

Higher pupils studying Geography at Dyce Academy and Bucksburn Academy learn about the causes and consequences of climate change in the Atmosphere unit of the course.

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The Physical Factors

One of the physical factors that might have led to the changes in global air temperatures are the 'wobble, roll and stretch' theory put forward by Milankovich: this relates temperature fluctuations to the earth's orbit and tilt. The earth wobbles in space like a spinning top. As a result there is a variation in the time of year that the earth is closest to the sun. A greater tilt means more sunlight for the polar regions. Every 41000 years there is a change in the tilt of the earth's axis. Over a 92000 year cycle the earth's orbit stretches, affecting the amount of energy received.

The output of solar radiation may change because solar flares can produce more radiation.

Another physical factor is volcanic eruptions: they eject a lot of dust particles high into the atmosphere, the winds redistribute the particles, reducing the temperature of the earth by shielding it from insolation. For example, the eruption of Krakatoa caused a mini ice age.

Ocean currents can also account for the changes in temperature because variations in the North Atlantic Drift have helped to generate polar conditions in past glacial advances.

Changes in the atmosphere/ocean heat exchanges lead to the short term changes such as the El Nino and La Nina effect.

Over a longer time period plate movements can push land masses into new latitudes giving them a changed climate. The creation of fold mountains has an effect on the local climate.

Human Factors

A human factor is the increased consumption of fossil fuels which leads to increased carbon in the atmosphere, trapping the heat in.

The industrial revolution in Western Europe seems to be related to a change in the speed of climate change: the factories produced a lot of damaging gases.

Increased car ownership and increased leisure time in which people choose to travel by air, and increased global trade using shipping to transport freight, have also added to the problem.

The increasing demand for food by the exponentially growing population has also led to changes in the atmosphere. Methane produces 21 times as much greenhouse warming as CO_2 . Methane levels in the atmosphere have risen as a result of the increasing number of paddy fields needed for the intensification of rice production, and also from the ever increasing numbers of flatulent domestic cattle involved in mass meat production.

Deforestation - the clearance and burning of tropical rainforests - reduces the number of trees that take in carbon dioxide and release oxygen, meaning there is a build up of carbon dioxide in the atmosphere.

Insight into Lifestyles

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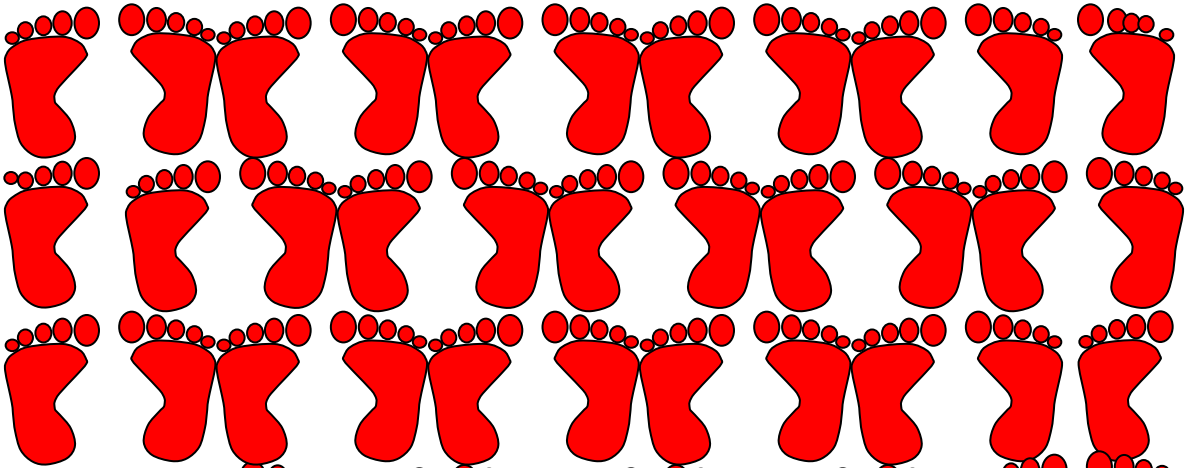


A tuk-tuk taxi

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Too many cars?



Red: Very high carbon footprint



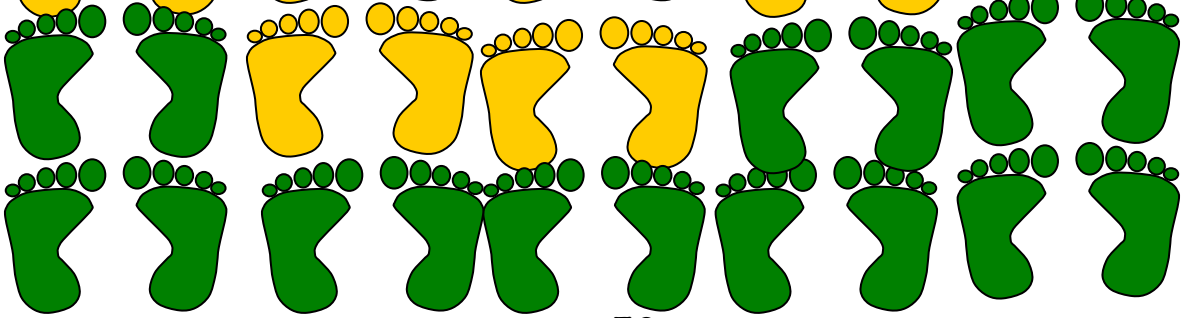
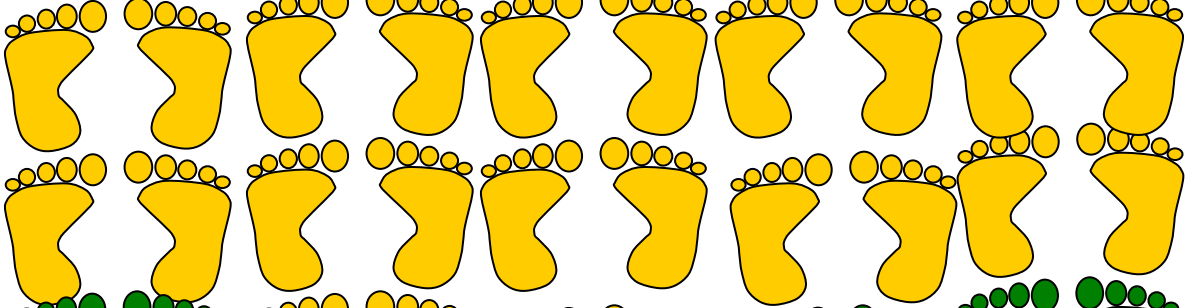
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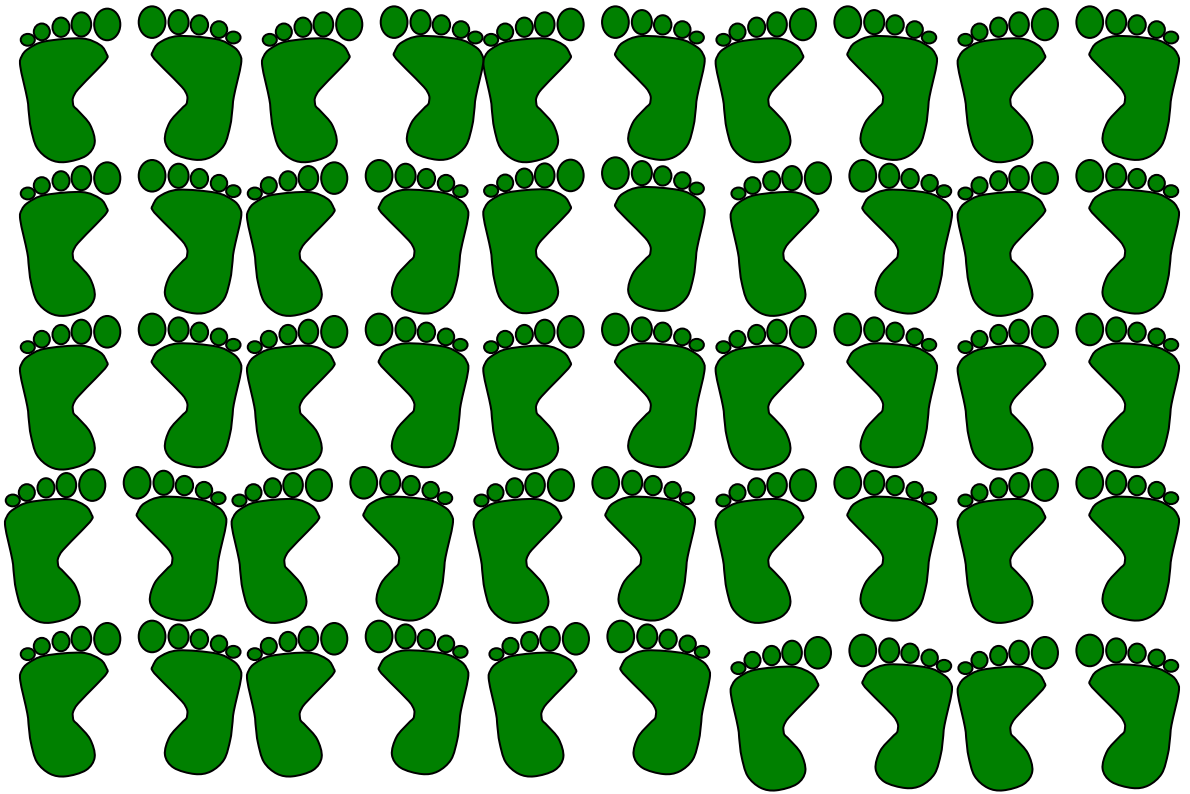


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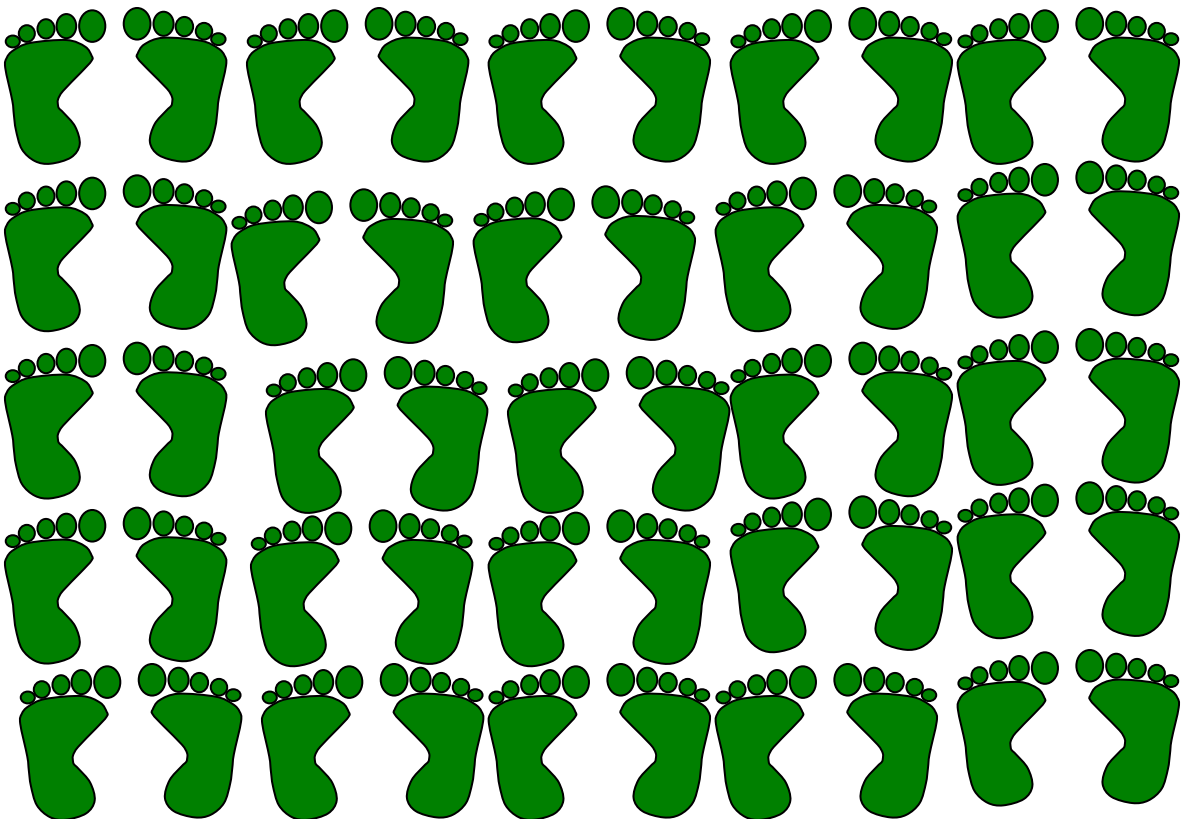


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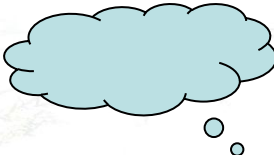
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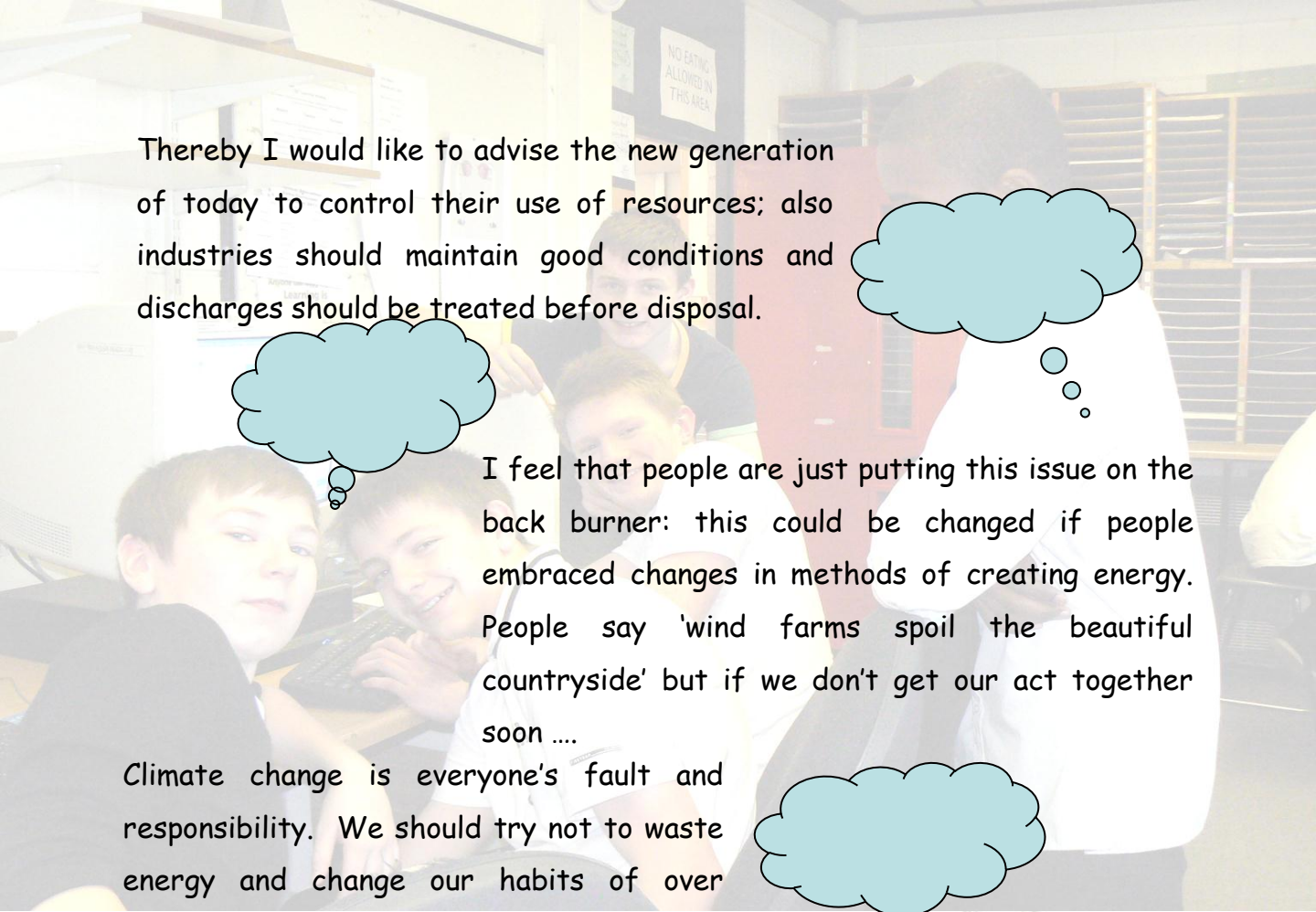
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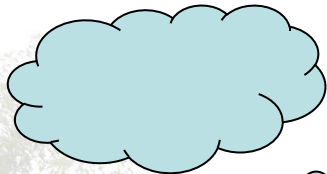
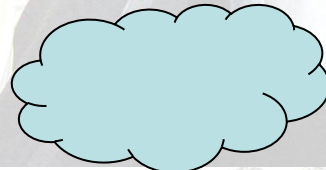
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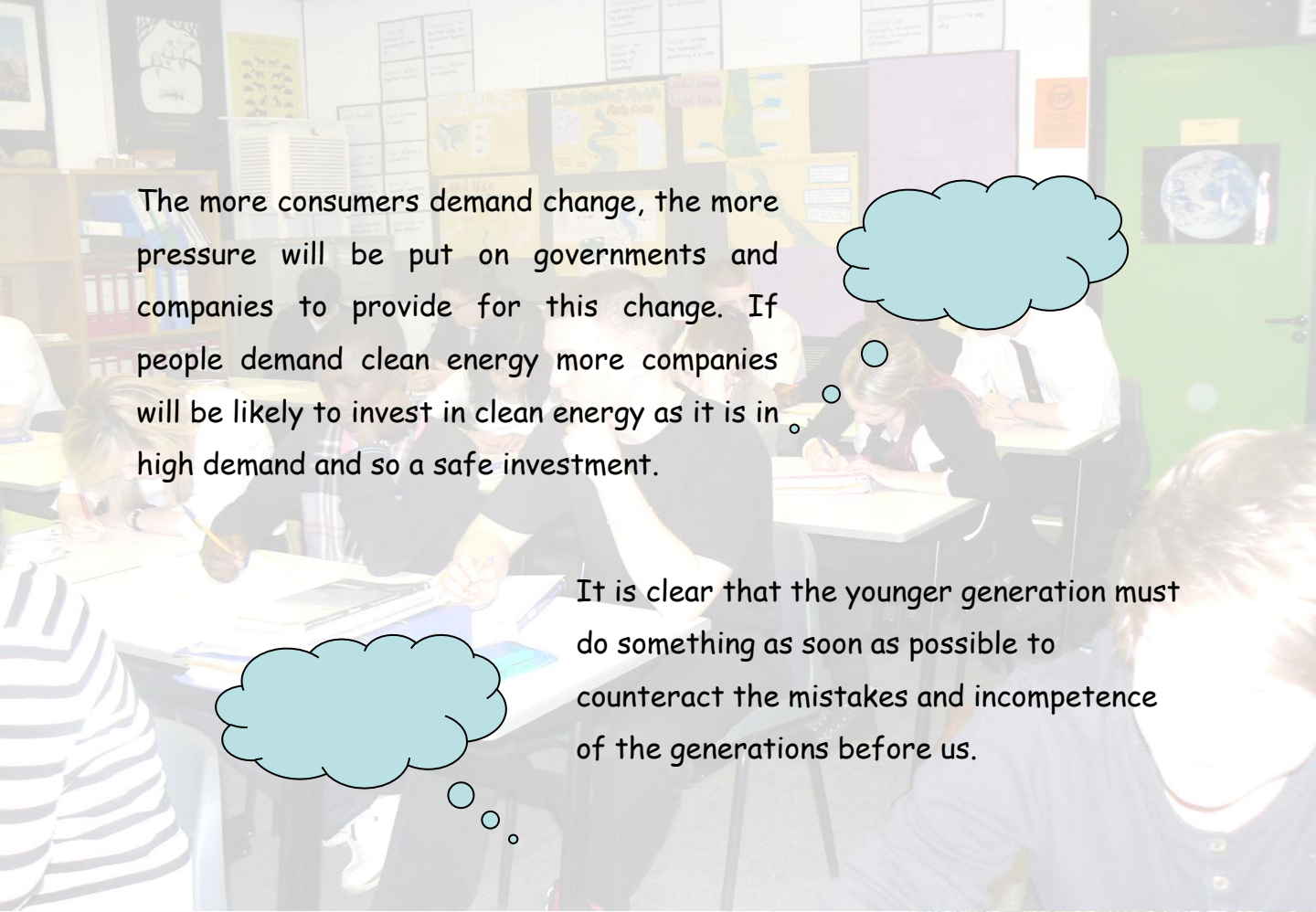
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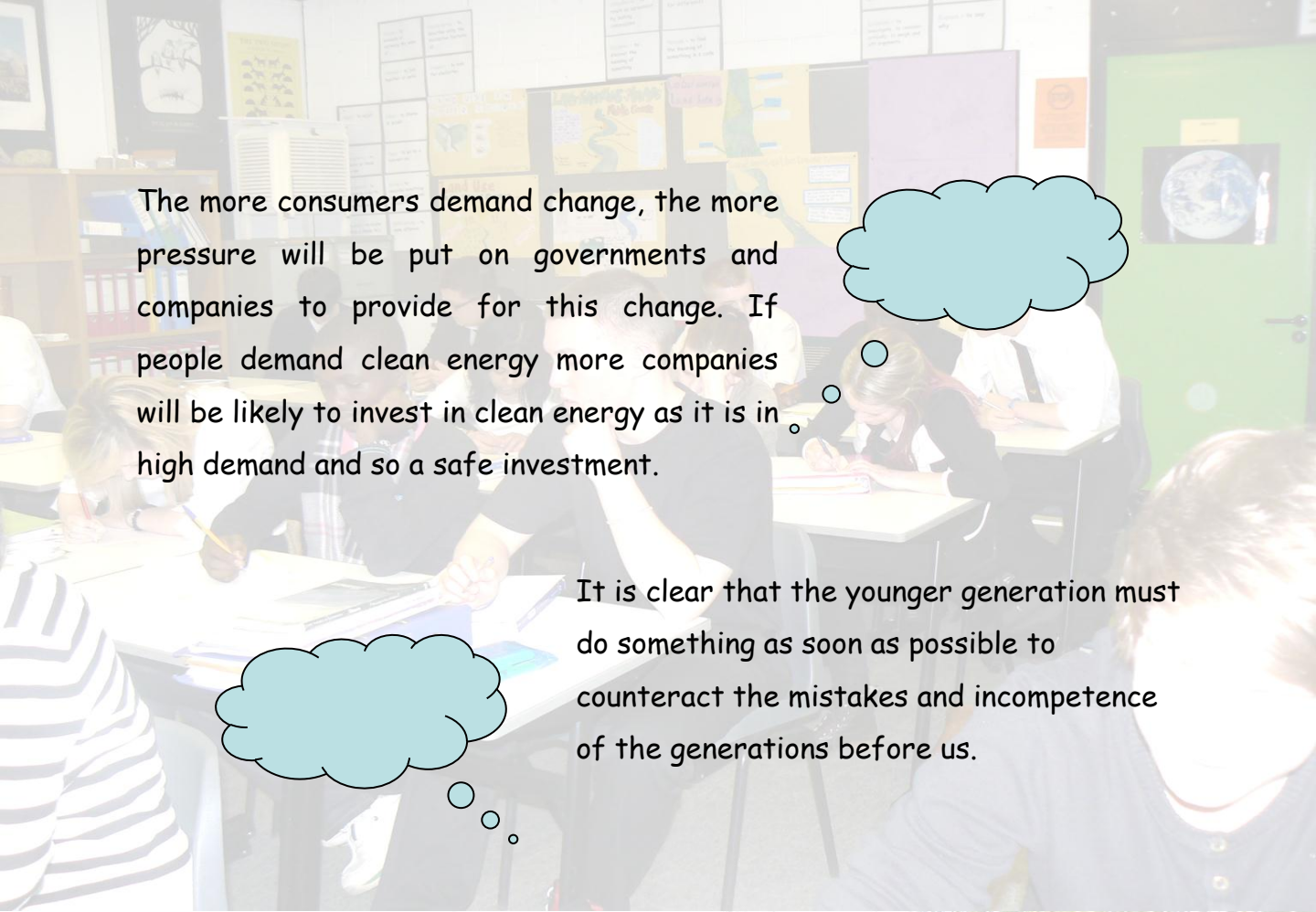
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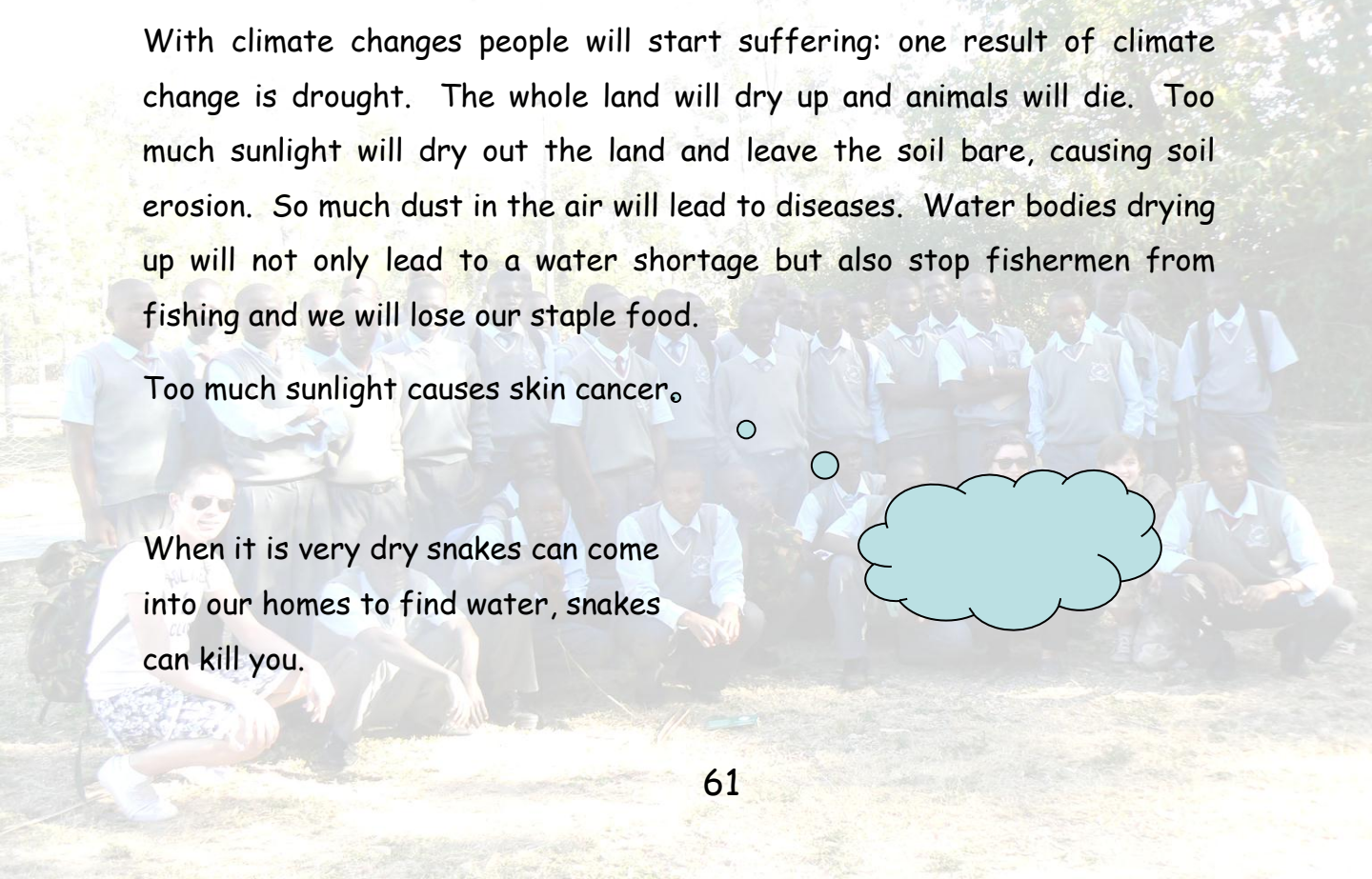




The more consumers demand change, the more pressure will be put on governments and companies to provide for this change. If people demand clean energy more companies will be likely to invest in clean energy as it is in high demand and so a safe investment.



It is clear that the younger generation must do something as soon as possible to counteract the mistakes and incompetence of the generations before us.



With climate changes people will start suffering: one result of climate change is drought. The whole land will dry up and animals will die. Too much sunlight will dry out the land and leave the soil bare, causing soil erosion. So much dust in the air will lead to diseases. Water bodies drying up will not only lead to a water shortage but also stop fishermen from fishing and we will lose our staple food.

Too much sunlight causes skin cancer.

When it is very dry snakes can come into our homes to find water, snakes can kill you.

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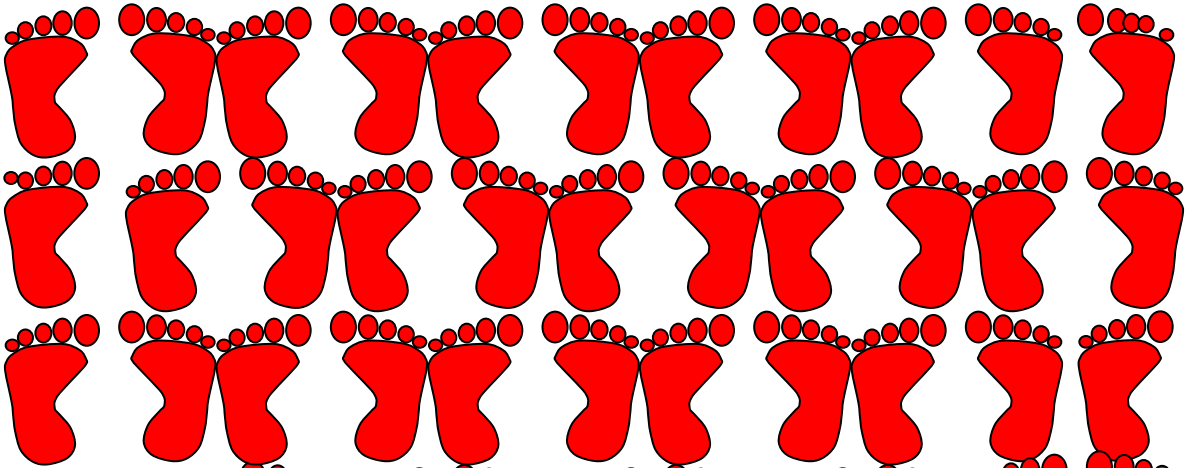


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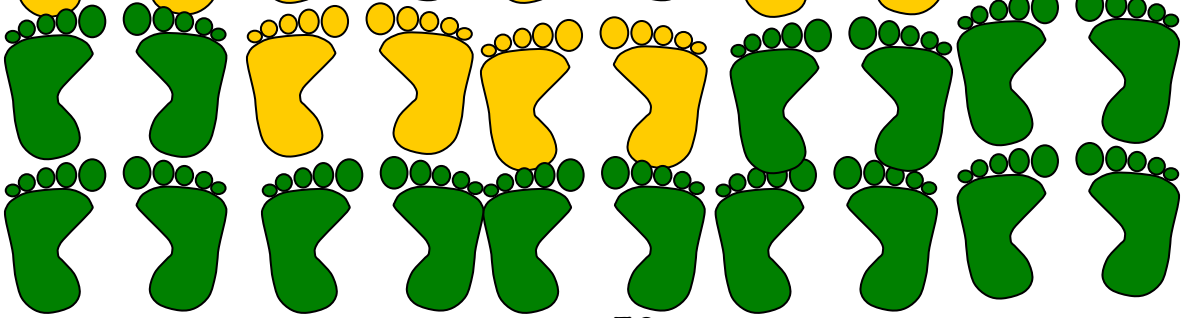
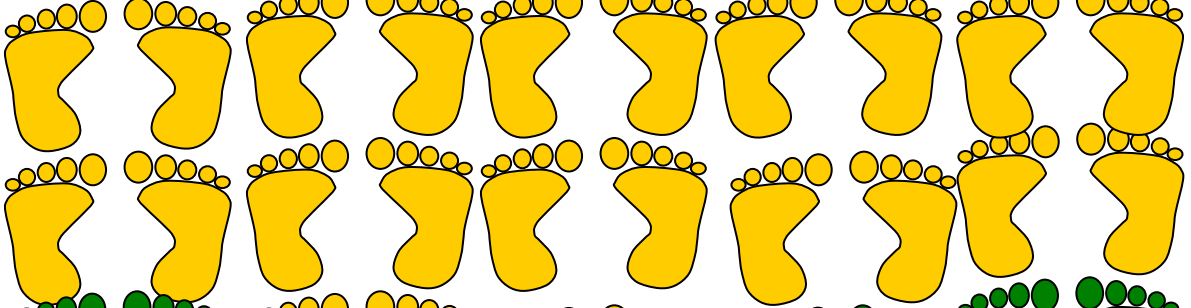
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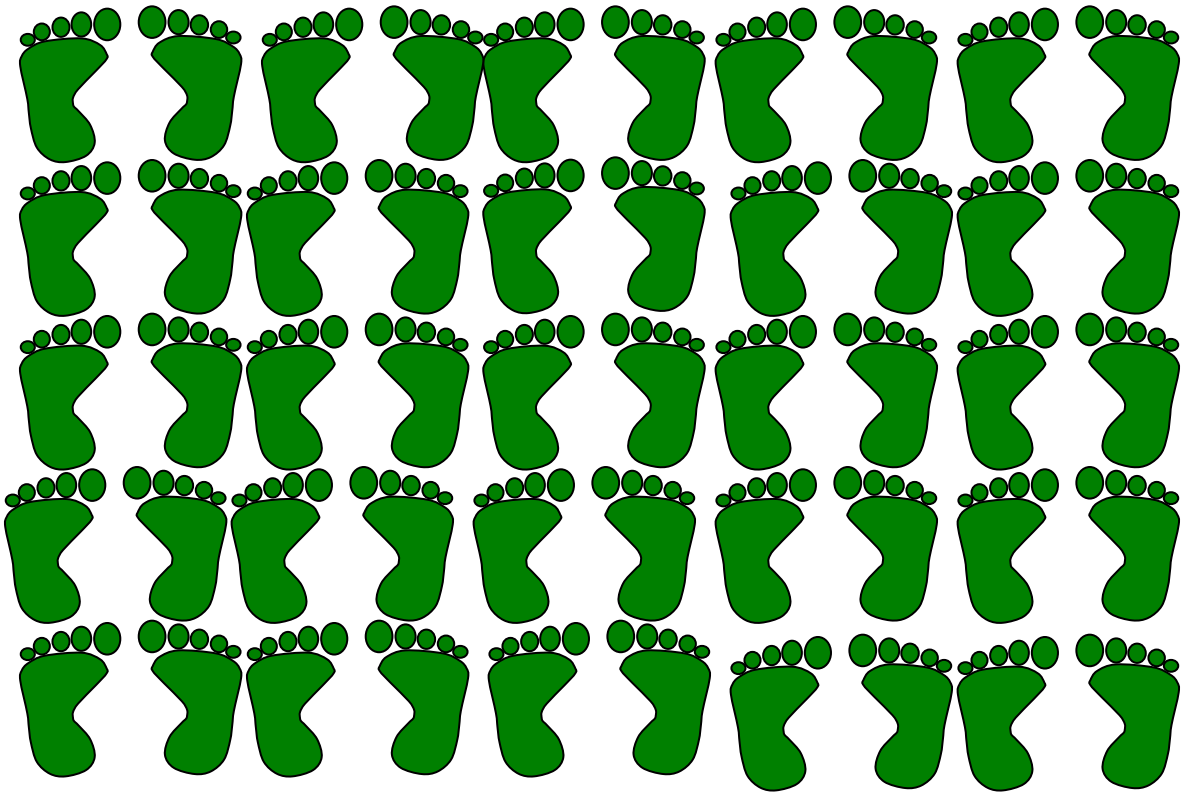


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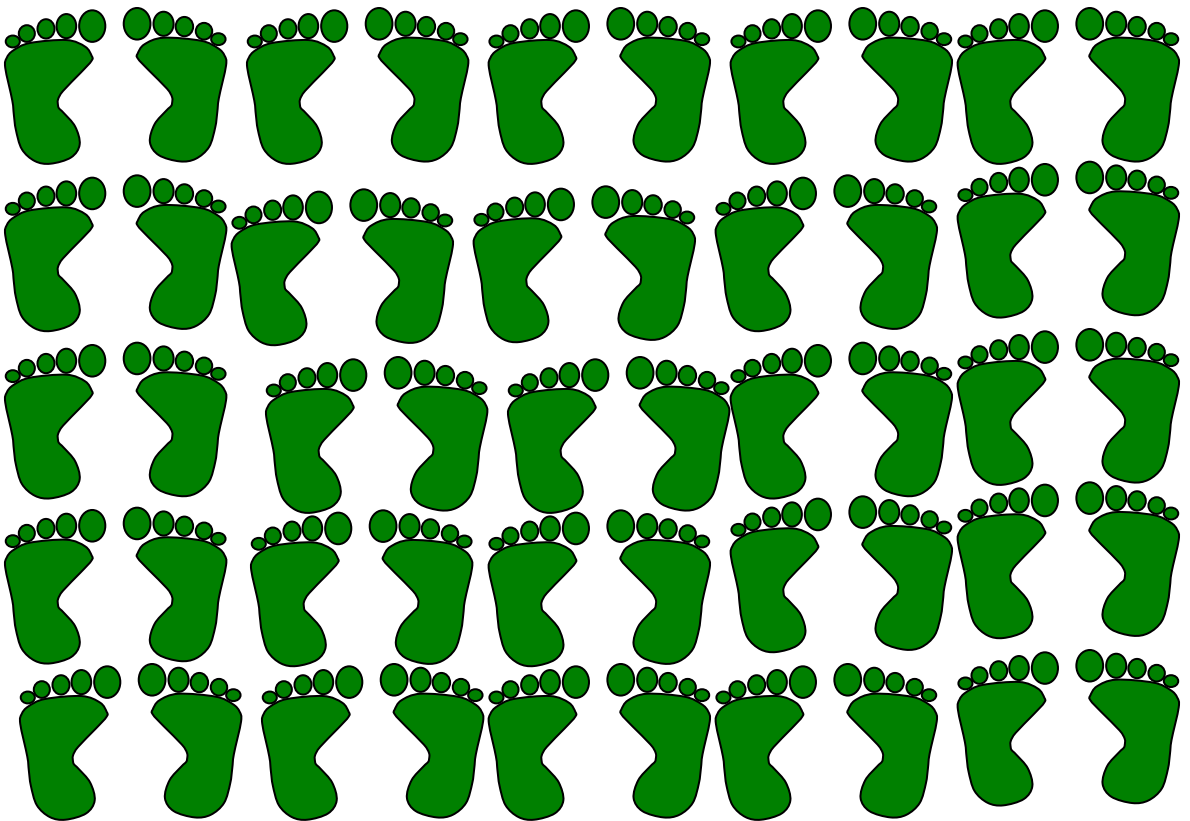


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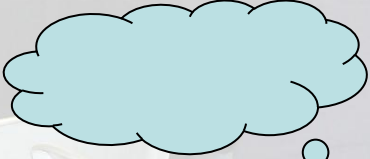
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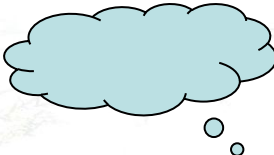
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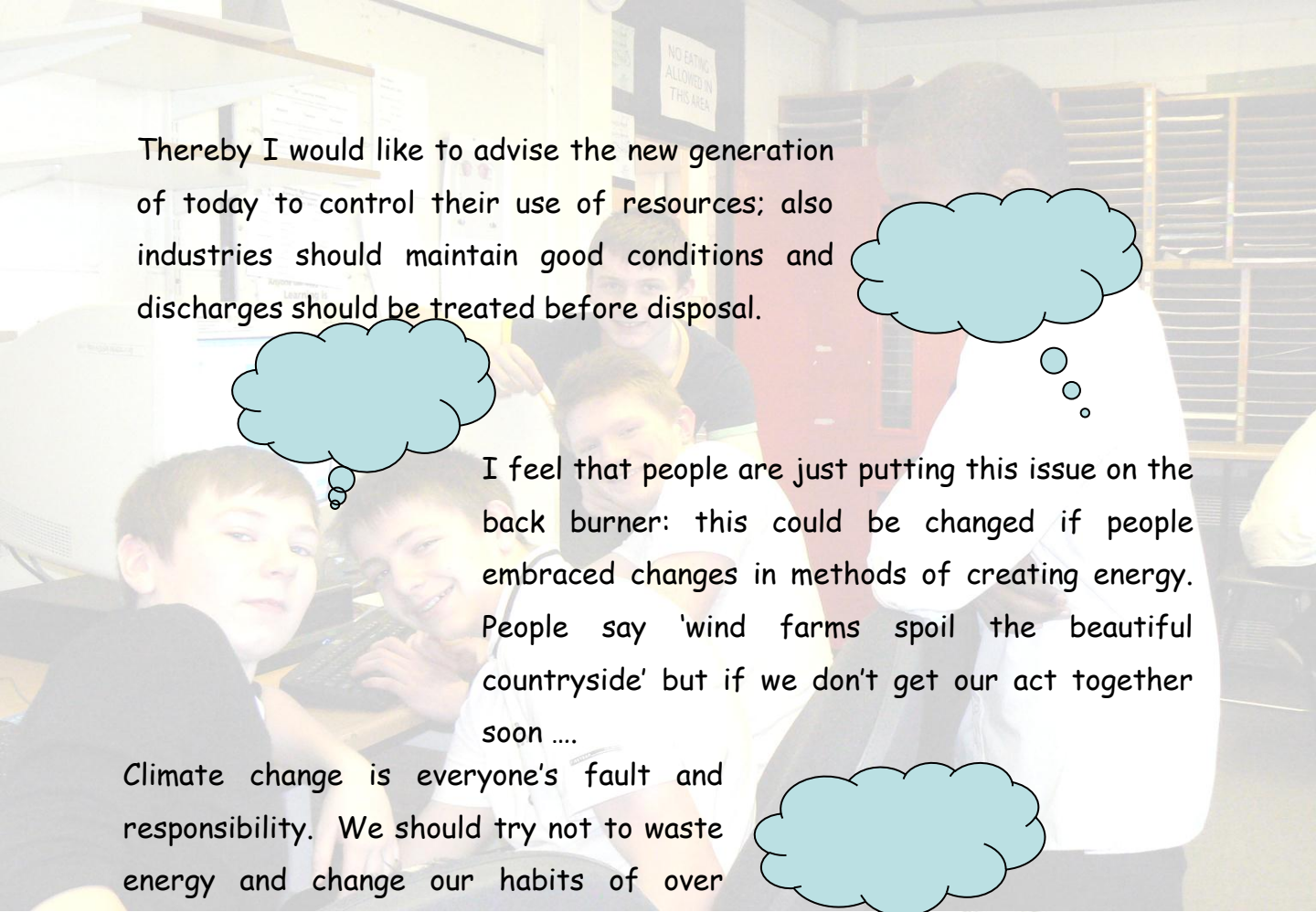
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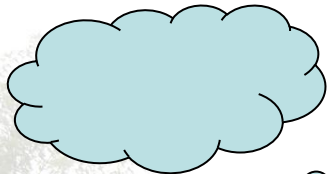
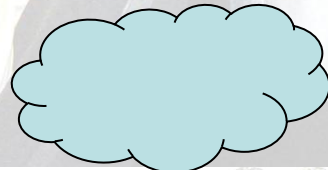
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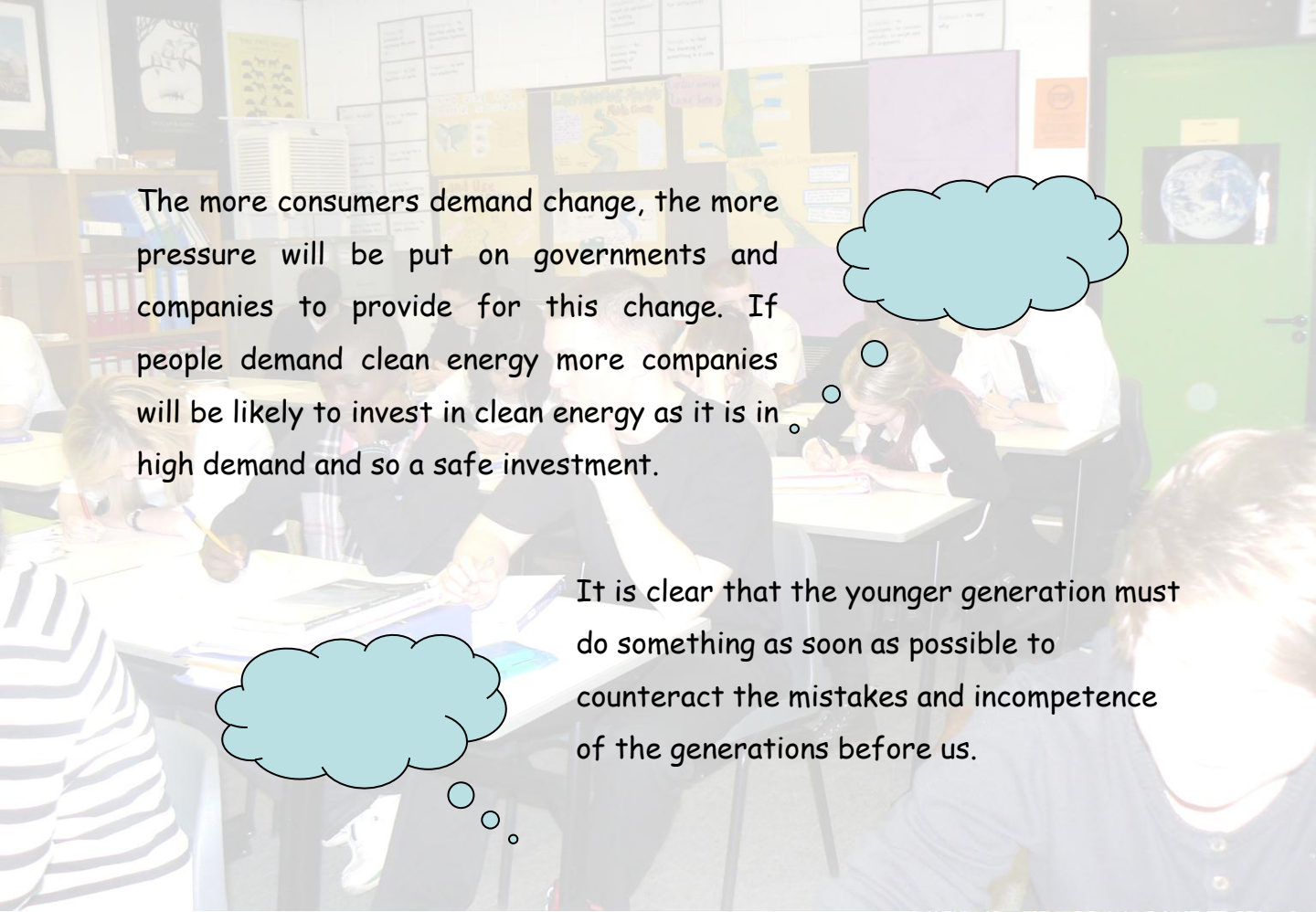
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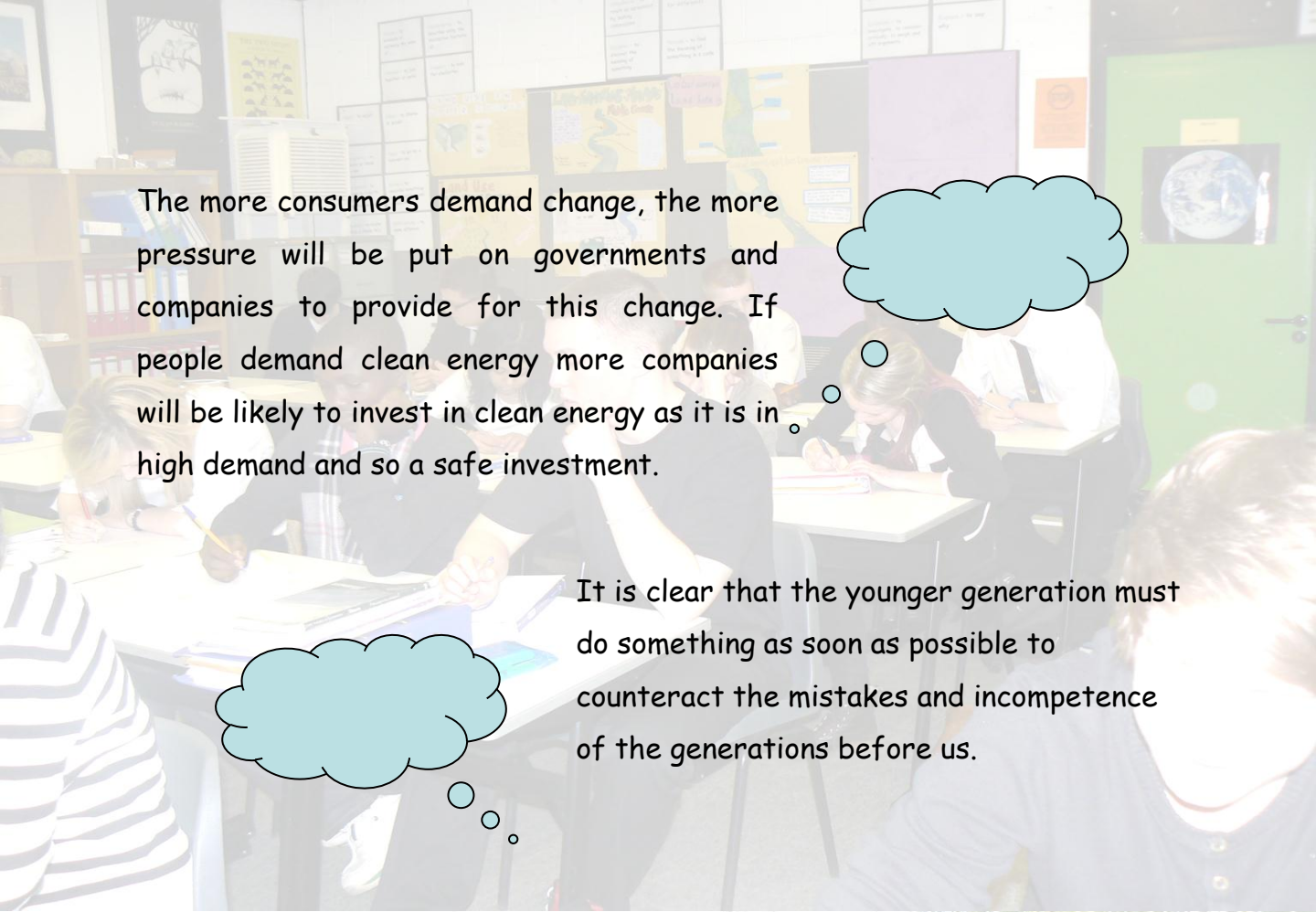
The government spends a lot of money on buying in food from other countries. This means there is less money for education.

It is frustrating that people know about it and how it is going to affect the planet but continue to be ignorant about the changes they could make.

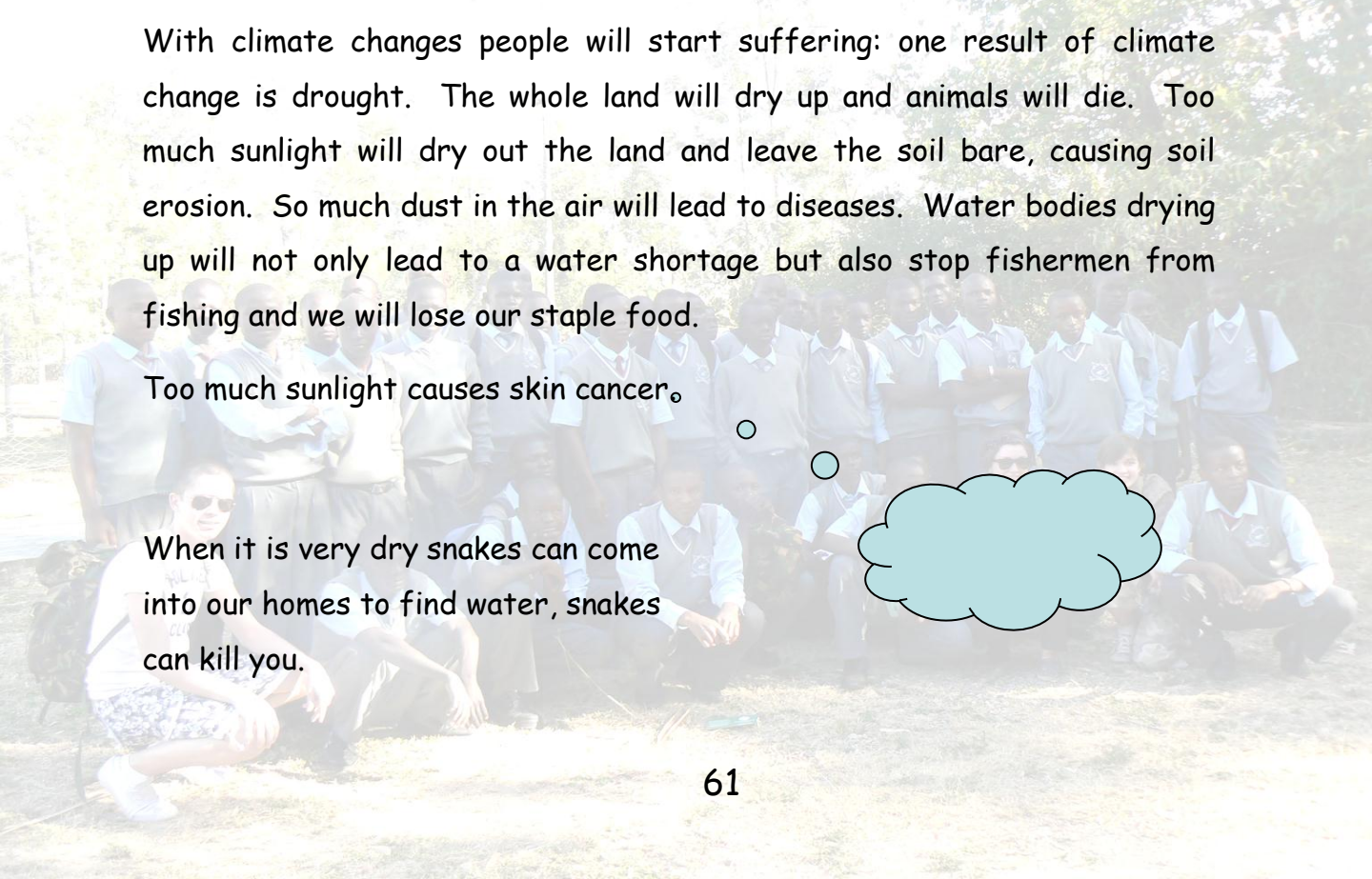




The more consumers demand change, the more pressure will be put on governments and companies to provide for this change. If people demand clean energy more companies will be likely to invest in clean energy as it is in high demand and so a safe investment.



It is clear that the younger generation must do something as soon as possible to counteract the mistakes and incompetence of the generations before us.



With climate changes people will start suffering: one result of climate change is drought. The whole land will dry up and animals will die. Too much sunlight will dry out the land and leave the soil bare, causing soil erosion. So much dust in the air will lead to diseases. Water bodies drying up will not only lead to a water shortage but also stop fishermen from fishing and we will lose our staple food.

Too much sunlight causes skin cancer.

When it is very dry snakes can come into our homes to find water, snakes can kill you.