Sustainability

1. What is sustainability?

Sustainability is the idea of **c r n g** about the world we live in and keeping it **s f** for future generations.

Sustainability is about the **n v r n m n t, s c t** and the **c n m** .

2. We use the **resources** that the natural environment gives us. What are these resources?

w t r r f d n r g y

We currently live in a society where we use a lot of resources that the planet gives us, and at the pace we are using these resources, there will not be enough resources for future generations to live or survive.

3. We waste a lot of the resources.

Give a concrete example of how we can change each behaviour.

We waste food	
We waste water	
We waste energy	

4. We pollute a lot of the resources.

Give a concrete example of how we can change each behaviour.

We pollute the air	
We pollute the land	
We pollute water	

Waste and pollution are human choices. We can choose to change our behaviours.

Waste

1. Everything you put in the household bin (or general waste bin in public spaces) goes to a landfill site. We are running out of space on landfill sites.

How can you help?

We can segregate our rubbish by **r c c l n g** our waste.

The aim is to put **l s s** in the household bin and to put **m r** in one of the recycling bins.

2. Think about all the things you would put in the bin.

What items do you consider as rubbish and you put in the bin?

Make a list.

Now circle all the items that can go in one of the recycling bins.

3. Another way of putting less as possible in the household bin is **r d c n g** our waste.

How can we achieve that?

We can buy food without **p c k g n g**.

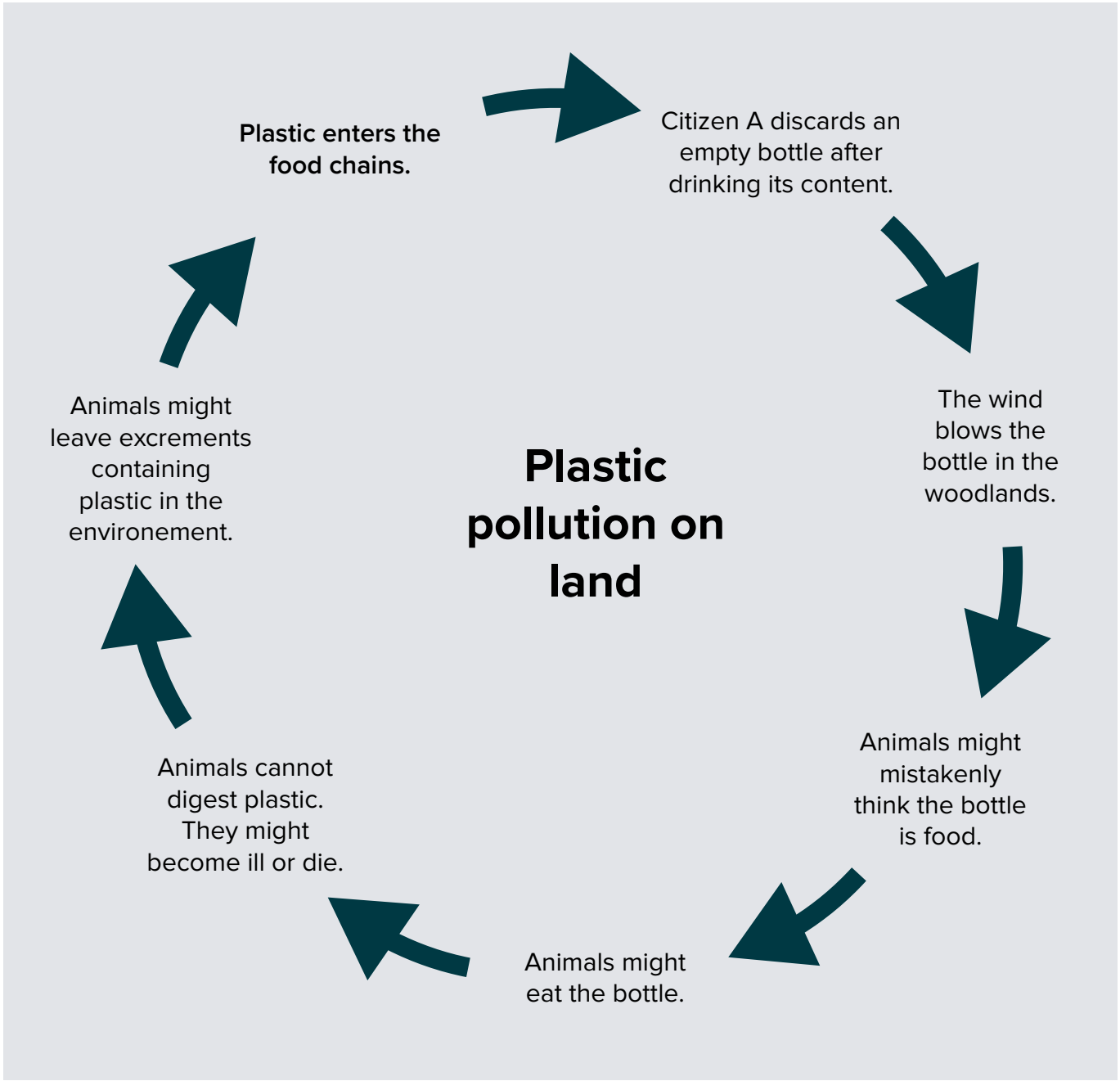
4. If it is not possible to buy produce unwrapped, unbottled, or unboxed, we can still help by **r s n g** the containers.

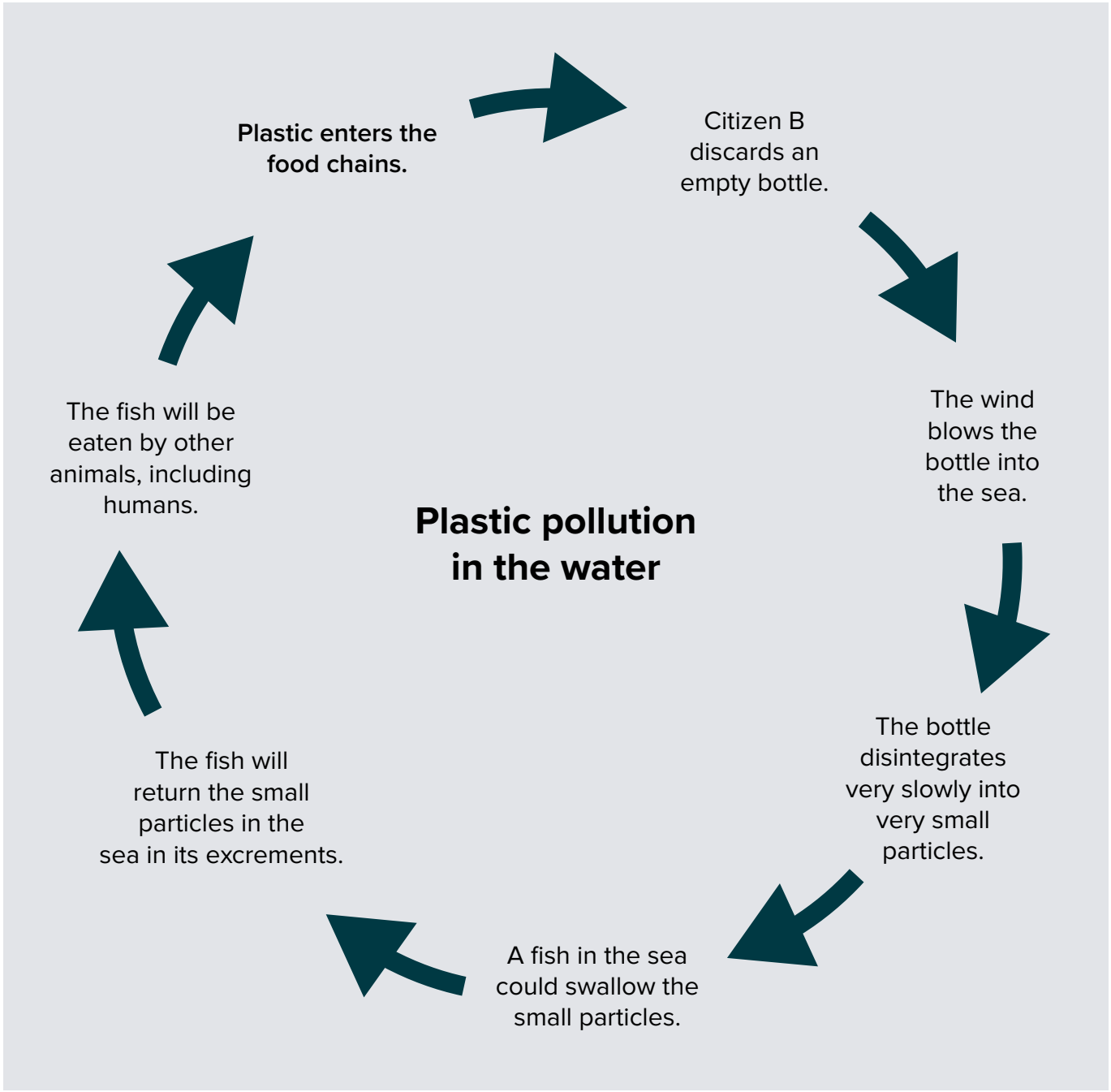
How can we achieve that?

What could you do with an empty box?	
What could you do with an empty bottle?	
What could you do with an empty loo roll?	

Waste and Pollution

Plastic is one of the most useful materials. It's convenient because it's lightweight, strong, waterproof, and durable. Plastic is a man-made material. It's **not biodegradable**. Humans choose to pollute the environment by discarding plastic objects in the natural environment. Plastic is composed of **chemicals** that will harm all living things. Plastic will disintegrate in the natural environment and will **enter the food chains.**





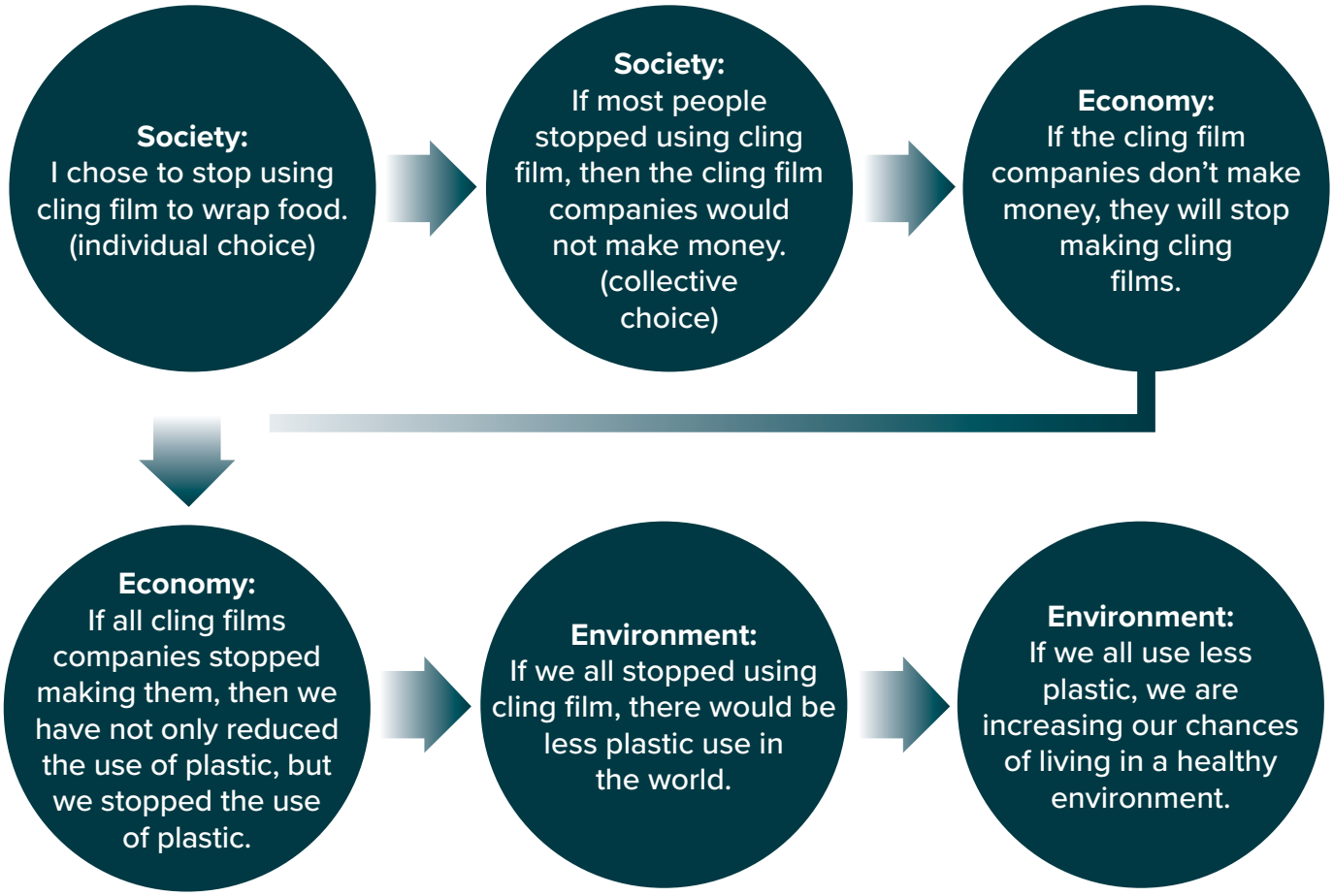
1. What can you do to tackle the problem with plastic?

How can you reduce the use of plastic?	How can you reuse objects made of plastic?	Recycle plastic

2. The environment, society, and economy are the three pillars of sustainability.

Here is an example: the choice of **refusing** the use of plastic as a way of becoming more sustainable.

	General	Specific
Current Behaviour	I use plastic objects.	I use cling film to wrap food.
Choice of action	I choose to reduce my use of plastic objects.	I decided to stop using cling film.
Impact of my choice	There is less plastic in the community and in the world.	It is better for the environment.



3. Name one sustainable action you can adopt at home and at school.

At home	
At school	

Energy

We all need energy to live.

What sources of energy do we use?

We use f s s l f l s like:

l n t r l g s c l

These are called primary sources of energy.

We use these **primary sources of energy** to generate secondary energy for transport, heating and electricity.

What do we use for transport?	We use gasoline and diesel fuels to run our vehicles.
What do we use for heating?	We use oil, gas and coal to heat our homes and workplaces.
What do we use for electricity?	We use all of these to operate all appliances and machines in our houses and factories.

What would happen if we had no energy to run our vehicles?	
What would happen if you had no heating?	
What would happen if you had no electricity?	

We are currently using **sources of non-renewable energy**. It is not a sustainable choice because they are quickly depleting. It is estimated that there will be less oil and gas by 2042 and there will be less coal by 2114.

2. Using sources of non-renewable energy is becoming a problem because the process of obtaining them creates pollution.

How can the use of natural resources pollute the environment?

Oil and natural gas come from marine remains.	**Extracting and producing oil and gas** • Drilling the soil: it may disturb land, wildlife and marine ecosystems. • Using an enormous amount of clean water: it takes a lot of electricity to produce clean water. • Creating dirty water: it may pollute water supplies. **Burning oil and gas** • It releases toxins and pollutants in the air.
Coal comes from land remains.	**Extracting coal** • Land deforestation: Trees are cut down, and plants are uprooted. • Soil erosion: The land can no longer be used for planting crops. **Burning coal** • It releases toxins and pollutants in the air.

Oil is energy in **l** **q** **d** state.

Gas is energy in **g** **s** **s** state.

Coal is energy in **s** **l** **d** state.

3. Using sources of non-renewable energy is becoming a problem because the extraction and production process are polluting the environment, and the Earth will be depleted of these sources.

What can we do?

We can use **sources of renewable energy**.

The **s** **n** produces solar energy. Solar panels absorb the energy and transforms it into electricity.

W **n d** makes turbines spin to create electricity.

Flowing **w** **t** **r** released from dams creates hydroelectricity.

Renewable energy does not contribute to global warming because it doesn't produce greenhouse gases.

Climate change and Global warming

1. What is climate change?

Climate change is a **n t r l** phenomenon that happens repeatedly through human history.

Climate change can be a period of **c l n g** down or **w r m n g** up.

2. What is global warming?

Global warming is also natural phenomenon. It is a period of warming up that was triggered by the industrial revolution. New technology during the Victorian times used fossil fuels which emit **c r b n d x d .**

It is a natural gas, and it is essential to life on Earth, but the problem is that there is too much of it in the air.

3. How do climate change and global warming affect us?

The combination of climate change and global warming is harmful to the environment. The Earth has become too warm because there is a dangerous quantity of natural gases trapped in the atmosphere.

This is the **g r n h s f f c t**.

We need these natural gases but in a lower quantity than there is at the moment.

4. When the temperatures are too high, it also affects the **water cycle.**
   - When there is too much **c n d n s t n**, water can cause hurricanes, typhoons, and cyclones.
   - When there is too much **p r c p t t n**, water can cause flooding and landslide.
   - When there is too much **v p r t n**, water can cause longer and deeper drought.

All these consequences affect food production.

5. Draw the water cycle.

Food chains

There are four natural nutrient cycles that regulate food chains, food production and food accessibility: the **water cycle**, the **carbon cycle**, the **nitrogen cycle**, and the **phosphorus cycle**. Climate change and global warming affect these cycles.

1. All four cycles take place in the four spheres of the Earth. What are they called?

l t h s p h r (think of land)

h d r s p h r (think of water)

** t m s p h r** (think of air)

b s p h r (think where land, water, and air meet)

2. Draw the four spheres of the Earth.

3. Carbon dioxide is essential to life on Earth.

When carbon dioxide is absorbed by plants, it's **p h t s n t h s s.**

When carbon dioxide is stored in the soil, it's **s q u s t r t n**.

When carbon dioxide enters the water cycle, it evaporates into the air and that is when it can create **p l l t n.**

Illustrate this process in your drawing above.

Remember: All living things need food to survive and live.