The structure of polymers

Specification references

* C2.2.5 Polymers
* C10.3.3 Ceramics, polymers and composites
* WS 1.4, 3.5, 3.8

Aims

The aim of this task is to extend your knowledge of natural polymers.

Learning outcomes

After completing this worksheet, you should be able to:

* name some natural polymers
* describe the monomer unit and type of linkage in some natural polymers
* describe the properties and uses of some natural polymers.

Setting the scene

We tend to think of polymers as synthetic materials, designed and made by chemists, with the properties that we require to manufacture the goods around us. However, polymers are also widely found in nature. The human body contains many natural polymers, such as proteins and nucleic acids. [Cellulose](http://www.chemistryexplained.com/knowledge/Cellulose.html), another natural polymer, is the main structural component of plants

Task

You are going to research natural polymers and produce a technical poster which contains information about at least 4 different natural polymers. The polymers you choose are up to you, but here are some examples of natural polymers that you might like to choose from:

* DNA
* cellulose
* rubber
* proteins.

Again, the information that you choose to include is up to you but here are some facts that you like might to find out about and include in your poster:

* monomer unit
* type of linkage
* the properties and uses of the polymer.

Once you have produced your poster then answer the questions.

Questions

1 Describe ways in which cellulose and starch are:

 a similar

 (*2 marks*)

 b different.

 (*2 marks*)

2 a Name the 4 base units in DNA.

 (*4 marks*)

 b Describe the structure of DNA.

 (*2 marks*)

3 a Name a natural polymer that is an addition polymer.

 (*1 mark*)

 b Draw its monomer unit.

 (*1 mark*)

4 Describe how the monomer units in proteins join.

 (*4 marks*)