

01

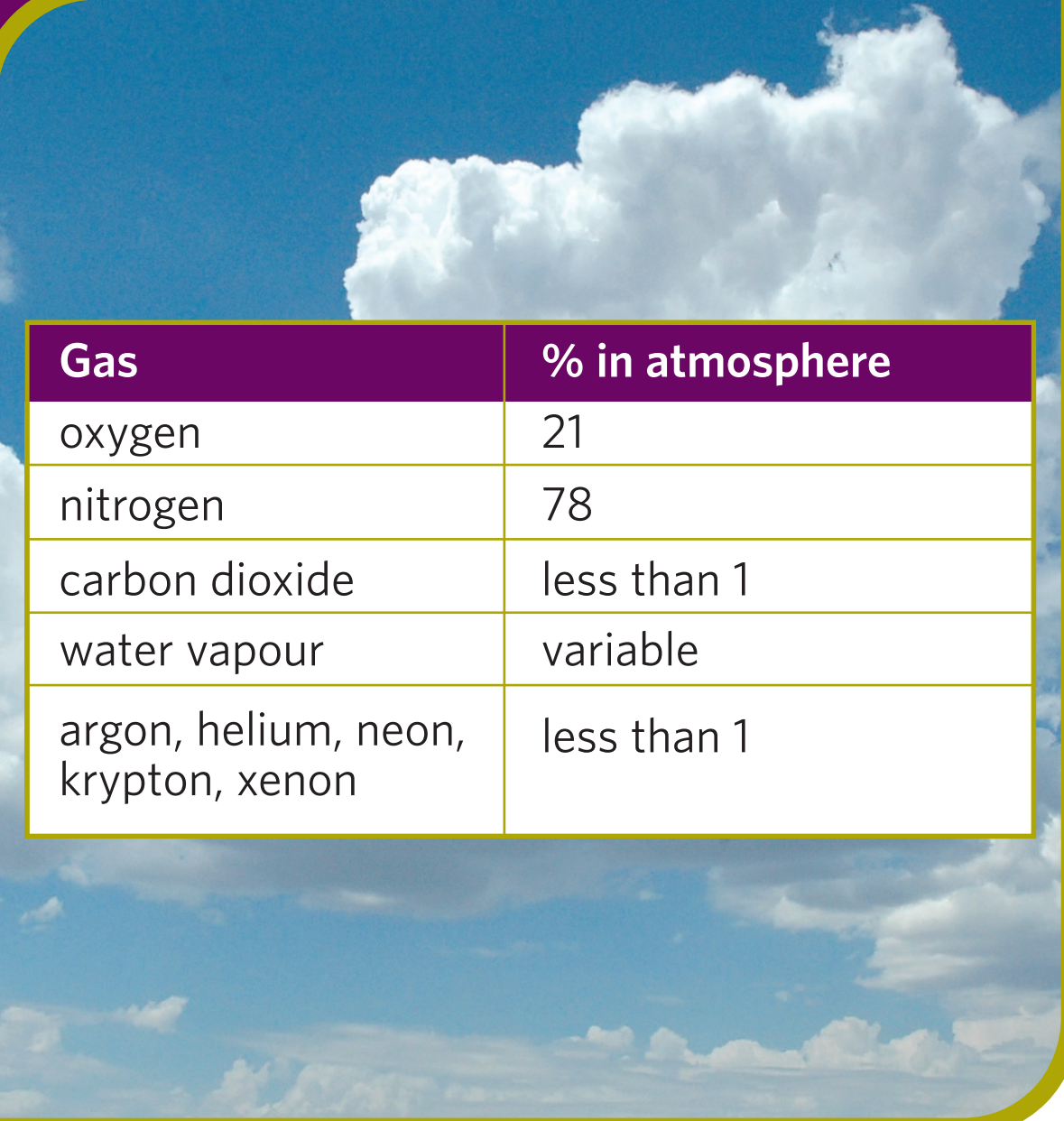


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Air quality

What are you breathing in?

02



Gas	% in atmosphere
oxygen	21
nitrogen	78
carbon dioxide	less than 1
water vapour	variable
argon, helium, neon, krypton, xenon	less than 1

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Air quality

Gases in the atmosphere

03

Nitrogen oxides (NO_x)

Sulphur dioxide (SO_2)

Carbon monoxide (CO)

Ozone (O_3)

Particulates (PM_{10})

Volatile Organic Compounds (VOCs)

Benzene (C_6H_6)

Lead (Pb)

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**What else is in
the air?**

04

Gases in the atmosphere from natural sources

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Air quality

Gas	Source	Amount per year throughout the world / millions of tonnes
carbon monoxide, CO	forest fires, biological processes	2000
sulfur dioxide, SO ₂	volcanoes, biological processes in sea and soils	150
methane, CH ₄	wetlands, termites, the oceans	200
nitrogen oxides, NO _x	bacteria in oceans and soils, lightning flashes	65

05

Gases in the atmosphere from human activities

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Air quality

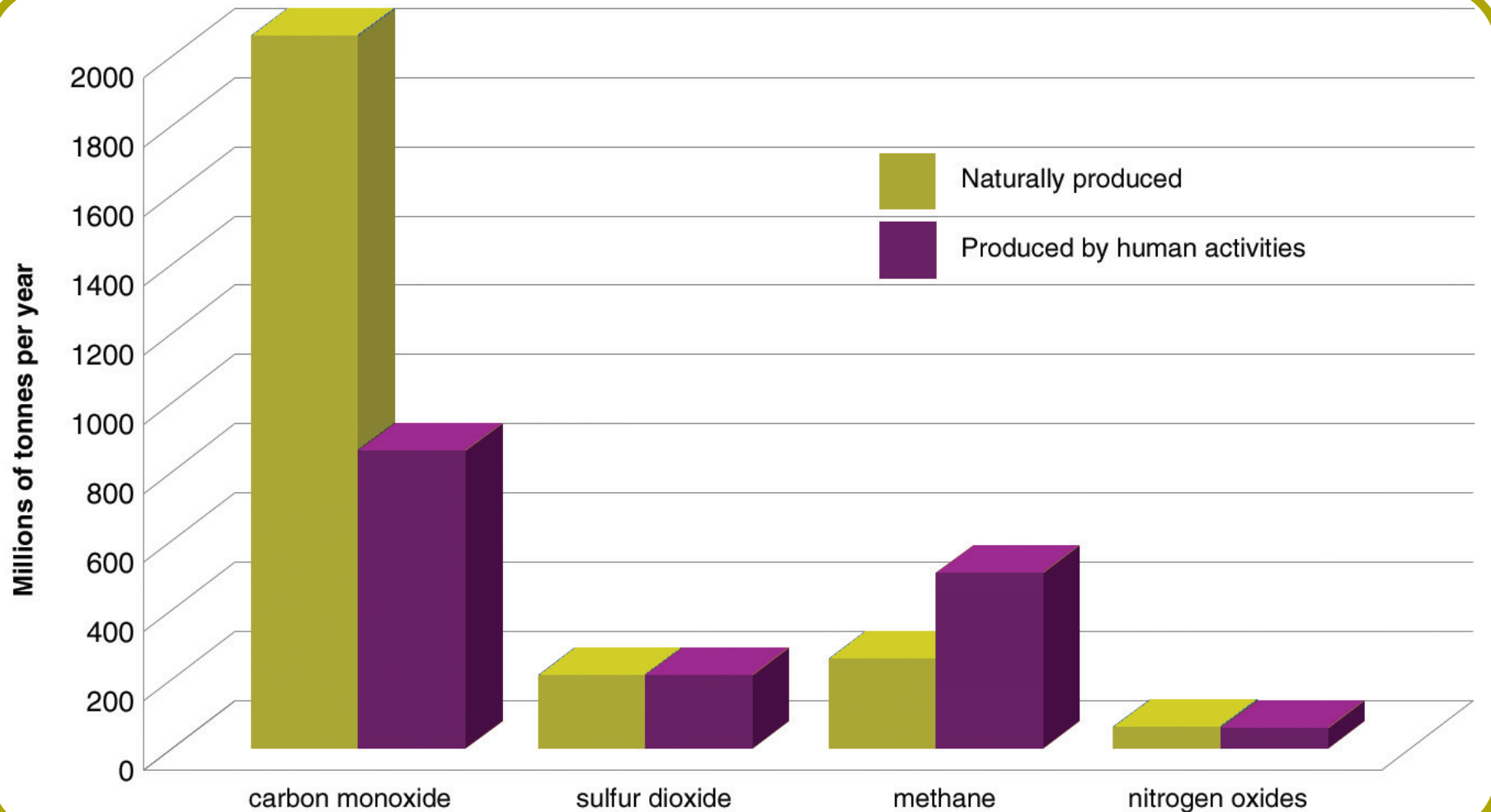
Gas	Source	Amount per year throughout the world / millions of tonnes
carbon monoxide, CO	burning fossil fuels and biomass	800
sulfur dioxide, SO ₂	burning coal and oil, smelting sulfide ores	150
methane, CH ₄	rice fields, cattle, landfill sites, producing fossil fuels	450
nitrogen oxides, NO _x	burning fossil fuels and biomass, use of nitrogen fertilisers, manufacture of nylon and nitric acid	60

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Air quality

Gases in the atmosphere

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07

Air Quality Index (AQI)

is a numerical index for air pollution from 1 to 10.

Air Quality Index measures the levels of:

- ground-level ozone
- particles, PM₁₀
- carbon monoxide
- sulfur dioxide
- nitrogen dioxide.

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Air quality

What is AQI?

08

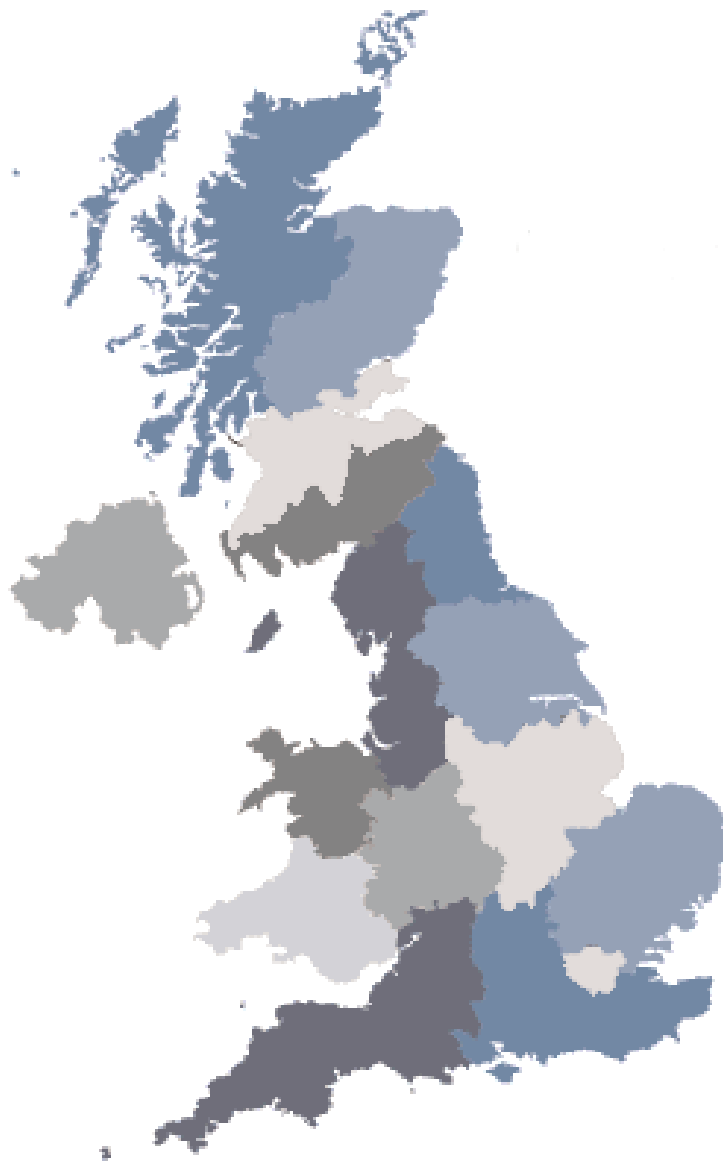
AQI index value	Air quality	Pollution band
1, 2 or 3	Good	Low
4, 5 or 6	Medium	Moderate
7, 8 or 9	Bad	High
10	Very Bad	Very High

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Air quality

Air Quality Index

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<http://www.airquality.co.uk>

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Air quality

What effect can air quality have on health?

Is the air quality in your area likely to be good or bad?

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- Go to:
<http://www.airquality.co.uk/archive/index.php>
- Look at the air pollution summary for your area by clicking on the map
- Use the information to complete table 1 on Activity sheet - **Forecasting air pollution**

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Air quality

**Forecasting
air quality**

Forecasting air quality

Air quality

Air pollution summary for (place)	Pollution currently AQI value (1-10) and Pollution Band (Low, Medium or High)	Pollution forecast AQI value (1-10) and Pollution Band (Low, Medium or High)
In towns and cities near busy roads		
Elsewhere in towns and cities		
Rural areas		

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To find the levels of different pollutants in your area

- Go to:
<http://www.airquality.co.uk/archive/index.php>
- Click on 'current levels'
- Choose a site
- Use the information to complete table 2 on 'Activity sheet - Forecasting air pollution'

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Air quality

Air pollutants

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Air pollutants

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Air quality

Pollutants data		Date
Area (rural / urban)		
Weather		
	Level (1-10)	Band (Low, Medium, High or Very high)
Carbon monoxide, CO		
Nitrogen dioxide, NO ₂		
Sulfur dioxide, SO ₂		
Particulates, PM ₁₀		
Ozone, O ₃		

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Comparing air pollution

Air quality

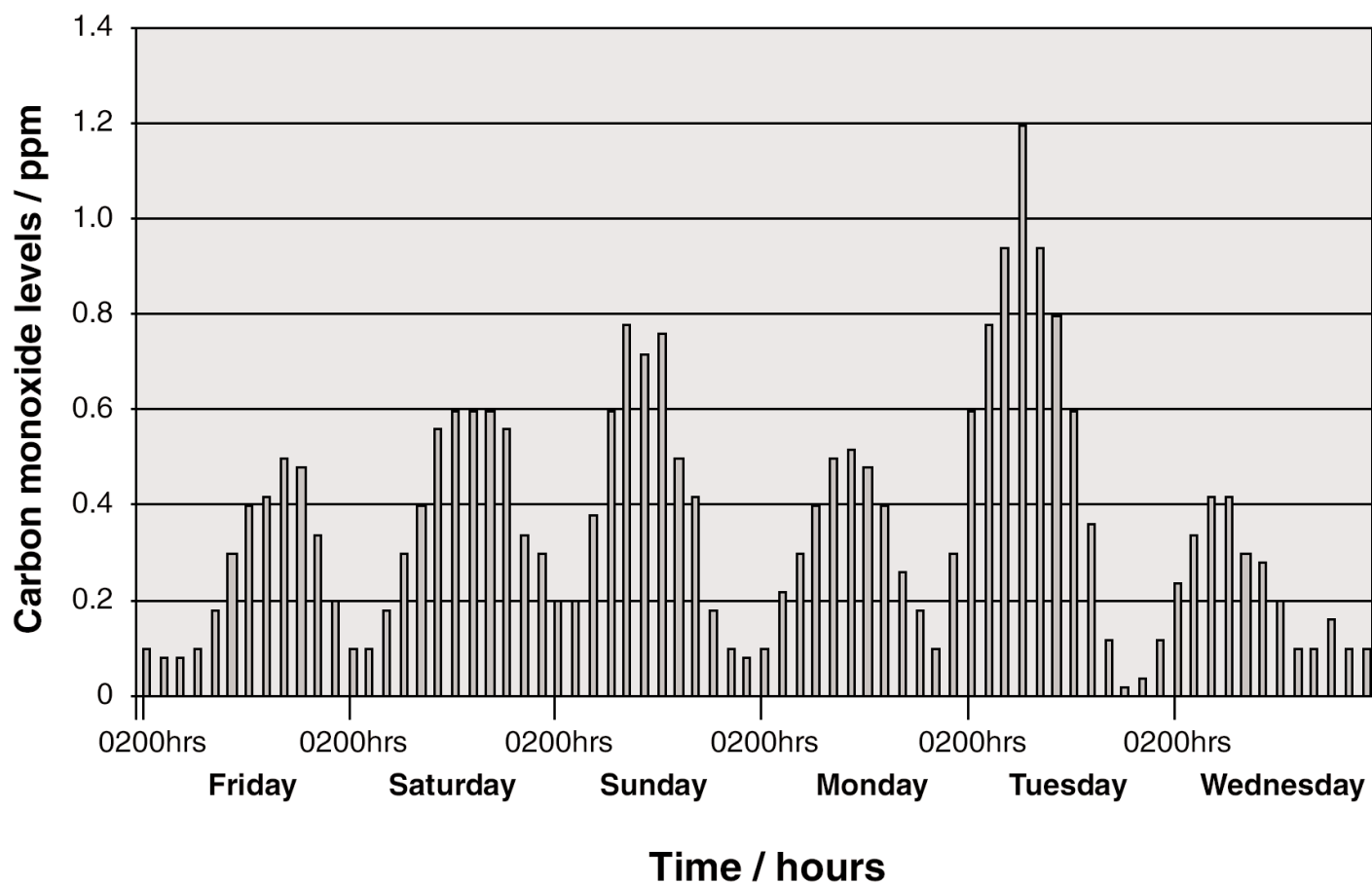
Area/Name (rural/urban)	Carbon monoxide (CO)	Nitrogen dioxide (NO ₂)	Sulfur dioxide (SO ₂)	Particulates (PM ₁₀)	Ozone (O ₃)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

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Air quality Interpreting data

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Carbon monoxide levels



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Go to:

http://www.naei.org.uk/mapping/mapping_2005.php

Click on 'current levels'

Here you can choose maps to show:

- benzene
- carbon monoxide
- lead
- methane
- nitrogen oxides as NO₂
- PM₁₀(particulates < 10 µm)
- sulfur dioxide

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Air quality

Interpreting maps

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- Which areas show the highest concentrations of the pollutant?
Are these rural or urban areas?
- Which areas show the lowest concentrations of the pollutant?
Are these rural or urban areas?
- What is the level of pollution in your area?
Low / moderate / high / very high
- What is the air quality like in your area?
Good / medium / bad / very bad
- What is the Air Quality Index for your area?
1, 2, 3 (green) 4, 5, 6 (yellow)
7, 8, 9 (orange) 10 (red)

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Air quality

Interpreting maps