Chemists weave granny and triple trefoil knots

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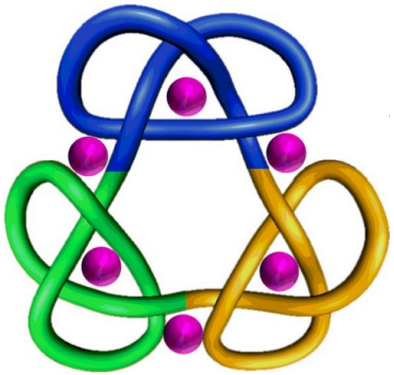

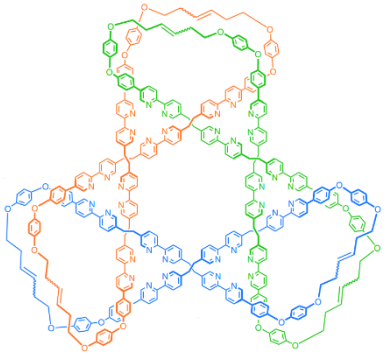

Chemists use chemical reactions to synthesise new molecules for many different purposes. This synthetic chemistry is a very creative and challenging process – finding exactly the right conditions to make molecules with the desired shape is a demanding but rewarding task.

The desired shape in this case is the triple trefoil which is three intertwined loops of carbon backbone (as shown in the diagram). The three sections are formed around six iron atoms (pink circles in the diagram) which hold the carbon backbone in place while the linking reactions occur. The iron atoms are then removed to form the finished product which could have a practical application as a catalyst.

ROYAL SOCIETY OF CHEMISTRY

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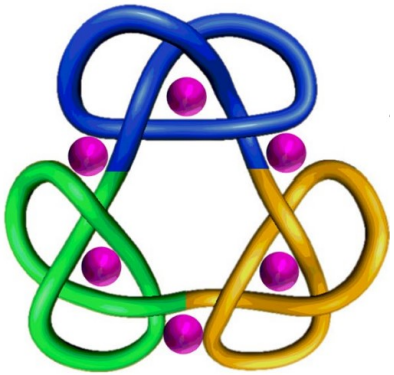

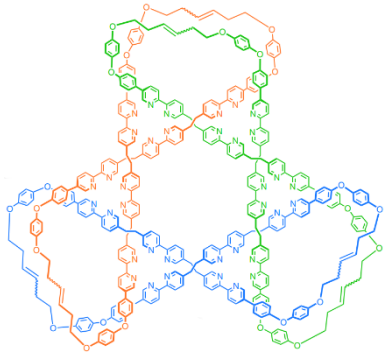

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ROYAL SOCIETY OF CHEMISTRY

1. Many biological molecules are large structures made of carbon, hydrogen and oxygen. Name an example of a large biomolecule in the food you eat.
2. Give some examples of giant covalent structures that involve only carbon-carbon bonds.
3. What type of bond is a carbon-carbon bond?
4. The chemists found that a trefoil-shaped molecule catalyses enantioselective reactions. What are enantioselective reactions?