



REDISCOVERY CENTRE

Sustainability Classroom Information

Currently, 30% of the European Union's plastic is recycled. 39% of it is incinerated, while 31% ends up in landfills (Plastics Europe 2018). In excess of 60% of plastic waste still comes from product packaging. Annually, Ireland generates produced over 1 million tonnes of packaging waste of plastic packaging waste and on average – just 34% of this was recycled (Department of Communications, Climate Action and Environment).

Sustainable materials can be more expensive than conventional packaging, but there are social, environmental and economic benefits to it. For example, producing one cubic foot of Styrofoam requires 1.5 liters of petroleum, which equates to the amount of petroleum for a 20-mpg car needs to travel for 8 miles. Sustainable materials uses recycled materials and low-impact production processes, conserving raw materials, which preserves natural resources for the next generation.

Materials for a sustainable classroom

- Pencils made from recycled materials or from sustainable-sourced wood. E.g. Klee paper have FSC approved pencils, GoPromotional.ie have pencils made from recycled denim and paper
- Staplers made from recycled plastic. E.g. Klee paper, Hunt Office supplies, other office suppliers
- Scissors made from recycled plastic. E.g. Klee paper
- Brown paper tape (instead of sellotape), e.g. Klee paper, Cork Art Supplies, office suppliers
- Eco Pens made from recycled materials or sustainable sourced wood. E.g. Klee Paper, GoPromotional.ie, Brand It
- Recycled paper
- A4 whiteboard (to replace scrap paper), e.g. office suppliers, school suppliers
- Eco Rulers from recycled materials or sustainable sourced wood. E.g. Klee Paper, GoPromotional.ie, Brand It

Sustainable Packaging materials

Fungi-based packaging material instead of plastic-based:

- E.g. Ecocradle, a mushroom-based packaging material, developed by Ecovative Design in 2010 by mycelium technology. The natural and biodegradable Ecocradle can be grown in a controlled environment in a week and takes just a few weeks to decompose in garden composting. The material is created by letting the mycelium grow around clean agricultural waste, such as corn stalks or husks. Over a few days, the fungus fibers bind the waste together, forming a solid shape. It is then dried to prevent it from growing any further.
- Ikea are starting to use this type of packaging for their products
- Some benefits include: It uses only 12% of the energy used in plastic production. Produces 90% less carbon emissions than produced during plastic manufacture. Rural communities can benefit financially by supplying agricultural wastes to mycelium manufacturers
- <https://shop.ecovatedesign.com/collections/packaging>

Brown paper tape instead of plastic-based sticky tape

- Gummed paper tapes is the only tape that is 100% recyclable and biodegradable. The adhesive coated to the brown paper is a vegetable glue which is completely soluble in water. No solvents are used in its manufacture and the gum breaks down easily in the recycling process.
- E.g., Klee paper

Eco mesh and produce bags instead of plastic-based

- Plant-based organic cotton drawstring bags for produce, and packaging.
- E.g. Eco Bags, Little Green Shop, Earthmother

Bioplastic

- Bioplastic is a plastic component that is based, either wholly or partially, on organic biomass as opposed to petroleum. The organic biomass can include items such as corn oil, orange peels, grass, starch and plants. bioplastics can be broken down into two separate areas: Durable and Biodegradable Plastics
- Polylactic Acid (PLA) is created from renewable resources such as starch and sugar cane. PLA is one of the most popular bioplastics in the market place today.
- Biodegradable means the material will break down but it could take 100's of years to fully decompose.
- Compostable means the material can be used to produce nutrient rich soil when broken down in special compost conditions.
- bio-plastics will not biodegrade in a way that solves the problem of plastic litter if they end up in forests or hedgerows. If leaked into oceans, bio-plastics will end up doing as much harm as regular plastic to marine life.
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Plant-based bags – corn starch and potato starch, instead of plastic bags

- Bags made of bioplastics have the basic ingredient granulate made from renewable resources like corn starch, thistles, sugarcane, sugar beet, potato starch and biodegradable polymers (bio-polymers). In addition the production process of a bioplastic carrying bag is energy efficient compared to the production of regular plastic or paper bags reducing CO2 emissions.
- 100% biodegradable compostable bioplastic bags are similar to polyethylene (plastic) carrying bags in strength and tensile strength and can be reused several times.
- E.g. NaturalBag, Klee paper

Compostable take away cups

- 22,000 coffee cups are disposed of in Ireland every hour or 200 million a year (RecyclingList.ie, 2018). While many disposable cups carry the recyclable logo, the actual cup itself is not currently recyclable in Ireland and must be disposed of in general waste. The logo refers only to the rigid plastic lids and the cardboard sleeves on some cups, which can be removed and placed for recycling. Compostable cups re not recyclable either, and should be put in the compost bin. They only decompose if they are disposed of in a food waste recycling bin and processed in a commercial compost facility

Biodegradable packing pellets instead of Styrofoam

- Styrofoam is a plastic polymer composed of polystyrene. Biodegradable packing peanuts are made from natural, nontoxic sources, such as wheat and corn starch. They dissolve in water and can be thrown into compost piles after use. Biodegradable starch-based packing peanuts may be a more environmentally-friendly option, but they do have their disadvantages. With a higher weight than traditional packing peanuts, the eco-friendly version increases shipping costs.

- E.g. <https://www.packability.co.uk/biodegradable-packing-peanuts>

Example of Eco-packaging design:

- **Puma:** Puma partnered with Fuse project to reduce their footprint and build on their initiatives toward cleaner, greener, and safer manufacturing practices. The companies designed and created shoe box bags that use fewer raw materials and fewer resources to produce (such as water and energy), and can also be re-used afterwards. Puma estimate these bags save more than 60% of water, energy and diesel compared to traditional bag manufacturing processes. The bag is made of non-woven polyester consisting of polypropylene, and is recyclable. This innovative bag design means approximately 8,500 tons less paper consumed, 20 million Mega joules of electricity saved, 1 million liters less fuel oil used and 1 million liters of water conserved. During transport 500,000 liters of diesel is saved and lastly, by replacing traditional shopping bags the difference in weight will save almost 275 tons of plastic.
<https://fuseproject.com/work/puma/clever-little-bag/?focus=overview>
- **Replenish:** Up to 95% of the substance in household cleaning products is water, and disposing of the packaging when the bottle is empty is wasteful. The bottle design from Replenish offers a concentrated recharging cartridge screwed into the bottom, which when inverted fills a chamber with sufficient liquid that can then be topped up with tap water. It saves waste and materials, along with the transport emissions from shipping water.
<http://www.myreplenish.com/>

Sustainable Product Suppliers

Recreate

- a social enterprise and registered charity work with local and national businesses to collect unwanted and surplus items and make art materials and educational supplies accessible and affordable
- <https://recreate.ie>

Klee Paper

- family business based in Ireland specialising in recycled office and gift stationery.
- <https://ecoland.com/>

GoPromotional.ie

- Supply branded promotional materials, including sustainable and recycled products
- <https://www.gopromotional.ie/c/promotional-pens/printed-pencils/recycled-pencils/view-all>

Brand It

- Supply branded promotional materials, including sustainable and recycled products
- <https://www.brandit.ie/products/33-recycled-and-eco-products>

EcoBags

- US company supplying low impact eco bags
- <https://www.ecobags.com>

Little Green Shop

- a small family run business based in Mullingar, Co. Westmeath.
- <https://littlegreenshop.ie>

Earth Mother

- Irish company

- <https://www.earthmother.ie>

Natural Bag

- EU based company specialising in bioplastic bags
- <https://www.naturalbag.eu/Bioplastics/>

Down 2 Earth materials

- range of certified compostable products and packaging to a wide variety of businesses in the food, catering and events sectors
- <https://www.down2earthmaterials.ie>

Vegware

- eco friendly packaging and catering disposables
- <https://www.vegware.com/>