

IELTS Sentence Completion Practice

Fill in the gaps with **NO MORE THAN TWO WORDS**

How atoms were discovered

Hundreds of years ago in 1785 Dutch scientist Jan Ingenhousz was studying a strange phenomenon that he couldn't quite make sense of. Minute particles of coal dust were darting about on the surface of some alcohol in his lab.

About 50 years later, in 1827, the Scottish botanist Robert Brown described something curiously similar. He had his microscope trained on some pollen grains. Brown noticed that some of the grains released tiny particles – which would then move away from the pollen grain in a random jittery dance.

At first, Brown wondered if the particles were really some sort of unknown organism. He repeated the experiment with other substances like rock dust, which he knew wasn't alive, and saw the same strange motion again.

It would take almost another century for science to offer an explanation. Einstein came along and developed a mathematical formula that would predict this very particular type of movement – by then called Brownian motion, after Robert Brown.

Einstein's theory was that that the particles from the pollen grains were being moved around because they were constantly crashing into millions of tinier molecules of water – molecules that were made of atoms.

By 1908, observations backed with calculations had confirmed that atoms were real. Within about a decade, physicists would be able to go further. By pulling apart individual atoms they began to get a sense of their internal structure.

It might come as a surprise that atoms can be broken down – particularly since the very name atom derives from a Greek term "atomos", which means "indivisible". But physicists now know that atoms are not solid little balls. It's better to think of them as tiny electrical, "planetary" systems. They're typically made up of three main parts: protons, neutrons and electrons. Think of the protons and neutrons as together forming a "sun", or nucleus, at the centre of the system. The electrons orbit this nucleus, like planets.

1. The type of random jittery movement of tiny particles is called
2. Einstein explained the phenomenon of particles' strange motion by the fact that they were collapsing with
3. Nowadays, scientists consider atoms' structures similar to tiny
4. are parts that are circling around the nucleus.