# Chemistry in The Human Body

Your task this week will be to research the chemical structures that make up the human body.

***I would like you to pick two or three topics from those written below*** and write a few paragraphs on each in your own words. It would also be nice to see some pictures/diagrams inserted which relate to your text, although this is not essential. If there is something you would like to research that isn’t listed below, feel free to include it in your work. The work should roughly be two or three sides of A4 in total.

Choose two or three topics from the ones below:

* What is the structure of Hemoglobin and how does it bind to oxygen?

<https://www.verywellhealth.com/importance-of-hemoglobin-2249107>

<http://www.interactive-biology.com/3955/function-and-synthesis-of-hemoglobin/>

* The human body is made of various proteins. What are polypeptides and proteins, and how are they synthesized in human cells?

<https://www.khanacademy.org/science/biology/macromolecules/proteins-and-amino-acids/a/introduction-to-proteins-and-amino-acids>

* Describe the roles of three metal ions in the human body, for example sodium, potassium and calcium.

<http://theinfoscience.blogspot.com/2015/04/what-metal-ions-are-required-by-human.html>

* What is the chemical structure of a cell membrane in the human body? How do molecules pass through it?

<https://www.khanacademy.org/science/high-school-biology/hs-cells/hs-the-cell-membrane/a/structure-of-the-plasma-membrane>

amoeba sisters video <https://www.youtube.com/watch?v=qBCVVszQQNs>

* Discuss three hormones that affect brain function, for example dopamine, oxytocin and serotonin. What is their chemical structure and how do they influence the brain?

<https://www.sciencenewsforstudents.org/article/explainer-what-dopamine>

<https://www.healthline.com/health/mental-health/serotonin>

more questions on the next page…..

* Explain why consuming too much processed sugar is bad for the human body.

<https://www.webmd.com/diabetes/features/how-sugar-affects-your-body>

<https://www.health.harvard.edu/heart-health/the-sweet-danger-of-sugar>

* Describe the chemical processes involved in the electrical signal transfer in neurons (nerve cells) and neuron junctions (synapses).

<https://www.khanacademy.org/science/biology/human-biology/neuron-nervous-system/a/overview-of-neuron-structure-and-function>

* Until very recently, the human sense of smell was thought to work via a lock and key mechanism (docking theory). This has now changed, and a new theory involving quantum vibrational states is being developed. Discuss the nature of this theory.

<https://www.bbc.co.uk/news/science-environment-21150046>

Research tips

* Youtube is an excellent starting point. You can get a clear overview of a topic, then google some key terms from the video.
* Look out for science news articles which explain ideas really clearly.
* Try to pick the key ideas out of any text you read.
* Google key terms from the links I’ve posted above.

Use google images to find pages that have clear diagrams that will help you find the information you need. For example, below is a google image search from “cell membrane structure”. Lots of pages can be seen at once and you can scan to see what looks best.

<https://www.google.com/search?q=cell+membrane+structure&tbm=isch&ved=2ahUKEwjV7f3qxr_pAhXs1-AKHX5FD7sQ2-cCegQIABAA&oq=cell+membrane+structure&gs_lcp=CgNpbWcQAzICCAAyBAgAEEMyAggAMgIIADICCAAyAggAMgIIADICCAAyAggAMgIIAFDZgwxYxKAMYKqhDGgAcAB4AIABQogBhAqSAQIyM5gBAKABAaoBC2d3cy13aXotaW1n&sclient=img&ei=xJ7DXtX7NOyvgwf-ir3YCw&bih=722&biw=1600&rlz=1C1CHBF_enGB869GB869&safe=strict>

Have fun. Email me if you have any questions.

Mr Kitchen