



## WebQuest

Introductory Level -

We are what we breathe



TITLE OF THE WEBQUEST:	We are what we breathe
LEVEL OF THE WEBQUEST:	Introductory

## INTRODUCTION

### **DID YOU KNOW?**

Your body needs oxygen to function, and the only way that we can get oxygen is to breathe it in! After we breathe this air in, the oxygen from the air enters our bloodstream.

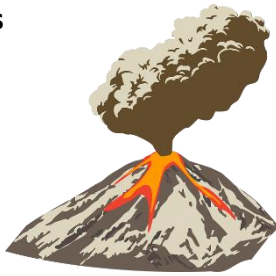
Air is also made up of other gases, not just oxygen! It contains two main gases: oxygen (21%), and nitrogen (78%), and it is also made up of other small gases like carbon dioxide, neon, and hydrogen.

You probably don't even realise it, but you are taking 18-30 breaths per minute, that's a lot of air you're taking in, right?

It is very important that the air that we breathe in is clean air, because clean air keeps us healthy!

There are some things in nature that fill our air with solid and liquid particles, that can cause our air to become dirty. Natural causes of this are:

#### **Volcano eruptions**

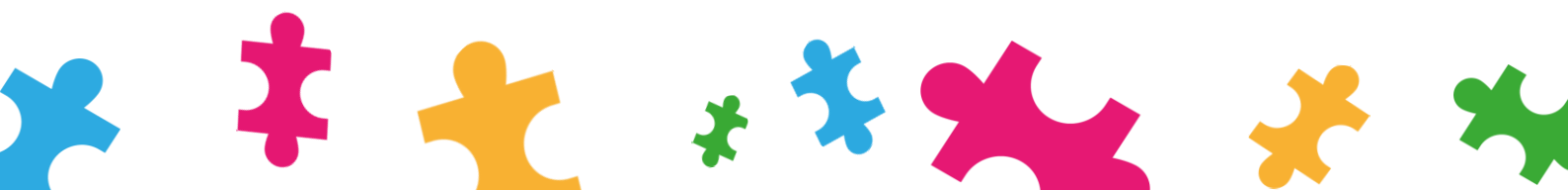


#### **Forest fires**



We can't prevent these natural events from happening, but in fact, most of the dirty air that we breathe in now is not caused by volcanoes or forest fires, it is caused by human activities! Humans have been putting many pollutants into the air, which affects our health, and other life forms on earth.

Follow the story below to find out about a term called air pollution, the damage it causes, and how we can work together to stop it!



## TASKS

There are two planets in a faraway galaxy called Aurora and Shadow, and they are very close to one another. They are both very like earth: they have trees, plants, water, air, sun, and beautiful animals.

Aurora has been the most beautiful planet ever since its creation. There are many trees and flowers of all colours, and the people are happy there.

Sadly, the planet Shadow is not as beautiful as it used to be. The people, animals, and plants are suffering. The planet has become a dark place, and the people from Aurora do not like to visit anymore.

This is Rose from planet Aurora, and she is going to visit Shadow to find out what happened, and help save the day! Follow the WebQuest below to find out what happened to Shadow, and then you're going to create a poster that will represent your ideal "Green World".

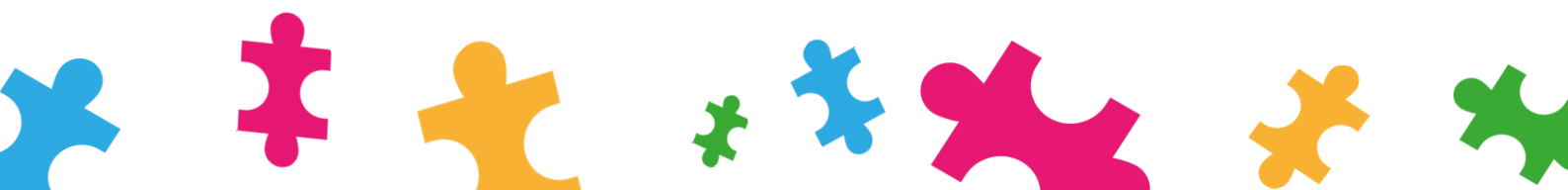
I need your  
help!



**Aurora**



**Shadow**



## PROCESS

### Step 1: Air pollution in the city

Rose arrives at planet Shadow, and the first thing that she notices is the air difference. As she continues to breathe in, she realises that the air is not clean.

“The air here is polluted”, Rose shouts.

- Click on the link to find out what air pollution is: <https://www.zdf.de/kinder/logo/was-bedeutet-schlechte-luft-100.html>

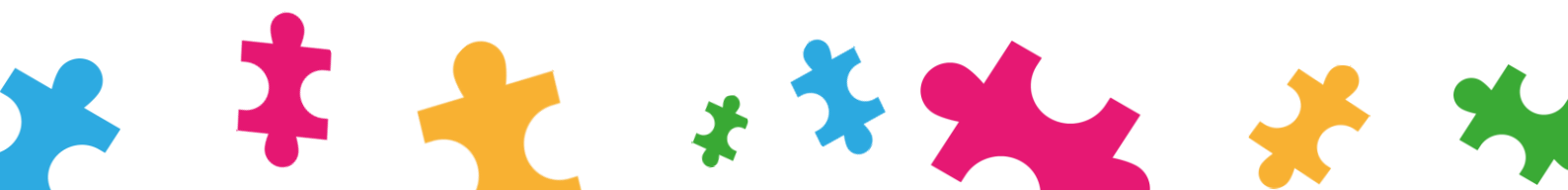
Rose decides to figure out what is causing this air pollution. “Maybe they have a lot of volcanoes and forest fires”, she thinks to herself. She begins to explore the capital city, and she meets a friendly local called Oliver. Oliver tells her that there are no volcanoes on the planet, and that there are barely ever any forest fires. “That’s strange”, she says, “so what is causing all of this dirty air?”. Oliver directs her to the part of the city where the factories are. There are huge clouds of smoke coming from the top of the factories, and Rose is shocked. She then looks around, and sees smoke coming from cars, and other vehicles driving down the road. “This must be causing the dirty air”. Oliver tells her that they burn **fossil fuels** in factories for electricity, and they are burned in cars and other vehicles, so people can drive where they need to go. “What are fossil fuels?”, Rose asks. Let’s find out!

- Click here to find out about what fossil fuels are – [https://youtu.be/laJCYi\\_wLCY](https://youtu.be/laJCYi_wLCY)
- Click here to see how electricity is produced with fossil fuels - [https://youtu.be/N5WWw0u\\_dNE](https://youtu.be/N5WWw0u_dNE)

### Step 2: I can’t breathe

Rose has figured out that burning these fossil fuels has been causing polluted air. She is determined to help this planet, so she continues on her journey to find out more about the air pollution here and the effects that it is causing. She continues walking in the city, and she notices that many of the people are coughing, and seem quite ill. “That’s strange”, she thinks to herself. “Why is everyone so sick?”. She approaches the group of people, and asks them are they okay. “It’s the air”, they say. Let’s find out how this polluted air causes health issues among humans.

- Click here to discover the effects of polluted air on health - <https://youtu.be/QYkxW446giA>
- Click here to find out what smog is - <https://www.oekoleo.de/lexikon/details/smog/>
- Click here to watch a video that shows what smog looks like - <https://youtu.be/BPzzIBVtXH0>



Rose continues walking with Oliver by her side, and it suddenly begins to rain. Oliver tells her that the rain has changed there over the last few years, and that it is damaging plants, buildings, and fish. He tells her that this is called “acid rain”. Let’s find out more about it.

- Click on this link that will explain more about what acid rain is and its effects: <https://youtu.be/wtO-xZTfJ04>

Everything is becoming clearer to Rose. She is now aware that burning these fossil fuels in factories and vehicles releases acidic gases into the atmosphere, and these gases eventually mix with rainwater to form acid rain. She turns to Oliver and says “Burning these fossil fuels is causing too much damage. Let me help reduce your air pollution so that your planet Shadow can thrive again”. Rose asks Oliver to follow her to Aurora, where she will show him how their planet functions.

### Step 3: Solution to Pollution

Oliver follows Rose to Aurora, and he is amazed at what he sees. There are many trees and plants that are healthier than ever, healthy animals, and healthy people. Rose tells Oliver that they do not burn fossil fuels on Aurora. He asks how they produce energy, and Rose tells him that they use renewable energy from sources like sunlight, wind, waves, rain, and heat. Let’s find out about renewable energy!

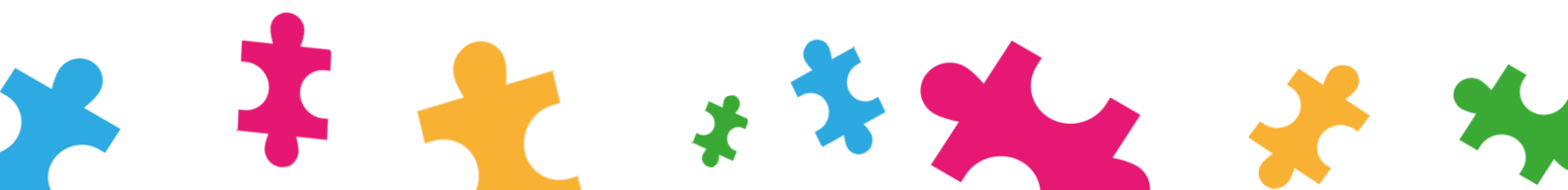


- Click on this link to find out about renewable energy sources - [https://youtu.be/Giek094C\\_l4](https://youtu.be/Giek094C_l4)

“Installing solar panels, wind turbines, and other renewable energy sources to generate our heat and electricity will help us to reduce our air pollution?”, asks Oliver. “Exactly!”, says Rose. “These renewable sources do not release harmful gases into the atmosphere, unlike burning fossil fuels for energy”.

“What about vehicles?” asks Oliver. “Do you not need to burn fossil fuels for transport?”.

Rose explains that they have electric vehicles there! Let’s find out how they work.



- Click on the link to find out about electric cars - <https://youtu.be/PutDrjLLmw>

Oliver is relieved to know what is causing all of the air pollution on his planet Shadow: Burning fossil fuels. He can now tell everyone on Shadow that he has discovered the solution! He heads back to his planet, and recruits all of the locals to help restructure the planet so it thrives again. The locals begin making and installing wind turbines and solar panels to produce heat and electricity for homes, and they start using electronic cars, trucks and other vehicles. In the next few years, the health of the people, the plants, and the animals improve significantly because of the fresh, clean air.

Here on planet earth, fossil fuels are burned every day to provide heat and electricity for houses, to run our vehicles, and for manufacturing. Luckily, most parts of the world have started to use energy from renewable sources. In Germany, 35% percent of the electricity generated is from renewable sources. Making the switch from non-renewable energy sources like coal, oil, and natural gas, to renewable energy sources, can help prevent air pollution and other environmental effects like climate change.

You might be thinking, what can you do to help to reduce air pollution while fossil fuels are still being burned for energy? Until we make the full switch to using only renewable energy, we can make small changes in our daily lives that can help reduce air pollution.

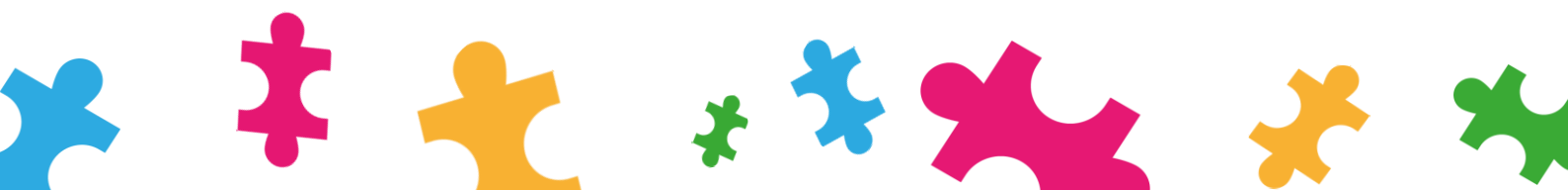
- Click on the link and watch the video to find out how to help reduce air pollution - <https://www.careelite.de/luftverschmutzung-was-tun/>

#### Step 4: Activity Time

Now it's time to work in groups of 3-4 people, and make a poster on the topic "A Green World". Design an eye-catching poster showing a beautiful green world, with lots of different plants and animals, and include pictures of renewable energy sources that can help keep the world green and the air healthy.

- Click on the link to find out how to make a poster on Canva – [https://youtu.be/9MZtm8n\\_zGM](https://youtu.be/9MZtm8n_zGM)

## EVALUATION



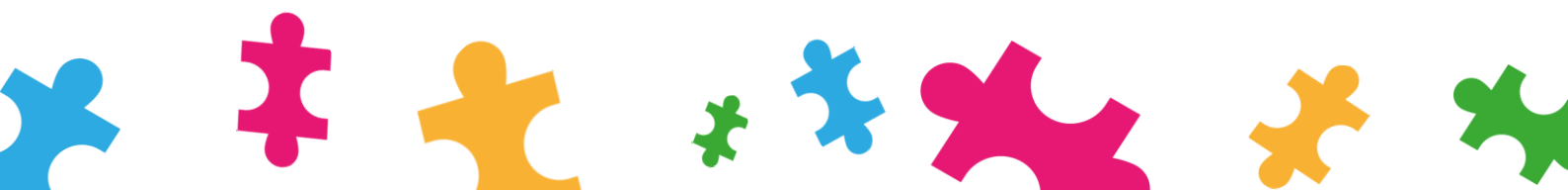


Topic	Knowledge	Skills	Attitudes
<b>We Are What We Breathe</b>  (Introductory Level)	Basic knowledge of 'air pollution'	Define 'air pollution'	Willingness to learn as part of a team.
	Basic knowledge of carbon emissions and what causes air pollution.	Give examples of what factors contribute to air pollution.	Openness to collaborate.
	Basic knowledge of how air pollution affects different cities and communities around the world	Give examples of cities and communities that are affected by air pollution.	Awareness of air pollution and how it impacts people around the world.
	Basic knowledge of the impact of air pollution on health.	Describe how air pollution can impact on health.	Appreciation of what humans can do to address air pollution.
	Basic knowledge of what is being done to address air pollution.	Create a campaign, as part of a team, to raise awareness about air pollution.	Willingness to raise awareness about air pollution.

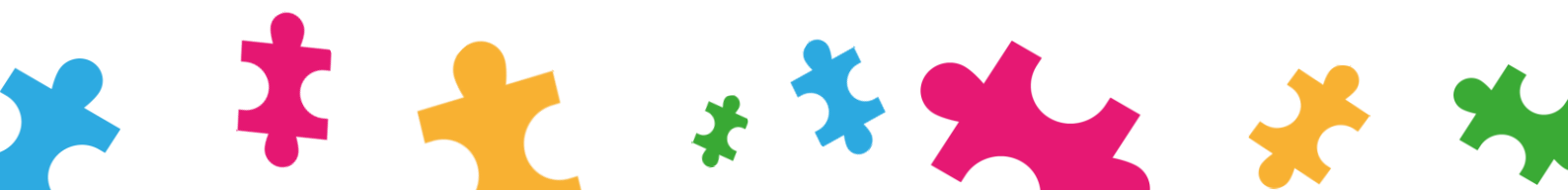
### Self-reflection questions

1. What did you learn today about air pollution?
2. Have you ever seen and wind turbines in Germany?
3. Do you know anyone that owns an electric car?
4. How often do you use a bike to travel to places?
5. Do you turn the light off when you leave a room in the house?

## CONCLUSION



Congratulations for completing the WebQuest “We Are What We Breathe”. You have learned today about what air pollution is, the causes and effects of it, and how we can help to reduce it. We cannot control nature, so the air pollution from volcanoes, forest fires, and other natural events is inevitable, but by taking small actions in our daily lives and supporting the switch to renewable energy sources, we can help stop the air pollution that humans are responsible for.





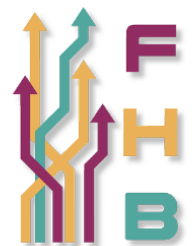


# GRETA

**Challenge-based Learning in Primary Schools for Climate Change Awareness**



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