7 Air pollution and smog – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)		
Air pollution			
Primary pollutants			
secondary pollutants			
Photochemical smog			
ozone			
thermal inversion			
Particulate matter			

Recall

You already know the air can become dirty:

- Cars, factories, and power stations release smoke and gases.
- Smog can hang over busy cities.
- Breathing polluted air is bad for your health.

This sheet lines up the main air pollutants. Each idea has a short worked example.

New ideas

1 Air pollution

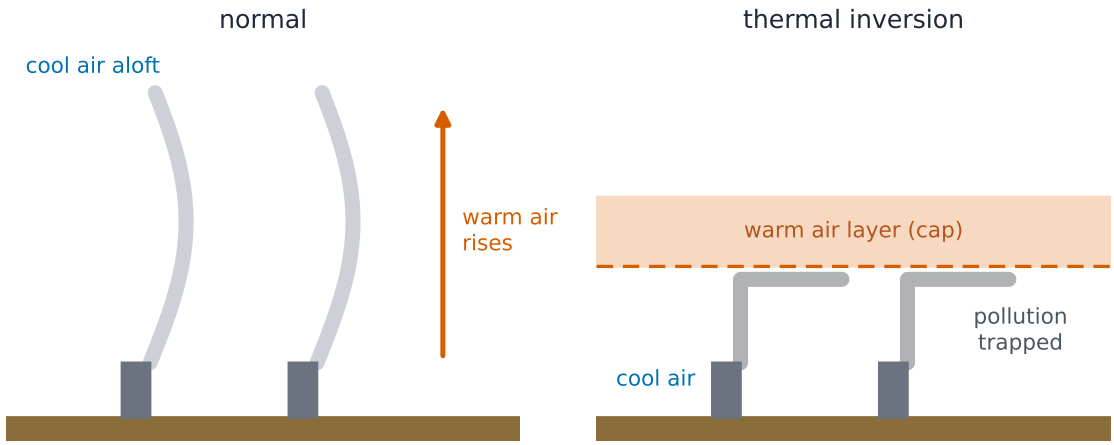
Air pollution is harmful substances in the atmosphere. **Primary pollutants** are released directly (carbon monoxide, nitrogen oxides, sulfur dioxide, particulates); **secondary pollutants** form later in the air from reactions.

2 Photochemical smog

Photochemical smog forms when **sunlight** drives reactions among car-exhaust gases, producing ground-level **ozone** . It is worst in sunny, car-heavy cities and harms the lungs.

3 Thermal inversion

Normally warm air rises and carries pollution away. In a **thermal inversion** , a layer of warm air sits **above** the cooler air, trapping pollutants near the ground and causing dangerous smog.



thermal inversion: warm air aloft traps cool polluted air near the surface

4 Particulate matter

Particulate matter is tiny solid or liquid particles that get deep into the lungs, causing breathing and heart problems and reducing visibility.

Watch out: ground-level ozone (in smog) is a **harmful pollutant**, but the ozone **layer** high in the atmosphere is **protective** – it shields us from the Sun's UV. Same molecule, opposite roles depending on where it is.

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Practice

Try these in order. The methods are all above.

2.1 State the difference between a primary and a secondary pollutant. [2]

2.2 State what is needed for photochemical smog to form. [2]

2.3 Explain how a thermal inversion makes air pollution worse. [2]

2.4 State one health effect of particulate matter. [1]

2.5 Explain why ground-level ozone is harmful but the ozone layer is helpful. [2]