

# People and Planet 2025: Story Sheet 1 - Roy and Cynthia



## Roy and the Migrants

Roy is seventy and has recently retired. He is very concerned about the number of migrant workers coming into the UK. Roy came to Britain from the Caribbean with his parents in the 1960's, so he knows how hard it can be for newcomers.

However, he's getting older now and has lost patience with having to deal with youngsters with poor English everywhere he goes; he doesn't have time to chat - he just wants the job done. What really excites Roy are the new generation of domestic robots; his friend Henry has an Auton and it is a godsend. Roy is eager to see more of these robotic devices working in service industries and the voluntary care sector. They might not be able to do everything yet, but anything they can do to reduce the reliance on cheap foreign workers is good news for Roy.



Emily

*"What happens if we start making really cheap robots that flood the global market? What happens to all the jobs for the unskilled workers?"*



Cynthia

*"If anything happens to me, I don't want to be looked after by a machine - I want proper care."*



Rajpal

*"I think it's a great idea. Robots could do all the dangerous and dirty jobs that humans don't want to do. People will be much safer in the workplace."*

## Cynthia and the Gas Bill

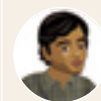
Cynthia is confused. The gas bill seems to be getting bigger every time, so she has been picking up leaflets from different energy providers, but now she just doesn't know what to do for the best.

She and Roy have lived through the first stages of climate change and seen the differences in the world around them. Lately summers have been swelteringly hot and use of water has been restricted for most of the year and it seems like there's a hurricane, mudslide or flood somewhere in the world every month. Cynthia wants their son, Malcolm, to settle down and have kids, but she is worried about the world they will inherit. Nuclear, biomass, solar and wind power are all competitively priced but the amount of information is baffling! How can she tell which is the best for the environment?



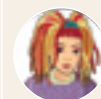
Roy

*"Why are we worrying when the new power stations are using the gas and coal much more efficiently now? There's still plenty of fossil fuel left."*



Rajpal

*"Let's be realistic. However much we continue to cut our emissions, we should be investing in adaptation to a climate change world."*



Emily

*"What we really need is more locally generated energy. My college has just had its roof tiles replaced with solar tiles."*

## Roy and the Migrants: Where we are now



Most robots today look nothing like humans and do routine, repetitive or dangerous tasks. As well as assembling cars and computers, robots go where humans can't, like Mars, or minefields. Industrial robots are getting cheaper, and could spread to many more industries.

The United States uses and produces fewer robots than Japan or Europe because it relies on less expensive immigrant labor. According to the latest industry figures, Japan has 329 robots per 10,000 people in manufacturing, compared to 68 per 10,000 in the United States.

The big opportunity for robots of the future is in the service industry, particularly helping people with mobility problems. In Japan some nursing homes have already installed robotic systems to bathe elderly residents.

Researchers are working on intelligent service robots, which could enable elderly people to remain in their homes longer. To be effective, these robots need to be able to interact with their owners and also cope with a home environment, where things and people move and change. A robot arm system has been designed to help disabled people move and fetch objects. Researchers have created a system that can pick up a coffee cup, grasp an egg, or dial a telephone but it currently has trouble dealing with new situations.

Other researchers are working on 'low key' robots that will be simple to use and will merge into the background in the 'smart' home of the future.

## Cynthia and the Gas Bill: Where we are now



Governments are looking at how fossil fuels like oil and gas will gradually be replaced with other forms of energy, for economic and environmental reasons. There are many different ways that our energy could be generated.

Many scientists say that nuclear power is reliable and clean. But reactors are costly and controversial. Cheaper construction methods, better waste disposal and the impact of carbon taxes could change this.

We use biomass energy when we burn solid materials, like wood, to generate heat. Biofuels are used to power some vehicles already; half of Brazil's cars run on ethanol from sugar cane. Growing crops for fuel alone uses up fertile land but we could use waste from growing food crops instead.

Solar power is inefficient today but should improve as new materials are developed. Scientists are trying to copy the way plants capture and use light in photosynthesis. They have invented new *porphyrin* molecules to do this which might be used in solar panels in 5-10 years.

One wind turbine can power 1000 households but many people don't like the way they look. Floating wind turbines in the sea could get around this but the energy needs to be produced close to where it is needed and the number of suitable sites is limited.

We can extract hydrogen from water using renewable energy. Hydrogen fuel cells could power mobile devices such as cars, laptops and cameras. Storing hydrogen is tricky, but scientists are now researching user-friendly storage systems.

Homes of the future could increasingly generate their own energy thanks to technologies like small-scale wind turbines or solar panels.

# People and Planet 2025: Story Sheet 2 - Rajpal and Emily



## Rajpal and the Relatives

Rajpal is a biology teacher in a local secondary school. Teachers don't earn a lot of money and Rajpal has to be careful to manage his domestic budget, especially since his wife Anita walked out on him and their daughter Ananya.

He is on his way to India to introduce Ananya to her Indian family and to spend some time with his parents. The trouble is, he has completely run out of carbon credits in the UK and will not be able to fly home unless his Indian relatives will let him use their credits. Of course they would like to help. Up till now they've sold their credits on the international carbon exchange, but now they are going to need them themselves. What Rajpal doesn't know is that his parents are looking at moving to a larger house in the suburbs. If they do they will need to keep their carbon credits to maintain their own lifestyle.



Roy

*"I think we should stop all this fuss with carbon credits, it's a green light for international fraud - why can't we just store all the carbon dioxide we produce underground?"*



Cynthia

*"I think the carbon exchange is good. The rich are forced to buy the credits from the poor. It makes the poor a little better off."*



Emily

*"The trouble with carbon credits is they don't go far enough. We need a properly planned international redistribution of resources."*

## Emily and the Vaccines

As part of her international development classes at college, Emily takes part in an online community of students around the world. This allows them to learn from each other and talk freely about global issues.

Emily and Sinyama met at one of these classes and now have a great online friendship. Sinyama has invited Emily to visit her in Zambia in the summer holidays. Unfortunately Sinyama's town is in an area of high risk for a number of tropical diseases, and members of her family regularly get ill. Emily's parents have paid for her to receive the new genetic vaccines which ensure 100% protection. Emily is upset and can't decide if it's right for her, as a tourist, to be safe when local people are at risk.



Roy

*"Medical progress is always a good thing - of course, it takes time to reach everybody, but eventually it benefits everyone."*



Rajpal

*"It's not surprising that the people who need the technology most get pushed to the back of the queue."*



Cynthia

*"I think it's such a shame that people are at risk. I wish their own governments would do more about it."*

## Rajpal and the Relatives: Where we are now



Carbon dioxide (CO<sub>2</sub>) released by burning fossil fuels contributes to global warming. We need to become less dependent on fossil fuels reserves and release less CO<sub>2</sub>. One of the UK's fastest growing CO<sub>2</sub> sources is transport, especially air travel.

Biofuels made from crops are available now for use in vehicles. Improved nuclear technology and advances in solar power and fuel cells could offer cleaner energy. Harnessing the power of wind and waves is another alternative, as is small scale 'microgeneration' by homes and businesses.

By 2010 around 8% of Britain's energy could come from renewable sources, mostly wind power. The biggest factors stopping us using more renewables are the initial set up costs, and the potential social impacts of this technology.

One way of reducing the amounts of CO<sub>2</sub> that are released into the atmosphere is for governments to set limits on the amount of CO<sub>2</sub> industry can produce by giving them a set number of carbon credits. Companies that produce less than their limit can make money by selling their remaining CO<sub>2</sub> allowance to companies that exceed their limit.

At the moment The European Union Emission Trading Scheme covers CO<sub>2</sub> from energy generation and manufacturing industries. Aviation could potentially be included from 2008. Companies won't be allowed to get more credits by offsetting emissions, for example by planting trees.

In the future it may be that individuals as well as companies are given a set number of carbon credits which they can use or trade.

## Emily and the Vaccines: Where we are now



DNA vaccination is at the experimental stage. Trials on genetic vaccines against flu developed in the UK look promising.

Traditional vaccines use a virus or bacteria to produce an immune response, which the body remembers for the future. DNA vaccines trick the body into producing part of the virus or bacterium, by injecting genetic instructions (genes). The body's immune system then responds in the same way as it would to traditional vaccinations.

A DNA vaccine containing genes from a number of different strains of virus could offer further protection. The artificial DNA vaccine is pure, and with only selected genes it is less of a risk to the body.

Vaccines today can be expensive, and many must be kept cool, which makes delivery to warmer regions difficult. Genetic vaccines have the advantage of being cheap to make and transportable without cooling, and they could keep for years.

Drug companies generally develop products for people in wealthy countries, who can pay for them. They favour products for treating the illnesses of old age, obesity and disorders such as erectile dysfunction and hair loss.

Millions of people, mostly children, die each year in developing countries from preventable or treatable diseases. These people still don't have access to existing drugs. Relatively little research targets the world's biggest killers, such as malaria and tuberculosis.