ReThink ReMake ReCycle

What do you waste?

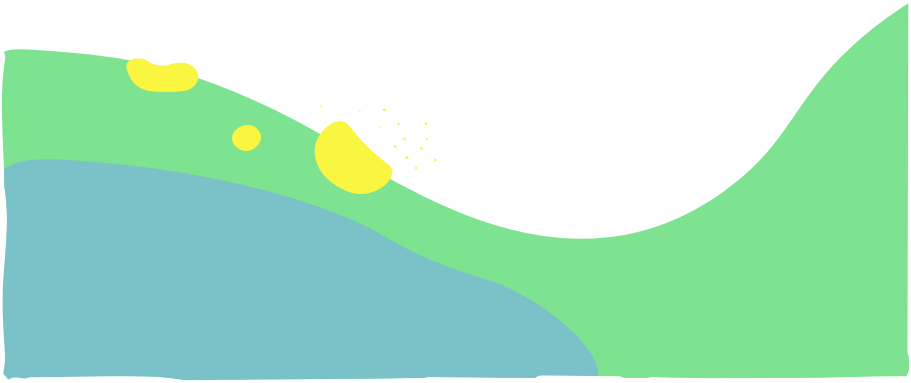
Exploring simple and creative ways to reduce household waste. Stories, activities and tutorials inside.

KWMC THE FACTORY

Info

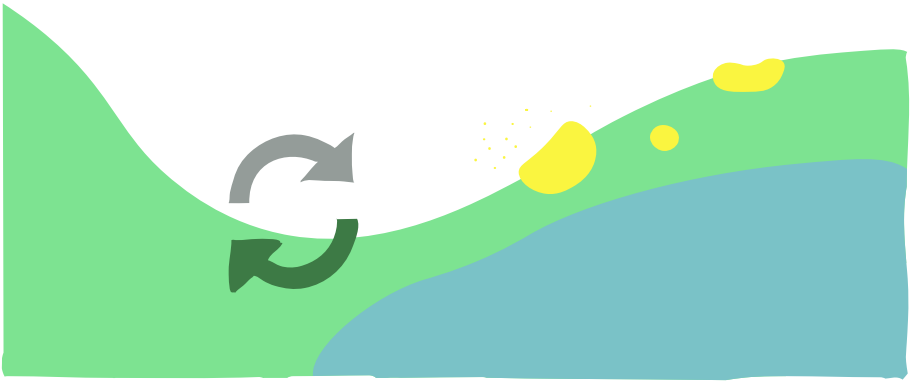
ReThink ReMake ReCycle brought together local residents of South Bristol with The Factory team, a local designer and others, to explore the scale and environmental impact of common household waste materials such as paper and plastics.

Together we unpicked the data behind what we waste, using digital tools and a creative process to co-design, prototype and test out sustainable alternatives. The project was part of the Bristol+Bath Creative R+D Inclusion Programme and ParCos, a EU funded project.



In this zine you can find out what we discovered, hear people's stories and advice for reducing waste, and try a range of tutorials, activities and puzzles inspired by the project.

You can save a copy of the zine to your computer and print it at home. The digital version is interactive: click on the framed boxes and type your own notes, and access other online resources via the links throughout the document and in the Resources section.



Who contributed?

22

Households signed up

48

People took part

34

Adults

14

Children

ReThink

Think carefully about how we can reduce or repurpose our waste

ReMake

Make DIY alternatives that are reusable or use more sustainable materials

ReCycle

Recycle our waste back into useful materials and objects

ReThink, ReMake, ReCycle took place over three workshop sessions in November and December 2020. Held online due to COVID-19 regulations, the sessions mixed presentations and video content with group discussion.

Each session had a different focus and people received an activity pack in advance so they could have a go at making and experimenting in the safety of their own home.

Session 1: How does waste affect our planet?

Session 2: Plastics: Exploring recycled and bio plastics

Session 3: Paper: Tackle waste through Design Thinking

Did you know that for every tonne of paper recycled 17 trees are saved?

Source: Usi.edu, 2020

Activity pack materials included:

- Printed ‘waste audit’sheets to measure household paper and plastic waste
- Ingredients and tools for making bioplastic pine resin pots and gelatine – based plastic with agar agar
- Safety clothing for bioplastics activities
- A sewing kit, fabric, and towel for making washable, reusable cloths
- A laser cut keyring made with recycled plastic sheet

What matters to us...

During our kick off session we had an open discussion and captured ideas on JamBoard (an online whiteboard) about issues that mattered to us.

The group shared their thoughts, concerns and experiences of working towards leading a more sustainable life.

Sharing our thoughts

"Change society's perspective and do recycling in a positive way - take personal responsibility"

"We need to look beyond recycling collection and focus more deeply on the issue of what we use/waste"

"Main worry as a user is the single use plastic / that which has been in contact with food"

"Carbon footprint of a reusable bag - have to use it for 19 years to recoup the benefits above paper"

"Take responsibility as a country for our own waste and recycling processing"

"What happened to just reusing things! eg. glass refillable bottles (milk etc)"

"Eco-glitter - how is the term actually used? What does it mean? Consumer has certain level of trust in the seller's values and descriptions"

What matters to you?

Talking about waste

In our kick-off session we discussed our reasons for signing up to the programme. We thought about where we see waste and discussed what waste we find.

What people said:

"I have recently started my zero waste journey and I am interested to learn what others are doing"

"I am interested in sustainability and learning how to produce my own sustainable products"

"I would like to learn more about sustainable materials that I can use when making"

We spoke about how we regularly see waste outside in open spaces such as parks, fields, and in the streets. As people are spending more time outside, rubbish bins have been over-spilling.

People who lived in rural areas mentioned the issue of fly-tipping - the illegal dumping of rubbish in field gateways and other places.

Did you know that it takes at least twice as much water to produce a plastic water bottle as the amount of water contained in a bottle?

Source: watercalculator.org, 2017

Masks & Gloves

Coffee Cups

FACT: compostable coffee cups cannot be recycled in the paper and cardboard stream

The waste that we find...

What waste do you find?

Food Wrappers

Cigarette Butts

Plastic Bottles

Cardboard and/or delivery packaging

FACT: Trillions of cigarette butts are thrown into the environment every year, turning into microplastic pollution

Shopping Trollies

Plastic Bags

Dog Poo

Spot the waste puzzle

Can you find how many bottles and cardboard boxes are hidden in the picture?

Plastic bottles: ☐ Cardboard boxes: ☐

Answers on page 33

Quiz

1.) What does Biodegradable mean?

a) Materials can be broken down by living things such as bacteria and fungi ☐

b) Materials disappear into the soil leaving no harm ☐

c) Materials can't be broken down ☐

2) What does Compostable mean?

a) A material that cannot be broken down by natural organisms and acts as a source of pollution ☐

b) A material that you put in landfill ☐

c) When a material breaks down in a specific time frame in controlled conditions that are non toxic ☐

3) If a material doesnt require organisms to break down, and instead uses chemical additives in the plastic to break down quicker than natural - it is known as?

a) Biodegradable ☐

b) Degradable ☐

c) Non-biodegradable ☐

Answers on page 33

After the first session we were challenged to fill out waste audits to record how much paper and plastic we wasted in a week.

Download your own waste audit by clicking here

Source: DEFRA, March 2020

Session 2 explored recycled plastics and bioplastics.

Click here to watch the video

From this...

To this...

A useful guide...

To help you sort your household plastics

Polyethylene terephthalate
Generally (but not always) clear, food safe, drinks, bottles and fruit trays

High-density polyethylene
Milk bottles, large water bottles, crates, chairs, simple lids

Polyvinyl Chloride
Can be rigid or flexible - piping, windows, signage, vinyl stickers

Low-density polyethylene
Plastic bags, bin bags, ziploc bags

Polypropylene
Bottles and containers, also flexible so perfect for 'hinges' (sports bottle cap) ropes, complex shapes

Polystyrene
Can be rigid or foamed, packaging, CD cases, yoghurt pots

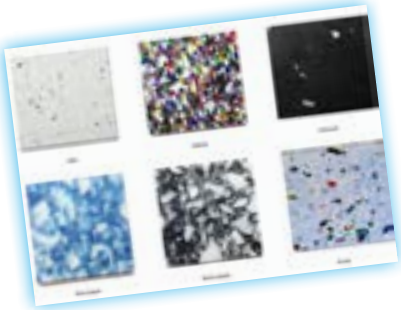
Other
Polycarbonate (high impact) PLA (3D print filament, Bio-based) Acrylic (lasercut materials)

During the plastics session we also learnt about recycled plastic materials and watched a video on how you can recyle plastic offcuts into new sheets.

Stormboard:: A large format sheet material manufactured from 100% recycled post consumer plastic waste. Smooth finish on the faces, with variable core - visible on cut edges.

Fishy Filament:
Nylon 3D printing filament, manufactured from fishing nets that have reached the end of their usual life. 100% recycled.

Greencast:
100% recycled acrylic, uses less energy in manufacturing than virgin acrylic.



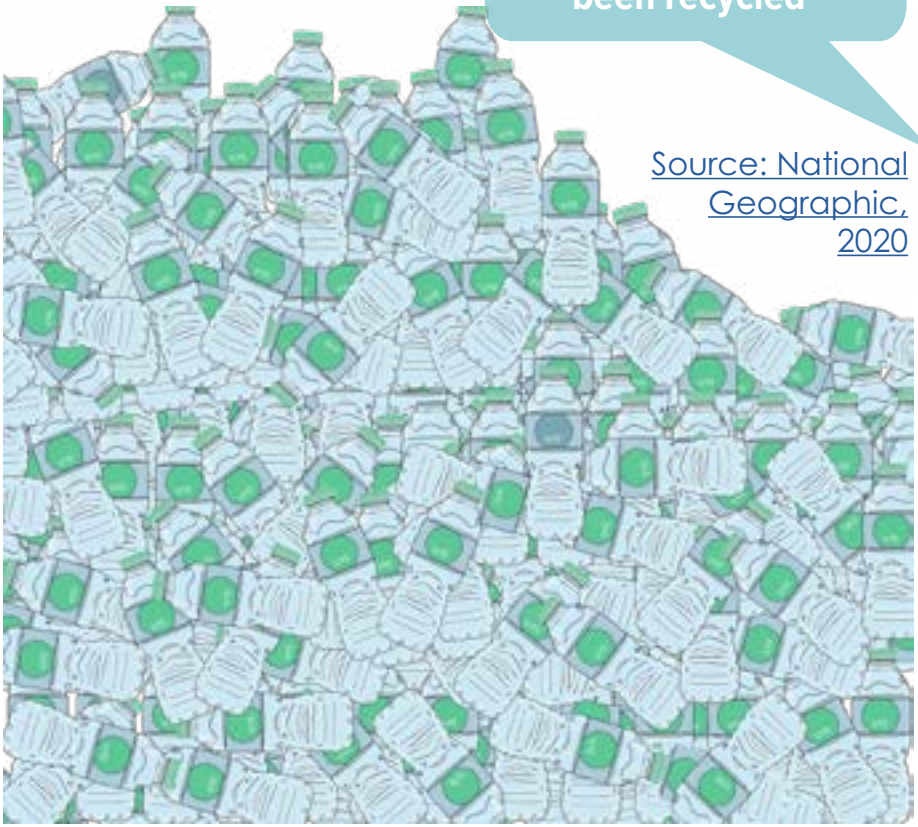
Smile plastics: different types of post consumer waste, comes in a variety of different colours and is often used in architectural settings.

Did you know that toxic substances are released into soil when plastic bags perish under the sunlight?

Source: IBA, 2020

A study found that of the 6.3 billion metric tons of plastic waste that has been produced, only 9% of that plastic waste has been recycled

Source: National Geographic, 2020



What can we do at home?

Solutions from group discussions

All purpose household cleaning liquid

- 2 tsp Borax powder
- 4 cups of hot water
- 1 tsp castile liquid soap (or fairy dish-washer liquid soap)
- 4 tbsp clear vinegar
- 5 drops of thymol

Method: Mix all of the above, pour into an old spray can and use to clean countertops, appliances, windows, floor and more.

Coconut Oil Deodorant

- 6 tbsp coconut oil
- 1 tbsp baking soda
- 6-8 tbsp arrowroot or organic cornstartch powder
- 4-5 drops of essential oil drops (a drop of Thymol is antiviral, antibacterial, antifungal)

Method: Mix baking soda and arrowroot together in a medium sized bowl. Mash in coconut oil with a fork until well mixed. Add oils if desired. Store in a small glass jar or old deodorant container.

"We could change plastic kitchen storage into glass and stainless steel containers"

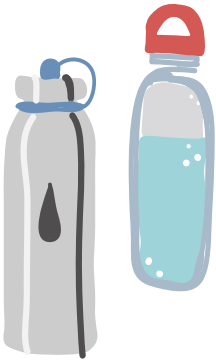
"We could use soapnuts instead of washing powder"

"We could take our packaging from deliveries such as Amazon and use it for paper mache."

"If products are on offer or affordable we could buy in bulk and refill large containers"

"Use metal or paper straws instead of plastic"

"Invest in a reusable water bottle, rather than buying plastic"

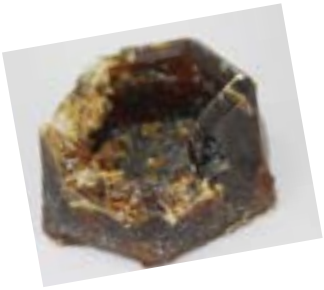


"We can take reusable shopping bags to the supermarket"

Video tutorials were published after session 2:
How to: Make your own 'bioplastic' pine resin pot
How to: Make your own 'gelatine-based' plastic with agar agar

Making your own 'bioplastic' pine resin pot

Make sure you wear protective equiptment if you try this at home!



Wordsearch

Can you find the hidden words in this word search? One has even been spelt backwards!

B	I	O	D	E	G	R	A	D	A	B	L	E	R	U
O	E	S	U	S	T	A	I	N	A	B	L	E	E	T
P	A	N	D	T	U	G	O	L	W	E	F	S	M	W
A	N	M	B	E	B	I	N	R	E	L	L	K	A	F
P	N	D	D	R	A	O	B	D	R	A	C	N	K	H
E	W	G	H	J	K	L	W	E	Y	U	A	R	E	M
R	U	E	R	W	A	S	R	U	B	B	I	S	H	M
O	R	A	K	E	L	B	A	T	S	O	P	M	O	C
T	U	E	A	I	G	E	I	O	U	L	M	V	U	W
H	Y	K	T	L	P	L	A	S	T	I	C	P	A	E
R	E	N	A	H	G	T	A	T	E	A	S	S	T	S
L	O	M	E	T	I	H	G	S	O	F	T	C	R	F
G	R	E	E	N	X	N	B	N	S	E	S	H	S	E
G	F	T	R	A	W	Y	K	J	A	Q	P	N	D	C
P	A	R	E	C	Y	C	L	E	E	L	H	H	E	O

Waste
Recycled
Eco
Glass
Compostable

Cardboard
Sustainable
Plastic
Biodegradable
Paper

Bin
Rethink
Remake
Recycle
Green

For the third session of ReThink ReMake ReCycle we looked at tackling paper waste with sustainable designer Lisa Cole. We reviewed our paper waste and adopted a Design Thinking approach to help us think of ideas and prototype how to tackle waste.

Design Thinking

Design Thinking is a five-step process that helps you define a problem and come up with quick and cheap ways to try out solutions.

You can apply Design Thinking to almost any problem, from what to make with leftovers to how to get a rocket to the moon. It is a human centred process that starts by asking questions.

Ideas

What paper products do you use?

What do you use most often?

What could be better about them?

Lisa's advice:

- **Think of solutions not products.**
- **Don't worry about practicality.**
- **Be silly**
- **Collaborate and swap ideas.**
- **What is the worst solution you can think of?**
- **What is the most impossible solution?**

Our solutions for tackling paper waste - from the simple and practical to the extravagant!

The challenge: you receive a lot of junk mail and end up throwing it away.

The prototype: *what could you do or make to help you tackle this challenge? Write or draw your prototype solution below, then have a go at making it.*

Our ideas included:

- A robot that identified junkmail and sent it away
- A mouth that ate all the junkmail
- A sign which said 'no junkmail' made out of junkmail

And many more...

Grab some scrap paper, maybe some glue and some scissors and have a go at making the solution you have designed

What are we doing at home?

Making wrapping paper with packaging left over from deliveries

Recycling paper and magazines into storage baskets

Weaving reusable bags from VHS tapes and plastic bags

Making your own reusable, washable cloth

After session 3 video tutorials were published showing you how to make your own washable, reusable cloth and wrap gifts in a sustainable way.

How To: Make your own cloth
How To: Sustainably wrap gifts

Did you know that wood products including paper, account for about 10% of total deforesation.

Source: aiche.org, 2016


JUNK MAIL

Finally, can you sort through this waste data?

On the left we have visualised the data collected by two households in one week.

The objects falling into the recycling bin are the objects that the households recorded most frequently on their waste audits.

Can you count how many of each object there are and record the number in the table below? (Answers on page 33)

Object	Amount
Envelopes	
Toilet roll tubes	
Single use plastic bottles	
Junk mail	
Surface Cleaner	
Cardboard packaging	
Toothbrush tubes	

Ending on this note...

"There is a risk that there will soon be more masks than jellyfish in the ocean as single-use masks and gloves are washing up on shorelines." - The Guardian

The team at KWMC The Factory made useful 'how to' videos, to show you examples, see the links below. Please do not try at home if you don't have the right equiptment. Children must be supervised.

Resources made by KWMC The Factory

How To: Make your own 'bioplastic' pine resin pot: https://youtu.be/srAiCIu2Y3o
How To: Mix your own 'gelatine-based' plastic with agar agar: https://youtu.be/bTNpPZrjbp4
How To: Recycle plastics offcuts into new sheets: https://youtu.be/AKBbVbN0QkA
How To: Make your own washable, reusable cloth: https://youtu.be/9yNdox-Iy-o
How To: Sustainably wrap gifts: https://www.youtube.com/watch?v=g7srf2-yuK4&feature=youtu.be

References

https://www.earthday.org/how-our-trash-impacts-the-environment/
http://www.youngscientist.com.au/wp-content/uploads/2017/02/degradablevsbiodegradable.pdf
https://medium.com/@waecorp/bottled-water-the-devil-and-the-deep-sea-10ff5dfd17fb
https://www.tigtagworld.co.uk/film/biodegradable-and-non-biodegradable-materials-PRM00612/
https://www.theguardian.com/environment/2020/jun/08/more-masks-than-jellyfish-coronavirus-waste-ends-up-in-ocean

Through workshops and online sharing, people shared useful links with the rest of the group accessible below...

Links and references

Paper:

Make your own paper - www.paperslurry.com
Junk mail - https://www.less-stuff.co.uk/stop-waste-paper/
Who gives a crap toilet paper - https://uk.whogivesacrap.org

Plastic:

Weez and Merl handmade recycled plastics - https://www.weezandmerl.com/
A device that grows mushrooms out of plastic trash - https://www.plasticstoday.com/packaging/device-grows-mushrooms-out-plastic-trash
Washing soapnuts - https://www.soapnuts.co.uk
Sorting household plastics - https://youtu.be/8SRiGmlt6hc

Rethinking:

Drawstring bags - https://www.less-stuff.co.uk/make-vege-table-drawstring-bags/
Making soap - https://thegreenparent.co.uk/articles/read/make-your-own-soap
Wax Wraps - https://www.less-stuff.co.uk/reusable-cling-flim-alternative/
Decorations - https://www.theprintedpeanut.co.uk/blog/how-to-make-a-decoration-from-a-tomato-puree-tube/?fbclid=IwAR0hBXI9iCfzgSUbKFyhcdS_g6vHvVZclzeXPFOLT-99v7KfeyIQB8cxYqNg
From 'Iron Man' makes crisp packets blankets for the homeless - https://www.bbc.co.uk/news/uk-england-somerset-54888102

Sources

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https://www.usi.edu/recycle/paper-recycling-facts/

https://www.watercalculator.org/footprint/the-hidden-water-in-everyday-products/

https://resource.co/article/how-recycle-biodegradable-coffee-cups-13020

https://www.nationalgeographic.co.uk/environment-and-conservation/2019/08/cigarette-butts-are-toxic-plastic-pollution-should-they-be

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https://www.nationalgeographic.com/news/2017/07/plastic-produced-recycling-waste-ocean-trash-debris-environment/

https://www.aiche.org/chenected/2016/10/sustainability-challenges-paper-industry

https://www.theguardian.com/environment/2020/jun/08/more-masks-than-jellyfish-coronavirus-waste-ends-up-in-ocean

Answers

Where is the waste (p.11)

25 Cardboard boxes
17 Plastic bottles

Quiz (p.12)

answers:
1) - a
2) - c
3) - b

Waste data visual (p.28)

Object	Amount
Envelopes	13
Toilet roll tubes	7
Single use plastic bottles	10
Junk mail	21
Surface Cleaner	3
Cardboard packaging	17
Toothbrush tubes	2

With thanks to all of the workshop participants and Lisa Cole for sharing their stories, advice and experience

#ReThinkReMakeReCycle

Get in touch with The Factory:
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KWMC THE FACTORY

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Supported using public funding by ARTS COUNCIL ENGLAND
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