Worksheet: How does a catalyst work?

Catalysts are added to reactions to speed it up (increase the rate). At the end of the reaction the catalyst remains unchanged and can be used again.

In some reactions the reactants are gases or liquids and the catalyst is a solid. The catalyst acts as a meeting place for the reactants so they are more likely to collide successfully and react.

In this activity you will find out how this works.

1. Here is an example of a reaction:

   ![Reaction Equation]

   Write the words 'reactants' and 'products' underneath the correct place in the equation.

2. The diagrams and statements below show how a catalyst speeds up this reaction but they are in the wrong order. Cut them out, then match up the statements to the diagrams so they describe what is happening. Then, stick them down in the correct order.

   - Molecules of reactant A form bonds with the active sites on the catalyst. The bonds in between the atoms of the molecule start to break.
   - The product leaves the surface of the catalyst.
   - Molecules of reactant A come close to active sites on surface of the catalyst.
   - Molecules of reactant B align itself alongside reactant A.
   - Bonds between the atoms in reactant B start to break as new ones are formed between the atoms of reactant A and B.
3 Some substances can prevent the catalyst from working. These are known as inhibitors. Use the diagram to suggest how they could work.

4 Draw your own diagrams to show how a palladium catalyst can be used to help carbon atoms join together to form long chains.