Datum:
Klasse:

The molar volume V_m

☞ *What happens if you fill 18 g (= 18 mL) of water into a balloon and heat it?*

In gases the particles are very far away from each other, so the same number of particles needs more room.
Gases are difficult to weigh with a scale. It is easier to measure the volume of a gas.
Avogadro said that **1 mole of particles of any gas has a volume of 22.4 L** at 0℃ and normal pressure. This is called **molar volume V_m**.

V_m (gas) = 22.4 L

☞ *Can you imagine what happens if you heat this volume of a gas to 20℃?*

At 20℃ one mole of any gas has a volume of 24L (at normal pressure).

☞ *Exercises*

1. How many moles of carbon dioxide gas are there in a volume of 2.24L?
2. How many moles of oxygen gas are there in a volume of 2.24L?
3. Some time ago zeppelines were filled with hydrogen gas. A small zeppelin has a volume of 44800 L.
   a) How many moles of hydrogen gas fit into it?
   b) How much does this volume of gas weigh?