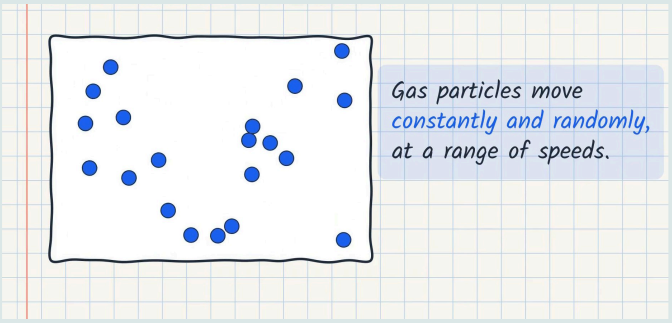
Gas pressure and temperature

Why do tyres look flatter on a frosty morning?

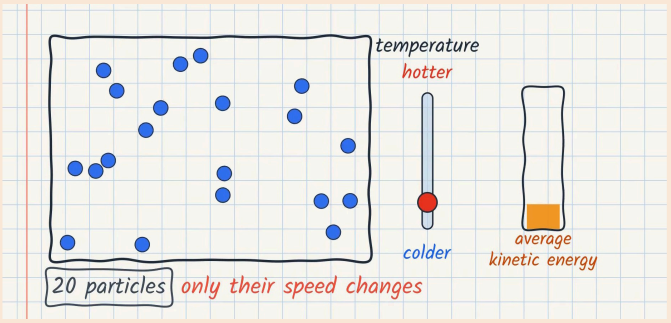
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Summary sheet

1 How gas particles move



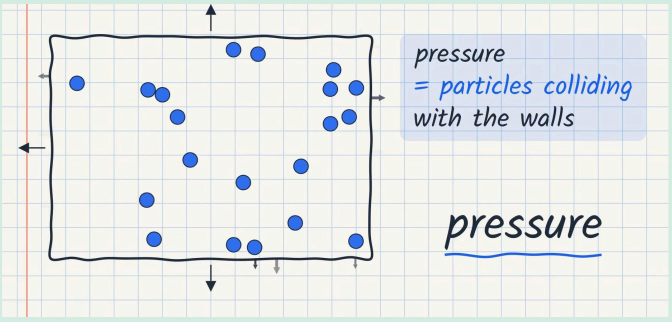
- Gas particles are **far apart**. They move in **straight lines** until they hit something, then bounce off in a new direction.
- Their motion is **constant and random**, at a range of speeds, so we talk about their **average** speed and energy.

2 What temperature means



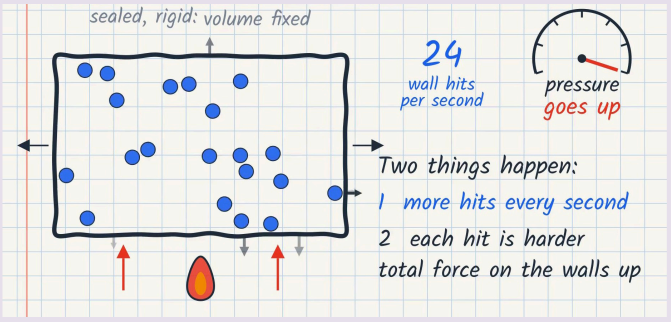
- The temperature of a gas is linked to the **average kinetic energy** of its particles: hotter gas, faster particles.
- Heating doesn't make particles bigger, and it doesn't add particles. **Only their speed changes.**

3 Where pressure comes from



- Each time a particle hits a wall it pushes on it. Billions of hits every second add up to a steady force.
- Gas **pressure** comes from particles **colliding with the walls** of the container.

4 Temperature and pressure



- At **constant volume**, heating makes particles faster, so they hit the walls **more often (per second)** and **harder**: the pressure rises.
- Cooling does the opposite, so the pressure falls. That's why tyres look flatter on a frosty morning.

Exam tip

Gas-pressure answer? Always mention the particles: collisions with the walls of the container, more often (per second), with more force.

Check yourself

- 1 What happens to the average speed of gas particles when the temperature falls?
- 2 Why do aerosol cans say "do not heat"?

Answers: 1. It decreases. 2. Heating makes the particles hit the can's walls more often and harder, so the pressure rises and the can could burst.