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ECODISCOVERY

"Play And Discover The Future"



PROJECT RESULT 4 • EDUCATIONAL RESOURCES

Environmental Fact Sheets

Eight Key Topics Behind the ECOTOPIA Game

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These eight fact sheets give teachers and learners concise, reliable background on the environmental themes behind the ECOTOPIA game. Each sheet explains a key concept, why it matters, practical actions anyone can take, and how the topic appears inside the game. They can be printed, displayed or used as reading and research material.

Fact Sheet 1 Water Conservation

Chapter 1 • Protect Water

Key concept

Only about 2.5% of the water on Earth is fresh water, and a small fraction of that is easily available for people to use. Conserving water means using this limited resource carefully and avoiding waste in everyday activities.

Why it matters

Clean fresh water is needed for drinking, food production, hygiene and healthy ecosystems. As populations grow and climate patterns change, many regions face water stress, so small savings by many people add up to a large difference.

Practical actions

- Turn off the tap while brushing teeth or washing vegetables in a bowl.
- Take shorter showers – a 5-minute shower saves a great deal over a year.
- Fix dripping taps quickly; a single drip can waste hundreds of litres a year.
- Run washing machines and dishwashers only when full.

Connection with ECOTOPIA. In Chapter 1 you hunt for hidden water waste in the kitchen and bathroom and learn how each fix saves litres of water.

Fact Sheet 2 Grey Water

Chapter 1 • Protect Water

Key concept

Grey water is the relatively clean waste water that comes from sinks, showers, baths and washing machines – but not from toilets. With simple filtering it can be collected and reused.

Why it matters

Reusing grey water reduces the amount of fresh drinking water we use for tasks that do not need it, such as watering gardens or flushing toilets. This eases pressure on water supplies, especially during dry periods and restrictions.

Practical actions

- Collect rainwater and light grey water for garden irrigation.
- Use plant-friendly, biodegradable soaps if water will be reused on plants.
- Direct washing-up or shower water to plants where local rules allow.
- Water gardens in the early morning or evening to reduce evaporation.

Connection with ECOTOPIA. In Chapter 1 you build a grey-water system – repairing gutters, connecting pipes and adding a filter – to rescue a drying garden.

Fact Sheet 3 Microplastics

Chapter 1 • Protect Water

Key concept

Microplastics are tiny plastic particles smaller than 5 mm. They form when larger plastics break down and are also released from synthetic textiles, packaging and some cosmetics.

Why it matters

Microplastics are now found in oceans, rivers, soil and even drinking water. They can be eaten by fish and other animals, entering food chains and harming wildlife and, potentially, human health.

Practical actions

- Reduce single-use plastics; carry a reusable bottle and bag.
- Choose natural fabrics and wash synthetic clothes less often or in a filter bag.
- Never litter; dispose of plastic waste responsibly and recycle where possible.
- Support clean-ups of local rivers, beaches and parks.

Connection with ECOTOPIA. In Chapter 1 you scan a pond, collect microplastics and rescue affected wildlife while learning how long plastics last in nature.

Fact Sheet 4 Renewable Energy

Chapter 2 • Use Energy

Wisely

Key concept

Renewable energy comes from sources that are naturally replenished, such as the sun, wind, water, geothermal heat and biomass. Unlike fossil fuels, they are not used up and produce little or no carbon dioxide during operation.

Why it matters

Burning fossil fuels is the main cause of climate change. Switching to renewable energy reduces greenhouse-gas emissions and air pollution and provides cleaner, more sustainable power for homes, schools and cities.

Practical actions

- Support solar panels or green-energy tariffs where possible.
- Learn how solar and wind produce electricity without emissions.
- Use energy at off-peak times to help balance the grid.
- Combine renewables with saving energy for the biggest impact.

Connection with ECOTOPIA. In Chapter 2 you install solar panels and wind turbines, adjust their angle and use solar trackers to maximise clean-energy production.

Fact Sheet 5 Energy Efficiency

Chapter 2 • Use Energy

Wisely

Key concept

Energy efficiency means getting the same result – light, warmth, clean clothes – while using less energy. It is often the cheapest and fastest way to cut energy use and emissions.

Why it matters

Wasted energy costs money and adds unnecessary emissions. Efficient lighting, appliances and insulation lower bills, reduce demand on power stations and make renewable energy go further.

Practical actions

- Replace old bulbs with LEDs, which use around 80% less energy.
- Unplug chargers and devices on standby to stop "vampire" energy.
- Improve insulation and close windows when heating or cooling.
- Switch computers and screens to eco or sleep mode.

Connection with ECOTOPIA. In Chapter 2 you become an energy detective – finding heat loss, switching to LEDs and hunting vampire energy to build an efficient smart home.

Fact Sheet 6 Biodiversity

Chapter 3 • Balance Nature

Key concept

Biodiversity is the variety of living things – plants, animals, insects and microorganisms – and the ecosystems they form. Each species plays a role in keeping nature in balance.

Why it matters

Healthy biodiversity gives us clean air and water, fertile soil, and food. Many crops depend on pollinators such as bees, yet a large share of pollinators are now at risk, so protecting habitats is essential.

Practical actions

- Plant pollinator-friendly flowers such as lavender.
- Leave wild corners and provide shelter such as insect hotels or birdhouses.
- Avoid pesticides that harm bees and other helpful insects.
- Observe and record local species to understand your ecosystem.

Connection with ECOTOPIA. In Chapter 3 you document species, rescue wildlife after a fire and design a pollinator park that attracts bees and butterflies.

Fact Sheet 7 Recycling

Chapter 4 • Reduce Waste

Key concept

Recycling turns used materials – paper, glass, metal and many plastics – into new products instead of sending them to landfill. Correct sorting is the key to making it work.

Why it matters

Recycling saves raw materials and energy and reduces pollution. Recycling aluminium, for example, saves about 95% of the energy needed to make it from scratch, and glass can be recycled again and again without losing quality.

Practical actions

- Sort paper, plastic, glass and metal into the correct bins.
- Rinse containers so they can actually be recycled.
- Check local rules for tricky items such as cartons and batteries.
- Reduce and reuse first – recycling is the last step, not the only one.

Connection with ECOTOPIA. In Chapter 4 you sort waste into the right bins and match items to the new products they can become, learning the energy savings of recycling.

Fact Sheet 8 Compost

Chapter 4 • Reduce Waste

Key concept

Composting lets food scraps and garden waste break down naturally into a nutrient-rich material that improves soil. It relies on a balance of “green” (nitrogen-rich) and “brown” (carbon-rich) materials.

Why it matters

A large part of household waste is organic and could be composted rather than sent to landfill, where it produces methane, a powerful greenhouse gas. Compost returns nutrients to the soil and reduces the need for chemical fertilisers.

Practical actions

- Compost fruit and vegetable peels, egg shells, tea and coffee grounds.
- Balance food scraps (green) with paper or dry leaves (brown).
- Avoid composting meat, dairy and plastics.
- Use finished compost to enrich school or home gardens.

Connection with ECOTOPIA. In Chapter 4 you build a compost area, sort suitable materials and balance carbon and nitrogen to create natural fertiliser.