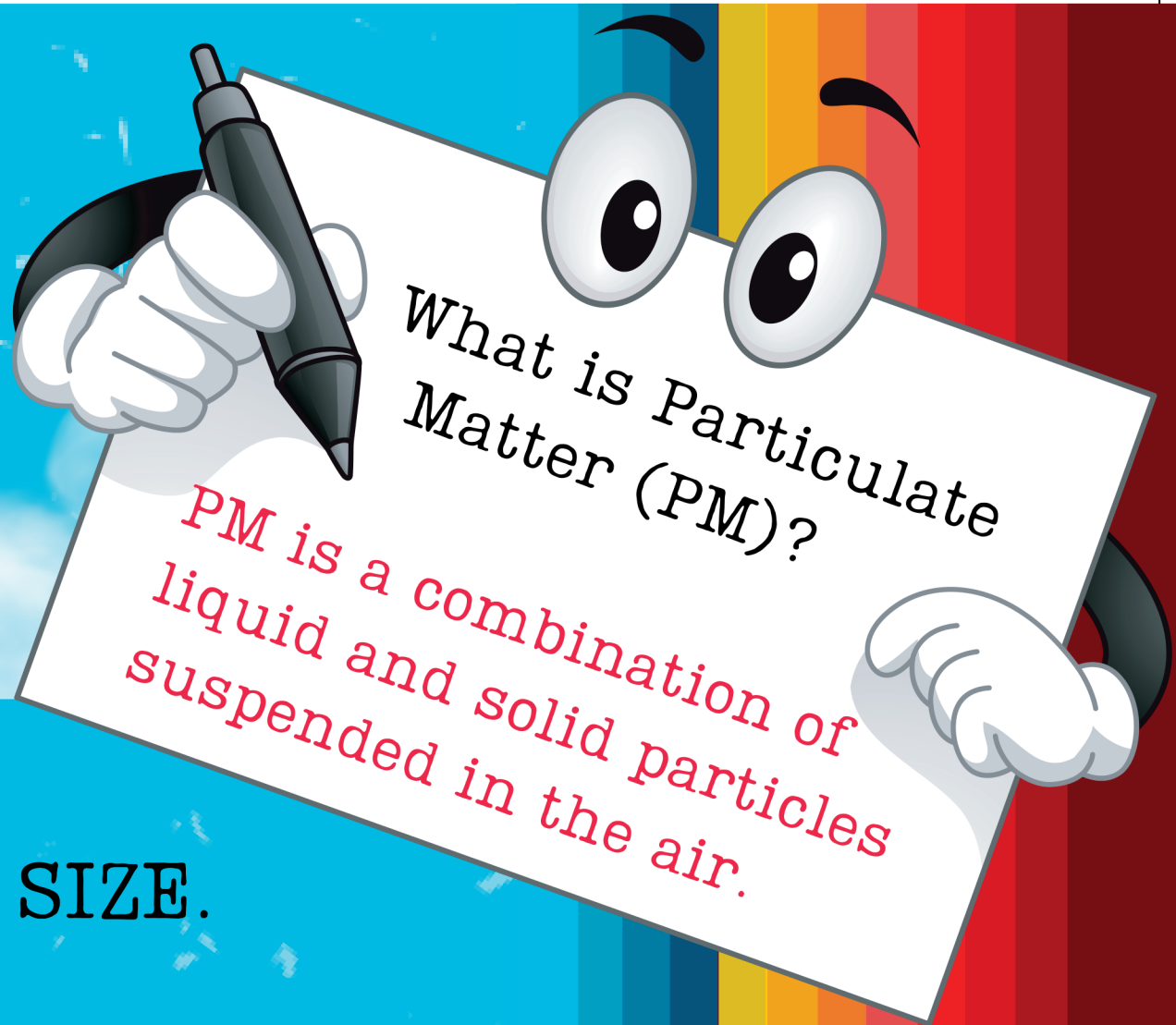# AIR QUALITY 101:

What is Particulate Matter (PM)?

PM is a combination of liquid and solid particles suspended in the air.

Particulate Matter is **classified** by its SIZE.

Scientists are interested in measuring particulate matter because it's one of the main contributors to air pollution.

The 3 categories of PM are organised from biggest to smallest.

PM10 (coarse particles):
Their diameter is smaller than 10 micrometers. Some examples of PM10:
- Construction dust
- pollen
- bacteria
- mould spores

PM2.5 (fine particles):
In New Brunswick, most PM2.5 comes from combustion – burning organic matter and metals. For example:
- wood smoke from wildfires and home heating (wood stoves)
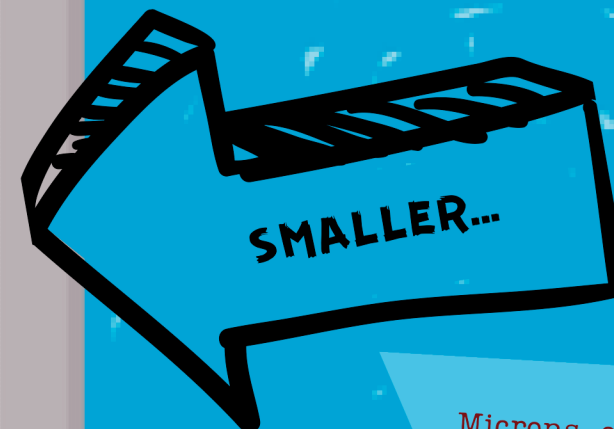- vehicle exhaust fumes.

Particles measuring less than 2.5 micrometers are called PM2.5. (Viruses like COVID-19 are PM2.5 too!)

PM0.1 (ultrafine particles):
These particles have a diameter smaller than 0.1 micrometer

PM2.5 and smaller form the majority of both indoor & outdoor air pollution.

WE'RE SMALL!

SMALLER...

Microns, or micrometers (represented as μm) are ONE THOUSAND times smaller than 1 mm!

THE SMALLEST!

All of these particles can cause harm,

but PM2.5 (and smaller >) are the worst!

Larger irritants
          like pollen PM10
can be coughed or sneezed out

(ACHOO!!!)

but your nose hairs

and upper airway mucous

          can't stop >PM2.5.

Due to their tiny size,

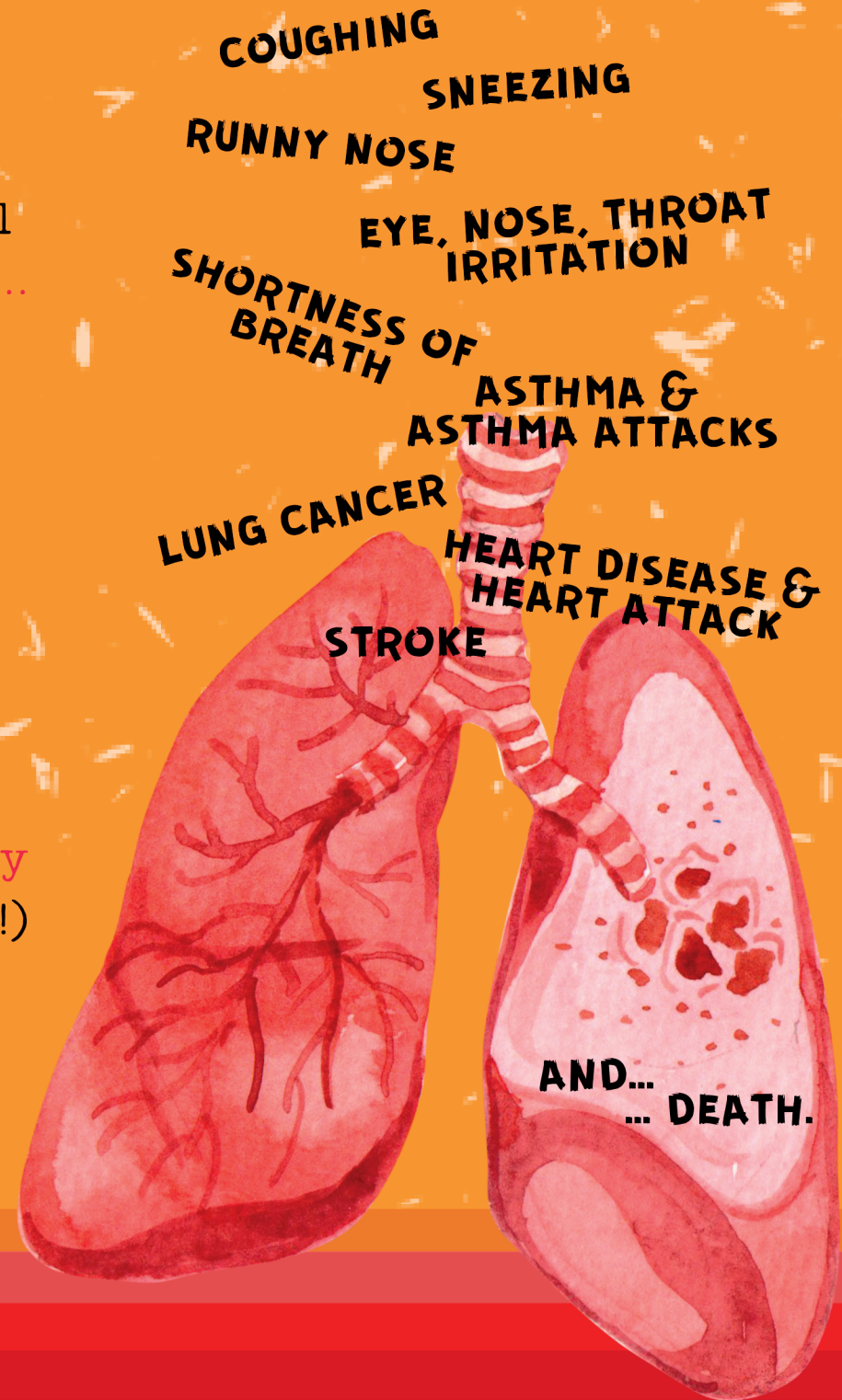particles in the PM2.5 category travel deep into the lungs...

... and the smaller bits don't stop there!

Some are able to move right through the lung walls and mix into blood in the circulatory system.

... From there the toxins can reach every part of the body (even the brain!)

COUGHING

SNEEZING

RUNNY NOSE

EYE, NOSE, THROAT IRRITATION

SHORTNESS OF BREATH

ASTHMA & ASTHMA ATTACKS

LUNG CANCER

HEART DISEASE & HEART ATTACK

STROKE

AND...

... DEATH.

SMALL PARTICLES CAN CAUSE

BIG PROBLEMS

Air quality changes with
THE WEATHER

Variables like temperature, humidity, and the speed and direction of the wind have an influence on air quality.

Very hot weather means more wildfires, which adds smoke and ash to the air

Rain can literally wash away pollutants and PM from the air

Wind is known to carry pollutants from neighbouring towns, provinces, and even other countries!

Cold weather and fog can trap pollution in locations situated in valleys. (We also burn more fuel for heat in the cold, which generates more PM!)

What are you breathing today?

Human Hair: diameter, 50–70 µm

Fine Beach Sand: 90 µm

PM10 (Pollen, Dust, Mould): <10 µm

PM2.5 (sulfur dioxide, nitrogen oxides, ammonia, black carbon, carcinogenic VOCs): <2.5 µm

LOW RISK	MEDIUM RISK	HIGH RISK	VERY HIGH

10	20	30	40	50	60	70	80	90	100	+

Use the display tablet to find the PM2.5 monitor nearest to you. You can pinch to zoom in/out, and tap on each icon to see more detailed information.

What does the number/colour tell you?

Hourly PM2.5 ovservations

PM2.5 (μg/m3)

Legend (top to bottom):
- 100+
- 100
- 90
- 80
- 70
- 60
- 50
- 40
- 30
- 20
- 10

Map labels: Legal, Bon Cor, Morinville, Onoway, Fort Sas tchewa, Bru eim, Lamont, St rt, ood ark, Elk Island National Park, Calmar, Leduc, Thorsby, Bea ont

Data point values: 51, 34, 47, 77, 54, 72, 82, 86, 75, 79, 74, 82, 42, 40, 84, 19, 94, 83, 76, 73, 75, 55, 50, 36

SNAPSHOT: JANUARY 11, 2023: A BLANKET OF FOG OVER

Edmonton, Alberta