



Forging a New Relationship

Study and Activity Guide for the Exhibition

Columbus Cultural Arts Center
139 W. Main Street
Columbus, Ohio 43215

Culturalartscenteronline.org/

The Earth is Us – Forging a New Relationship

Teacher's Background

This Fall, 2022, the Columbus Cultural Arts Center is presenting a major exhibition, ***The Earth is Us: Forging a New Relationship***. Dates for the exhibition are: September 16 – October 29, 2022.

“The Earth is Us”; what does that mean? Everything we have and use comes from the Earth, from the food we eat, to the clothes we wear, to the houses we live in. The path for how we get from raw materials to end product may be complex or simple. Yet, our relationship to the planet actually goes much deeper.

As we face critical issues affecting the Earth, the need to understand a deep symbiotic relationship with our planet, and embrace eco-psychology becomes more apparent than ever. Artists invited to participate in ***The Earth is Us; Forging a New Relationship*** bring about a deeper understanding of the importance of environmental stewardship from personal perspectives. Their work draws from the wisdom of both ancient peoples and modern science; and seeks to show how what happens within the ground beneath our feet, and in the air we breathe, is mirrored within our bodies. A healthy planet is essential for our own health and well-being.

Our guest curator, Char Norman, has invited 12 artists to create installations and individual pieces to be exhibited in the Main Gallery of the Cultural Arts Center, and in one or more outdoor settings. This effort is being guided by an advisory committee comprising: an artist from the OSU Department of art specializing in Eco-Art; an evolutionary biologist recently retired from OSU, and an environmental scientist from Antioch College. Exhibition partners include Columbus Rec and Parks' Forestry Division, the Columbus Office of Sustainability and the Global Water Dances Project.

As a person, there is nothing that you are made of that doesn't come from the Earth. Think about your physical body. It is composed of billions of cells. These cells make up all of your organs, your skeleton and muscles, your blood and brain. As complicated as they are, cells are made up of a relatively small number of chemicals – and all of these chemicals are derived from the plants and animals you eat, the water you drink, and the air you breathe.

Let's dig deeper. Scientists have long known that your digestive system – your stomach and intestines – is inhabited by a wide variety of bacteria and fungi. These microbes serve very important purposes in helping digest your food. Recently, we've learned that microbes inhabit more than just your gut; they're everywhere: inside your organs, your blood, and on your skin. In fact, there are more of these cells (bacteria and fungi are cells) inside you, and on you, than there are cells that make up your physical self. This population of cells is your microbiome. **You are your own ecosystem!** And more than just helping digestion, your

microbiome is essential to many aspects of health, from resistance to disease to your mental well-being.

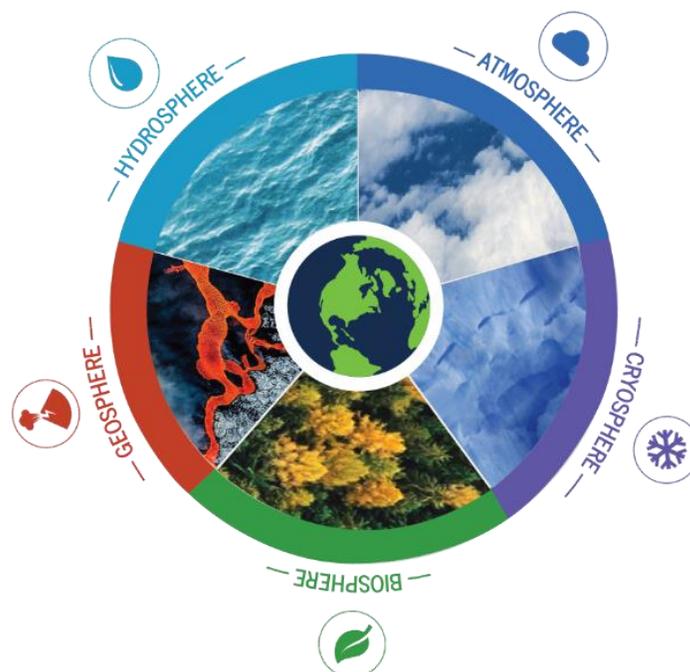
Every living thing has its own microbiome – every plant and animal; even the soil under your feet. Soil microbes help create the nutrients that plants need to survive, and help the plant stave off disease and bear healthy fruit. The health of the animals that eat the plants depends on the nutrition that the plants provide, and the ability of each animal to get the most out of the food they eat depends on their microbiome. If the soil microbiome isn't healthy, then the plants will be deficient in nutrients, and the animals that eat the plants will suffer. We are also part of this chain.

Truly, “the Earth is Us.” What happens within the ground beneath our feet, in the water we drink, and in the air we breathe, is mirrored within our bodies. A healthy planet is essential for our own health and well-being.

What does it mean to “Forge a New Relationship?” Early humans - before we created towns and cities, before we started to create farms and alter the courses of streams and rivers to water our fields – but of necessity lived in harmony with the world around them. Small family groups moved with the seasons, following game migrations, and the ripening of different food plants. Life tended to be healthy because people weren't living in crowded conditions where disease spreads rapidly.

Of course, with 7 billion people around the world, many packed into huge cities, there is no going back to this simpler lifestyle. We can, however, develop an understanding of the ways the natural world makes life possible, how natural systems are all connected, and what we need to do to assure that our planet stays healthy. This is the new relationship that needs to happen – our lives depend upon it.

The Earth is the only planet we know of that supports life, and that's because the different parts of the Earth interact in ways that make it possible. Scientists call these parts and the ways they interact **The Earth System** . :



- the **Geosphere** – that's the solid stuff; rocks and soil
- the **Hydrosphere** – the water that is in all the oceans, rivers, lakes, swamps, and even under the ground. It also includes the water that is in the air
- the **Atmosphere** – this is the layer of gases that extend from the Earth's surface all the way up until we can't detect it any more
- the **Cryosphere** – this includes the polar ice caps and glaciers
- the **Biosphere** – all the living organisms on the planet, the algae in the sea, the plants in the fields, the trees in the rainforests, birds, lizards, mountain lions, cows, and **YOU** and your microbiome, the ecosystem you carry.

Humans are disturbing the entire Earth System

The Earth is getting warmer. Carbon dioxide in the atmosphere acts like a sheet of glass that lets sunlight through to heat the surface of the planet, but traps some of the infra-red rays that the Earth reflects, causing the atmosphere, the rocks, and the oceans to heat up.

A good example is a car left out in the sun – sunlight coming through the windshield and windows causes the interior to heat up, but the glass doesn't let all of that heat radiate back out. Ouch! That seat is HOT. Carbon dioxide in the atmosphere is also like using a blanket at night to keep you warm by trapping some of your body's own heat. The thicker the blanket, the more body heat gets trapped, and the warmer you get. Right now, humans are increasing the thickness of our carbon dioxide blanket by burning fossil fuels (coal, oil, and natural gas), and by cutting down forests around the world that otherwise would be pulling carbon dioxide out of the air. We're also releasing other gases (e.g., methane) that are even more powerful than carbon dioxide at trapping heat.

A hotter planet is creating a lot of problems that are only going to get worse as temperatures increase.

- As the oceans warm, the water expands, causing sea levels to rise. Warm water and air are melting the polar ice caps and glaciers around the world, adding to this rise. Rising seas are already flooding low-lying coastal areas, where villages, towns and even major cities are located.
- Warmer oceans put more moisture into the air, and create more violent weather. Hurricanes have become bigger and rainfall events more torrential and destructive.
- Melting of the Arctic ice cap has resulted in changes to the pattern of the Jet Stream in the upper atmosphere, which controls much of our weather.
- Even as some parts of the world are seeing massive floods, other parts are experiencing prolonged droughts as weather patterns change. Wildfires are destroying hundreds of square miles of forests and even whole towns. Reduced harvests, and crop failures are becoming more common.
- The melting of mountain glaciers and reduced snowfall means less water going into rivers, threatening the water supplies for several of the world's largest cities.
- Rising temperatures have made some urban centers unlivable during the summer months without air conditioning – including in the U.S!

A hotter planet and changing climate patterns aren't the only troubling aspects of human activities. Seven billion people need a lot of food. The problem is that the amount of available farmland is shrinking, some of it due to drought, but a lot because the soil has been depleted of nutrients. Remember what we said above about how a healthy soil microbiome is necessary to grow healthy plants? Human farming practices have damaged much of the world's soil, resulting in less nutritious crops – or none at all. Many people across the planet currently face starvation.

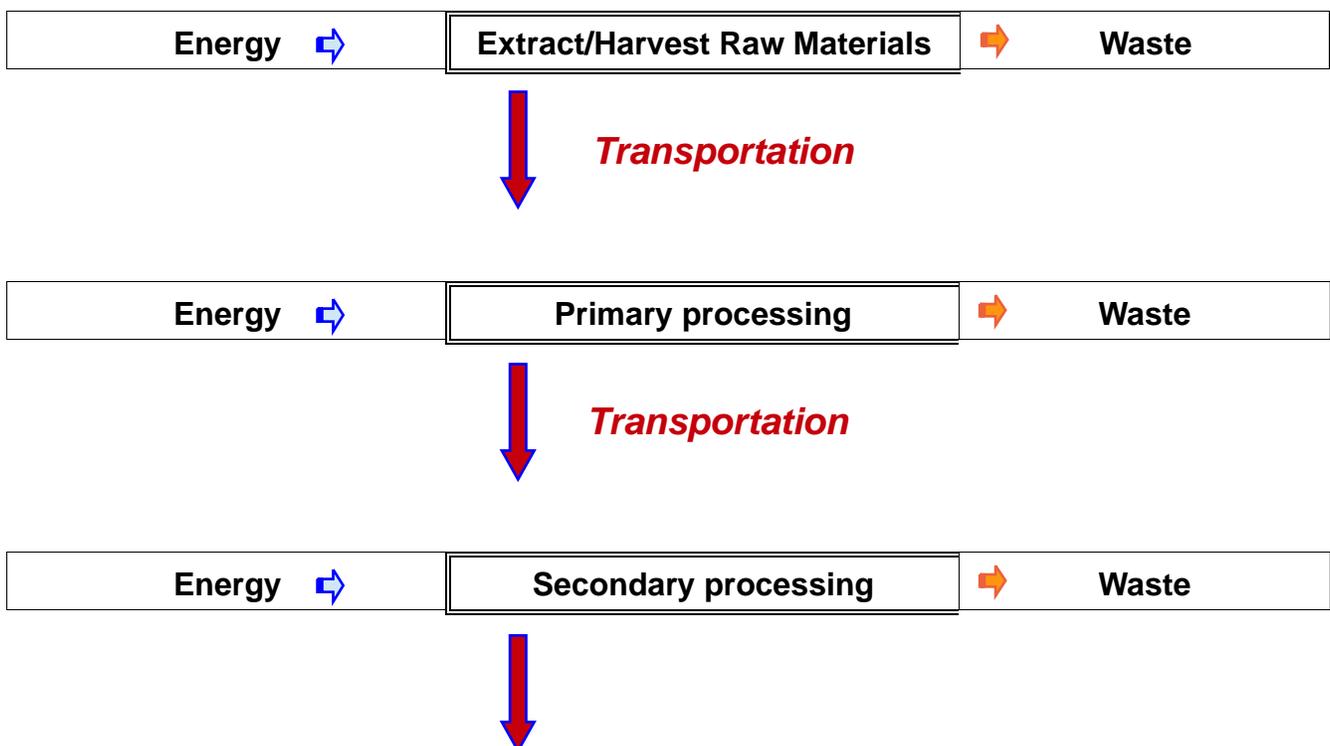
This study guide is a companion to an art exhibition, an exhibition about humans' relationship to the planet. Our purpose is to use art to underline the Earth's current situation and, through this awareness, help students identify better practices for living in the world to come.

There are more activities listed below than most classes will have time for; hopefully, several will find a responsive chord in your students. Also, you might want to involve other classes and instructors (e.g., Biology, Ecology, Engineering, Social Studies, Consumer Sciences, English, Dance, Music) in working on the selected activities.

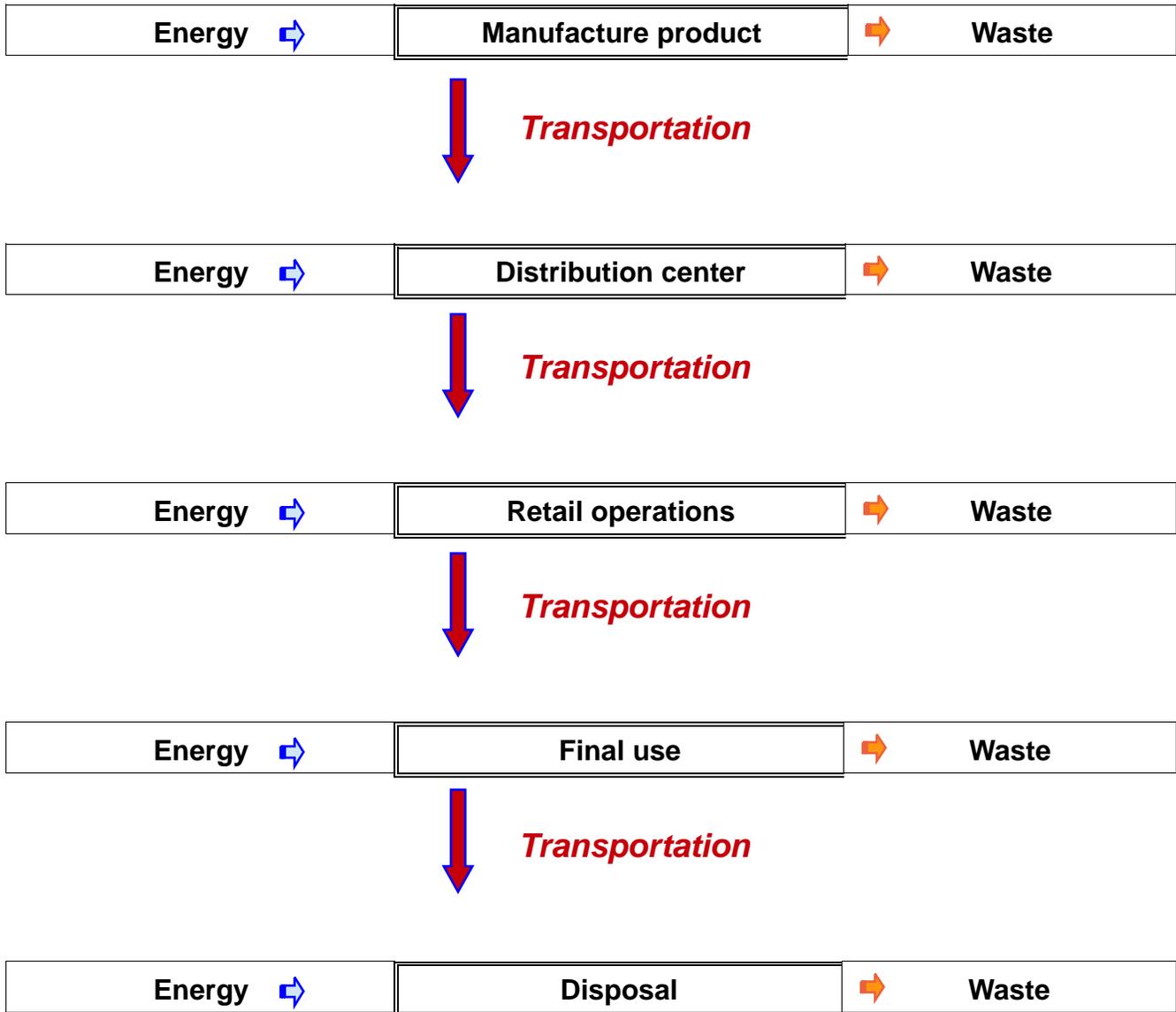
Our Stuff

You may find this chart useful as your students work through several of the suggested activities. It's a way at looking at all the steps involved in making things we use and take for granted every day – and the associated environmental impacts. To try it out, pick a household item at random; what are its ingredients and where do they come from? Also do the same for the packaging. The story gets very complex very quickly.

MAPPING YOUR "FOOTPRINT" ON THE WORLD THE STEPS IN CREATING EVERY PRODUCT WE BUY AND USE



Transportation



Student Guide

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As we face critical issues affecting the Earth, the need to understand a deep relationship with our planet becomes more apparent than ever. The 12 artists invited to participate in ***The Earth is Us*** seek to give viewers a deeper understanding of the importance of environmental stewardship from personal perspectives. Their work draws from the wisdom of both ancient peoples and modern science; and seeks to show how what happens within the ground beneath our feet, and in the air we breathe, is mirrored within our bodies. A healthy planet is essential for our own health and well-being.

The Earth is Us... what does that mean to you? When you hear about “Climate Change” and “Global Warming,” how does it concern you?



Activity – make a list

What habits and activities do you already do to combat climate change or improve the environment? Take the individual lists and build a class list. Are there ideas from your classmates that you might want to adopt?

Geologists refer to the Earth as a System

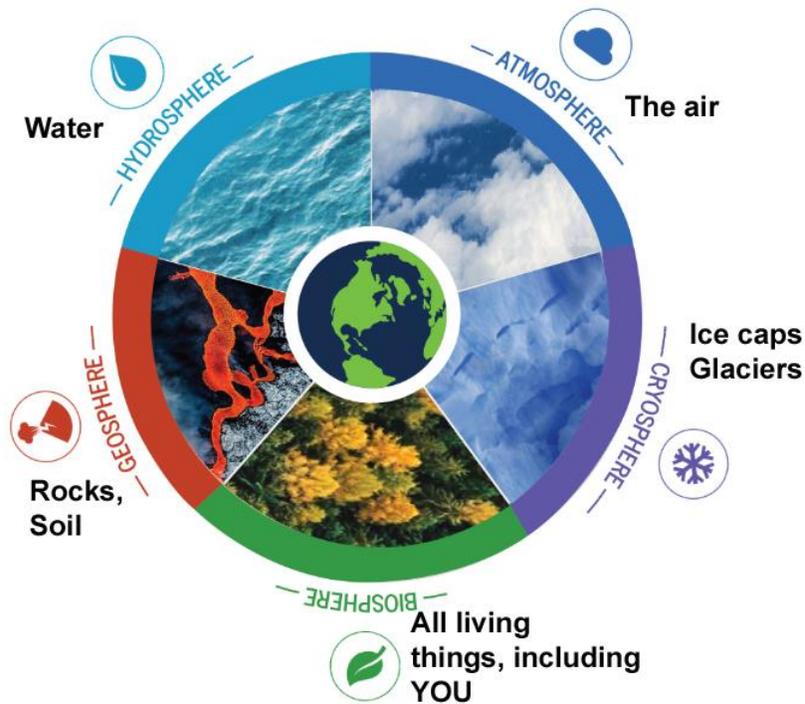
What's a system, you ask? Your body is a system; so's your school. A system is anything made of component parts that interact in specific ways to make the whole thing work.

Your school building has floors, walls, a roof, windows, stairways, classrooms, rehearsal rooms, labs, offices, restrooms, a gymnasium, an auditorium, a cafeteria. Then there are the utilities: wiring, plumbing, heating, cooling, lights, sinks, toilets, stoves, ovens. And don't

forget the desks, chairs, lab benches, projectors, computers, bookcases – and the biological components: students, teachers, and staff. Whew, that's a lot of parts! You might still have a school if it was missing a few of these pieces, but it would be less than ideal. We want all the parts to work together.

Just like all the pieces that make up your school have to work together, all the pieces of the planet interact in ways that make life possible, and often challenging as well.

Let's take a look at the Earth System



The major components of the Earth System are:

- the **Geosphere** – that's the solid stuff; rocks and soil, all the way down to the core
- the **Hydrosphere** – the water that is in all the oceans, rivers, lakes, swamps, and even under the ground. It also includes the water that is in the air
- the **Atmosphere** – this is the layer of gases that extends from the Earth's surface all the way up until we can't detect it any more
- the **Cryosphere** – this includes the polar ice caps and glaciers
- the **Biosphere** – all the living organisms on the planet, the algae in the sea, the plants in the fields, the trees in the rainforests, birds, lizards, mountain lions, fish, cows, and **YOU** and your microbiome, the ecosystem you carry.



Activity – Strolling through the Earth System

Take a walk outside your school or home, maybe around a playground or park. Can you find examples of the Earth's different systems? Here in Ohio, are any parts of the system missing?

Can you see where two or more system components connect and interact with each other? [How about a tree – part of the *Biosphere*, putting its roots into the soil – part of the *Geosphere*, sucking up water – part of the *Hydrosphere* – through its roots, and exchanging gases with the *Atmosphere*. Where does the pavement of the sidewalk fit into this system?

Create a visual artwork – a drawing, a rubbing or a collage using plants and soil, a sculpture, or a video – about what you discover.



Activity - Your own little piece of the planet

Build a 1-meter X 1 meter frame out of wood, or make a 1-meter diameter loop of string, or use a Hula Hoop®. Take this frame out to the schoolground or your backyard and find an area where things are growing. Place the frame on the ground and count the number of different plant varieties that you see in this small patch of the planet. Can you see any animals (insects and worms are animals)?



The German artist, Albrecht Durer, painted “The Great Piece of Turf” in 1503. How many different plant species you can spot in this painting? How can you document your patch of turf?

Idea: Create your own painting in your favorite medium (watercolor, acrylic, colored pencil).

Idea: Every week, for 6 months to a year, take a photograph of your piece of ground from the same angle (you might have to remove your frame between times). What changes take place over time? Create a photo documentary or journal of your observations.

REMEMBERING AND CELEBRATING WHAT HAS BEEN LOST

Many biologists think that we are in the midst of the planet’s 6th Mass Extinction as thousands of plant and animal species disappear due to habitat loss, climate change, and pollution. Right now, across the planet, we are losing important resources at an alarming rate. Nearly half of all our medicines were derived from plants. What are we risking by having thousands of plant species become extinct before we even discover them? Rain forests are being cut down to create pasture land for cattle, or to supply the building industry with wood. The amount of acreage for raising crops to feed a growing world population is shrinking. Access to clean water is becoming more desperate as droughts get worse and existing supplies are mismanaged.

Here is a way to make a statement about the state of the planet, using art to acknowledge, remember and celebrate what has been lost:



Activity - Celebrating Loss and Life

Remembering what has been lost doesn't bring it back – extinction is forever. How about creating an altar/shrine for a favorite animal or plant that you want to see protected or to commemorate something of the planet that has been lost due to human actions? Here is a short list of some of the plants and animals we have lost: the Quagga; the thylacine (Tasmanian Tiger); the Vaquita; the Ivory-billed Woodpecker; the Passenger Pigeon; the Golden Toad; American Chestnut; Havana Fragrant Tree; Falls-of-the-Ohio scurfpea; Hawaii Chafflower. Many, many more can be added to this list. You might want to work with students in your school's Biology or Ecology classes to pick plant or animal species to be celebrated and remembered.

The **Day of the Dead** (Día de los Muertos) is a Mexican holiday celebrated in Mexico and elsewhere associated with the Catholic celebrations of All Saints' Day and All Souls' Day, on November 1st and 2nd. The multi-day holiday involves family and friends gathering to pray for and to remember friends and family members who have died. It is commonly portrayed as a day of celebration rather than mourning. Traditions connected with the holiday include building home altars or shrines called **ofrendas**, honoring the deceased using depictions of skulls, Aztec marigolds, photographs or paintings, and the favorite foods and beverages of the departed.



An ofrenda

Your shrine related to the Earth and its species can include things that the chosen animal/plant needs to survive – water, good soil, plants for food, pollinators, prey species, shelter, other herd/family members. What other important needs can you think of?

Where can you place your shrine so that others can appreciate it and think about the message being sent? How much of your altar/shrine can you make with recycled or repurposed materials?

Other artworks you might want to try to celebrate and remember what has been lost...

- Create a portrait of an animal or plant that has been lost.
- Create a commemorative stamp honoring an animal or plant that has been lost.

Everything we buy, everything we use in our daily lives comes with an environmental cost. This chart can be useful for several of the activities listed below.

AWASH IN TRASH PLASTICS, PLASTICS EVERYWHERE



The Earth is awash in plastics. Fifty years ago, almost nothing was packaged in plastic; now, almost everything is. Recycling only addresses a tiny fraction of the plastic that we consume every day. And “consume” is the right term. Plastics are in our oceans, in our lakes and rivers, and in the soil. Plastics don’t decay, but they do break down into smaller and smaller pieces and find their way into the food chain. These *micro-plastics* are found in the food we eat and inside us as well. Yuck!

Most of the plastics we use are derived from oil, millions of barrels of oil every year. As just one example of what happens to these plastic products, Americans throw away enough plastic bottles each year to circle the earth four times. Every hour, we throw away 2.5 million plastic bottles (22 billion plastic bottles per year)!



Activity – Raise plastics awareness

Here’s an exercise to get you warmed up...

- Working in small groups, brainstorm about every plastic item you encounter on a single day. List them. Note which ones you encounter more than once.
- Working in small groups, brainstorm about how much plastic might be used at one sporting event either at school or at a major league game. Consider the number of people who attend such events.

Have the class collect the plastic that enters your lives in just one week. Or collect the plastic that is thrown away during the course of one Friday Night football game.

NOTE: When collecting items that other people have handled, wear gloves (more plastic) and wash out all food containers before adding them to the collection.

Create an artwork that shows how much plastic we encounter during a week; you’ll be amazed once you start collecting. Then, create another that suggests alternatives? These can be small, individual artworks, or larger group constructions that may find a prominent place in

a hallway or even outside. Again, think about collaborating with students in your school's Biology or Ecology, or even Business classes. We all have a part to play.

CLOTHING: THE TROUBLE WITH FASHION

The human desire to be fashionable has put people in conflict with the planet and each other for centuries. Did you know that in Europe in the 1600s, the demand for fur coats and hats led to a decades long war between Native American tribes? Check out **The Beaver Wars** at -

<https://www.ohiohistory.org/learn/education/resource-roundup/october-2017/beaver-wars>

The conflict decimated several tribes and radically altered the Native American populations in Ohio.

As another example, the 19th Century fashion for women's hats with exotic plumage led to the near extinction of the snowy egret and other birds.



Today, marketing by the fashion industry tells us that we need new styles and colors several times a year – and we're not "cool" if we don't trade out our wardrobes that often. Gone are the days when people had one good suit for Sundays and a simple wardrobe of work clothes for the rest of the week – wearing items until they wore out.

The environmental costs of the fashion trade are enormous, including:

- acres devoted to growing cotton, instead of food – with the need for chemical fertilizers to replenish the soil nutrients cotton takes out;
- processing of fibers (cotton, bamboo, rayon, etc.) with harmful chemicals, often in countries with few worker-safety or environmental regulations;
- massive chemical and water consumption to create artificial fibers;
- energy consumption by factories that make the fiber, the cloth, and the garments – often produced by burning coal;
- dangerous working conditions for the people who assemble the garments;
- carbon emissions from the shipment of raw materials to factories and finished products across the globe.

A really good movie about the world of textiles and fashion is **The True Cost**. The premise is determining the true cost of even the inexpensive t-shirts that we all wear.

<https://truecostmovie.com/>

But it doesn't have to be this way. You can learn about a company that creates fashion out of textile waste here - <https://www.treehugger.com/fashion-company-doing-something-about-textile-waste-4868203>



Activity – Taking inventory

Look at your clothes and count the number of:

Jeans:
Other pants:
Leggings:
Sweaters:
Sweatshirts:
T-shirts:
Button down shirts:
Other shirts:
Dresses:
Jackets:
Winter coats:
Shoes:
Athletic shoes:
Boots:
Dress shoes:
Sandals:

Pick five different items and find out:

Where they were made?
What is the fiber/fabric type?
How long have you owned them?
Were they new or second hand?
How long do you expect them to last?
What will you do with them when you are done with them?

What is the oldest item that you own?
What is the 'best' quality item that you own?
What is a favorite item that you own and why?
Do you have anything that is handmade?
Have you repaired anything?

Challenge the whole school to complete this inventory, and then launch in to the next activity...



Activity – Clothing Life Cycle

Consider your clothing from its beginning to its ending. Make a visual display of the life cycle of an article of clothing. Use the chart on “Mapping your footprint on the world” as a guide. Remember, each step in the process consumes energy and produces waste.

- Where was it made?
- What type of fibers was it made from, and where did that fiber originate?
- Who made it and under what conditions?
- How far did it travel to get to your closet?
- What will you do with it after you are done with it?
- What percentage of items given to Thrift Stores and other donation sites ends up in the landfill?

At the end of its use, will it break down in the landfill? And can you find out what percentage of trash in our landfills is discarded clothing?



Activity – Trashion Fashion

Trashion is a term used for art, fashion, jewelry, and home goods created from repurposed found elements that would otherwise have ended up in the trash and, subsequently, landfills. *Trashion* takes items that were never meant to be used for fashion and turns them into wearable art! There is no wrong way to repurpose waste. So, tap into your inner Picasso or Rembrandt and start creating! Want some ideas about where to start? Go here:

<https://shopvirtueandvice.com/blogs/conscious-shopping/diy-trash-fashion-trashion>



Activity – An alternative Fashion Show

“Upcycle” your clothes. As a class – or just a group of friends – hit the nearest thrift store. Pick out items that inspire you to embellish, layer, or alter, and then, back at school, create your new looks. You can cut, stitch, tie, glue, adhere pieces of clothing with others. Or even create a wearable collage?



Work with fellow students in your school’s Consumer Science and Business classes to put on a fashion show for the school, maybe with a rock group or jazz band providing some cool background. Any aspiring runway models among you?

You'll be repurposing discarded clothing items, and maybe inspiring your classmates to create their own "look" rather than succumbing to the marketing hype to only buy new.

FOOD: WASTE NOT...WANT NOT

In the U.S., fifty percent – half – of the food that is grown gets thrown away!



There are many reasons for this. Sometimes there aren't enough farm workers to pick the food, and it rots in the fields or on the trees. Supermarkets only want the best-looking fruits and vegetables; often items with even a small blemish end up getting thrown away, even though they're perfectly usable and tasty. Also, stores want the shelves in the produce department to always look full. That means that a lot of vegetables and fruits that aren't sold get discarded to make room for fresher items. In restaurants, and even in people's homes, a lot of food gets left on plates, uneaten, ending up in the garbage. Does your family save and eat leftovers?



Activity – food collage and timeline

As a first step in this activity, track how much food waste your own school cafeteria discards; how long does it take for the cafeteria to fill a dumpster? This is another great opportunity to collaborate with students in other classes.

Create a large collage of images showing how much food we throw away in this country each year. You can use food containers, drawings of half-filled plates, photos of plates being

scraped into the trash or garbage disposal. Create a timeline of trash from the research you've done, and add your data to your collage. Can you get permission to display your collage outside the school cafeteria?

Also consider your home food situation. Track how much food is wasted during a typical week. During a holiday meal.



Activity – Where does it come from?

Using the chart on “mapping your footprint on the world,” research and report:

- Where does your food come from?
- How far does it travel?
- What foods are grown locally?
- How does eating only foods that are produced locally (within season) help the environment?



Activity – can you do it?

Plan and source a meal within 50 miles of your home. Fortunately for us in central Ohio, we have Farmers' Markets that can make this possible. But what about people who don't have access to these markets? Do you know what a “food desert” is? How can you use art (remember, this includes, poetry, music, and dance) to show the challenges people face in finding food from nearby sources.



Activity – trade-offs

Organic food uses fewer pesticides but may be shipped from far away using more petroleum resources and creating more pollution. Research the benefits and challenges of organic foods. How do local organic growers help promote sustainable eating? Create an artwork (visual, written, performed) depicting the results of your investigation.



Activity – create a leftovers recipe book

Survey your classmates and teachers for ideas about how to prepare leftovers that are tasty and nutritious. What are some of their favorite recipes? Create a recipe book of ideas and illustrate it with drawings, paintings, or computer art. Share what you've created with your friends and family. This can be a great holiday gift.

Final Thoughts

What can you do to help “Forge a new relationship with our Earth?”

- Think about your own actions – what you buy, what you eat, what you throw away, how you get where you're going.
- Talk to your family and friends about how we can treat our Earth better – it's your future after all.
- Make visual statements - paintings, collages, photos, social media postings.
- Choreograph a dance to tell the story of the Earth.
- Take your thoughts and put them into poetry or songs to share.
- Teach others about different ways to live – and model what you teach.
- Start a slogan contest in your school, like: **“WHEN YOU THROW SOMETHING AWAY, WHERE IS AWAY?”** If your school has an electronic sign board, post a “slogan of the week”. You can also turn these into bumper stickers, lapel buttons, or yard signs.

Read More About it

“Healthy Soil Microbes, Healthy People,” by Mike Amaranthus and Bruce Allyn, [The Atlantic](https://www.theatlantic.com/health/archive/2013/06/healthy-soil-microbes-healthy-people/276710/), June 11, 2013. <https://www.theatlantic.com/health/archive/2013/06/healthy-soil-microbes-healthy-people/276710/>

[Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming](http://www.drawdown.org), 2017, ed. Paul Hawken, Penguin Books. <http://www.drawdown.org>

[How to Avoid a Climate Catastrophe: The Solutions We Have and the Breakthroughs We Need](#), by Bill Gates, 2021, Alfred A. Knopf, New York, NY.