Entrepreneurs and sustainability

Age range: 14-19

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Session overview

Time	Key learning outcomes	Resources
25 mins	By the end of this lesson students will be able to: • Understand that founders can combine passion with sustainability to bring about business ideas. • Recognise the link between customers and sustainable businesses. • Identify what climate tech businesses do and their link to sustainability.	• Sustainability in business student slides. • Sustainability in business student worksheet (located at the end of this lesson plan).

BARCLAYS | Eagle Labs

This lesson has been created in collaboration with Barclays Eagle Labs, funded by the UK Government, as part of the Department of Science, Innovation and Technology (DSIT) Digital Growth Grant (DGG). The DGG aims to spur sustained and diverse growth within the UK tech sector. This lesson can be used as part of the Enterprise project challenge or separately, to approach the topics of entrepreneurship, using technology to be innovative and incorporating sustainability into business.

Funded by UK Government

This lesson will provide students with a wider understanding of what a sustainable business can involve. They will develop an understanding of the circular economy, the link between customers and sustainable businesses and how climate tech businesses develop innovation to help society exist sustainably. They will also discuss climate change and compare the needs of business who have a focus on being more sustainable. The below timings are a guide and can be extended if you have additional time available in your timetable.

Contents

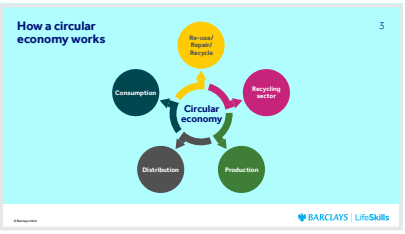
Activity one

Combining sustainability with passion

1. Introducing sustainability

- Begin the lesson by outlining that you will be building on the themes around what a sustainable business is and net zero from lesson one.
- Show **slide 2** and explain to students that some entrepreneurs, or founders, are looking to bring an idea to life that they are passionate about, whilst helping the world be more sustainable.
- Ask students:

Does anyone know what a circular economy is?



- Show **slide 3**, which shows that circular economy businesses find innovative ways to re-use, repair and recycle waste so that it can keep going round in a loop (hence circular) instead of using things only once. This helps to reduce the use of resources and pollution and is a more sustainable option. This reduces the use of resources and pollution and is a very sustainable option.
- Play the **film** on **slide 4** which is a case study of an entrepreneur whose business supports the circular economy.
- Next show **slide 5** showing the following questions and ask students to discuss. Come back as a class and ask if anyone would like to share their reflections.

In what ways is Bundlee a circular economy business?

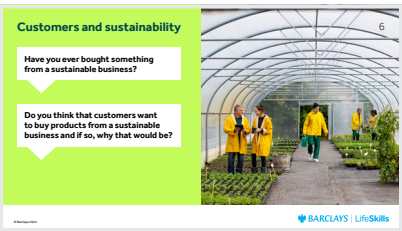
How has technology been important in developing Bundlee as a business?

How has creativity and resilience helped Eve to achieve her goals as an entrepreneur?

Activity two

Customers and sustainability

1. Understanding consumer behaviour and sustainability



- In groups, get students to discuss how consumers may feel when it comes to sustainability. Show **slide 6** and ask students:

Have you ever bought something from a sustainable business?

Do you think that customers want to buy products from a sustainable business and if so, why that would be?

- Use the examples below as prompts if students need or show them at the end as extra answers:
  - People care about their environmental impact and are more aware of where things come from. They might choose a product service that is sustainable to reduce their personal footprint and impact.
  - Consumers want to buy from or invest in products which they can rely on to last longer, which is cheaper for them in the long run and better for the environment. They appreciate businesses that do the same – and may feel they can rely on them more.
  - People may choose to purchase from businesses that share their values – for example, ethical considerations that a business makes like how fairly they run, where they source their materials or ingredients, fair working practices for their employees or giving back to their local community.

Activity three

Technology-based climate solutions

1. The link between technology and climate solutions

- Explain to students that many businesses are on a journey towards becoming more sustainable. Some elements of being a business with a focus on sustainability can be more challenging as some businesses and industries don't have solutions readily available, such as measuring, monitoring and lowering emissions, these emissions are likely to fall into scope 3 as they are not always within direct control of a business.

Ask students what they think this means for founders and new businesses?

- Explain that it is an opportunity for them to solve some of the barriers preventing society and industries from being more sustainable.

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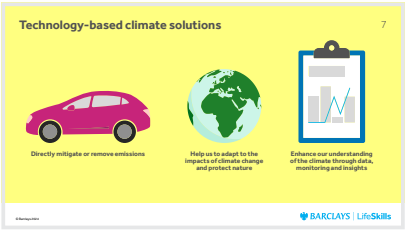
2. Understanding Climate Tech



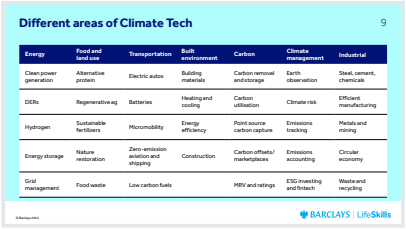
- Tell your students that they will be working together to come up with new ideas to innovate and create the solutions needed. Ask students if they know what Climate Tech is? Then show **slide 7** which shows how Climate Tech businesses aim to develop technological innovation to help society exist sustainably by:
  - Directly mitigate or remove emissions.
  - Help us to adapt to the impacts of climate change and protect nature.
  - Enhance our understanding of the climate through data, monitoring and insights.

- Show **slide 8** to introduce an example of a climate tech company by reading out the case study. GrowUp Farms started over 10 years ago. Their founders, Kate Hofman and Tom Webster, were excited about the idea of combining new and existing technology to grow food that tasted better, lasted longer, and helped to reduce the environmental impact of healthy food by growing salad vegetables vertically in stacked layers, indoors.
- Their unique solution helps resolve a big challenge in vertical farming which is energy. Instead of being reliant on electricity which is expensive, they use renewable heating and cooling for most of their energy requirements, meaning they use less electricity and their bills are lower.
- GrowUp Farms use technology, innovation, and strategy to produce salad leaves, all year round. Even though they grow vertically, and indoors, they are still part of the great British farming tradition, helping to create a more resilient and a more sustainable food system.

Activity three

Technology-based climate solutions (cont'd)

3. Exploring businesses in Climate Tech



- Now show **slide 7**, which outlines the different areas of Climate Tech. In groups, give students 5 minutes (or longer if you have time) and using the **worksheet** ask them to think about a new or existing business that operates in one of these areas.

Climate tech	Operating area	
Energy	• Clean power generation. • DERs. • Hydrogen.	• Energy storage. • Grid management.
Food and land use	• Alternative protein. • Regenerative ag. • Sustainable fertilizers.	• Nature restoration. • Food waste.
Transportation	• Electric autos. • Batteries. • Micromobility.	• Zero-emission aviation and shipping. • Low carbon fuels.
Built environment	• Building materials. • Heating and cooling.	• Energy efficiency. • Construction.
Carbon	• Carbon removal and storage. • Carbon utilisation. • Point source carbon capture.	• Carbon offsets/marketplaces. • MRV and ratings.
Climate management	• Earth observation. • Climate risk. • Emissions tracking.	• Emissions accounting. • ESG investing and fintech.
Industrial	• Steel, cement, chemicals. • Efficient manufacturing. • Metals and mining.	• Circular economy. • Waste and recycling.

- Students should first consider a problem relating to one of these areas, then using the worksheet with the questions below suggest how it would address one (or more) of the three aims of climate tech.

Activity three

Technology-based climate solutions (cont'd)

- Encourage your students to think big, and ask them:

What could be possible if the technology existed?

What issues around climate change do they see in their lives and within wider society?

Are there any elements of technology they are passionate about which could feed into ideas?

What are the key things carried out in the business which cause emissions? What scope are these in?

What Climate tech area does this fall into?

How can data be gathered, and a carbon footprint be calculated?

How could technology help to measure, monitor and lower emissions? (What role could AI play to help them reach goals)?

- Here are some example areas/ ideas if your class need some support:
  - Poor air quality.
  - Rising sea levels.
  - Extreme weather (rising temperatures, flooding, storms).
  - Rising energy costs.
  - The difficulties and expense of public transportation.
  - Making clothes out of unwanted materials.
  - Using technology to help predict weather patterns in agriculture, and develop drought resistant crops.
  - Creating new defences against flooding, including sea walls.
  - Using solar to create electricity and heat water.
  - Sustainable transport, aviation fuels or electric airlines, improving public transport, increasing cycling in cities or electric bikes for cargo.
  - Improving insulation of buildings.
  - Using locally sourced materials rather than imported ones.
- Ask students to present their ideas to the class once complete.

Summary

- Summarise that behind sustainable businesses is often a founder with an idea they are passionate about and many of these are combining their ideas with helping to make a more sustainable future. A lot of the work around creating business ideas to help combat the effects of climate change will fall into the Climate Tech industry.
- Ask if students would like to share something that they found interesting from the session.

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Entrepreneurs and sustainability

Technology-based climate solutions

Think about a new or existing business that operates in one of these areas.

Climate tech	Operating area	My business idea
Energy	• Clean power generation. • DERs. • Hydrogen.	e.g. wind or solar farms
Food and land use	• Alternative protein. • Regenerative ag. • Sustainable fertilizers.	
Transportation	• Electric autos. • Batteries. • Micromobility.	
Built environment	• Building materials. • Heating and cooling. • Energy efficiency.	
Carbon	• Carbon removal and storage. • Carbon utilisation. • Point source carbon capture.	
Climate management	• Earth observation. • Climate risk. • Emissions tracking.	
Industrial	• Steel, cement, chemicals. • Efficient manufacturing. • Metals and mining.	