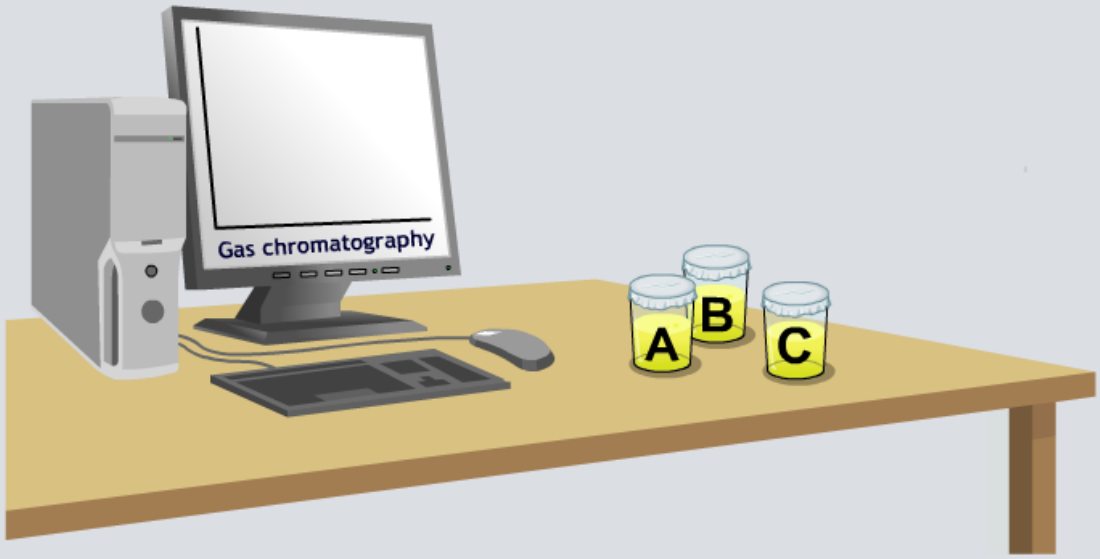
Gas Chromatography



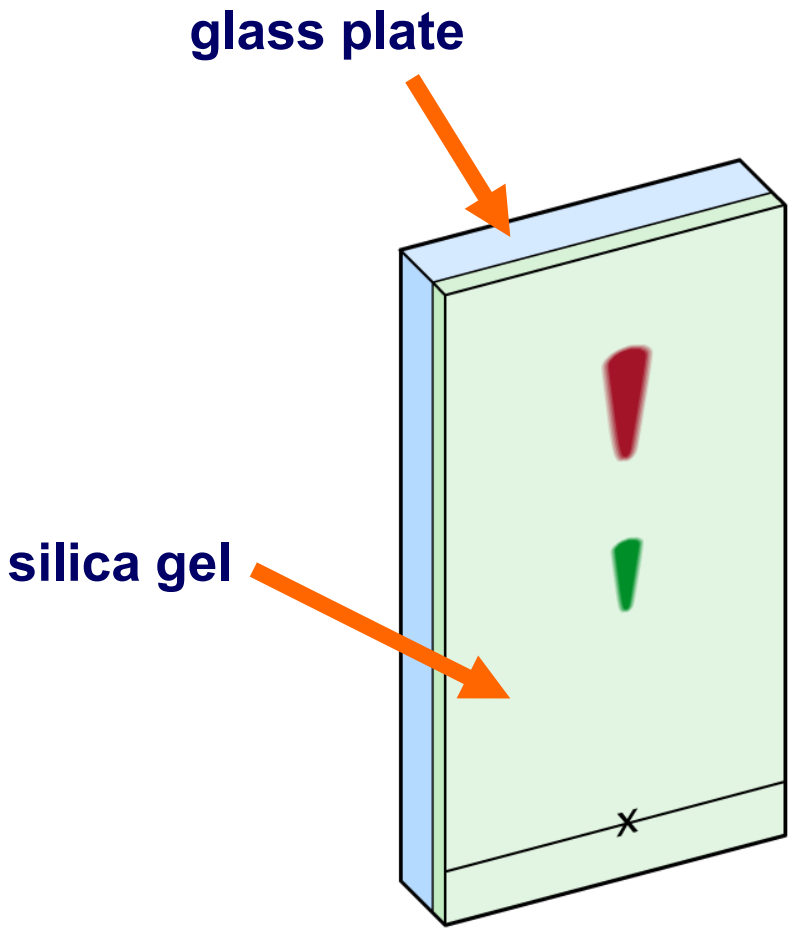
Thin layer chromatography

All chromatography involves a **stationary phase** and a **mobile phase**.

In **thin layer chromatography (TLC)** the stationary phase is a layer of silica gel fixed onto a glass plate.

The mobile phase is a solvent which travels up the plate, carrying the substances.

In gas chromatography, what would the stationary and mobile phases be?



Gas chromatography

Gas chromatography (GC) is used widely in many analytical laboratories, including forensic police labs, synthetic chemical labs, and drugs testing labs.

In paper and thin layer chromatography, the mobile phase is a liquid.

However, the mobile phase in gas chromatography is an inert gas. The stationary phase is usually a long thin tube of silica gel.

How does gas chromatography work?

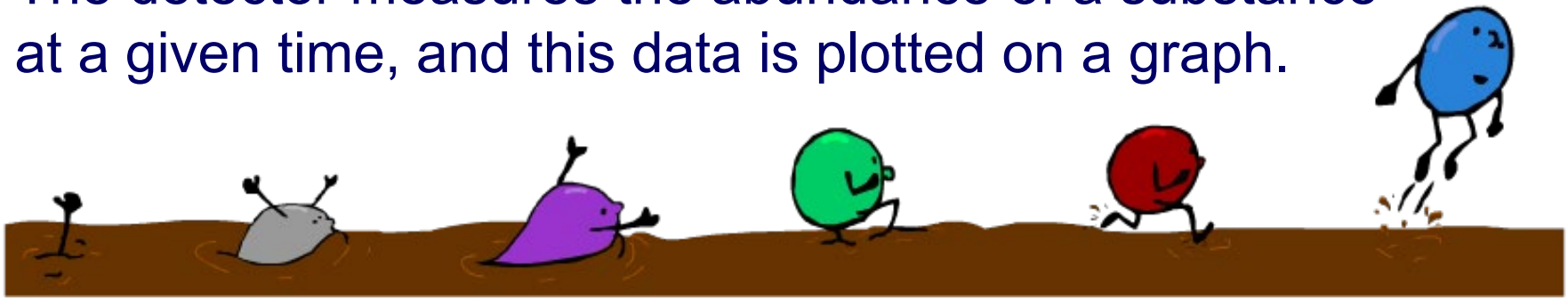
Like all forms of chromatography, GC uses a stationary phase to impede the movement of a mobile test substance.

Different substances are attracted to the matrix by different amounts, and therefore journey along it at different speeds.

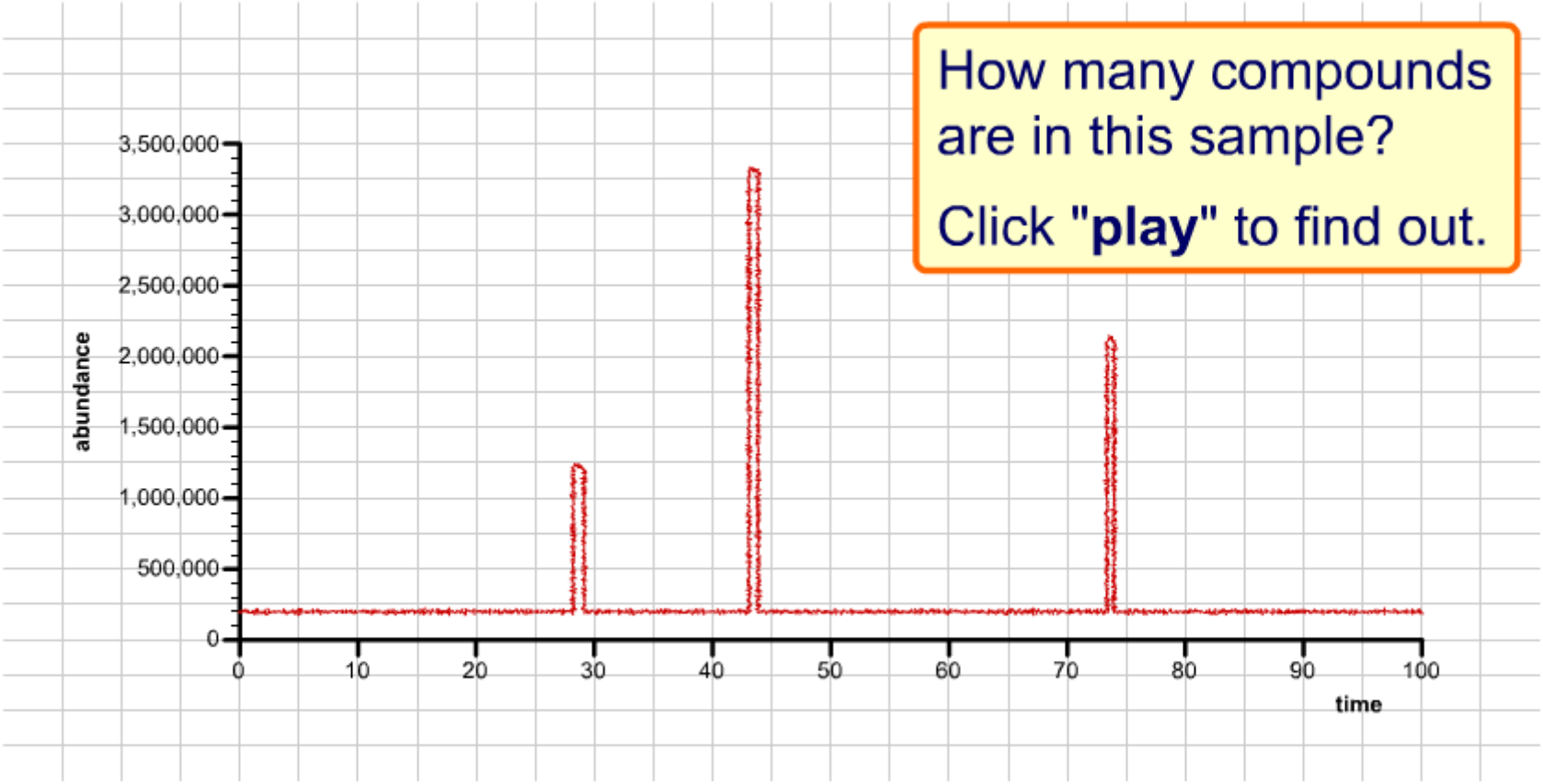
In GC, the sample is injected into the machine, where it is vaporized. It is then washed over the matrix by an inert gas.

Some substances will be more attracted to the matrix than others. These will take much longer to reach the detector.

The detector measures the abundance of a substance at a given time, and this data is plotted on a graph.



Interpreting the results of gas chromatography



Testing for banned substances using GC

All kinds of athletes are banned from taking performance-enhancing drugs – including racehorses!

High-level competition horses are regularly tested for banned substances, such as painkillers that help them run through injury, or steroids that reduce inflammation.

Urine samples are collected from the horses at events, and then sent to labs to be tested by gas chromatography.

Drugs testing

Test the athletes' urine samples using gas chromatography.

Are any of them taking drugs to enhance their performance?

Click "**start**" to begin your investigation.

start