United Nations
Educational, Scientific and
Cultural Organization

UNESCO
Associated
Schools

Trash Hack

Action learning for sustainable development

A teacher's guide

TRASH HACK

BACKGROUND

WHO IS THE GUIDE FOR?

This guide is intended for lower-secondary education teachers, school administrators, staff and informal educators looking for ways to engage learners and communities around trash, waste management and, more widely, education for sustainable development. The guide's contents and activities can be adjusted for older or younger ages.

EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

The 17 Sustainable Development Goals (SDGs) were adopted by all United Nations Member States in 2015 and provide a shared blueprint for peace and prosperity for people and the planet, now and into the future.

Education for Sustainable Development (ESD) gives people the tools to tackle the problems of the present and future, to fight the climate crisis, change the world and achieve the SDGs. ESD rethinks what we learn, where we learn and how we learn. It is about lifelong learning, which lets people develop the knowledge, skills, values and attitudes that enable them to make informed decisions and actions on global problems.

The action-based activities in this guide intend to contribute to fostering the three dimensions of learning (cognitive, socio-emotional and behavioural) and thereby promoting *cross-cutting competencies for the SDGs,* such as systems thinking, anticipatory competency, collaboration, critical thinking and integrated problem-solving.

UNESCO TRASH HACK CAMPAIGN

UNESCO's Trash Hack campaign encourages young people to take action against waste to promote sustainable development, reflect on their actions, and share their learnings. Find out more at www.trashhack.org.

THE UNESCO ASSOCIATED SCHOOLS NETWORK (ASPnet)

Established in 1953, ASPnet contributes to UNESCO's function as a laboratory of ideas by pioneering and experimenting with innovative and creative contents and pedagogies to translate the Organization's values and objectives into practices at the school level. Through thought leadership, the network contributes to the transformation of education systems and policies. Current membership covers more than 11 500 educational institutions from all levels of education in over 180 countries. Find out more at https://aspnet.unesco.org/en-us.

ACKNOWLEDGMENTS

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Source: UNESCO, 2020, *Education for sustainable development: a roadmap*, p.17

LET'S TALK TRASH

WHY TRASH HACK?

The world's population is expected to increase by 2 billion people in the next 30 years, from 7.7 billion today to 9.7 billion in 2050. By this time, global solid waste ("trash") is expected to increase from 2.01 billion tons to 3.40 billion tons per year.[1] If we continue to live the way we do now, the equivalent of almost three planets would be needed to provide the natural resources.

Trash clogs our oceans, fills our streets and litters huge areas of the planet. Waste and overconsumption contribute to the climate crisis and link to many other sustainable development issues.

We, as individuals and societies, need to live more sustainably. By taking informed decisions and responsible actions for environmental integrity, economic viability and a just society, and advocating for governments, corporations and non-governmental organizations to change too - we can do it. What we do has implications not just for our own lives but the lives of everyone else on our shared planet, today and in the future.

WHAT IS A TRASH HACK?

When it comes to tackling the world's trash, it can be hard to know where to start. But by making "hacks" or changes in our homes, schools and communities, we can reduce our negative impact, increase our understanding and start to be part of transforming the world. The global is connected to the local!

OUR STORY IS TOLD BY OUR TRASH

We all throw stuff in the garbage every day without thinking about where it goes or what happens to it. After all, the solution is to get rid of it—out of sight, out of mind.

But trash leaves a trail. It can cause soil and water contamination, air pollution, climate change, degradation of ecosystems, loss of biodiversity as well as negative impacts on animal and human health and well-being. This trail leads back to us and the choices we make as producers, consumers and human beings.

There is a story behind every cosmetic, pair of jeans or sneakers we design, produce, buy, recycle or throw out. For example, it takes 7,500 litres of water to make one pair of jeans![2] It would take you nearly a year to drink that much water.

Engaging with the issue of trash is ultimately also about questioning how we, as individuals and societies, want to live. It is about reflecting on the interdependencies and functioning of ecosystems and sociocultural practices and about making choices for the health and well-being of human, animal and plant populations.

We can make changes at the individual level, but we also need to come together to bring about changes at the system level. Governments, regulatory institutions and corporations need to change and as informed citizens and consumers we are essential to influence these groups to take action.

TRANSFORMING SOCIETY STARTS WITH TRANSFORMATIVE LEARNING

This guide provides practical ideas and activities for teachers to engage with their students in action learning on how to better manage and recycle waste, as well as how to be more responsible producers and consumers. The lessons are fun and engaging but call on young people to view trash not just as the stuff we throw away, but as indicators of who we are and what we value. So, join UNESCO and schools around the globe to Trash Hack your classrooms, homes, communities and eventually the world.

TRASH FACTS
TO HELP US CLEAN UP OUR ACT

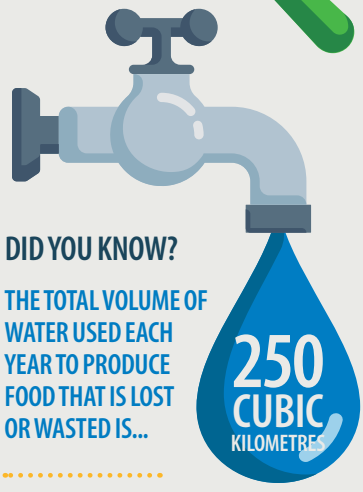
Global solid waste generated per year: **2.01 BILLION TONNES**

That's the equivalent weight of **13.5 MILLION** BLUE WHALES

The other 18% includes wood, rubber and other types of waste

IF ALL THIS WASTE WAS PUT ON **TRUCKS**, THEY WOULD **STRETCH** AROUND THE **WORLD**...

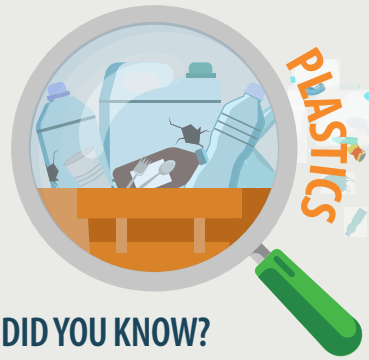
99% of the stuff we buy IS **TRASHED** WITHIN **6** MONTHS.



DID YOU KNOW?

THE TOTAL VOLUME OF WATER USED EACH YEAR TO PRODUCE FOOD THAT IS LOST OR WASTED IS...

That's the equivalent to the ANNUAL FLOW OF RUSSIA'S VOLGA RIVER, or THREE TIMES THE VOLUME OF LAKE GENEVA



DID YOU KNOW?

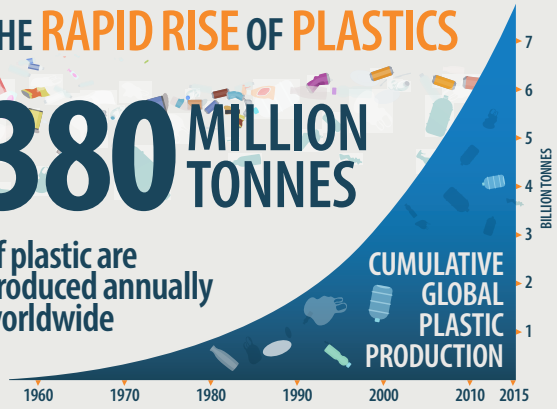
PLASTICS DON'T COMPOST, they break down into micro-plastics and SPREAD TO EVERY CORNER OF OUR PLANET and have seeped into soil, fish and air

We generate the weight of more than **4,500 EIFFEL TOWERS** of electronic waste each year

ONLY **20%** OF THAT WASTE IS RECYCLED, much ends up in Africa and Asia. "E-waste" can be HIGHLY TOXIC

THE RAPID RISE OF PLASTICS

380 MILLION TONNES of plastic are produced annually worldwide



WHERE THE PLASTICS GO[8]

3% OF THIS PLASTIC ENDS UP IN THE OCEANS, MOSTLY DUE TO BAD WASTE MANAGEMENT

If one disposable face mask is used per day per person, COVID-19 could produce A MONTHLY GLOBAL CONSUMPTION AND WASTE OF...

BE INSPIRED

YOUTH HAVING IMPACT IN TACKLING WASTE

Young people around the world are taking action to tackle trash, counter climate change and influence others to protect the environment.

MELATI & ISABEL, Indonesia

Melati is a 20-year-old Indonesian climate activist, who launched *Bye Bye Plastic Bags* with her sister Isabel when she was 12. They built a campaign which helped rid Bali island of single-use plastic bags and started a global movement with over 50 teams worldwide.

> "We started Bye Bye Plastic Bags because we thought that enough was enough. We needed to do something about plastics. We didn't want to wait until we were older to start taking action. Besides, we had no business plan, no strategy. We just had a big vision and passion to protect our island. So we just got started."

What started as a small campaign, has since turned into a global movement for *youthtopia*. Melati finds her life transformed:

> "Through my journey with Bye Bye Plastic Bags I have learned so much about myself and about the life and impact I want to create. This opportunity has shown me all of what is possible. It excites me and it challenges me to be the best version of myself every single day"

AMY & ELLA, United Kingdom

The sisters Amy and Ella's desire for positive change started when they studied and were inspired by the United Nations SDGs and wanted to do their bit. They chose 3 goals: life below water, climate action and responsible consumption. When researching the three goals they saw plastic pollution as a common thread and began their on-the-ground activism. In 2016, *Kids Against Plastic* was born and is still ongoing today. They share resources for young people to take action and mobilise youth voices to influence governments around the world. They also work with businesses, individuals, schools and cafes to deplete their use of the Big 4 and swap in reusable items and encourage crowd/social science through their litter logging app.

EBRAHIM, United Arab Emirates

A vegan ambassador in the Arab world, Ebrahim uses his *YouTube* and social media channels to give people practical tips on how to live a healthy and sustainable lifestyle by reducing their waste.

LEAH, Uganda

Leah is a champion for *Friday for Futures* in Uganda. She initiated a petition to stop the use of plastic bags, set up her own tree-planting campaign and uses her *twitter account* to speak out and influence politicians to improve waste management in her country.

YOU CAN FIND MORE INSPIRING EXAMPLES OF YOUTH AND GREEN CITIZENS FROM AROUND THE WORLD HERE:

https://www.trashhack.org/news

https://www.unescogreencitizens.org

According to Kids Against Plastic, the Big 4 single-use plastics are

- drinking straws
- takeaway cups
- plastic water bottles
- plastic shopping bags

ACTION-BASED APPROACH FOR TRANSFORMATIVE LEARNING

All Trash Hack activities follow an action-based and student-oriented approach for transformative learning. Beside action, observation and reflection are key elements throughout the learning process. For learning and multiplying the impact, it is important to celebrate the achievements and to invite peers, parents and the community to be part of the solution.

OBSERVE

Look at the current situation and see what is already happening in your context and try to describe it. This can contribute to a shared understanding of what the situation is or what happened and can prove critical before or during action, reflection and celebration.

ACT

We want to learn what we live and live what we learn. Taking action allows us to explore and experience our environment and to apply our observations and reflections to create deeper understanding and positive change. Students take charge of their own learning by shaping, creating, problem-solving, taking risks and learning from failure. The guide provides starting points for action, step-by-step, which you can adapt to your local context or take further by designing your own projects and lessons.

REFLECT

Setting aside moments for reflection provides opportunities for individual and collective thinking. It also allows for multiple perspectives and alternative explanations to be considered and analyzed. The guide provides questions to initiate rounds of reflection before, during or after each activity. This could be carried out through class discussion, pro-contra-debates, role plays, brainstorming, mind mapping, position line, diagrams, etc.

CELEBRATE

Moments of celebration can assist learners to reflect and articulate their ideas, struggles and strengths during and after a project. They can give them time to show that they are proud of what they have achieved, share what they have learned and possibly see how their ideas can have impact and influence. This guide gives examples to celebrate each activity, but these moments will also come naturally from what the students have done, written or acted. Celebrations could involve things like a small exhibition, sharing of students´ feelings and learnings, inviting relevant people to hold a talk, making a video, a song or a series of photographs. Be guided by your students and their passions - celebration should above all be joyous for all learners.

TRASH HACK CHECKLIST: PLANNING FOR ACTION

- [ ] Get informed by the background information and infographics provided in this guide.
- [ ] Get inspired by the suggested activities and by going to trashhack.org/schools. Adapt them to your local context, students' ages and the current situation due to the COVID-19 pandemic. Feel encouraged to create your own activities and projects to trash hack your school.
- [ ] Think about who you want to involve: Your students, colleagues, school staff, parents, local politicians, local media, NGOs, associations, etc.
- [ ] Define the goals you want to achieve with your Trash Hacks!

TRASH HACK ACTIVITIES

TRASH HACK: RESPONSIBLE CONSUMPTION AND PRODUCTION

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Right now, our use of the earth's resources every year far exceeds what our planet can regenerate.

We need to urgently rethink how we, as humans, consume the world's resources, and how that impacts the rights of other living beings on the planet. A large share of people in the world's population is consuming too much, while others don't have enough to meet their basic needs. The exhaustion of the world's resources and changes to the earth's climate by humans endanger not just our own but the survival of all other living beings.

In nature there is no waste. A leaf which falls from a tree feeds the forest floor. The body of a decomposing animal feeds other creatures and the soil. Humans have disrupted this cycle, seeing the mastery of nature as a necessity for growth and proof of progress. At its core, responsible consumption and production reassesses this assumption and encourages us to re-situate ourselves within the natural cycle of our planet, for the sake of the lives of all its inhabitants.

Solving the waste problem and the climate crisis requires personal change but, much more importantly, it requires structural and systemic change. Because 80% of environmental impact is determined by decisions made in the production of goods, industries need to redesign supply chains, use less energy, water and other natural resources and decrease pollution.

We need to create a consensus in society that we should not destroy our home and demand that governments, institutions, corporations and industries make this their first priority.

As global citizens and consumers we can have an important influence to bring about such consensus and systemic change. We can take political action: vote for environmentally-minded politicians and parties, start or sign petitions, support campaigns and participate in demonstrations. We can wage influence as consumers by informing ourselves about what we consume and avoid products that harm people, animals or the environment and put value on living within the means of our planet. Such actions can be an important contributor to constructing meaning and purpose, individually and collectively, and to building a more just, peaceful and sustainable world.

The following activities provide a starting point to understand the implications and impacts our individual and collective lifestyles have on our shared planet, to take action together and to shape our attitudes and behaviours to make informed choices for a more just and sustainable world.

FIND FURTHER BACKGROUND READING ON THIS TOPIC HERE:

Sustainable Development Goals: key factors and figures on goal 12

YouthXchange: towards sustainable lifestyles; training kit on responsible consumption

YouthXchange training kit on responsible consumption for Africa

What is the circular economy?

DID YOU KNOW?

In 2020, humanity had already used up all the resources nature could generate for the year by...

AUGUST 22

AGRICULTURE

is the biggest user of water worldwide, and irrigation for humans now claims close to **70%** OF ALL FRESHWATER

2 BILLION PEOPLE GO HUNGRY OR UNDERNOURISHED

2 BILLION PEOPLE ARE OVERWEIGHT OR OBESE

1 GARBAGE TRUCK

of TEXTILES IS WASTED EVERY SECOND

IT TAKES **2,700L** OF WATER TO MAKE ONE COTTON SHIRT

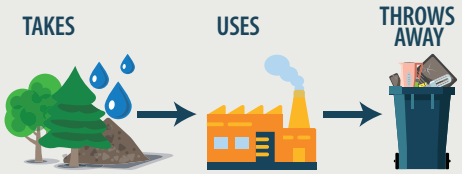
AND **7,500L** OF WATER TO MAKE A SINGLE PAIR OF JEANS

Sale

FAST FASHION

is the mass-production of less expensive copies of the latest looks, NOT CREATED TO LAST. Fashion production doubled between 2000 and 2015, but THREE OUT OF FIVE fast fashion items END UP IN A LANDFILL

A LINEAR ECONOMY IS ONE WHICH:



ENERGY POWERS PRODUCTION

Currently, around 80% of global energy and 66% of electricity generation are SUPPLIED FROM FOSSIL FUELS, contributing approximately 60% of the greenhouse gas emissions RESPONSIBLE FOR CLIMATE CHANGE

MORE EFFICIENT ENERGY STANDARDS ALONE COULD REDUCE BUILDING AND INDUSTRY ELECTRICITY CONSUMPTION BY... **14%**

RENEWABLE ENERGY

includes solar, wind, hydro, emits no greenhouse gas emissions from fossil fuels and reduces many types of air pollution

IN 2018 IT ACCOUNTED FOR 26% OF ENERGY GENERATED

A CIRCULAR ECONOMY

THE 6Rs OF SUSTAINABILITY

The 6Rs of sustainability demonstrate how we can curb our consumption and reduce waste by making different choices in our daily lives:

Rethink

How do you view the natural world and its resources? Do we produce too many products? Do you appreciate that the choices you make in your everyday life can make a difference?

Refuse

Don't accept, buy, or support products or companies that harm people, animals or the environment (like plastic!).

Reduce

Limit or reduce your consumption and energy and water usage.

Reuse

Purchase reusable items or donate your items.

Repair and repurpose

Can you fix it? Or can you repurpose/upcycle it?

Recycle

Dispose of the product in a way that it'll be turned into something else. For example, biowaste can be turned into valuable earth, old newspapers into new textbooks or plastic ashes into houses. Remember - not all things put in the recycle bin end up being recycled, so this is a last option!

Activity 1

WASTING WASTE

Using the 6Rs to Reduce Waste

Learning outcomes: Students will be able to

- record and reflect on the amount of trash generated during three days
- develop ways to apply the concept of the 6Rs to own and school community habits to curb consumption and reduce waste

3 CLASSROOM SESSIONS OVER 1 WEEK

Special materials: Scale

Location:

SCHOOL HOME

Interaction format:

INDIVIDUAL CLASS

OBSERVE

Explore with your students, how much recycling is currently being done in your school. What else can be done in addition to recycling?

ACT

1. Ask students to record the amount of each type of trash (metal, glass, plastic, paper, and food etc.) they generate at home and school over three days in a consumption diary. Ask them to estimate the weight with help of a scale and to bring in their results.
2. In class (or remotely) ask them to illustrate their results in a graph.
3. Introduce students to the concept of the 6Rs: Rethink, Refuse, Reduce, Reuse, Repair, Recycle (see box on p.8) and brainstorm together on ways of applying the concept to consumption habits (e.g. refusing a plastic bag, repairing clothes, reduce usage of paper, rethink the need to take a plastic straw with a soft drink etc.).
4. For a second round of recording, ask the students to document in the consumption diary if and when they applied the 6Rs in the following two days.
5. In a final classroom session, groups of students will present their learnings and share their ideas on reducing waste and curb their consumption.

REFLECT

1. Why is it sometimes so hard to change habits? How did you feel when you applied the 6Rs?
2. How could we engage the entire school in applying the 6Rs?
3. How could we even have an impact on companies to rethink and redesign their products?

CELEBRATE

Students could create a mural of ideas on how to apply the 6Rs. Place the mural in the student hall and invite the school community to get inspired and to add their ideas. Invite a local politician and discuss consumption habits, the role of politics in changing those and applying the 6Rs. Share pictures of your school mural with #TrashHack and on trashhack.org.

Remote alternative: Students can do this activity also from home. Together with their peers they could map ideas through digital tools and encourage the family to join.

Alternative to scale: If your students do not have a scale, agree on a common way to measure the waste, e.g. putting it flat in a square measuring 1m each side or using a waste bin of the approximate same size.

Activity 2

ARTWORKS FROM TRASH

Learning outcomes: Students will be able to

- create artworks using e-waste and further trash
- reflect upon the consumption habits through their artwork
- recognize re-/upcyclable waste as a valuable resource

1 PROJECT DAY

Special materials: E-waste (parts of: cable, computer screen, fridge, air condition, mobile phones etc.), collected trash (plastic bottles, cans etc), gloves, tools, glue

Location:

SCHOOL

Interaction format:

GROUP

OBSERVE

Show your students pictures of existing artworks from trash and let them identify the materials used and potential messages by the artists.

ACT

1. Contact the school waste management or janitor to provide the class with items from the trash, preferably plastics and electronics. Avoid sharp or hazardous items.
2. Under supervision of the arts or crafts teacher, small groups of students work together on designing and building their artwork.

REFLECT

1. Why is e-waste such a problem? Where does it go?
2. What title would you give your artwork for an exhibition?
3. Do you think art is an effective way to raise awareness for pollution and trash issues?

CELEBRATE

Invite the school waste management or janitor to see what the students made and engage in a conversation on opportunities and challenges associated with the school's waste management. Organize an exhibition of the students' art works or initiate a contest to award the top ten most creative artworks. Invite local media to the award ceremony and share with #TrashHack or on trashhack.org/schools.

Remote alternative: Students share their transformed trash artworks on social media with #TrashHack or display inside or outside their home.

Resource: *What's a smartphone made of? (TED-Ed video)*

Activity 3

T-SHIRT TO TOTE BAG

The transformative power of Do It Yourself (DIY)

Learning outcomes: Students will be able to

- research information on the supply chain of a t-shirt and create a learning poster on this topic
- produce a tote bag out of a t-shirt
- value the habit of repurposing and upcycling of textiles

1 PROJECT DAY

Special materials: T-shirts, sewing machine, large plate or bowl, scissors

Location:

Interaction format:

OBSERVE

Bring in a t-shirt to class and ask students to imagine the life cycle of the t-shirt from planting the seed of the cotton plant until the present moment. Let them write a short story from the perspective of the t-shirt. Compare the results.

ACT

1. Ask your students to research the supply chain of a t-shirt and to create a learning poster which they can present in five minutes.
2. Brainstorm on ideas how to upcycle the t-shirt after its time as cloth. Show them #recycledfashion, #ethicalfashion and #upcycledfashion on social media to inspire their thinking.
3. Ask the local community to donate clean but unwanted t-shirts to your class and produce together creative tote bags out of the t-shirts. Instructions can be found by searching "tote bag into t-shirt" online.

REFLECT

1. How is a t-shirt linked to globalization and to local politics?
2. How could we engage the entire school in upcycling textiles?
3. What immediate steps can we take to consume more responsibly in regards to textiles?

CELEBRATE

Students could hold a fashion show with their bags and share pictures or a video on social media with #TrashHack. They could also sell them at a school event or give them out in the local community to encourage people not to use plastic bags. They could also rewrite the story from the perspective of the t-shirt, including the continuing existence as a tote bag.

Remote alternative: Students produce a tote bag out of a t-shirt with the help of parents at home.

Watch the video *The life cycle of a t-shirt* on TED-Ed

Activity 4

WASTING FOOD? NO WAY!

Learning outcomes: Students will be able to

- design a questionnaire and conduct interviews on food waste with personnel of the school canteen
- recognise the impact of food waste on the environment and society
- formulate active steps to avoid food waste at school level

2 CLASSROOM SESSIONS + INTERVIEWS

Special materials: Interview partners from school canteen

Location:

Interaction format:

OBSERVE

Ask students to observe the school canteen on a lunch break to see if food is thrown away and if the food packaging is made of plastic.

ACT

1. Prepare in class a questionnaire to conduct an interview with the school canteen personnel on food waste and food packaging.
2. Have students conduct the interviews in small groups.
3. Ask students to research how much food is thrown away in their country (daily, monthly or per year) and compare to the results of their interviews. Compare the results to how much food is thrown away on average in other countries.
4. Discuss the impacts of food waste on the environment and society and what could be done to avoid it, at a personal and systemic level.
5. Brainstorm if your school's waste systems could change to reduce food waste. Possibilities could include revising the food production stage, encouraging behaviour change within students, changing the bins so different types of waste aren't mixed together or creating a school compost.
6. Brainstorm how the class could advocate for changes to the canteen's menu or school's food waste system, if it encourages waste. For example, they use the results of their brainstorming to write a letter to the principal or the head of the canteen.

REFLECT

1. How is food wastage at your school connected to the global issue of waste?
2. How can you reduce food waste from your own lunch?
3. What steps could we take to avoid plastic packaging of food at our school canteen?

CELEBRATE

The class could create engaging signs for the school canteen to raise awareness of not wasting food, put on a lunchtime talk series or create a song about food waste to share at a concert in the canteen and invite media. Share your ideas on social media using #TrashHack.

Find more information and great resources via the *Food and Agriculture Organization (FAO)* of the United Nations.

TRASH HACK: LIFE ON LAND

15 LIFE ON LAND

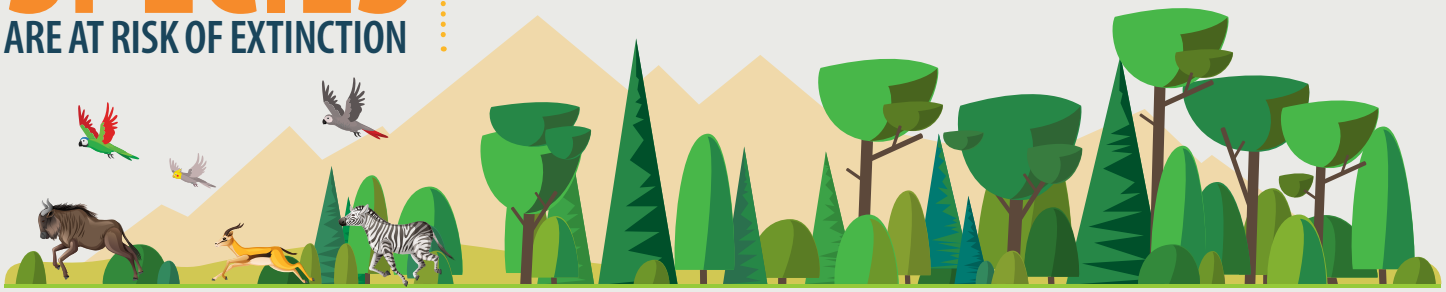
A flourishing life on land is the foundation for our life on this planet. We are all part of the planet's ecosystem and we have caused severe damage to it. Promoting sustainable use of our ecosystems and preserving biodiversity is the key to our own survival.

Waste management is a universal issue that matters to every single living being in the world. And with over 90% of solid waste openly dumped or burned in low-income countries, it is the poor and most vulnerable who are disproportionately affected.[1]

1 MILLION SPECIES ARE AT RISK OF EXTINCTION

THE EARTH LOST **85%** OF WETLANDS IN JUST 300 YEARS

AND **16%** OF ITS TOTAL TREE COVER BETWEEN **2002 AND 2019**



TRASH POLLUTES THE LAND AND SMOTHERS THE SOIL WHICH AFFECTS PLANTS AND WILDLIFE

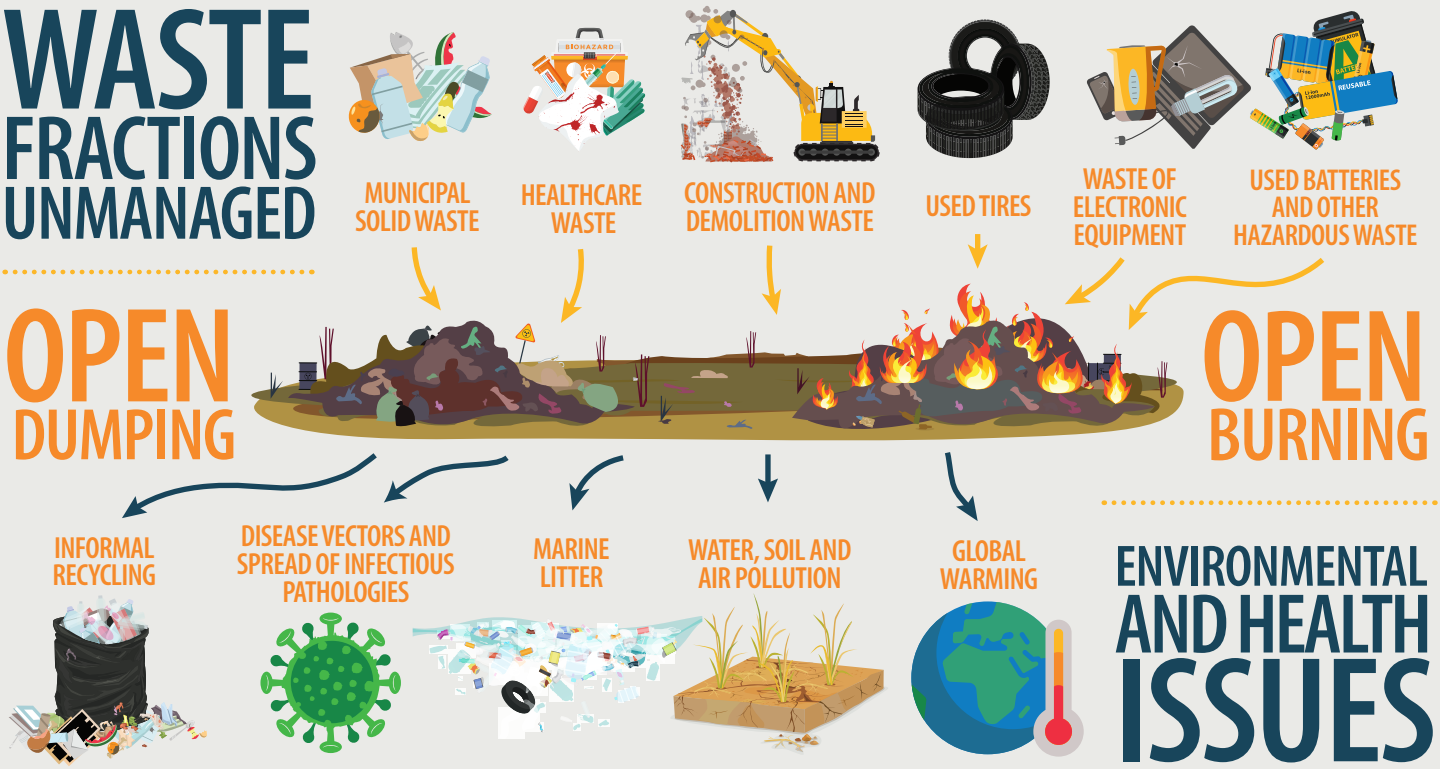
OVERCONSUMPTION AND PRODUCTION FUEL LAND CLEARING AND BIODIVERSITY LOSS

Biodiversity refers to all living things, which with non-living things make ecosystems. ALL ARE CONNECTED AND DEPEND ON EACH OTHER TO SURVIVE

More than **1.6 BILLION TONNES OF CARBON DIOXIDE** ARE GENERATED FROM SOLID WASTE **A KEY CAUSE OF CLIMATE CHANGE**

LANDFILL FOR TRASH TAKES UP LARGE AMOUNTS OF SPACE AND **KILLS ECOSYSTEMS AROUND IT**

Trash can take a long time to decompose. PLASTIC BAGS COULD TAKE 1000 YEARS TO DECOMPOSE and the world uses **5 TRILLION OF THEM EVERY YEAR**



FIND FURTHER BACKGROUND RESOURCES ON THIS TOPIC HERE:

Sustainable Development Goals: key actors and figures on goal 15

Learning to protect biodiversity (video)

YouthXchange biodiversity & lifestyles guidebook

Activity 5

LANDFILL IN A BOTTLE

Learning outcomes: Within a 4-week experiment timeframe, the students will be able to

- analyze and monitor how waste breaks down by creating a simulation of a landfill
- evaluate their results and judge on the habit of disposing waste in nature

SEVERAL SESSIONS OVER 4 WEEKS

Special materials: 2-litre bottle, household or school lunch trash such as discarded wrappers and food items, water, scissors, plastic bags, labels, dirt or soil

Location:

SCHOOL COMMUNITY

Interaction format:

CLASS GROUP

OBSERVE

Take a walk with your students around the school or to a nearby park or even a landfill and note down what type of trash you see on grass, greens, fields etc. Discuss reasons (e.g. laziness, carelessness, lack of trash cans, etc.) for disposing trash in nature.

ACT

1. Separate students into small groups by trash type (paper, food/fruit slices, plastic, electronics, pieces of cloth, etc.) and distribute one 2-litre bottle and pieces of the respective trash to each group.
2. Assist them in cutting the top off the 2-litre bottle.
3. Instruct them to place the trash in the bottle and cover it with dirt and a splash of water.
4. Each of the bottles is labeled according to the trash types.
5. Create an extra space to place the experiment near the window with your students.
6. Design a 4-week table together to clarify which student of each group is taking care of monitoring and noting down changes and adding a little water to the bottle every few days.
7. Collect guesses in the table on which type of trash will break down during the 4 weeks and which will not.
8. Maintain the experiment for 4 weeks and have an evaluation and reflection session at the end.

REFLECT

1. Why is it important to tackle the habit of disposing waste in nature?
2. How is waste managed in your community?
3. How could we help the ecosystem around our school or home?

CELEBRATE

Encourage your students to add more bottles and types of trash to the experiment and to organize an exhibition for the entire school. Let them design information cards to involve more students in the learning.

Remote alternative: Students could also experiment from home. Students can create a landfill with their siblings and parents at home to share their learnings and try it with different trash items in a bottle using a few pieces of garbage from home.

For full activity instructions see: Association of Zoos and Aquariums, 2015. Our Ecological Footprint Activities, *https://assets.speakcdn.com/assets/2332/oef_landfillbottle.pdf* (Accessed 12 January 2021)

Activity 6

TRASH REPORTER ROLE PLAY

Learning outcomes: Students will be able to

- design a questionnaire and conduct an interview with an expert on waste management
- illustrate the gained knowledge by creating a role play

3-4 CLASSROOM SESSIONS + INTERVIEWS

Special materials: Interview partners (janitor, local politician or expert of waste management, etc.), interview questions, stage settings (optional), equipment

Location:

SCHOOL COMMUNITY

Interaction format:

GROUP

OBSERVE

Take a walk with your students around the school building. Can you identify objects or machines which are part of the waste management of your school? How is the school waste organized?

ACT

1. Contact the janitor or local politicians and experts responsible for the waste management for your school and ask them if they would give interviews to your students.
2. Prepare the questionnaire for the interviews on waste management with the students.
3. Give students the task to create a role play by simulating a TV news show of approx. 3 minutes based on the interview they will conduct about waste management at their school.
4. Initiate a performance of the role plays.

REFLECT

1. How could the waste management be improved at your school? How is your school's waste management linked to local politics?
2. How can politicians have an influence on the waste management in your community?
3. How important is media coverage for awareness raising for the environment? Are there challenges?

CELEBRATE

Encourage your students to rehearse their plays again and to perform them at the next school assembly or class event in front of the parents and local politicians. Make a recording and send it to the local media and share on trashhack.org.

Activity 7

TRASH FREE FLOWER ZONE

Learning outcomes: Students will be able to:

- create a Trash Free Flower Zone to raise awareness on the habit of littering

1 PROJECT DAY

Special materials: Seeds and/or plants, flower pots, gardening tools such as a shovel and rake, water container, gloves

Location:

SCHOOL COMMUNITY

Interaction format:

GROUP CLASS

OBSERVE

Record spots on your school campus or neighbourhood which are used as litter zones. Take photos.

ACT

1. Clean-up those zones and dispose of the waste.
2. Let groups of students brainstorm ideas on how they can beautify the area by placing different plants and flowers or even creating a small garden.
3. Support the groups in creating their Trash Free Flower Zones.
4. Afterwards, have students assess if people stop throwing their trash in the respective zones.

REFLECT

1. How could we engage the entire school in similar activities related to trash?
2. How can we further raise awareness on the habit of littering within our community?
3. What could local government do to nudge people into littering less?

CELEBRATE

Take a video or photos of the Trash Free Flower Zones and share them with #TrashHack. Invite the school community to join in a second round of clean-up and beautifying of your community. Invite a local politician to see the result and discuss how to scale this for the community.

TRASH HACK: LIFE BELOW WATER

14 LIFE BELOW WATER

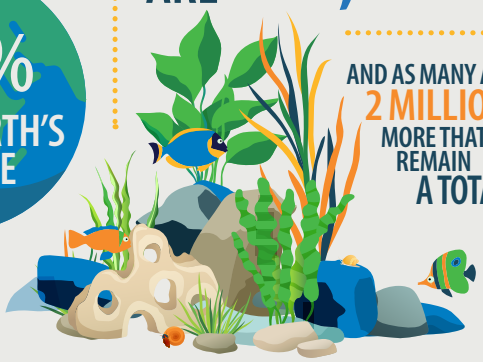
Humans, animals and plants rely on healthy lakes, ponds, rivers and the ocean, including for food, energy and water. The oceans are the lungs of the earth, generating most of the oxygen we breathe and absorbing 30% of greenhouse gases, hence, acting as the main climate regulator.[1] Fish and seafood are also the main source of protein for one out of four people in the world. But we have damaged this essential resource with pollution, overfishing and global warming, all issues which connect to trash.

THE OCEAN COVERS

75% OF THE EARTH'S SURFACE

AND REPRESENTS **99%** OF THE LIVING SPACE ON THE PLANET BY VOLUME

THERE ARE 228,450 known species in the ocean



AND AS MANY AS 2 MILLION MORE THAT REMAIN A TOTAL MYSTERY.

AS MUCH AS **40%** of the ocean is heavily affected by POLLUTION, DEPLETED FISHERIES, loss of COASTAL HABITATS and other HUMAN ACTIVITIES

IRRESPONSIBLE CONSUMPTION and PRODUCTION ARE TRIGGERS TO THIS

Each year, an estimated **EIGHT MILLION TONNES** OF PLASTIC END UP IN THE OCEAN

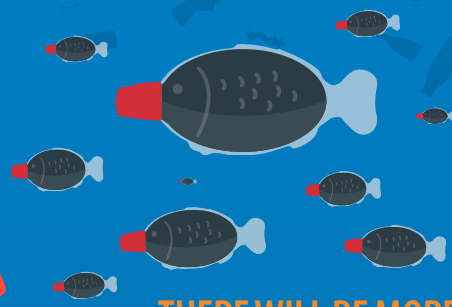
THAT'S EQUIVALENT TO **1 GARBAGE TRUCK** DUMPED INTO THE SEA EVERY MINUTE

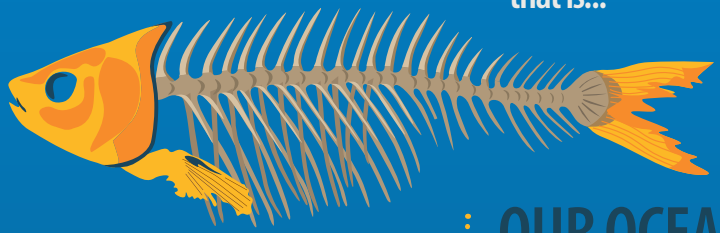
OVER **90%** of seabirds are found with plastic in their STOMACHS

32% OF ALL PLASTIC WASTE ENDS UP IN THE SEA AND CAN TAKE HUNDREDS OF YEARS TO BREAK DOWN

There is a collection of RUBBISH FLOATING OFF THE COAST OF CALIFORNIA that is...

3x THE SIZE OF FRANCE

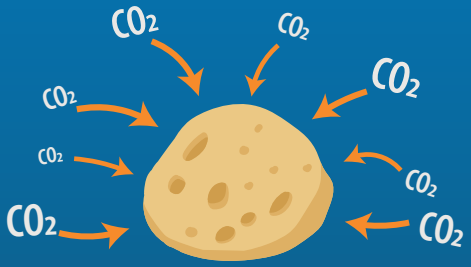




It's predicted that in the year **2050** THERE WILL BE MORE PLASTIC THAN FISH IN THE SEA

TRASH CAN EASILY BE MISTAKEN FOR FOOD by fish and other animals and microplastics can BLOCK THE MOUTH ALL THE WAY DOWN TO THE INTESTINES and trick the animal into thinking they are full and do not need to eat, LEADING TO STARVATION

OUR OCEANS ARE AN INCREDIBLE CARBON SPONGE



THE OCEAN ABSORBS AROUND 30% OF CARBON DIOXIDE (CO2) RELEASED TO THE ATMOSPHERE as a result of human activities. As CO2 dissolves in seawater, IT FORMS CARBONIC ACID, DECREASING THE OCEAN'S PH. This is called ocean acidification. THE ACIDITY OF THE OCEAN HAS INCREASED BY 26% since the beginning of the industrial era

Activity 8

CLEAN-UP DAY!

Learning outcomes: Students will be able to

- judge and criticize the pollution of waterways by assessing their experiences during the clean-up
- raise awareness on pollution in creating an exhibition of the collected trash

1-2 PROJECT DAYS

Special materials: Gloves, facemasks, bags, picking tools

Location:

COMMUNITY

Interaction format:

GROUPS UNDER ADULT SUPERVISION

OBSERVE

Identify waterways, lakes, rivers, or coastlines in your area which are affected by pollution.

ACT

1. Decide on the clean-up-location. If a body of water is not available, you could clean up your yard, shed, around the school or a street. Make sure that you follow all recommended safety guidelines from your school and health departments.
2. Guide the students to collect trash and to document the types of trash.
3. Take photos before, during and after the clean-up.
4. If possible, transport all trash back to school to visualize and exhibit creatively the amount of trash collected.

REFLECT

1. How did you feel before, during and after the clean-up?
2. How does trash find its way into water? Can you guess from which country the pieces came from? What does that tell us?
3. How is the pollution of the waterways impacting you and your community?

CELEBRATE

Contact local media (newspapers, television) to inform about your clean-up and share on trashhack.org. Write a letter to your local government to support your next clean-up-day and to establish strategies to avoid trash in your local waterways.

Activity 9

THE WATER BOTTLE PLEDGE

Learning outcomes: Students will be able to:

- organize a campaign to make a personal pledge to stop using single-use plastic bottles
- recognize and criticize the dangers of plastic waste for life below water

1-3 PROJECT DAY

Special materials: Refillable water bottles (preferably sponsored), posters, certificates

Location:

SCHOOL

Interaction format:

GROUP CLASS

OBSERVE

Ask your students to observe how often they see people using plastic water bottles versus refillable bottles at your school.

ACT

1. Ask students to research the danger of plastics for oceans, lakes, rivers, and animals.
2. Convince your students of the idea of a campaign against the use of single-use plastic bottles at your school.
3. The students are responsible for conceptualizing a campaign plan and considering how they can involve their classmates at school by taking a pledge to support the Trash Hack.

   For example, the students work in teams to create information materials, design badges and certificates, set up an information stand or look for ways to make the use of reusable bottles attractive through advertisement.
4. Set a common goal of how many pledges you want to achieve over a period of 4 weeks.

REFLECT

1. How could you increase the number of pledges?
2. How are plastic bottles affecting the ocean and marine life?
3. What can you do at your school beyond the pledge to tackle this issue?

CELEBRATE

Celebrate by sharing your achievements on Trashhack.org and by designing special refillable bottles with the logo of your school. Find a local sponsor to support your campaign.

Remote alternative: Students in remote settings or home-schooling environments can participate by encouraging family members to make a personal pledge to use refillable water bottles. Celebrate by designing and displaying a sign in your yard or window stating that you took the pledge!

Watch the video *What really happens to the plastic you throw away* **on TED-Ed**

FURTHER READINGS & RESOURCES

You can find additional reading and useful resources to further build on the ideas and contents provided in this guide and to engage in a process of transformation and empowerment.

PUBLICATIONS

Getting Climate Ready: A Guide for Schools on Climate Action. UNESCO, 2016.

Teaching and learning for transformative engagement. UNESCO, 2019.

YouthXchange: green skills and lifestyles guidebook. UNESCO, 2016.

YouthXchange guidebook series: climate change and lifestyles. UNESCO, 2011.

Ocean literacy for all: a toolkit. UNESCO 2018.

Biodiversity learning kit. *Volume 1* & *Volume 2.* UNESCO, 2017.

Schools in Action: Global Citizens for Sustainable Development: A Guide for Teachers. UNESCO, 2016.

Schools in Action: Global Citizens for Sustainable Development: A Guide for Students. UNESCO, 2016.

You can find these and other publications on https://unesdoc.unesco.org/

WEBSITES / MULTIMEDIA

Sustainable Development Goals: Resource Bank for Educators

World's Largest Lesson

TED-Ed: Video bank for teachers and students

Games4Sustainability. Sustainability Gamepedia

International Waste Platform

Young Reporters for the Environment

YUNGA. Challenge Badges

The UN´s Lazy Person´s Guide to Saving the World

DOCUMENTARIES / VIDEOS

Films by French environmentalist Yann Arthus-Bertrand about humanity and the planet, freely available:

- *Human (2015)* (in 6 languages)
- *Planet Ocean (2012)*
- *Home (2009)*

UNESCO ASPnet schools around the world have implemented a whole-school approach to climate change, enabling learners to live what they learn and learn what they live. A whole-school approach involves rethinking school governance, teaching content and methodology, campus and facilities management as well as cooperation with partners and the broader communities. Take a look at the *UNESCO ASPnet Guide* for schools and watch a *3 min Trailer* and *30 min Documentary* on the ASPnet Pilot Project.

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4 QUALITY EDUCATION

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