

Sustainable footprints:

future-friendly feet

ACTIVITY SHEET

Shoes are not something that might spring to mind when thinking about being sustainable. But the numbers are staggering - every year there are approximately 20 billion pairs of new shoes produced (around 2 pairs for every person on the planet), and it is estimated that about 300 million pairs end up in landfill.

Many companies are tackling this issue by moving towards sustainable fashion practices and attempting to use recycled and repurposed materials.

Well-known brands, like Nike, Adidas and Reebok have designed sustainable sneakers made from Earth-friendly and recycled materials like plants, plastic bottles, t-shirts and post-industrial scraps.

Globally, more and more people are seeking to make sustainable fashion choices. This growing market calls for artists, designers, engineers and scientists who can help create Earth-friendly products.

Look at your own shoes and the materials used. Do you know where those materials came from? Do you know where they might go when you are finished with them?



A cross-section of a sneaker helps us understand the inner functions of each component

Your challenge

Design an Earth-friendly sneaker: a shoe that does minimal harm to the environment when it is created or is no longer wearable. Then build a prototype!

Equipment

- pencils/pens/markers
- paper
- sticky tape, masking tape or duct tape
- cardboard
- scissors
- household items that you can recycle or repurpose
 - these could be natural materials, such as bamboo, leaves, and tree bark
 - you could also repurpose synthetic materials like bubble wrap, rubber bands, tennis balls, sponges, food packaging, shopping bags or old clothes

STEP 1: Plan it!

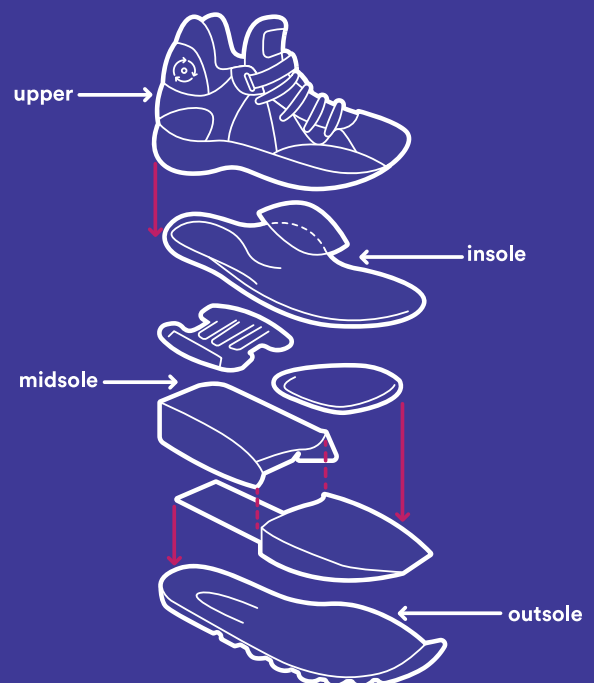
1. Get inspired! Search for companies that are already making sustainable sneakers. What materials and designs do they use?
2. Below are some design questions you might like to consider:
 - How will you make your shoe comfortable? Do you have soft, cushioning materials?
 - How will you make your shoe tough? Are your materials waterproof or heat resistant? Will they have a good grip?
 - What will your shoe be used for? e.g. sport, fashion, everyday wear, protection or comfort.
3. Consider what materials you could use to make the different parts of your sneaker. Are you recycling or reusing materials?

Part of shoe	Materials I will use
Upper	
Insole	
Midsole	
Outsole	

Shoe parts

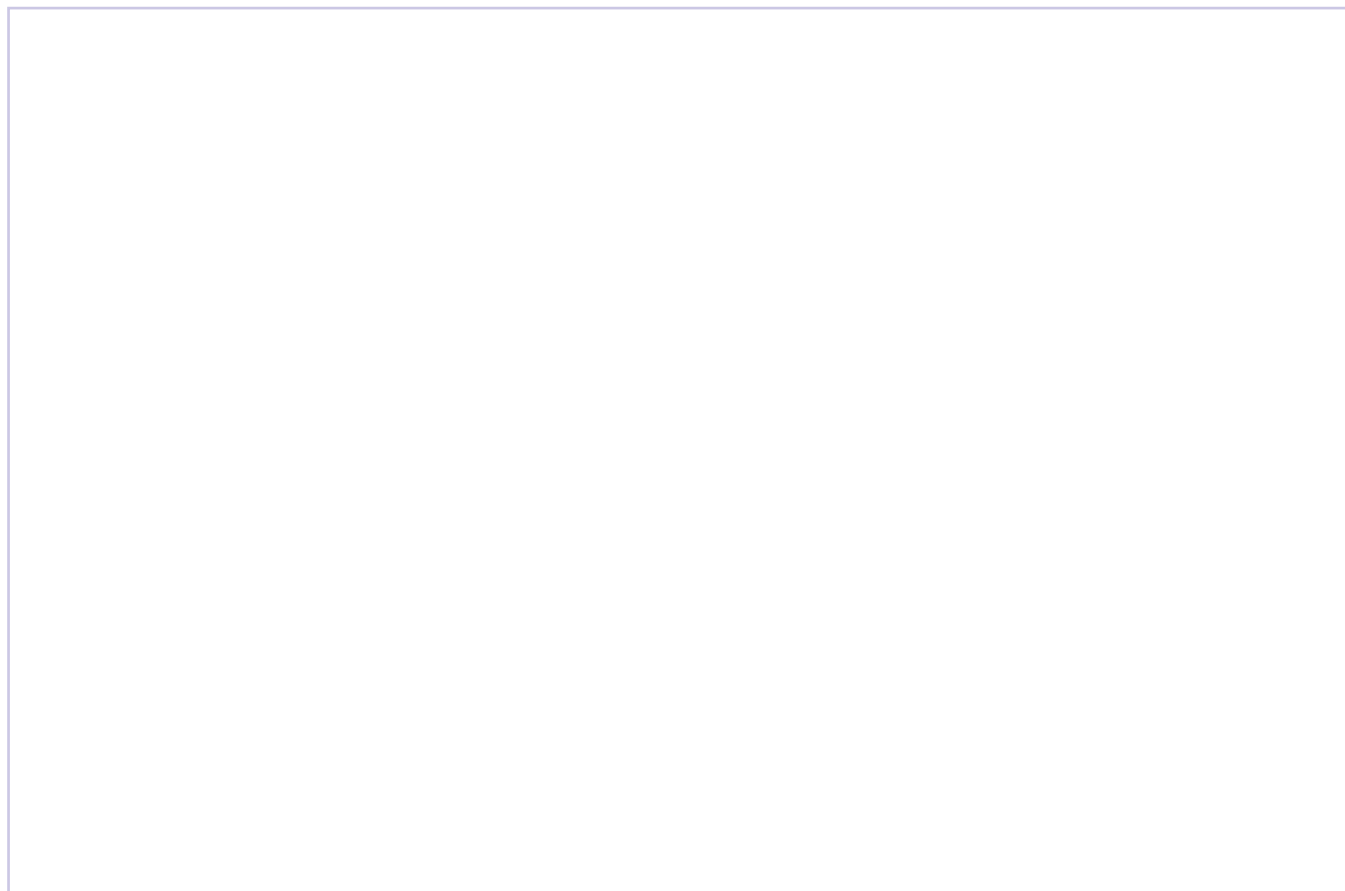
On average, sneakers have around 65 distinct parts! But there are four major parts that make up every sneaker:

1. **Upper:** Protects your foot from scrapes caused by rocks, sticks, and other objects
2. **Insole:** Supports the bottom of the foot, makes the sneaker more comfortable, controls smell and absorbs shock.
3. **Midsole:** Makes your foot more comfortable when it hits the ground hard.
4. **Outsole:** Grips the floor or ground so you can stop or turn quickly.



STEP 2: Design it!

What would your ideal Earth-friendly sneaker look like? Draw a labelled diagram showing your sneaker and the materials you would use to construct your sneaker.



STEP 3: Build it!

Now it's time to build your prototype. A prototype is a test version or model of something. It helps you to test ideas and learn more about the thing you want to create. Can you build a simple version of your ideal shoe using household materials? Here's a few helpful hints to get you started:

- **Make the “skeleton” of your shoe using cardboard:**
 - Trace your foot on a scrap of cardboard, and cut it out.
 - Using tape or another adhesive, attach materials to the cardboard outline you've just created, to build your shoe. There's no right or wrong way – be as creative as you like.
- **Once your shoe is built, test it! Walk around... does your shoe stay in one piece? (Don't forget to take a picture before you test your shoe!)**

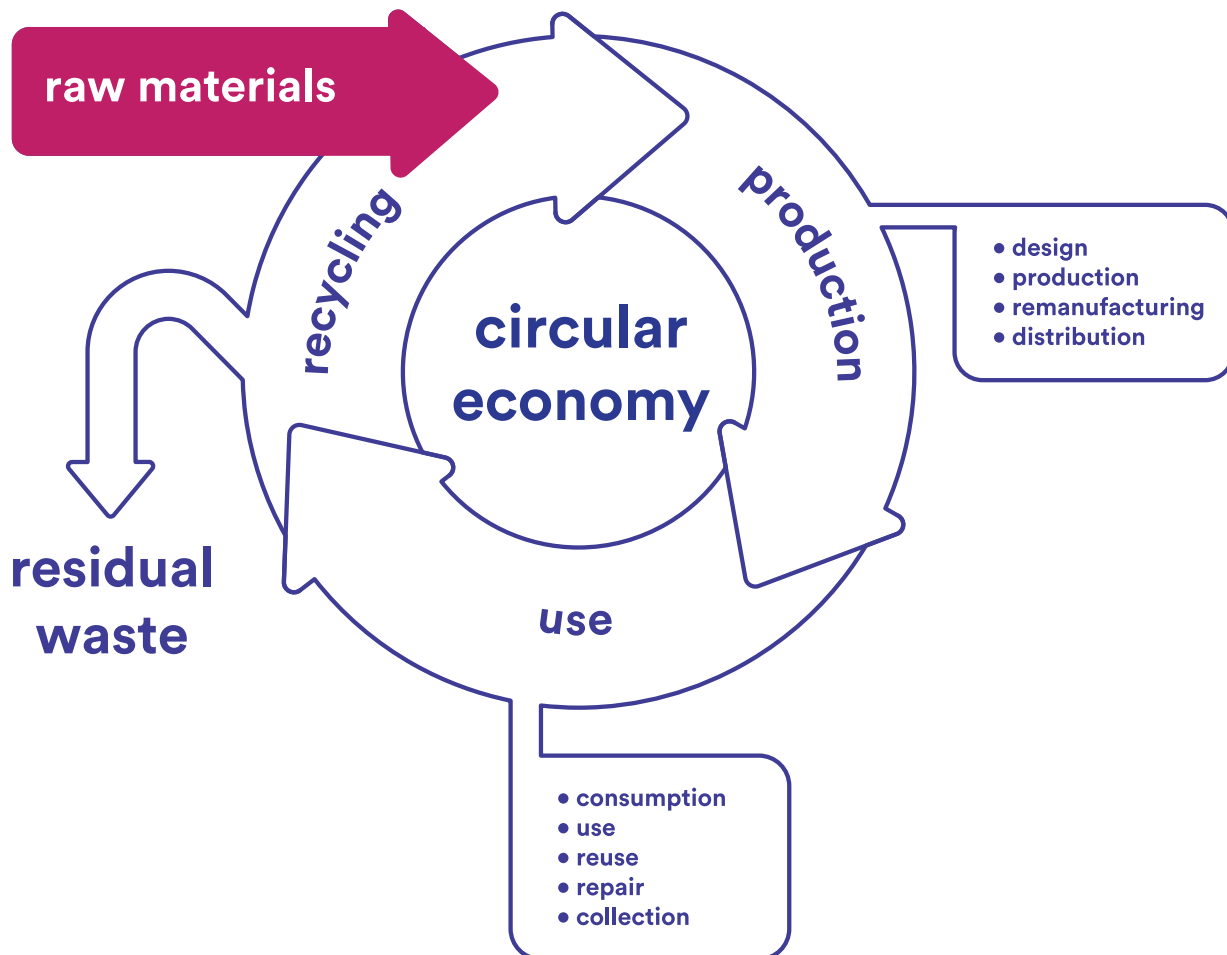
STEP 4: Share it!

Remember to share your funky future footwear creation with your friends and family. Teach them about sustainable fashion. Your parents or carer might even like to share photos on social media – tell them to include

#ScitechAtHome

STEP 5: Level up!

Can you make your shoes “circular”? A circular economy is one aimed at eliminating waste and using resources in a continuing loop. “Circular” companies are as interested in the return and reuse of old products as they are in the creation and selling of new products.



Rather than throwing out your old shoes, can you think of a new use for your shoes? Perhaps you could turn your idea into a business! What would you sell? What would you call your business? Document your weird, wacky, creative ideas:

- Make a list of all the uses you can think of for an old pair of shoes
- Draw a sketch of your ideas
- Make a logo for your shoe repurposing business



Staying safe

Ask an adult to help you when using things like scissors or staplers, or for tricky sneaker construction!