



Urban
Releaf



What Are We Breathing?

A guide for school pupils
about the air at their
school gates



Funded by
the European Union



UK Research
and Innovation

Dundee
City Council
CHANGING
FOR THE FUTURE



University
of Dundee



sustainableDUNDEE



What is Urban ReLeaf Dundee?

1.

Our school is part of a special project called Urban ReLeaf Dundee. We have a real air quality sensor installed near our school gates that measures the tiny particles in the air every 2 minutes!



This booklet will help you understand:

- ✿ What those particles are
- ✿ Why idling cars at the school gates are a problem
- ✿ What YOU can do to help make the air cleaner for everyone.

You are going to become Air Quality Explorers!

The best part? You can see how your school's air is doing **RIGHT NOW!**

Our sensor sends live readings to a map on the internet every 2 minutes.

Ask a grown-up to scan the QR code or visit www2.purpleair.com to see the live air quality at your school gates!



Scan me!
See our school's air quality LIVE!

What Is in the Air Around Us?

2.

The air around us is mostly made up of good stuff. But there are also some baddies that sneak in, especially from car engines:

The Goodies

Things we need!

Nitrogen (78% of the air): makes up most of the air around us

Oxygen (21%): the stuff we breathe to stay alive!

Carbon Dioxide (tiny amount): plants use this to grow

Water vapour: tiny water drops floating in the air



The Baddies

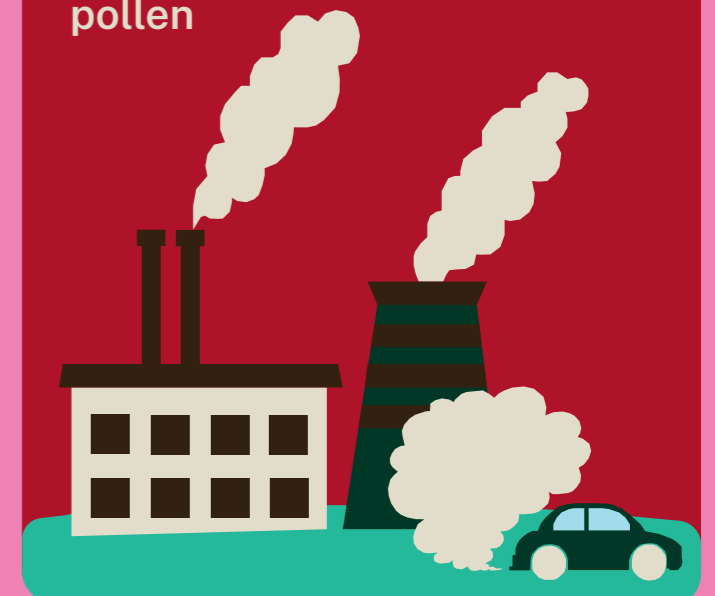
Pollutants that can hurt us!

PM2.5: Teeny tiny dust particles from car exhausts. So small you can't see them!

Nitrogen Dioxide (NO₂): A harmful gas that comes out of car exhausts

Carbon Monoxide (CO): A poisonous gas you can't see or smell

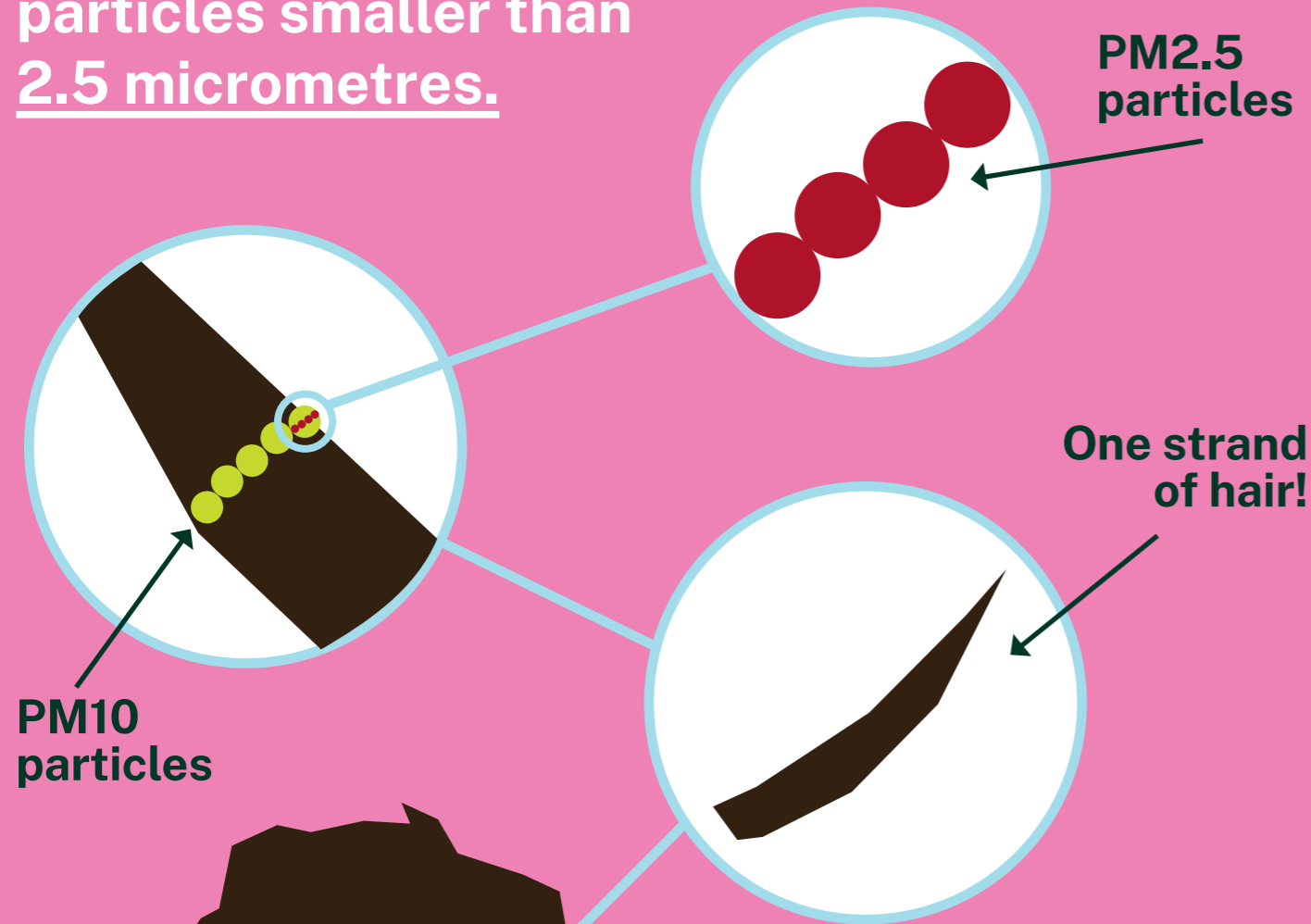
PM10: Slightly bigger particles like dust, soot, and pollen



How Small Is PM2.5?

3.

PM2.5 means particles smaller than 2.5 micrometres.



PM10 particles

PM2.5 particles

One strand of hair!

These particles are so small that 28 of them could sit side by side across ONE of your hairs!

Go on, look at one of your hairs right now!

Why Idling Cars are a Big Problem

4.

Idling is when a car has its engine running but isn't going anywhere. This happens A LOT at school drop-off and pick-up times.

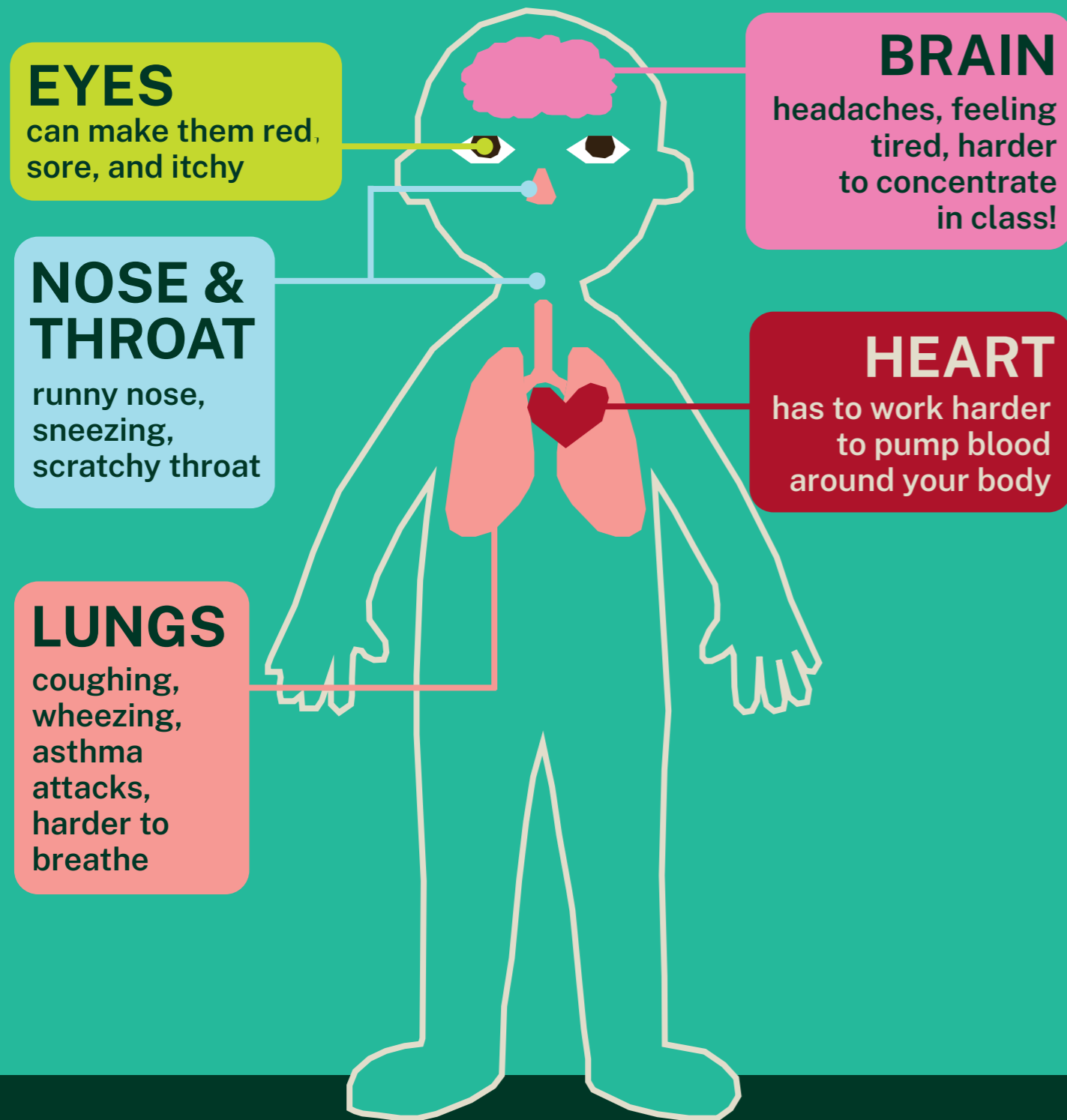
An idling engine can produce enough exhaust to fill 150 balloons every minute!

That's a LOT of pollution going right where you walk into school!

It is against the law to leave your engine idling unnecessarily in the UK! (Road Vehicle Regulations 1986)

What Pollution Does to Your Body

5.



Children are especially at risk because your lungs are still growing, you breathe **FASTER** than adults, and you're shorter so you're **CLOSER** to the exhaust pipes!

Myth Busters!

6.

MYTH

BUSTED!

"I need to keep the engine on to keep warm"

REALITY

Wear a jumper! Modern cars heat up quickly anyway. Turning it off is better for everyone's health.

MYTH

BUSTED!

"My car doesn't produce much pollution"

REALITY

Even a brand new car produces harmful PM2.5 and NO2 when idling. There is no safe level of exhaust fumes for children.

MYTH

BUSTED!

"It uses more fuel to restart the engine"

REALITY

If you're stopped for more than 10 seconds, turning off saves **MORE** fuel than restarting.

MYTH

BUSTED!

"The pollution just blows away"

REALITY

On calm mornings (like most school drop-off times), the fumes hang around at child-breathing height for ages.

MYTH

BUSTED!

"Only old cars are the problem"

REALITY

All petrol and diesel cars produce pollution. Even newer cars produce PM2.5 from brake dust and tyre wear.

Test Your Knowledge!

7.

<u>Statement</u>	<u>True</u>	<u>False</u>
1. You can always see air pollution with your eyes		
2. Walking to school is better for the air than driving		
3. An idling car can fill 150 balloons with exhaust every minute		
4. Children breathe slower than adults		
5. PM2.5 particles are bigger than a grain of sand		
6. It is against the law to idle your engine in the UK		
7. Trees help clean the air		
8. Air pollution only affects old people		
9. Turning off your engine for 10 seconds saves more fuel than restarting		
10. The air inside an idling car is always cleaner than outside		

(Answers upside down on the back page!)

Air Quality Word Search

8.

Find these 11 words hidden in the grid below. Words can go across, down, or diagonally!

POLLUTION

LUNGS

WALKING

IDLING

OXYGEN

PARTICLES

CYCLING

SENSOR

EXHAUST

BREATHE

HEALTH

S E N S O R M K N I L K H T R
W P H Y O C E G O Q D R T X P
G O S O U N I K G I T L P T N
K L J X B G Q J G D O T I P T
B L C Y D X Q R X O I O J N Q
H U O G W S C K Q I X X H I G
P T K E P A R T I C L E S M C
O I I N B B R G H E L J P T Y
X O D L K R N W K C U L P E C
Q N H W B E N A H M N P J X L
I U W V U A A L E W G N O H I
E C Y Z V T U K A B S K I A N
Q Q X O B H J I L Y Y Z R U G
C O Q K A E Q N T R U N Z S E
I B P N E G P G H S Y D F T T

Take Action! Spot the Pollution Sources!

9.

I found _____ sources of pollution!

The cleanest ways to get to school in the picture are:



What Can YOU Do?

10.



Walk or scoot



Cycle to school



Tell your family



Ask for engines OFF



Be an Air Champion!



MY CLEAN AIR PLEDGE



I, _____, promise to help keep
the air clean at my school.

I will try to:

- Walk, scoot, or cycle to school when I can
- Ask my grown-up to turn off the engine at the school gates
- Tell one person what I learned about air pollution

Signed: _____

Date: _____

Urban ReLeaf Dundee | Air Quality Explorer
Scan the QR code in the leaflet to see our school's air quality LIVE!
www2.purpleair.com



Want to see our school's air quality
RIGHT NOW? Scan this code or
visit the website with a grown-up!

<https://linktr.ee/UrbanReleaf>

About Urban ReLeaf Dundee

Urban ReLeaf is a Horizon Europe funded citizen science project running across six European cities, including Dundee. The project is a collaboration between Dundee City Council and the University of Dundee, working with local communities to collect environmental data and support greener, healthier cities.

As part of the Dundee pilot, we are running an Air Quality Monitoring Campaign at local primary schools, focusing on vehicle emissions around school gates during drop off and pick up times. Using specialist sensors that measure real time pollution levels, the campaign aims to encourage behaviour change around engine idling and promote active travel to school.

Visit urbanreleaf.eu to find out more!

