

Working with multiple representations – teacher notes

Education in Chemistry

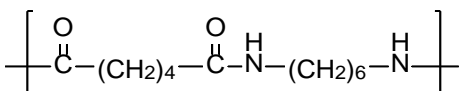
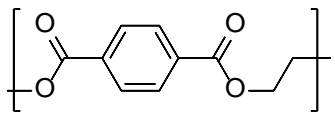
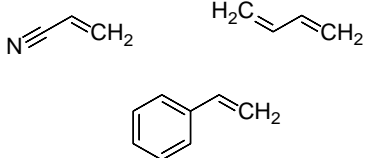
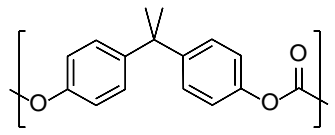
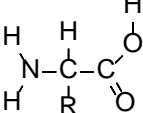
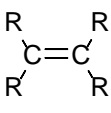
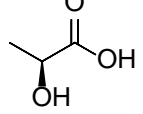
July 2017

rsc.li/EiC417-medical-plastics

This experiment accompanies the above article 'Body, heal thyself'.

This activity helps pupils practice working with multiple representations of substances alongside reading the article. The sheet has been designed so the representations look like those typically seen in searches on Google and Wikipedia. Some show skeletal formulae, which pupils of this age wouldn't be expected to know, however these are used when they are the representation most commonly found online.

In addition to the information found using the article, pupils can be directed to add information from their own understanding and prior work.

| Representation | Name | Further information |
|---|--|--|
|  | nylon | Synthetic polymer Used in carpets |
|  | poly(ethylene terephthalate) (PET) | Synthetic polymer Used in drinks bottles |
|  | acrylonitrile butadiene styrene (ABS) | Synthetic polymer Used in computer keyboards |
|  | polycarbonate | Synthetic polymer Used in spectacle lenses |
|  | amino acids | Monomers used in proteins |
|  | alkenes | Typical monomers of non-natural polymers |
|  | lactic acid | Chiral molecules used to make polylactic acids, a biodegradable polymer |
| $\text{Ca}_5(\text{OH})(\text{PO}_4)_3$ | nano-hydroxyapatite | Crystalline form of calcium phosphate. A mineral that degrades to give calcium and phosphate ions |
| $\text{Ca}_3(\text{PO}_4)_2$ | calcium phosphate | A building block of bones and teeth |
| F^- | Fluoride | Traditionally used for remineralising teeth |