulating and moisture-wicking • Renewable resource
Linen	• Comes from flax plant • Biodegradable • Very durable • Requires less water than cotton

Essential Knowledge for Teaching Elementary Students

UNDERSTANDING FAST FASHION

MATERIAL SCIENCE: NATURAL VS. SYNTHETIC FABRICS

Synthetic Fibers	Characteristics
Polyester	• Made from petroleum (oil) • Non-biodegradable (plastic) • Dries quickly, wrinkle-resistant • Cheap to produce • Most common fabric in fast fashion
Nylon	• Also petroleum-based • Non-biodegradable • Strong and elastic • Used in activewear, stockings
Acrylic	• Petroleum-based • Non-biodegradable • Mimics wool • Sheds microplastics readily

Key teaching point: "If it comes from nature (plants or animals), nature knows how to break it down. If it's made in a factory from oil/plastic, nature doesn't know what to do with it."

Essential Knowledge for Teaching Elementary Students

UNDERSTANDING FAST FASHION

SOLUTIONS & SUSTAINABLE ALTERNATIVES

Individual Actions (Age-Appropriate for Students):

- Buy Less, Choose Well
  - Quality over quantity
- The "30 wears test" before purchasing
- Care for Clothing → wash in cold water
  - Air dry when possible
- Repair instead of discard
- Shop and donate at secondhand thrift stores and consignment shops
- Host and participate in clothing swaps
- There's no shame in hand-me-downs!
- Donate & Recycle
  - 95% of textiles can be recycled or reused
- Upcycle & Repurpose
  - Transform old items into new creations
  - Reduces waste and encourages creativity

Industry Solutions (For Context):

- Circular fashion: Designing clothes to be recycled/reused
- Sustainable materials: Organic cotton, hemp, recycled polyester, innovative materials (mushroom leather, seaweed fabric)
- Rental & resale models: Clothing rental services, brand-sponsored resale programs
- Transparency: Supply chain tracking, ethical certifications
- Slow fashion movement: Higher quality, timeless designs, fair wages

Essential Knowledge for Teaching Elementary Students

UNDERSTANDING FAST FASHION

RESOURCES

https://rawshot.ai/statistic/global-clothing-production
https://www.unep.org/news-and-stories/press-release/un-alliance-sustainable-fashion-addresses-damage-fast-fashion
https://earth.org/statistics-about-fast-fashion-waste/
https://www.unep.org/technical-highlight/sustainable-fashion-take-centre-stage-zero-waste-day
https://hrra.org/textiles/
https://www.uniformmarket.com/statistics/global-apparel-industry-statistics
https://www.europarl.europa.eu/RegData/etudes/ATAG/2020/656296/EPRS_ATA(2020)656296_EN.pdf
https://recovo.co/en/blog/article/the-environmental-cost-of-fast-fashion-a-closer-look-at-textile-waste
https://healtheplanet.com/100-ways-to-heal-the-planet/textile-dyeing
https://instituteofsustainabilitystudies.com/insights/guides/reducing-supply-chain-emissions-in-the-fashion-industry/
https://consciousconsumers.nz/category/greener-lifestyle-tips/
https://www.weardonaterecycle.org/
https://cottonique.ca/blogs/articles/how-long-will-it-take-for-fabrics-to-decompose?srsltid=AfmBOoo9dF1nbh8cjfhE2yhyoRq5rMqk4NSQyxcj5XiOt857m5pGFo27&shpxid=212bfb02-0c95-40d0-918c-15841eab36fe
https://www.theguardian.com/science/2016/sep/27/washing-clothes-releases-water-polluting-fibres-study-finds
https://www.theguardian.com/environment/2017/sep/06/plastic-fibres-found-tap-water-around-world-study-reveals
https://ejfoundation.org/news-media/the-casualties-of-cotton
https://studentbriefs.law.gwu.edu/ilpb/2021/10/28/fast-fashion-getting-faster-a-look-at-the-unethical-labor-practices-sustaining-a-growing-industry/
https://www.earthday.org/beneath-the-seams-the-human-toll-of-fast-fashion/
https://unboundnow.org/fast-fashion-amp-labor-trafficking/
https://textilefocus.com/restricted-substances-in-textile-processing-an-overview-of-toxicity-regulatory-frameworks-risk-management/
https://ejfoundation.org/news-media/the-casualties-of-cotton

Today we're going to become FASHION DETECTIVES and solve a mystery: Is fast fashion really fashionable, or is it causing problems for our planet

**You can access this slide show in presentation mode at the following link: https://www.canva.com/design/DAHC7ATKY8o/8jyw9NReS-rP7bb3xrH1bw/edit?utm_content=DAHC7ATKY8o&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton **

WHAT IS FAST FASHION?

Key Facts:

- Fast fashion = too many clothes!
- Did you know your clothes are made of plastic?
- Clothing production can harm our ecosystems.

Before going over the slide information, have students:

Stand up if you...

- Have worn something only 1-5 times before deciding you don't want it anymore (sit down)
- Have clothes in your closet with tags still on them (sit down)
- Have gotten rid of clothes because they went out of style, not because they were worn out (sit do wn)

This is exactly what fast fashion companies want! They want us to buy new clothes all the time. But where do all those old clothes go?

Slide Notes:
-Fast Fashion Definition: The mass production & sale of cheaply made clothing to keep up with quickly changing fashion trends.
-Overconsumption/waste: We are buying more and more clothes, but not wearing them all!
-Most of our clothes are actually made from plastics that are produced by oil!
-This requires lots of energy & chemical usage that can harm our ecosystems.
-There are 100 billion items of clothing produced every year! And 92 million tons of textile (clothing waste).

-Energy/Chemical Usage: The fashion industry is responsible for 10% of annual carbon emissions (this is what makes our planet warmer).

20% of the world’s wastewater (polluted or unclean water) comes from dyeing & treating fabric for our clothes.

Sources/More Information: https://rawshot.ai/statistic/global-clothing-production

-Growing Cotton: The base material for t-shirts is cotton, a white, fluffy plant that grows in warm climates around the world.
The plant is picked and then sent to factories around the world, crossing oceans and continents, to be turned into your clothing!
-Most t-shirts start as cotton plants, or are made from polyester, which is actually made from OIL - the same stuff we use for gasoline!
-Cotton is soft, absorbent, durable, and won't stick to your skin- making it a useful material for clot hing!
-It takes about 2700 gallons of water to make ONE cotton t-shirt. That's enough water to fill 10 bat htubs!

-Cotton is grown in places like India, China, or even Georgia!
-The cotton is spun into thread, woven into fabric, then dyed with chemicals
-Problem: Many of these chemicals pollute rivers and harm animals

-Making Fabric:
Cotton needs to be cleaned, heated, & treated with chemicals to turn it into yarn.

Sewing the Clothes:
-The yarn is spun into spools to become fabric through; then cut and sewn into clothing.
-Finally, the t-shirt needs to be washed, dried, and ironed to remove any dirt or oil, ensure its softness, and to maintain its shape.

-Most clothes are sewn in factories in countries far away (Bangladesh, Vietnam, China)
-Workers often work long hours for very little money
-Sometimes even kids have to work instead of going to school

Helpful video: https://www.youtube.com/watch?v=kTvo4lCWc5U

THE JOURNEY OF A T-SHIRT

Shipping Across the Ocean:
- Your t-shirt could be from the other side of the world!

The Store:
- This is where you buy your t-shirt!

Your Closet:
- Your t-shirt lives here until you get rid of it.

The Landfill:
- This is where most t-shirts end up.

-Once t-shirts are completed, they are shipped to stores all over the world.
-Clothes travel thousands of miles on giant cargo ships
-This releases carbon dioxide (a greenhouse gas) into the air, contributing to climate change

-The shirt you buy at the store could come from the other side of the world!

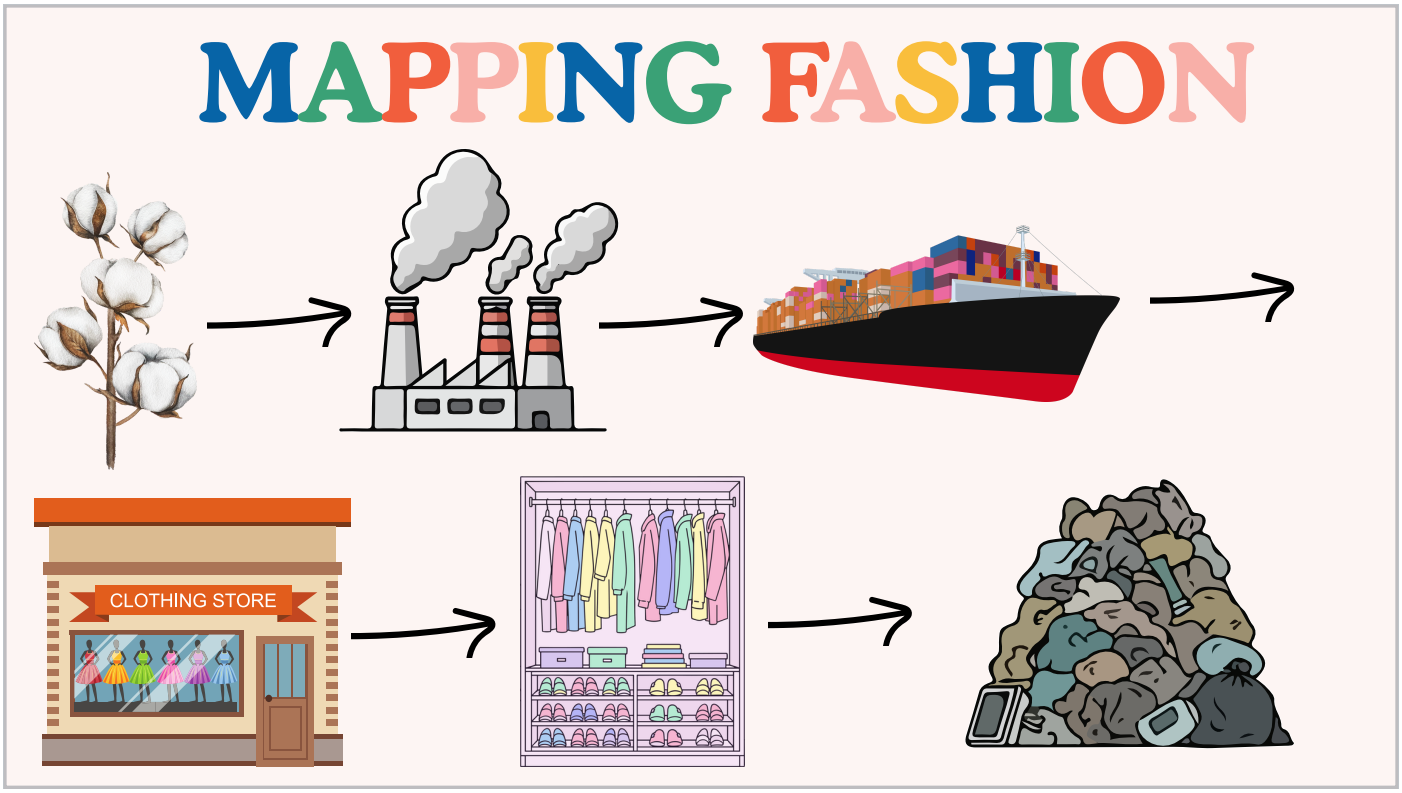
-Average fast fashion item is worn only 7 times before being thrown away

-T-shirts that aren't donated, recycled, or upcycled, end up in a landfill.
-85% of clothes end up in the trash, not donated
-They sit in landfills for hundreds of years

Helpful Video: https://www.youtube.com/watch?v=kTvo4lCWc5U

- Have students shoutout where their clothing items are from

- Make a dot on the map to demonstrate the distance that our clothes travel to reach us



Trace the journey of a t-shirt:

Cotton field in India/Georgia → Factory in Bangladesh → Cargo ship across ocean → Store in USA → Your closet → Landfill

Ask: "Wow, that's a lot of traveling for one shirt! What do you think all that traveling does to the environment?"

Other questions to ask:
- How many clothing items do you think you have at home?
- What happens when you're clothes don't fit anymore or you don't like them?

Water Waste:
- The fashion industry is the second largest consumer of water
- 2.7 billion people face water scarcity
-Cotton, which is used in much of our clothing, needs 7,000-29,000 liters of water for just one kilogram of raw cotton!
-It takes about 2,700 liters of water to make one cotton t-shirt, which is enough for one person to drink for 900 days!
- This depletes local/natural sources of water, like aquifers, before they can be replenished
- Processing textiles requires an additional 100-150 liters of water per kilogram of fiber
- This processing also heavily pollutes water through discharge

Clothing Waste:
- 1.92 million tonnes of textile waste are produced each year.
-The average US consumer (that's you!) throws away 81.2lbs of clothes every year!
- In the US, there is 11.3 million tonnes (85%) of clothing waste end up in landfills annually or burn ed
-This is equivalent to 85% of textiles
-The number of times a garment is worn has decreased by 36% over the last 15 years (the average wear is 7-10 times)
-Only 12% of clothing material is recycled globally
-Cotton can decompose, or break down, in 5 months vs polyester will take 20-200 years!
- Cotton can take 10-20 years if in a landfill

Microplastics:
-They “are very tiny pieces of plastic, usually smaller than a grain of rice… created when larger plastic items break down or are made to be small on purpose.”
-These particles do not dissolve in water and can be found almost everywhere on Earth, from the deepest oceans to the highest mountains”.
-Partially come from our clothing via microfibers
-They go from our washing machines into our water systems & eventually the ocean
-Once microfibers/plastics enter the ocean, they are eaten by fish - and then by us!
10% of microplastics in the oceans come from our clothes via microfibers
A single load of laundry can release 700,000 microfibers!
-35% of microplastics in the ocean come from the fashion industry

Carbon Footprint:
-The fashion industry produces emissions that make the Earth warmer, creating challenges for all life forms.
-The fashion industry produces 10% of all global carbon emissions - more than all international flights and shipping combined!
-CO2 emissions and GHGs are a driving force of climate change
-Climate change harms our ecosystems, animals, marine life, and us!
-With fashion trends that change quickly, we are increasing our consumption, resource usage, waste, emissions, and ultimately accelerating climate change.

Additional teaching resources: https://new.academy4sc.org/2025/03/19/teaching-about-the-fast-fa shion-industry-and-sustainable-production/

https://kids.earth.org/climate-change/how-does-fast-fashion-affect-the-environment/

ENVIRONMENTAL IMPACTS

Add a discussion question or interactive element

COMMUNITY IMPACTS

How does fast fashion impact the communities that produce it?

- Poor working conditions
- Community pollution
- Water Scarcity
- Loss of agricultural soil
- Reduction of environmental resilience

Poor working conditions: Low wages, long working hours, lack of safety & health protections
-Increased demands for clothing requires more workers
-With mass production, inadequate regulatory oversights have allowed exploitation of already marginalized communities, often in developing countries
-Workers receive especially low wages, making it difficult to meet their needs and keeping them trapped in a cycle of poverty
-They face dangerous working conditions that can put their health and safety at risk
-Discussion of child labor in the fashion industry?
- This is ultimately a matter of injustice and climate injustice, as Western countries extract labor and resources, while also shipping their plastic waste to developing countries

Community Pollution: Communities near factories bear the brunt of pollution impacts
- Waste, chemicals, and pollution from factories producing chemicals ultimately get released into the communities hosting factories
- This contaminates/threatens water & agricultural supplies, ecosystem species, potential ecosystem services, etc.
-Community impacts eventually become global impacts as climate change progresses.

Water Scarcity: Fast Fashion is often produced in countries already facing water shortages
- this depletes their water reserves even more

Loss of Agricultural Soil:
-Agricultural land is used to produce cotton

-Chemicals & pollution from fashion production also reduce soil quality & safety

Reduction of Environmental Resilience:
-The community & environmental impacts of the industry leave people and ecosystems vulnerable to climate change & other effects.

The 30 Wear Test: Will you wear this at least 30 times before getting rid of it?

Quality over Quantity: It's better to have a few clothing items that will last than a ton than lots that won't!

Take good care of your clothes! Sew or repair clothing instead of getting rid of it.

Learn to style your clothes in different ways to create more outfits!

Donate, recycle, or upcycle your old clothes!

Upcycling means taking something old and making it into something new.

Examples:
- Old t-shirt → Tote bag
- Jeans with holes → Cut-off shorts or a denim skirt
- Too-small dress → Shirt for a younger sibling
- Sweater → Pillow case
- Socks with holes → Puppet or dog toy

Innovative Solutions:
Fabrics from mushrooms, seaweed, and pineapple leaves
Shoes from recycled ocean plastic

Clothing rental services

I'm going to read some options. Give me a thumbs up when you hear one you're willing to try!"
Read options (students thumbs up for each they'll commit to):

-I pledge to wear my clothes at least 30 times before deciding I don't want them
-I pledge to donate my old clothes instead of throwing them away
-I pledge to try shopping secondhand at least once
-I pledge to help upcycle something at home
-I pledge to ask my family where our clothes come from
-I pledge to take care of my clothes so they last longer
-I pledge to choose natural fabrics (like cotton) when I can

Now we're going to take our fashion detective work to the next level

You now know the truth about fast fashion! You know where clothes come from, how they impact the environment, and what you can do to help. Now let's put on our scientist hats and test it out ourselves.

Are you ready to discover which fabrics are friend or foe to the environment?

RESOURCES

Rethinking Fast Fashion: The Environmental Cost of Cheap Clothes
The Hidden Costs of Fashion
Teaching About the Fast Fashion Industry and Sustainable Production
How Does Fast Fashion Affect the Environment?
The Environmental Impact of Fast Fashion, Explained
Fast Fashion
The Environmental Costs of Fast Fashion
How does fast fashion affect the environment?
The Life Cycle of a T-shirt - Angel Chang
Fast Fashion - What is it? (6th Class SPHE Lesson)

Is Fast Fashion Fashionable?

An Elementary Lesson on Fast Fashion, Clothing Production, and Material Decomposition

Lesson Overview
Teacher's Activity Guide
Take Home Assignment
Student Activity Worksheets
Exit Ticket

The Climate Initiative

mygreenearth

Elementary: Is Fast Fashion Fashionable?

LEARN HOW YOUR CLOTHES ARE MADE

LESSON SUMMARY

Fast fashion lets us participate in fashion trends quickly, but not without costs to our planet and people through pollution, waste, resource depletion, and poor working conditions. Teaching students about the clothing lifecycle empowers them to make choices that can protect the environment.

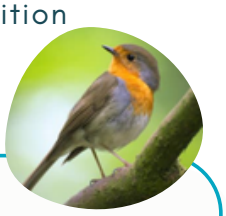
MATERIALS

Materials provided (per student team):

- *2 fabric samples: cotton and polyester (4"x4" squares)*
- *2 small clear cups with water*
- *Eyedroppers or pipettes*
- *Sandpaper patches*
- *Baseball + rubber band*
- *Paper towels*
- *Timer or clock*
- *Pre-buried fabric samples in soil containers (prepared 2-4 weeks prior):*
  - *Cotton, polyester, wool fabric samples*
- *Plastic gloves*
- *Magnifying glasses (1 per group)*
- *Rulers*

KEY VOCABULARY

fast fashion
synthetic
natural resources
pollution
carbon footprint
microplastics
biodegradable
ecosystem
water consumption
absorb
decomposition



BIG IDEA

Our clothing choices affect the environment – from the fabrics we choose to what happens when we throw clothes away.

OVERVIEW

Engage

- Review the Fast Fashion powerpoint for background knowledge on activity
- When prompted in the powerpoint, students participate in engagement activities.
- Walk the students through the Fabric Testing Experiment details on the next page.

Explore

- Analyze different fabric materials and their durability.
- Encourage students to explore how different materials break down.
- Consider introducing some impacts of microfibers on the environment.

Evaluate

- Test and compare the properties of natural (cotton) and synthetic (polyester) fabrics.
- Observe and describe decomposition differences between fabric types.
- Explain how fabric choices impact the environment.
- Make informed decisions about clothing based on environmental impact.

GEORGIA STANDARDS

Science Standards

S3L2
Obtain, evaluate, and communicate information about the effects of pollution (air, land, and water) and humans on the environment.

S3L2.a
Ask questions to collect information and create records of sources and effects of pollution on the plants and animals.

S3L2.b
Explore, research, and communicate solutions, such as conservation of resources and recycling of materials, to protect plants and animals.

Social Studies Standards

SS3E3.c Explain that some goods are made locally, some elsewhere in the country, and some in other countries.

SSMGS6 Use map key/legend to acquire information from historical, physical, political, resource, product, and economic maps. (Developing)

SSMGS8 Draw conclusions and make generalizations based on information from maps. (Introduced)

3.MDR.5.1 Ask questions and answer them based on gathered information, observations, and appropriate graphical displays to solve problems relevant to everyday life.

NEXT GENERATION SCIENCE STANDARDS

Engineering Design

3-5-ETS1-1
Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2
Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Matter and Its Interactions: 2-PS1-1
Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Matter and Its Interactions: 2-PS1-2
Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

Earth and Human Activity

ESS3.B: Natural Hazards
A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.

ESS3.C: 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.

Elementary: Is Fast Fashion Fashionable?

LEARN HOW YOUR CLOTHES ARE MADE

MICROFIBER TESTING ACTIVITY

In this hands-on investigation, students become "Fabric Detectives" exploring the science behind fast fashion. Students test the properties of different fabric materials (cotton vs. polyester) through simple experiments, observe pre-buried fabric samples to learn about decomposition, and apply their knowledge by designing upcycled fashion creations. This activity connects material science to environmental impact, helping students understand that their clothing choices matter for the planet.

Teacher Preparation

- Collect all materials listed in the Materials section of this guide.
- Be sure to plant fabric samples 2-4 weeks in advance for decomposition.
- Collect fabric samples to share with class.

Discussion Questions (engage and predict)

1. When you throw something “away,” where do you think it really goes? Does “away” exist?
2. What did you learn about cotton vs. polyester?
3. Which fabric is better for the environment? Why?
4. Why do you think fast fashion companies use polyester? (Cheaper, lasts longer, dries faster)
5. What's the problem with that? (Doesn't decompose, creates pollution)

Activity:

Part 1: Fabric Testing Station (15 minutes)

Activity: Students test water absorption and durability for cotton vs. polyester.

- Procedure:
  - Set up (2 min): Groups receive two fabric samples (cotton labeled "C" and polyester labeled "P").
    - Students predict which will absorb water faster and dry faster.
  - Test 1 - Water Absorption (7 min):
    - Place 5 drops of water on each fabric.
    - Observe and record: Does water soak in or sit on top? Time how long it takes to absorb.
  - Test 2 - Durability (12 minutes)
    - Students use sandpaper to analyze wear on the fabric by scraping fabric samples wrapped in a ball.
    - Students should record the number of scrapes they make until the fabric rips.

Elementary: Is Fast Fashion Fashionable?

LEARN HOW YOUR CLOTHES ARE MADE

MICROFIBER TESTING ACTIVITY

Part 2: Decomposition Discovery Station (15 minutes)

Activity: Students excavate and observe pre-buried fabric samples.

- Procedure:
  - Set up (2 min): Show students the soil containers with buried fabrics (labeled but location not visible).
  - Prediction (2 min): Which fabric will have broken down more - cotton or polyester? Why?
  - Excavation (6 min): Students carefully dig up fabric samples wearing gloves.
    - Use magnifying glasses to examine.
    - Measure any remaining fabric with rulers.
    - Take notes on observation sheets.
  - Compare & Contrast (3 min):
    - Cotton: Should show significant decomposition (may be partially broken down).
    - Polyester: Should look almost the same as when it was buried.
    - Wool (if included): Should show some decomposition, but will be slower than cotton.
  - Connect to environment (2 min):
    - Discuss: What happens when we throw away polyester clothes?
    - Introduce Concept: Polyester is plastic and can take 200+ years to decompose!
    - Show visual: Landfills filled with clothing waste.

EXTENSION

Optional Upcycling Activity

Materials: Old t-shirts, fabric scissors, fabric markers, other optional craft supplies
Activity: Challenge students to make new creations out of old t-shirts.

ENGAGING AT HOME

Have students take a fashion pledge to upcycle, reuse, or donate their clothes as much as they can. Students can share what they've learned with family members and friends.

Elementary: Is Fast Fashion Fashionable?

LEARN HOW YOUR CLOTHES ARE MADE

TAKE HOME GUIDE: CLOSET AUDIT

In this closet audit, you will analyze your clothes to see what types of materials they're made from. This will help you better understand the impact of your fashion choices, and guide you for the next time you go shopping! Fill out the chart below to complete your audit. To help you fill out your chart, you can refer to different fabric materials here and here. You can also find estimates for decomposition times here and here.

Type of Material (found on the tag)	Number of Clothing Items	Estimated Decomposition Time	Most Common Clothing Item (shirt, pants, sweater, etc.)
Natural (cotton, silk, linen, wool, bamboo, etc.)			
Synthetic (polyester, nylon, acrylic, spandex, etc.)			
Blend (polyester-cotton, rayon, cotton-viscose, modal blended, etc.)			

Is Fast Fashion Fashionable?

LEARN HOW YOUR CLOTHES ARE MADE

FAST FASHION DETECTIVE ACTIVITY

Today you will become detectives in order to solve the mystery of fast fashion! Your goal? Discover which types of clothing materials are more eco-friendly and sustainable! In this activity, you will conduct a series of experiments to explore how different fabrics react to water, air, and sandpaper. Then, you will evaluate how different fabrics break down over time.

As you conduct your experiments to solve the mystery, answer the following questions below or fill out the table on the next page.

Part 1: Fabric Testing

Water Test:

1. Hypothesis: Which type of fabric, cotton or polyester, do you think will absorb the water faster? Why?
2. Results: After conducting your experiment, what did you observe about water absorption on the cotton fabric sample?
    a. Why do you think this is?
3. What did you observe about water absorption on the polyester fabric sample?
    a. Why do you think this is?

Durability Test:

1. Hypothesis: Which type of fabric do you think is more likely to shred? Why?
    a. How long do you think it will take for the cotton sample to start shredding?
    b. How long do you think it will take for the polyester sample to start shredding?
2. Results: Record how many scrapes you make until the fabric rips.
    a. Which type of fabric was harder to shred (or stronger)?
    b. Why do you think this is?

Decomposition Test:

1. Hypothesis: Which fabric do you think will be broken down more, cotton or polyester? Why?
2. Results: Which fabric was the most decomposed? Which fabric was the least decomposed?
    a. Why do you think this is?
3. Concept: How do you think fabric decomposition impacts the environment? Think about what you learned regarding clothing consumption and waste!

Is Fast Fashion Fashionable?

LEARN HOW YOUR CLOTHES ARE MADE

FAST FASHION DETECTIVE ACTIVITY

Test	Hypothesis	Results	Other Observations
Water Test			
Durability Test			
Decomposition Test			

Is Fast Fashion Fashionable?

LEARN HOW YOUR CLOTHES ARE MADE

EXIT TICKET

Name: _____ Date: _____

Now that you've solved the case about fast fashion, it's time to share out what you've learned! Using the world bank below, fill in the blank for the following statements.

Word Bank

Fast Fashion Synthetic Natural Resources Pollution Carbon Footprint Microplastics Biodegradable Ecosystem Water Consumption Absorb Decomposition

1. _____ is the mass production of cheaply made clothing items to keep up with fast-changing fashion trends.
2. Clothes can be made from natural materials, like Cotton, or _____ materials that are created in a lab.
3. Materials or things that are found in nature are called _____ and are used by humans for many purposes, including making clothes.
4. Dirty or harmful material found in air, water, and soil is _____. It a byproduct of the fashion industry, harming communities near clothing factories.
5. _____ calculates the total amount of carbon dioxide and other greenhouse gas emissions. This can be calculated per person, organization, country, product, or process, including that of fast fashion.
6. When plastic breaks down over time, it become tiny pieces known as _____ and can be found everywhere.
7. Something is _____ when it can be broken down by natural processes and living things, like bacteria and fungi.
8. A _____ is the community of all living things (plants, insects, animals, etc.) in the same community and environment. They survive because of each other.
9. Fast Fashion requires a lot of water! _____ refers to the amount of water that is used throughout the process of creating clothing, including growing cotton and dyeing fabric.
10. Different fabrics have different abilities, including their ability to _____ water. Some fabrics hold onto water, while some are less resistant to it.
11. Fabrics also have different rates of _____ . Some fabrics take years to breakdown, while others take centuries!

Answer the following questions below:

1. Name two ways that fast fashion affects the environment.
2. What did your fabric experiments teach you about sustainability, consumption, and waste?
3. What fact about fashion surprised you the most?
4. Has your thinking about fashion changed? Why or why not?
5. What is one action you can take to reduce fashion impacts on the environment?

IS FAST FASHION FASHIONABLE?

EDUCATOR PRESENTATION

The Climate Initiative

mygreenearth

IS FAST FASHION FASHIONABLE?

The Climate Initiative

mygreenearth

WHAT IS FAST FASHION?

Fast Fashion Definition: The mass production & sale of cheaply made clothing to keep up with quickly changing fashion trends.

Key Facts:

- Fast fashion leads to overconsumption (too many clothes!) & massive clothing waste.
- Most of our clothes are actually made from plastics that are produced by oil!
    - This requires lots of energy & chemical usage that can harm our ecosystems.

THE JOURNEY OF A T-SHIRT

Growing Cotton: The base material for t-shirts is cotton, a white, fluffy plant that grows in warm climates around the world.

- The plant is picked and then sent to factories around the world, crossing oceans and continents, to be turned into your clothing!

Making Fabric:

- Cotton needs to be cleaned, heated, & treated with chemicals to turn it into yarn.

Sewing the Clothes:

- The yarn is spun into spools to become fabric through; then cut and sewn into clothing.
- Finally, the t-shirt needs to be washed, dried, and ironed to remove any dirt or oil, ensure its softness, and to maintain its shape.

THE JOURNEY OF A T-SHIRT

Shipping Across the Ocean:

- Once t-shirts are completed, they are shipped to stores all over the world.

The Store:

- This is where you buy your t-shirt! The shirt you buy here could come from the other side of the world!

Your Closet:

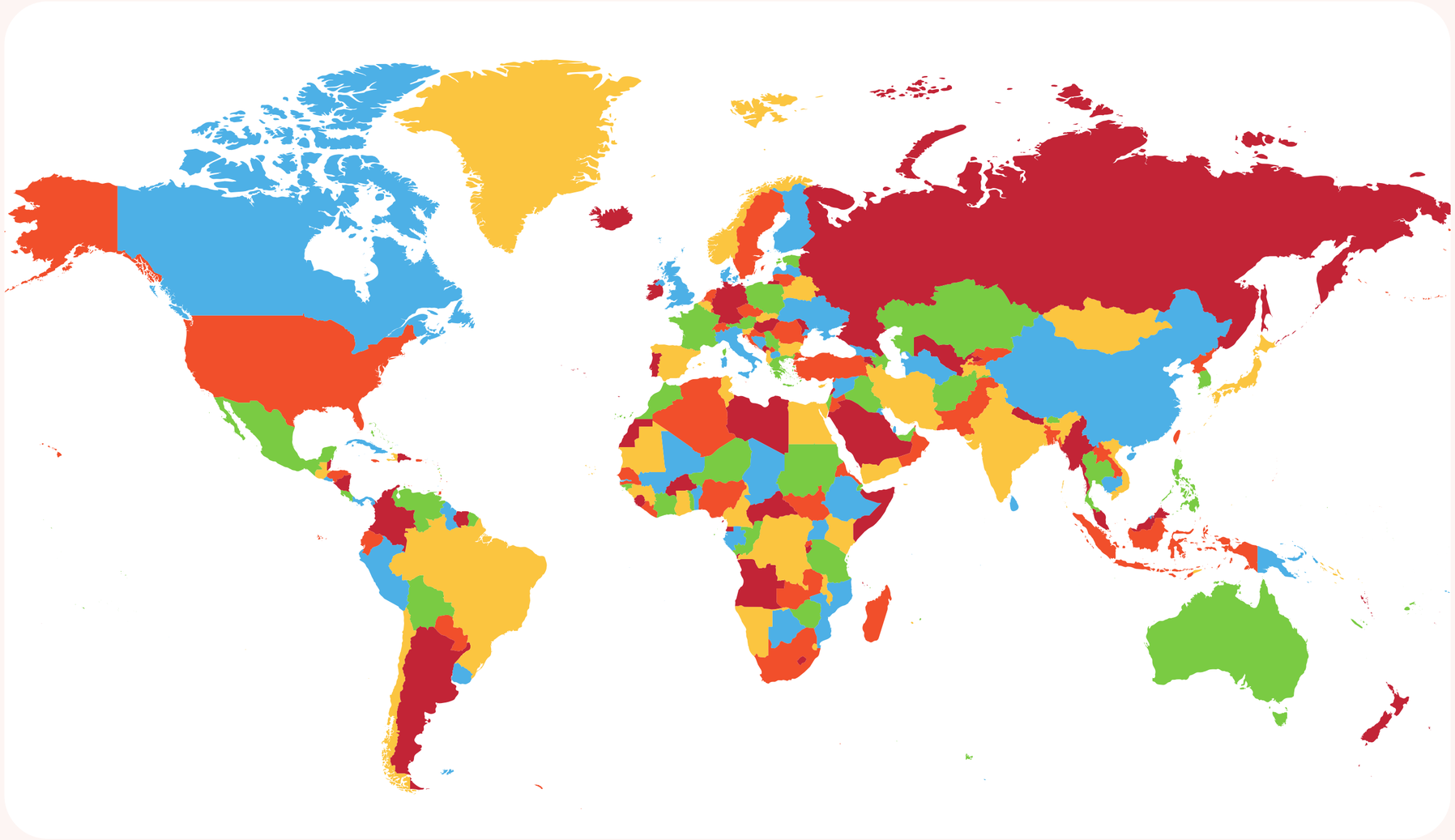
- Your shirt lives here until you've outgrown it or decide to get rid of it.

The Landfill:

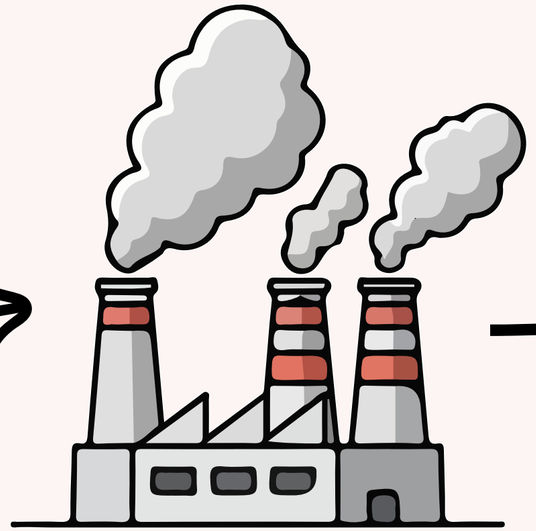
- T-shirts that aren't donated, recycled, or upcycled, end up in a landfill.

MAPPING FASHION

Look at the tags on your clothing - which country is it from?



MAPPING FASHION



ENVIRONMENTAL IMPACTS

Water Waste:

- It takes about 2,700 liters of water to make one cotton t-shirt, which is enough for one person to drink for 900 days!

Clothing Waste:

- The average US consumer (that's you!) throws away 81.2lbs of clothes every year!

Microplastics:

They "are very tiny pieces of plastic, usually smaller than a grain of rice... created when larger plastic items break down or are made to be small on purpose."

- 10% of microplastics in the oceans come from our clothes via microfibers
- A single load of laundry can release 700,000 microfibers!

Carbon Footprint:

The fashion industry produces emissions that make the Earth warmer, creating challenges for all life forms.

ENVIRONMENTAL IMPACTS

COMMUNITY IMPACTS

How does fast fashion impact the communities that produce it?

- Poor working conditions
  - Low wages, long working hours, lack of safety & health protections
- Community pollution
  - Communities near factories bear the brunt of pollution impacts
- Water Scarcity
  - Fast Fashion is often produced in countries already facing water shortages - this depeletes their water reserves even more
- Loss of agricultural soil
  - Agricultural land is used to produce cotton
  - Chemicals & pollution from fashion production also reduce soil quality & safety
- Reduction of environmental resilience
  - The community & environmental impacts of the industry leave people and ecosystems vulnerable to climate change & other effects.

WHAT WE CAN DO

Solutions:

- The 30 Wear Test: Will you wear this at least 30 times before getting rid of it?
- Quality over Quantity: It's better to have a few clothing items that will last than a ton than lots that won't!
- Take good care of your clothes! Sew or repair clothing instead of getting rid of it.
- Learn to style your clothes in different ways to create more outfits!
- Thrifting is fun!
- Donate, recycle, or upcycle your old clothes!
- Innovative Solutions:
  - Fabrics from mushrooms, seaweed, and pineapple leaves
  - Shoes from recycled ocean plastic
  - Clothing rental services

EXPLORING FABRICS

Do you know which fabrics are friends or foes for the environment? Let's find out!

Activity

- First, you're going to test the durability of different fabrics!
  - Prediction: What type of fabric do you think will be the strongest, or most resistent to ripping?
- Second, you're going to anaylze how different fabrics decompose, or break down!
  - Prediction: Which fabrics do you think will take the longest to start decomposing?

Let's get started!

RESOURCES

Rethinking Fast Fashion: The Environmental Cost of Cheap Clothes

The Hidden Costs of Fashion

Teaching About the Fast Fashion Industry and Sustainable Production

How Does Fast Fashion Affect the Environment?

The Environmental Impact of Fast Fashion, Explained

Fast Fashion

The Environmental Costs of Fast Fashion

How does fast fashion affect the environment?

The Life Cycle of a T-shirt - Angel Chang

Fast Fashion - What is it? (6th Class SPHE Lesson)