

# What is **Raman** Spectroscopy?

How scientists identify  
chemicals using light



# Why It Matters

In many industries, identifying materials quickly and accurately is critical.

Raman spectroscopy helps organizations:

- verify raw materials
- detect contamination
- improve product quality
- accelerate R&D

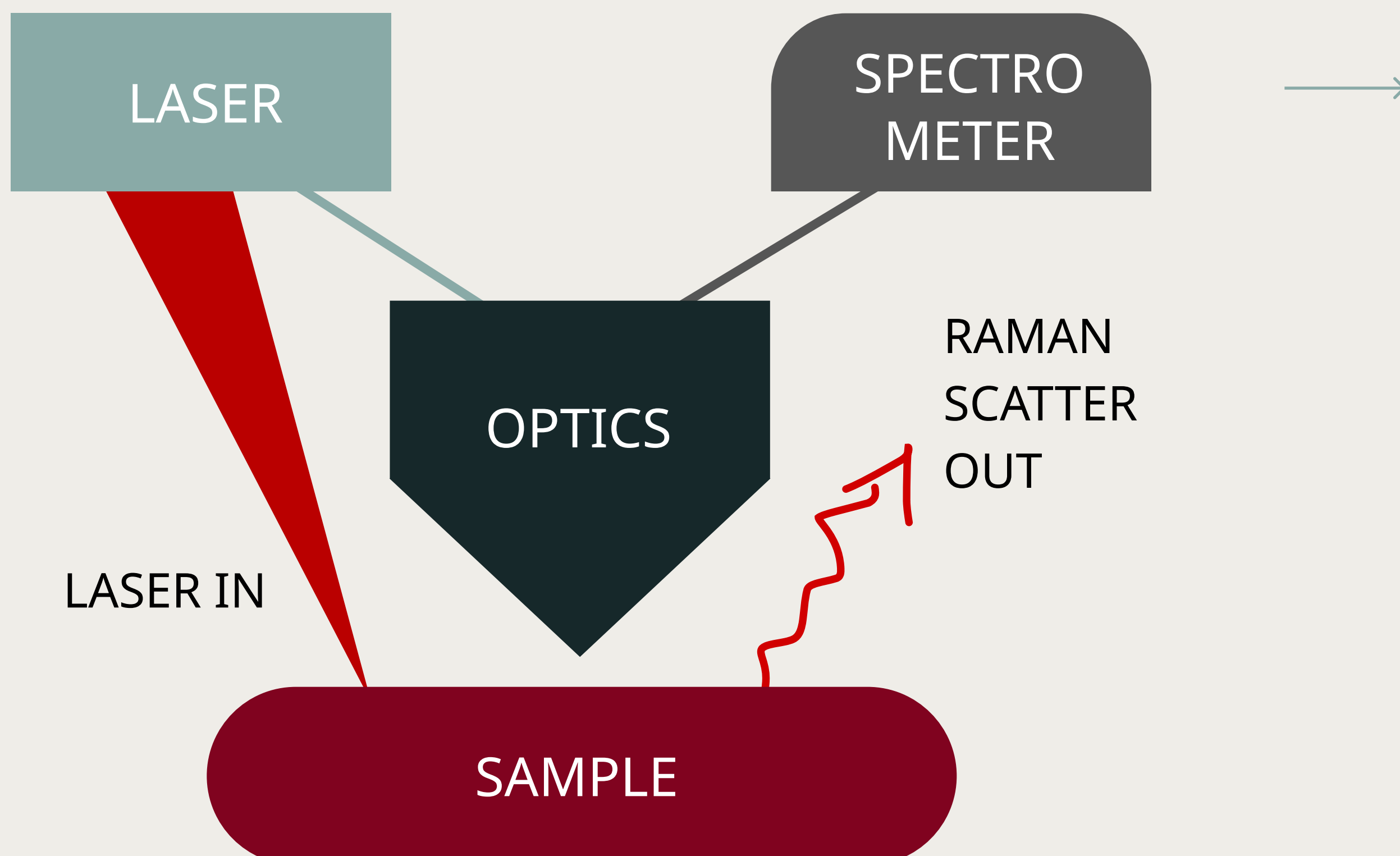


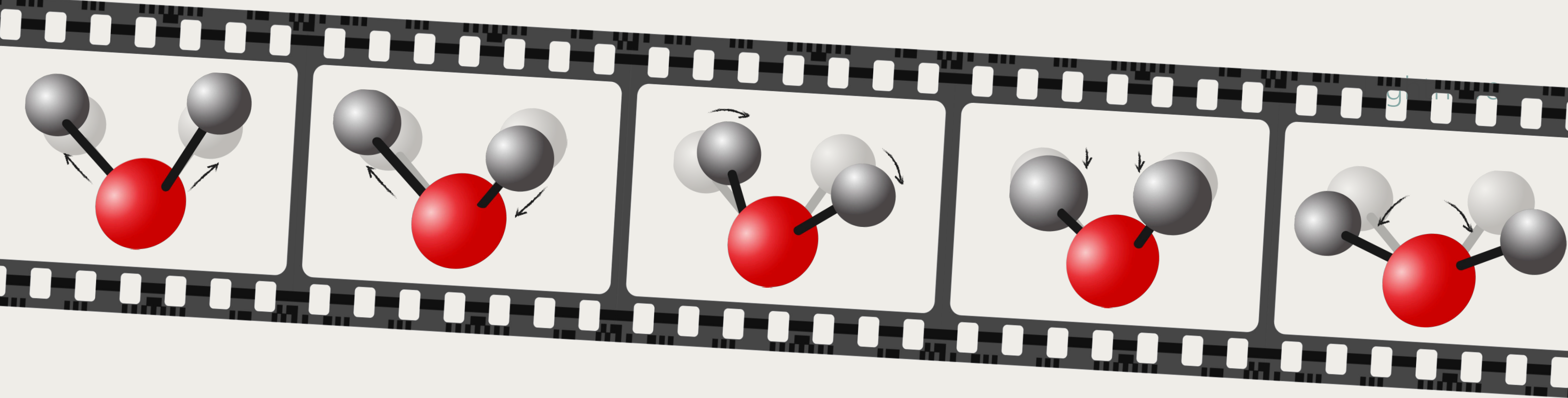
# How It Works

Raman spectroscopy uses a laser directed at a sample.

The scattered light is collected and converted into a spectrum.

That spectrum helps identify the chemical composition of the material.





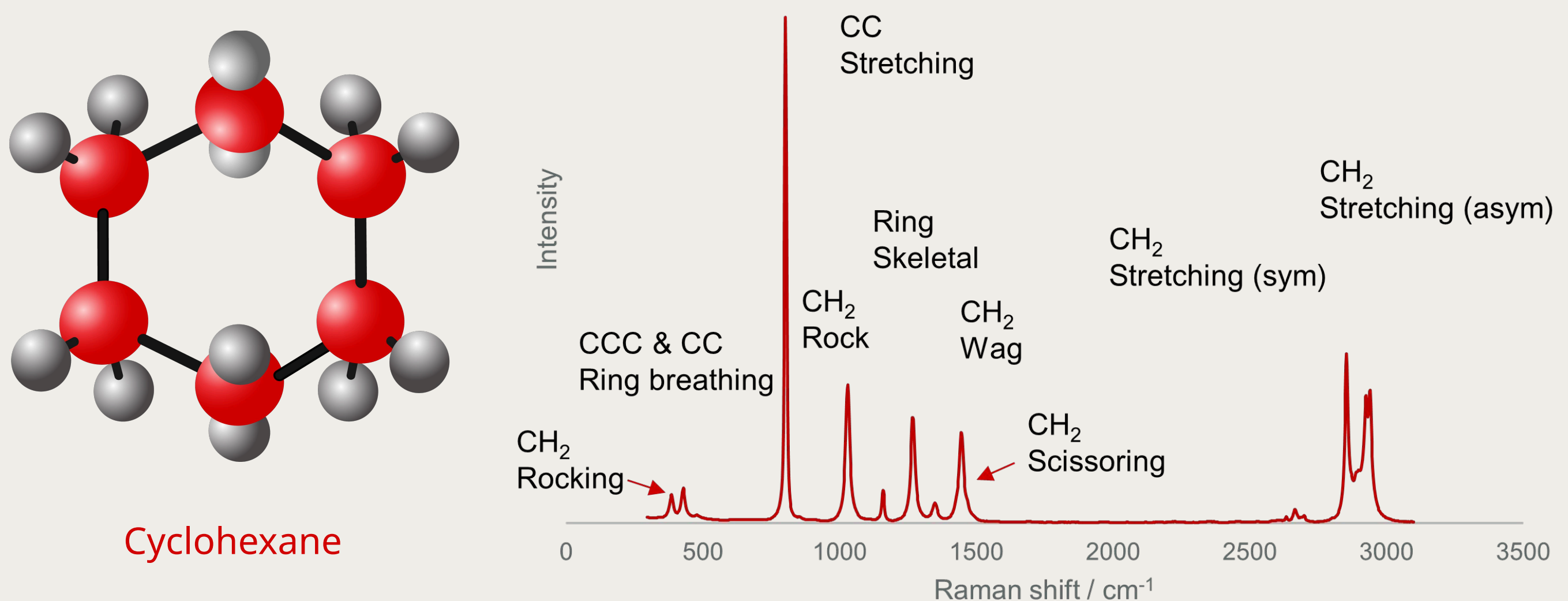
# Molecules “Dance”

When excited by laser energy, molecules vibrate in different ways:

- Stretching (symmetric and asymmetric)
- Rocking
- Wagging
- Scissoring



Each vibration creates a unique signal

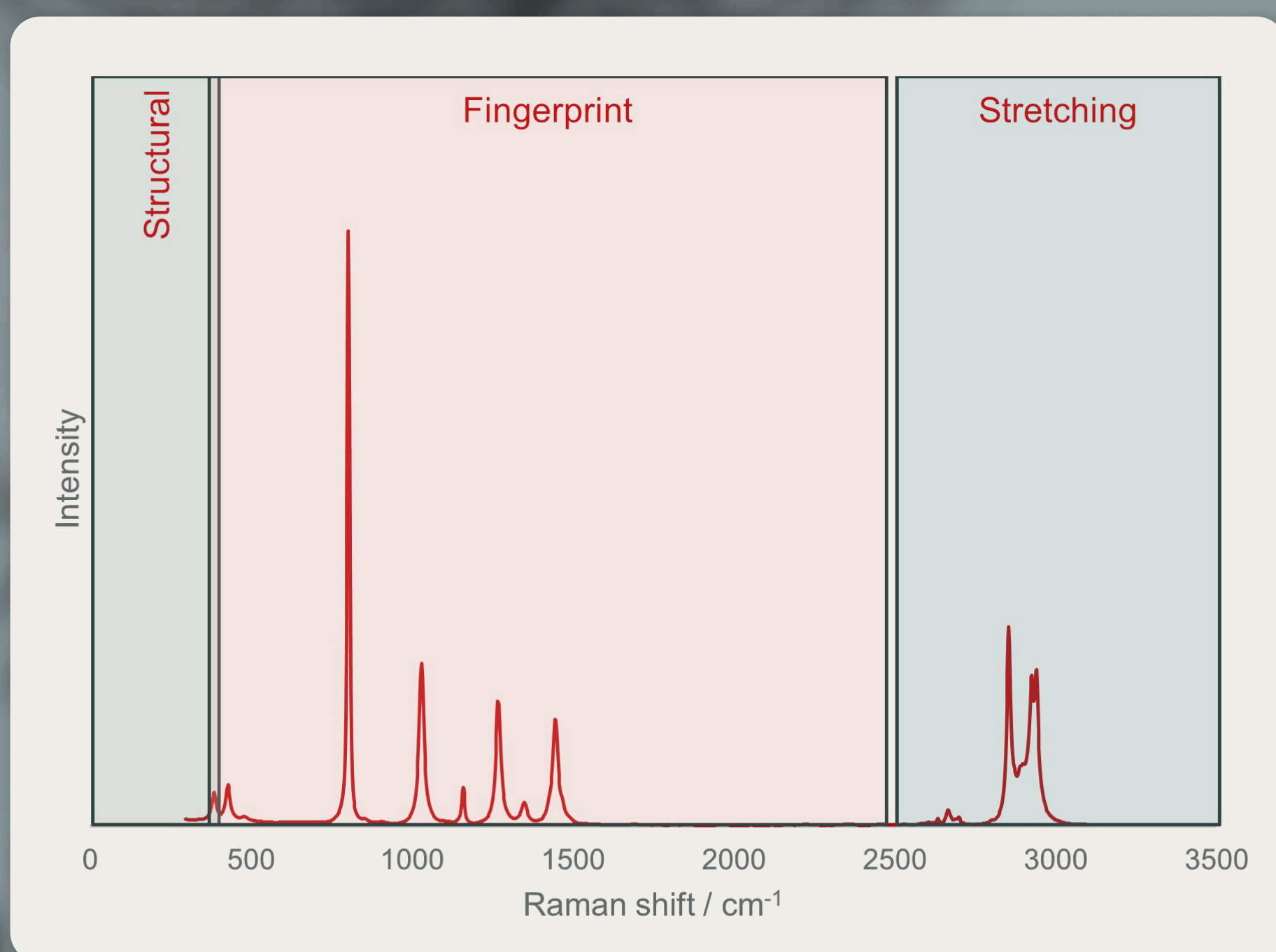


# Every Molecule Has a **Fingerprint**

The most valuable part of the spectrum is called the **Fingerprint Region**.

This area contains peaks specific to each molecule, allowing reliable identification.

Think of it  
as a barcode  
for molecules



# Why Raman is Powerful

- Fast analysis and results
- Non-destructive testing
- Minimal sample preparation
- Works through transparent packaging
- Water interference is low
- Suitable for in-line and real-time analysis



# What It Can Detect

Raman spectroscopy is widely used in:

- Pharmaceuticals
- Polymers & plastics
- Chemicals
- Food quality control
- Forensics
- Materials science
- Academic research



Raman spectroscopy turns light into chemical information.

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in **your industry?**

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