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GAMES TO ENGAGE

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Section 1. Introduction

"*I want to help you get a feel for roughly how much carbon is at stake when you make simple choices… Unlike money we are not used to thinking about carbon costs.*"
Mike Berners-Lee, author of How Good are Bananas?

"*If we're serious about really addressing climate change, we need to become **ENERGY** and **CARBON** literate (like we are with money), and to get to grips with the implications not only of our choices but also the bigger infrastructures which underpin the things we consume. How can we educate our desires unless we know what we're choosing between?*"
Peter Lipman of Sustrans about How Bad are Bananas?

The following games, exercises and suggestions are intended to help people engaged in this subject. Having to think an exercise through engages more than reading or hearing about it.

Section 2. Game: $E= mC^2$

Energy (E) is involved in everything we do, from staying alive to going to mars. The equation itself is only a way of gaining attention as everyone has heard of it. Here we interpret it in a different way to engage people in the topic of energy use, how much is needed and the consequences.

This game highlights the criteria we regularly use when making decisions to do or buy something. We normally need to balance the convenience (C), a shorthand for personal preferences, against the money (m) we need to get or do the thing we want/need. The purpose is to get a conversation going about how much we consider the carbon, and therefore the Climate, impact of using this energy.

Ultimately, we hope to make people more aware of their energy use (it is TECs' vision/mission to improve this understanding).

Almost no one uses Carbon (C) as a criterion, yet it is the only thing that matters when it comes to mitigating climate change. About 80% of the energy we consume in the UK generates Carbon emissions, more if we include the emissions generated abroad on our behalf.

The process:

The player chooses one of the scenarios to rank the options in order of best to worst for each criterion. Ideally the scenario chosen should be something of interest and topical for them. Initially ask them to choose the order in terms of money and Convenience. Once they've done that, they can do the same for Carbon emissions.

Almost always there is a conflict as to which option comes top (i.e. best) for the three criteria, so we need to compromise/weigh things up to come to a decision, something we do automatically for the first two criteria money and convenience.

What decision we make is often subjective or somewhat removed from reality, at least for money and definitely for Carbon. Talk around that aspect to get users to consider how they make their decisions. The relative value is just as important as ranking.

The actual results can now be compared to those chosen. There is no right or wrong here as most of us would not know, that is the point of the game. We reach a decision based on ranking, but we also consider the relative value. For example, if our most convenient (i.e. preferred) option only costs a little more in relation to our budget we would probably choose this. We need to do the same for the Carbon value in relation to our carbon budget and carbon footprint, an opportunity to introduce those two concepts and why we need to start including carbon emissions in our decision making.

The game is an opportunity to talk about how these options are ranked and what their relative values are so we can make better judgements about which option to go for. It can be an intro to get users to use the TECs the Carbon Footprint Tracker.

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2.1 Scenario 1: You want to go to Glasgow (one person, one way from Exeter)

By train second class (7 hrs)	£120	31 kg CO2e
By coach (13 hrs)	£40	24 kg CO2e
By car – petrol (9 hrs)	£75	115 kg CO2e
By plane – economy (2.5 hrs)	£95	121 kg CO2e

kg CO2e/mi @ CFT 2021 (50mpg); £/trip or L @ internet Aug 2022

2.2 Scenario 2: You fancy a coffee

americano with cow's milk	£2.50	0.08 kg CO2e
Latte with cow's milk	£3.45	0.3 kg CO2e
Latte with oat milk	£3.45	0.5 kg CO2e

kg CO2e/kg @ How Bad are Bananas; £/kg @ coffee outlet July 2022

2.3 Scenario 3: A day's protein of 50 g

Lentils (200g dry weight)	£0.48	0.1 kg CO2e
Eggs (7)	£1.63	0.75 kg CO2e
Pork loin chops (200g)	£1.50	3.0kg CO2e
Breast of chicken (180g)	£1.15	3.4kg CO2e
Beef mince (190g)	£1.18	7.2kg CO2e

kg CO2e/kg @ How Bad are Bananas; £/kg @ Sainsbury's July 2022

2.4 Scenario 4: Buying a pair of trousers

Pre-loved	£10	<1 kg CO2e
Synthetic fibre	£50.00	9 kg CO2e
Cotton	£60.00	19 kg CO2e

kg CO2e/item @ How Bad are Bananas; £/item @ internet July 2022

2.5 Scenario 5: Doing a full load of laundry

At 30 degrees (0.2 kWh)	£0.08	0.06 kg CO2e
At 40 degrees (1 kWh)	£0.40	0.29 kg CO2e
At 60 degrees (2 kWh)	£0.80	0.65 kg CO2e
Tumble dry (4 kWh)	£1.60	1.2 kg CO2e

Bosch WAJ2846MIN @ 290 g/kWh ; @ 0.4 £/kWh

2.6 Scenario 6: Cooking a piece of fish (200 g)

Frying in a pan (5 mins) @ 400W	1 p	0.01 kg CO2e
Steaming in a microwave (2 mins) @ 1000W	1 p	0.01 kg CO2e
Baking in an oven (15 mins) @ 1500W	15 p	0.11 kg CO2e

@ 290 g/kWh ; @ 0.4 £/kWh

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Section 3. Game: How do I decide

This is a series of everyday comparisons of items or actions to get people thinking about associated GHG emissions. It is effectively a simplified version of the E=mC2 game which has a printed A5 intriguing question. The answers can be printed on the back.

It's best done by asking someone if they want to answer the question or do the thing.

3.1 Sample our Apples & Bananas

This has a wooden apple/banana prop so people think it's to do with those. You can then ask a few open questions:

- Which they prefer and why
- which is better in terms of ghg emissions and why

You can explore various aspects, like the emissions associated with growing, transporting and consuming. Which of these have the greatest impact? Reference How Bad are Bananas or ask the ACT Energy group.

It's not only the relative value that matters, but the contribution it makes to one's overall annual Carbon Footprint. A link to the CFT and why this matters.

For seasonally grow and shipped from abroad:

- Bananas > 670g CO2e/kg fruit
- Apples > 680g CO2e/kg fruit
- Oranges > 960g CO2e/kg fruit

Apples from the garden > 0g CO2e/kg fruit

Apples grown locally and in season > 272g CO2e/kg fruit

Apples grown locally/UK but out of season > 2,500g CO2e/kg fruit

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