

# Fast fashion supply chain game



Ages: 12+



Time: 1 hour (including making the cards)

## Purpose:

To learn about alternative options to fast fashion in a fun way.

## Youth work outcomes:

**Outcome 1:** Young people are confident, resilient and optimistic for the future

**Outcome 4:** Young people participate safely and effectively in groups

**Outcome 7:** Young people broaden their perspectives through new experiences and thinking

## Sustainable development goals:



## Context:

The textile industry, which makes up a key component of fast fashion, emits 1.2 billion tonnes of carbon dioxide per year – 10% of humanity's annual emissions. The fashion industry also produces nearly 20% of global waste water every year, and cotton farming uses 24% of insecticides and 11% of pesticides annually. As trends change so fast, 64% of the 32 billion garments produced each year end up in landfill. Also, 93% of fast fashion brands surveyed by Fashion Checker do not pay their garment workers a living wage, with workers in Bangladesh being paid as little as \$0.13 per hour in terrible conditions, as was highlighted when the Dhaka garment factory collapsed in 2013, killing over 1000 people and injuring 2,500. It's clear that the fashion industry is doing huge damage both to the planet and to human rights, and yet we all wear clothes and therefore contribute to it in some way. Some of the emissions and waste from the fashion industry can't be avoided, but there are some ways to make and buy clothes which are gentler and more equitable for both people and planet. These cards will show you how different methods of production and consumption effect workers and the planet in different ways, showing that when it comes to fashion, not all outfits are equal.

## Making the game:

Young people should cut out the chain cards which fit together like a jigsaw. Each card has a corresponding information sheet, which the young people should use to decide how many stars to fill in for each option. More stars = more environmentally and worker friendly.

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## How to play:

The cards represent six different links on the fashion supply chain. At each level, eg. raw materials or packaging, there are four different options, each worth a different number of points. There are points for carbon emissions, environmental impact, waste and working conditions at each stage. Once the young people have filled in these points, they can start playing.

4 players start with 6 random cards each and have to swap cards (like in the game 'spoons') by passing unwanted cards around the circle, until each has a full supply chain and lays out their chain in order. You can continue to swap cards even if you have a full set if you want to get higher scoring cards, until you think you have the best score you can get. You get 4 extra points if you're the first to lay down your chain, 3 for second, 2 for third and 1 for fourth. At the end, players compare scores both for individual aspects and in total. The player with the highest score wins.

## Information sheet: Stage 1 – Raw Materials

### Cotton

Cotton is a natural fibre that is grown in many parts of the world, including India, China and Brazil. However, cotton farming requires a huge amount of water – 10,000 litres of water are needed to produce 1kg of cotton, so for 1 cotton T-shirt, 2,700 litres of water are being used up. Many of these regions are already experiencing water shortages due to climate change, so cotton farming uses up valuable resources. Harmful pesticides are also used in cotton farming, which pollute rivers and lakes nearby and affect the health of people and wildlife. The cotton farming industry also uses child labour and very low wages for workers, to keep production costs down.

#### Suggested scores:

- Carbon emissions: **3.5**
- Environmental impact: **2**
- Waste: **3**
- Working conditions: **1**

### Hemp

Hemp is one of the oldest textile fibres and grows quickly without much water or need for pesticides. It is also very high-yielding, meaning that more of it can be grown in a smaller area. Part of the harvesting process involves leaving the stalks to decompose for a while in the field before collecting, which returns nutrients to the soil. Hemp produces very durable fabrics, and since the whole plant can be used, there is very little waste at this stage. However, since hemp is quite labour-intensive to farm, it is more expensive at the point of sale, making it less accessible.

#### Suggested scores:

- Carbon emissions: **4**
- Environmental impact: **4.5**
- Waste: **4**
- Working conditions: **4**

### Polyester

Polyester is known as a petrochemical textile as it's mostly made out of plastics, using non-renewable fossil fuels. Demand for these kinds of textiles has increased by 30% in the last decade, and polyester is found in more than half of all textiles produced globally. However, the manufacture of polyester produces huge carbon emissions, as well as releasing microplastics which get into the ocean, and harmful chemicals which are dangerous for workers.

#### Suggested scores:

- Carbon emissions: **1**
- Environmental impact: **1**
- Waste: **1.5**
- Working conditions: **2**

### Recycled fibres

Fabrics like polyester are sometimes recycled to make new clothes, however, if these fabrics are made from fibre blends this makes them difficult and expensive to recycle as each type of fibre needs a different recycling method. 1% of textile waste is currently recycled and the rest is sent to landfill. Recycled fabrics can also be made from things like plastic bottles, which is much less energy intensive than making virgin polyester, so produces less emissions. However, these fabrics are not as strong as non-recycled polyester, and probably won't be able to be recycled again as they will break down too easily.

#### Suggested scores:

- Carbon emissions: **2.5**
- Environmental impact: **4**
- Waste: **2.5**
- Working conditions: **3.5**

# Fast fashion supply chain game

## Information sheet: Stage 2 – Making

### Sweat shop

Cheap clothing is mass-produced in sweat shops all over the world. These can be as big as a factory or as small as a single room, but what they have in common is very low pay and extremely poor working conditions, including long hours, dangerous machines, and high levels of textile fibres in the air which are harmful to breathe in. Often, sweat shops are owned by companies in the Global North and located in countries in the Global South, which were formerly colonized and have looser labour laws, such as India, Indonesia and Bangladesh. However, they can also be found in countries like the UK, where it was recently revealed that garment workers in Leicester were being paid just £3.50 an hour. As well as having terrible working conditions, sweat shops also waste a lot of fabric as the turnover is so fast, so offcuts are sent to landfill.

#### Suggested scores:

- Carbon emissions: **3**
- Environmental impact: **3**
- Waste: **1**
- Working conditions: **0.5**

### Made to order garments

Having clothes made to order doesn't have to be about expensive tailor-made clothing. Many brands have started reducing waste by only making the garments that have been ordered by customers and nothing more. Not only does this drastically reduce the amount of clothing being incinerated or sent to landfill when it isn't sold, it also saves brands money and labour as they aren't using resources unnecessarily. This 'slow fashion' means that clothes are a bit more expensive at point of sale, but they are made to last and are designed so that you don't need multiple copies of the same thing.

#### Suggested scores:

- Carbon emissions: **4**
- Environmental impact: **4**
- Waste: **4.5**
- Working conditions: **4**

### Printed to order

Some companies have started providing printing services for a whole range of other brands and organisations. They get plain T-shirts ethically made and then print them to order with any design for any company. This reduces waste as the plain T-shirts are versatile and keep until they are needed, and no garments get printed which haven't already been sold. This method is also cheaper than getting whole garments made to order as the printing process is quick and all done by computers. Low impact inks can also be used which don't pollute the air in the factories and the water nearby. Many of these companies power their factories with renewable energy and use plastic free packaging as well.

#### Suggested scores:

- Carbon emissions: **4**
- Environmental impact: **4**
- Waste: **4**
- Working conditions: **3.5**

### Ethical factory

Not all garment making factories are sweat shops; there are many brands which make sure their factories are held to the highest standards and their workers are paid a living wage. There are official standards to ensure social accountability such as the internationally recognised SA8000 Standard and the Global Organic Textile Standard. Factories should be temperature controlled and have natural light, and working hours should be fair. The standards also prevent child labour and forced labour.

#### Suggested scores:

- Carbon emissions: **2.5**
- Environmental impact: **3**
- Waste: **3**
- Working conditions: **4**

# Fast fashion supply chain game

## Information sheet: Stage 3 – Packaging

### Single use plastic

Plastic packaging is estimated to make up 26% of the total volume of plastics created per year, with 72% of this being thrown away after a single use. It is also estimated that by 2050 there will be more plastic in the ocean than fish. Plastics in landfill release methane, a harmful greenhouse gas, when decomposing, and can take anything from fifteen to hundreds of years to fully break down. Fast fashion relies on plastic packaging at many stages of the supply chain, especially when shipping garments from factory to retailer, and from retailer to consumer.

#### Suggested scores:

- Carbon emissions: **0.5**
- Environmental impact **0.5**
- Waste: **1**
- Working conditions: **2.5**

### Recyclable plastic

A lot of plastic packaging these days is recyclable, which is a big improvement on single-use packaging. However, just because the material is recyclable doesn't necessarily mean it will be recycled. Over half of the household plastic packaging that is sent for recycling in the UK is actually sent abroad to be 'sorted' in countries in the Global South, which are already struggling with too much rubbish and plastic. Often the plastic will be sent to landfill or incinerated in these countries, or it will blow into the sea and cause danger to sea life. The solution isn't to stop recycling – it's to produce less plastic in the first place.

#### Suggested scores:

- Carbon emissions: **1**
- Environmental impact: **1.5**
- Waste: **2**
- Working conditions: **1.5**

### Paper/cardboard

Many more sustainable clothing brands have cut out plastic from their packaging and now use only paper and cardboard packaging for their deliveries. Paper packaging is the most common form of recyclable packaging, and with a recycling rate of 85.8%, it has the lowest risk of going to landfill. Since paper doesn't take long to biodegrade, it doesn't have a big environmental impact, but it's still better to use as little as possible.

#### Suggested scores:

- Carbon emissions: **4**
- Environmental impact: **4**
- Waste: **3**
- Working conditions: **3**

### Compostable packaging

A lot of brands have switched from plastic packaging to compostable or biodegradable materials, but how effective is this? Most of these materials are bioplastics, made from plant fibres rather than fossil fuels, which cuts down on CO2 emissions. However, research shows that most bioplastics are not compostable in a home composting environment, only under industrial composting conditions. Usually this is not specified on the packaging. This is fine if you live in an area with compost pick-up services, but less good if you live in a rural area or somewhere these facilities aren't available.

#### Suggested scores:

- Carbon emissions: **3.5**
- Environmental impact: **2**
- Waste: **3**
- Working conditions: **3**

# Fast fashion supply chain game

## Information sheet: Stage 4 – Transport

### Plane

Air freight isn't common in the fast fashion industry, but when it is used, it produces 500 grams of CO<sub>2</sub> per metric ton of cargo per km of transportation, the highest emissions of any mode of transport. Aviation as a whole makes up 11.6% of global transport emissions, but unless you're ordering something from very far away for fast delivery, your clothes were likely transported by ship, not aeroplane.

#### Suggested scores:

- Carbon emissions: **3**
- Environmental impact: **3**
- Waste: **3**
- Working conditions: **3**

### Ship

90% of global trade is transported by ships, and fast fashion is no different. Shipping produces at least 4% of human-caused emissions, which could rise as high as 17% by 2050. Since the supply chain for clothing has so many different links, it's pretty much inevitable that your clothes will have had to travel by ship at some point. Ships are actually the most carbon-efficient mode of transport we have currently for heavy cargo, as they emit one fiftieth of the CO<sub>2</sub> a plane produces, and one fifth as much CO<sub>2</sub> as a truck.

#### Suggested scores:

- Carbon emissions: **2.5**
- Environmental impact: **3.5**
- Waste: **3.5**
- Working conditions: **3.5**

### HGV

Once a shipment of clothing has arrived in the UK, it is usually then transported to outlets and distribution centres by lorry. Greenhouse gas emissions from the road haulage industry in the UK make up 5% of the UK's total emissions, which is a sizeable chunk. As we have seen with significant shortages in the UK of fuel, certain types of food, and other goods, HGVs are a crucial link in any supply chain and when there aren't enough drivers, the whole system starts to collapse. It's therefore essential that the road haulage industry cuts down its emissions as it's clear that the industry itself is essential.

#### Suggested scores:

- Carbon emissions: **3.5**
- Environmental impact: **3.5**
- Waste: **2**
- Working conditions: **2.5**

### Delivery in electric vehicle

Although this isn't a common practice yet, many couriers and delivery companies are starting to deliver in electric vehicles, especially for 'last mile' deliveries within towns and cities. Electric vehicles produce far less CO<sub>2</sub> than petrol or diesel ones – even if the battery has to be shipped from China, an electric vehicle will produce 22% less CO<sub>2</sub> than a petrol or diesel vehicle. Although there are still issues with mining the rare minerals needed for electric vehicle batteries, and recharging from non-renewable energy, it's still a positive step for couriers to switch to electric fleets.

#### Suggested scores:

- Carbon emissions: **4**
- Environmental impact: **2.5**
- Waste: **3**
- Working conditions: **3.5**

# Fast fashion supply chain game

## Information sheet: Stage 5 – Buying

### Buying from high street shop

Buying clothes from a shop on the high street means you are less likely to return items once you have bought them, as you have already tried them on in-store. However, sale rails and other advertising is more likely to catch your eye, leading to more purchases. Clothing that isn't sold in stores is often sent to landfill or burned, especially by designer brands who don't want people who aren't in their target market to be able to access their styles. In 2018 it was revealed that one designer brand had destroyed €32 million worth of 'dead stock' that it couldn't sell.

#### Suggested scores:

- Carbon emissions: **3**
- Environmental impact: **2**
- Waste: **2**
- Working conditions: **3**

### Buying online

Buying online is one of the quickest and most convenient ways to access fast fashion. However, this also means that it is the most wasteful, as many people choose to order clothes in multiple different styles and sizes to try on before sending back the ones they don't want. Up to 40 or 50% of clothing bought online is returned. Clothes that have been returned rarely make it back onto the shelf, especially if they were in the sale to begin with as it's cheaper for companies just to incinerate them or send to landfill.

#### Suggested scores:

- Carbon emissions: **1.5**
- Environmental impact: **2**
- Waste: **1**
- Working conditions: **2**

### Buying from an independent business

Studies show that 64% of Gen Z and Millennials prefer to buy from sustainable brands, with 73% of Gen Z willing to pay 10% more for sustainable products. Most independent businesses are more expensive than big fast fashion brands, as they pay their workers better and use better quality materials. This can make them less accessible to people who can't afford the upfront investment in a good quality piece of clothing, although often the cost makes up for itself as the item lasts longer, meaning you don't have to buy multiple copies of the same garment.

#### Suggested scores:

- Carbon emissions: **4**
- Environmental impact: **4**
- Waste: **4**
- Working conditions: **4.5**

### Buying in a charity shop

There are more than 10,000 charity shops in the UK, and the second-hand sector is growing fast, with 42% of consumers predicting that they'll spend more on second hand clothes in the next 5 years. Buying used clothing reduces a garment's carbon footprint by 82%, and shopping at charity shops is an affordable and accessible way to do this. Charity shops are usually run by volunteers, often overseen by a paid manager, and they can be a great way to gain retail experience and get people into the workforce.

#### Suggested scores:

- Carbon emissions: **4**
- Environmental impact: **3.5**
- Waste: **2.5**
- Working conditions: **4**

# Fast fashion supply chain game

## Information sheets: Stage 6 – Afterlife

### Wearing out and throwing in landfill

3 out of 5 fast fashion garments end up in landfill, adding up to 38 million tonnes of textiles either being sent to landfill or incinerated every year. Both of these options release harmful greenhouse gases and speed up climate change. Often, textile waste is exported to countries in the Global South to deal with, which produces emissions in transit as well as adding to the massive waste problem these countries already have.

#### Suggested scores:

- Carbon emissions: 1
- Environmental impact: 1.5
- Waste: 0.5
- Working conditions: 1.5

### Giving to charity shop

Donating your unwanted clothes to a charity shop is certainly a better option than throwing it away. It is estimated that 70% of clothing that is donated to charity shops is not actually sold there but is shipped overseas to be sold in the Global South. The UK is the second largest used clothing exporter in the world, exporting 351,000 tonnes of discarded clothing in 2013. People in the destination countries can then buy fairly good quality clothing for low prices, although there is still a lot of waste and the second-hand market has all but smothered the domestic textile industries in some of these countries. For example, in Uganda, second-hand clothing makes up 81% of all clothing purchases.

#### Suggested scores:

- Carbon emissions: 2.5
- Environmental impact: 3.5
- Waste: 2.5
- Working conditions: 3

### Selling online

Reselling unwanted clothes, swapping them with others, or giving them as a hand-me-down is a guaranteed way to prolong the life of a garment. Demand for second-hand clothing is on the rise, with resale projected to increase by 5.4x in the next five years, post-covid. Because you know that the person you are selling or giving the clothing to is going to wear it, there is very little waste produced from reselling clothes. In 2020, over 500 million items of clothing were bought second-hand which would otherwise have been bought new.

#### Suggested scores:

- Carbon emissions: 5
- Environmental impact: 4.5
- Waste: 4.5
- Working conditions: 5

### Repurposing material

If an item of clothing is damaged beyond repair and unsuitable for donating or reselling, you can always upcycle it and re-use its fabric for something else to reduce waste. This prolongs the life of the garment and helps you work on your sewing or craft skills. There are loads of great ideas online for upcycling various items such as making bags and cleaning cloths. It's important to remember that upcycling a garment is only for when it can no longer be worn or resold, as this will prevent new items from being bought in their place.

#### Suggested scores:

- Carbon emissions: 4
- Environmental impact: 4
- Waste: 3.5
- Working conditions: 5

# Fast fashion supply chain game

## Discussion questions:

- Were there any links between environmental sustainability and working conditions at each link of the chain?
- Can you think of any examples of brands or companies that are known for any of the types of supply chains we have learned about?
- If you knew exactly how and where something was made before you bought it, would it influence your decisions about what to buy?
- What might be some of the barriers to buying clothes that are more sustainably produced?

## Sources/more information::

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- [Fashion's Carbon Footprint: The Ins and Outs of International Shipping - Good On You](#)
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# Fast fashion supply chain game

Raw material:  
Cotton

Carbon emissions



Environmental impact



Waste



Working conditions



Raw material:  
Hemp

Carbon emissions



Environmental impact



Waste



Working conditions



Raw material:  
Polyester

Carbon emissions



Environmental impact



Waste



Working conditions



Raw material:  
Recycled Fibre

Carbon emissions



Environmental impact



Waste



Working conditions



Production:  
Sweat Shop

Carbon emissions



Environmental impact



Waste



Working conditions



Production:  
Made to Order

Carbon emissions



Environmental impact



Waste



Working conditions



Production:  
Printed to Order

Carbon emissions



Environmental impact



Waste



Working conditions



Production:  
Ethical Factory

Carbon emissions



Environmental impact



Waste



Working conditions



Packaging:  
Single-use Plastic

Carbon emissions



Environmental impact



Waste



Working conditions



# Fast fashion supply chain game

Packaging:  
Recyclable Plastic

Carbon emissions



Environmental impact



Waste



Working conditions



Packaging:  
Paper

Carbon emissions



Environmental impact



Waste



Working conditions



Packaging:  
Compostable

Carbon emissions



Environmental impact



Waste



Working conditions



Transport:  
Aeroplane

Carbon emissions



Environmental impact



Waste



Working conditions



Transport:  
Cargo Ship

Carbon emissions



Environmental impact



Waste



Working conditions



Transport:  
HGV

Carbon emissions



Environmental impact



Waste



Working conditions



Transport:  
Electric Vehicle

Carbon emissions



Environmental impact



Waste



Working conditions



Buying:  
High Street Shop

Carbon emissions



Environmental impact



Waste



Working conditions



Buying:  
Online Shopping

Carbon emissions



Environmental impact



Waste



Working conditions



# Fast fashion supply chain game

Buying:  
Independent Business



Buying:  
Charity Shop



Afterlife:  
Landfill



Afterlife:  
Donating to Charity Shop



Afterlife:  
Selling Online



Afterlife:  
Repurposing Material



Transport:  
Electric Vehicle



Buying:  
High Street Shop



Buying:  
Online Shopping

