

7 Air pollution and smog – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)
Air pollution	空气污染	_____
Primary pollutants	一次污染物	_____
secondary pollutants	二次污染物	_____
Photochemical smog	光化学烟雾	_____
ozone	臭氧	_____
thermal inversion	逆温	_____
Particulate matter	颗粒物	_____

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

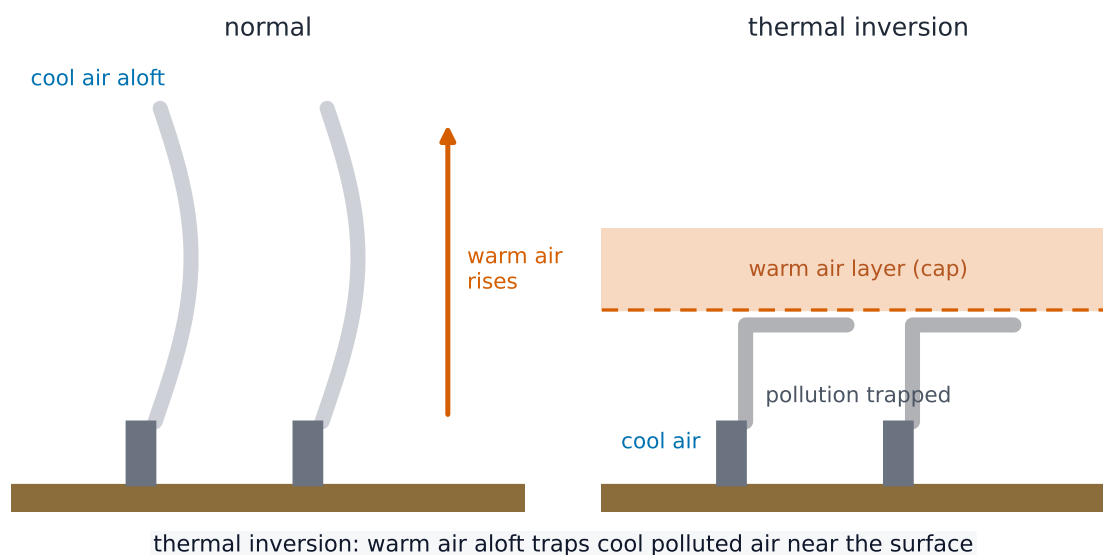
Air pollution 空气污染 is harmful substances in the atmosphere. **Primary pollutants** 一次污染物 are released directly (carbon monoxide, nitrogen oxides, sulfur dioxide, particulates); **secondary pollutants** 二次污染物 form later in the air from reactions.

■ 2 Photochemical smog

Photochemical smog 光化学烟雾 forms when **sunlight** drives reactions among car-exhaust gases, producing ground-level **ozone** 臭氧. 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** 逆温, a layer of warm air sits **above** the cooler air, trapping pollutants near the ground and causing dangerous smog.



■ 4 Particulate matter

Particulate matter 颗粒物 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.

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]
