



# Bridging Work for Biology



## Biology Transition Tasks

We are really excited to have you studying Biology A-level with us. To help with a smooth transition from GCSE science to A-level Biology, please ensure that you complete the following bridging tasks.

Subject Content for this course can be found here...

<https://www.ocr.org.uk/qualifications/as-and-a-level/biology-a-h020-h420-from-2015/specification-at-a-glance/>

### Task 1 – Cell structure

Find an electron micrograph of the cell. Annotate the image to show key features of the cell organelles and their function.

### Task 2 – Biological molecules: proteins

Watch the following clip on biological molecules: <http://www.viewpure.com/H8WJ2KENIK0?start=0&end=0> (Biological Molecules-You are what you eat: Crash course biology #3). Find out about globular and fibrous proteins. Once you have made notes on these, compare haemoglobin (a conjugated globular protein) with collagen (a fibrous protein).

### Task 3 – Mathematical skills – cardiac output

Heart rate can be used to calculate cardiac output - provided that you have a value for the individual's stroke volume - using the equation:  $\text{cardiac output} = \text{heart rate} \times \text{stroke volume}$

- Define the terms 'cardiac output' and 'stroke volume' (you may need to use the Internet or other research to help you).
- Rearrange the above equation so that stroke volume is the subject of the equation. Use your rearranged equation to calculate the athlete's stroke volume after training, using the data below:

The table shows the cardiac output and resting heart rate of an athlete before and after completing a training programme.

	Before training	After training
Cardiac output / cm <sup>3</sup>	5000	5000
Resting heart rate / beats per minute	70	55

#### Task 4 - The heart

Watch the following clip about the heart. <https://ed.ted.com/on/GVvfmO2r> (Ted-Ed: ECG:The basics of ECG).

Define the following heart issues:

- Tachycardia
- Bradycardia
- Fibrillation
- Ectopic heartbeat.

#### Task 5 – Wider reading

- Read at least one copy of New Scientist over the summer holidays. Select one biology-related article and summarise the content for your peers. This should be at least 500-750 words long and you may do additional research on the topic in order to improve your understanding and the written content you produce.