

Catalysts

CAL I'm Cal and this is Mags.

MAGS I'm hosting this episode – on catalysts. And for this, I need to introduce you to our cousin Cath, who we babysat last week. Little did we know, this kid is a human catalyst.

Catalysts are used to speed up chemical reactions. They increase the rate of reaction but remain chemically unchanged themselves. Their mass remains the same throughout, too.

CAL A bit like Cath here.

MAGS She's small but mighty, also like a catalyst. It only takes a small amount of catalyst to speed up the reaction rate between the reactants.

CAL It's all about the need for speed. Which brings us to the dreaded dodgems.

MAGS Particles of a reactant must collide with enough energy for a reaction to happen. This minimum amount of energy is known as the activation energy.

Catalysts lower the activation energy. They do this by bringing particles together and setting them on the right pathway for more successful collisions.

CAL More successful collisions means the rate of reaction increases.

MAGS Different catalysts are used for different reactions. Iron is the catalyst in the Haber process while nickel is a catalyst used in the hydrogenation of alkenes – the mass production of margarine to you and me.

Remember – not all reactions have a suitable catalyst though. The catalyst doesn't get used up in the process but it does get less effective over time – like Cath here. Catalysts get affected by impurities and need to be regularly replaced.

CAL Unfortunately, I can't get a replacement cousin.