Rich and connected texts

Use rich and connected texts in the science classroom to boost learners' confidence using and decoding scientific vocabulary.

Get started with these examples of rich and connected texts aimed at 11–14 year-old learners. Learn more about how to incorporate the texts into your lessons: **rsc.li/3UGLlyB**

Text 1: The signs of change Everything around us is made up of atoms, and sometimes these atoms rearrange to form something completely new. This is a chemical reaction. Unlike a physical change – like ice melting – a chemical reaction is usually irreversible. To spot one happening in the lab, you have to look for clues: a sudden colour change, a gas fizzing into existence or a dramatic temperature shift. But what is actually happening to the energy during these changes?	**Text 2: Exothermic – feeling the heat** When chemical bonds break and new ones form, energy is always involved. In many reactions, the products end up with less chemical energy than the starting materials. Where does that extra energy go? It is released into the surroundings, usually as heat. We call these exothermic reactions. Think of a roaring campfire or the hand warmers you slip into your gloves in winter; they are actively transferring energy out, making everything around them feel hot.
Text 3: Endothermic – drawing heat in Not all reactions give off heat; some do the exact opposite! Endothermic reactions absorb energy from their surroundings to keep the reaction going. Because they are pulling heat in, the temperature of the surroundings drops. If you've ever used an instant ice pack for a sports injury, you've held an endothermic reaction in your hands. It steals the heat right out of your skin, leaving the pack feeling freezing cold.	**Text 4: Activation energy – the scientific spark** Even if a reaction wants to release energy, it won't just start on its own. A pile of wood doesn't spontaneously burst into flames; it needs a spark. In science, this initial investment of energy required to kickstart a chemical reaction is called the activation energy. It's like pushing a boulder over the peak of a hill – once you give it that initial shove to get it past the barrier, the reaction can take off and run all by itself.

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