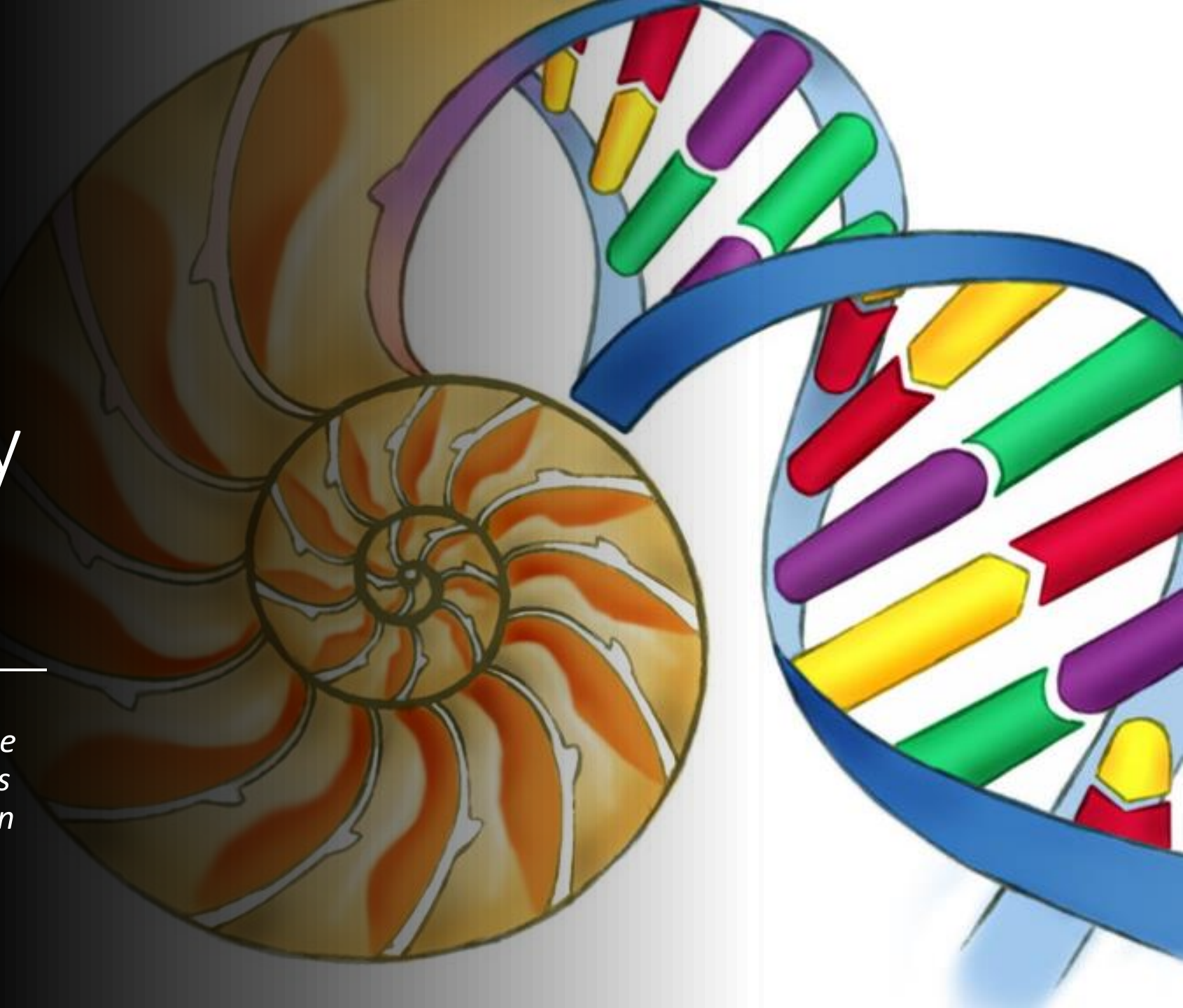




Welcome to the Biology 6th form taster day

Biologists are scientists who study the natural world and all the living things in it, from the largest mammals down to our very own microscopic DNA.





Why study biology A-Level?

- Biology A-level will help you understand how life works and you will find that fascinating.
- All the topics you found interesting at GCSE are covered in a lot more detail and studying them gives you the skills to make connections and associations with all living things around you.
- It also opens the doors to a huge range of degree subjects and careers



Careers

Science and Research

- Biochemist
- Botanist
- Forensic scientist

Sport and Fitness

- Personal trainer
- Sports person
- Physiotherapist

Medicine and Healthcare

- Nurse
- Doctor
- Pharmacist
- Midwife

Engineering

- Biological engineer
- Environmental engineer
- Biomedical engineer

Agriculture

- Farming
- Ecology
- Landscaping

Research and education

- Research scientist
- Higher education lecturer
- Secondary school teacher

The class of 2020



Why study biology at OLCC?

- Experienced and dedicated teaching and technical staff.
- Excellent results.
- Staff who you know and feel comfortable with, or who will get to know you very quickly if you are new.
- Well-equipped labs.
- Lots of opportunity for practical work.

What do we study?

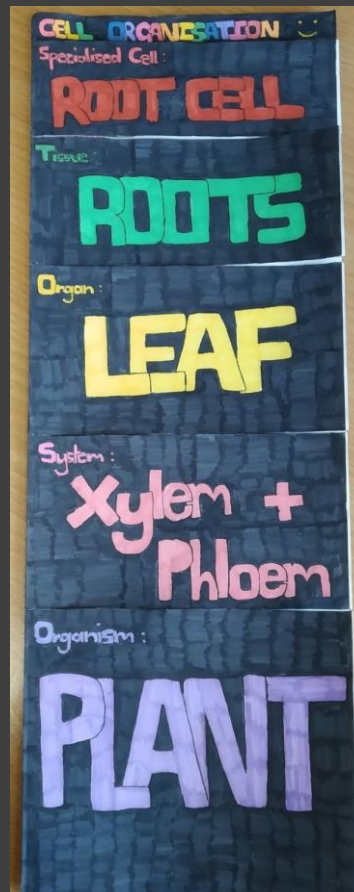
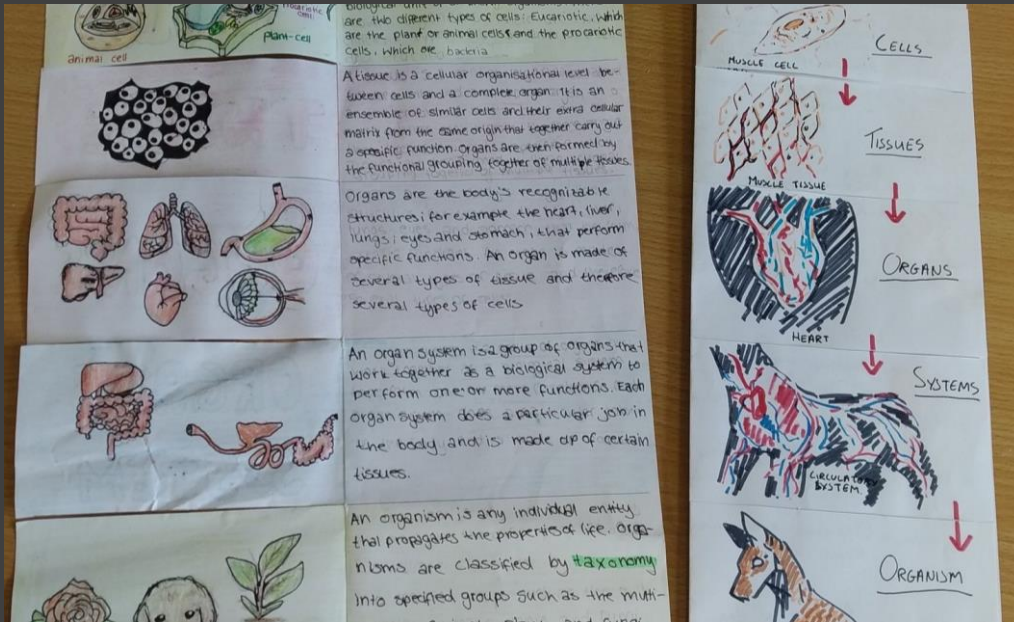
- We study AQA Biology.
- Through the whole course you will be supported with a comprehensive set of notes that we work through in lessons, lots of past paper questions and all the additional material you need.

AS and first year of A-level	Second year of A-level
<ol style="list-style-type: none">1. Biological molecules2. Cells3. Organisms exchange substances with their environment4. Genetic information, variation and relationships between organisms	<ol style="list-style-type: none">1. Energy transfers in and between organisms2. Organisms respond to changes in their internal and external environments3. Genetics, populations, evolution and ecosystems4. The control of gene expression

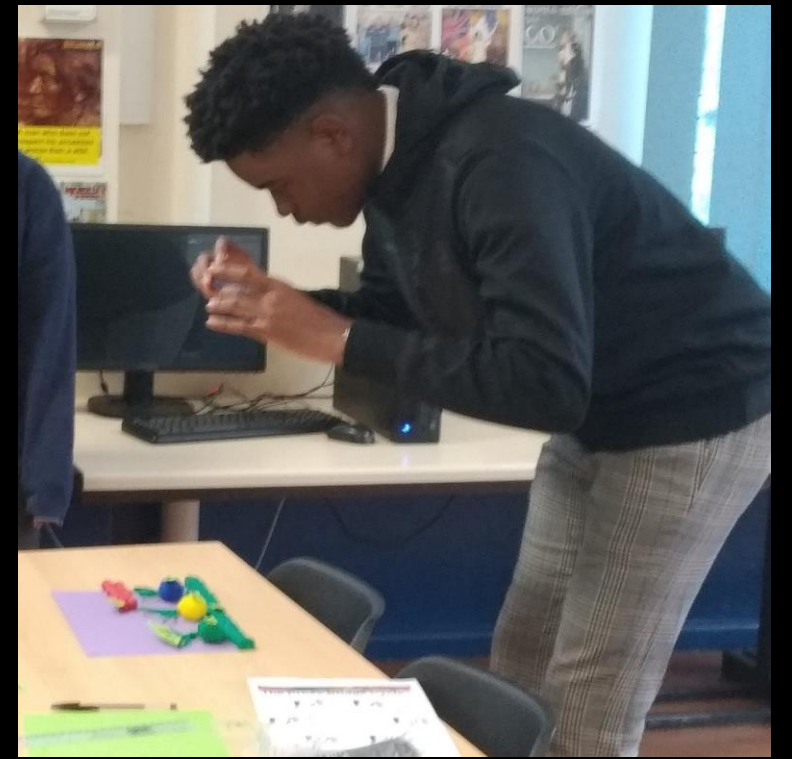
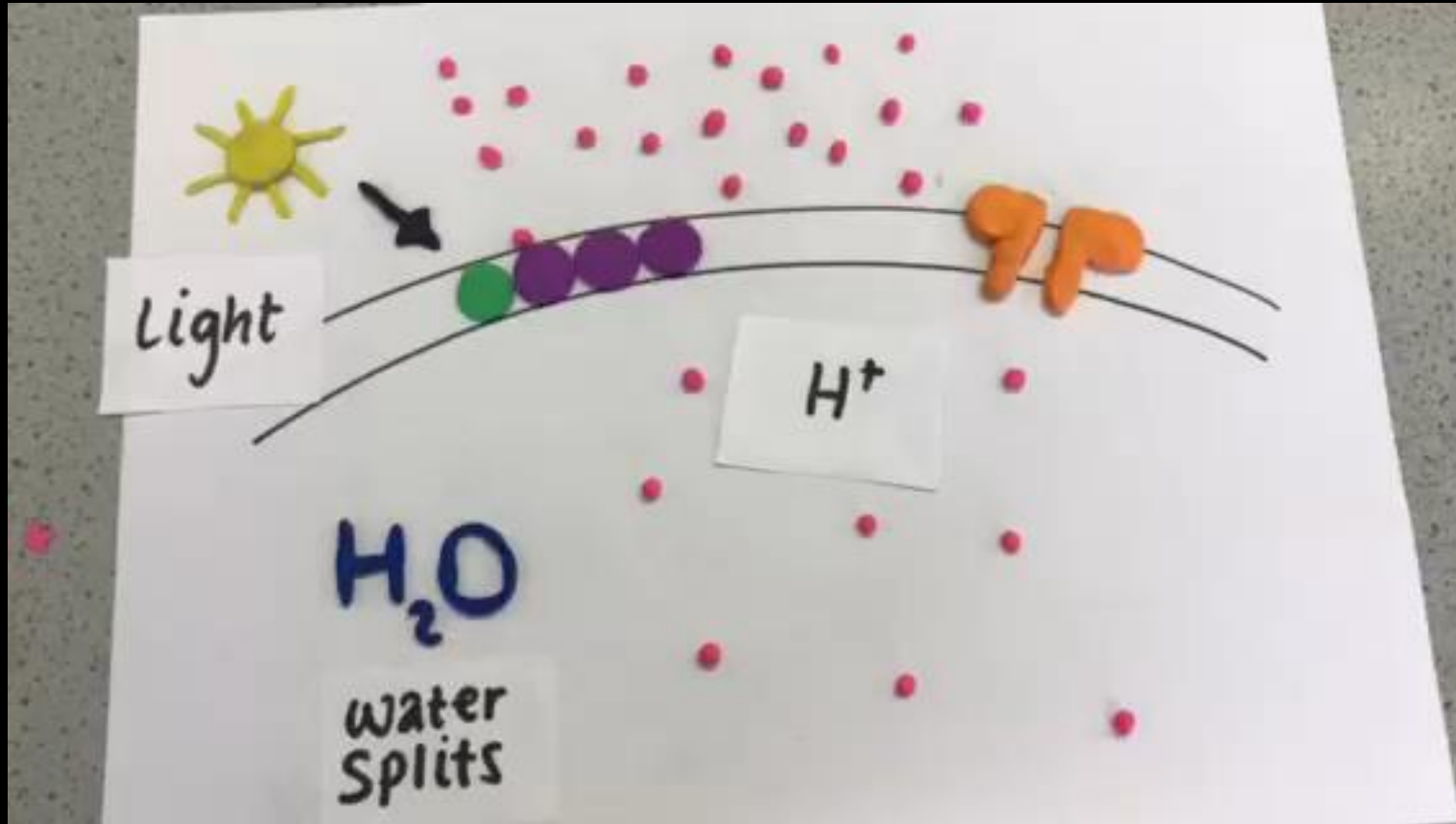
We do a lot of practical work...



We present our ideas in creative ways...



We make models...





What else might we do?

- In the past we have visited the electron microscope at Lancaster university. It has a magnification of over x1000000.
- We've visited the genetics lab there and seen the *Drosophila* (fruit flies that they breed to investigate the genetics of ageing).
- We've had field trips to do a transect survey of the coast at Half Moon Bay.
- And we have take part in the Biology Olympiad competition...

...and some of us make the most amazing revision notes!

Biology!

Nucleus = small spherical structure containing DNA and RNA

Chloroplasts = organelles containing chlorophyll where photosynthesis occurs

Microvilli = small projections that increase surface area for absorption

Osmosis = movement of water across a membrane from high water potential to low water potential

Active transport = movement of substances against a concentration gradient using energy

Diffusion = passive movement of particles from high to low concentration

Cell membrane = phospholipid bilayer that separates the cell from its environment

Enzymes = biological catalysts that speed up chemical reactions

ATP = Adenosine Triphosphate, the energy currency of the cell

Photosynthesis = process by which plants convert light energy into chemical energy

Respiration = process of breaking down glucose to produce energy

DNA = double helix structure carrying genetic information

Genes = segments of DNA that code for specific proteins

Protein synthesis = process of building proteins from amino acids

Mitochondria = organelles with their own DNA, responsible for energy production

Heart = muscular organ that pumps blood throughout the body

Arteries = blood vessels that carry oxygenated blood away from the heart

Venae cavae = large veins that bring deoxygenated blood to the heart

Capillaries = small blood vessels where exchange of substances occurs

Blood = fluid that carries oxygen, nutrients, and waste products

Antibodies = proteins that help fight off pathogens

Neurons = nerve cells that transmit electrical signals

Synapses = junctions between neurons where signals are passed

Brain = central processing unit of the nervous system

Plant cells = eukaryotic cells with cell walls and large central vacuoles

Animal cells = eukaryotic cells without cell walls and large central vacuoles

Diffusion = passive transport across a membrane

Photosynthesis equation: $6CO_2 + 6H_2O \xrightarrow{\text{light}} C_6H_{12}O_6 + 6O_2$

Respiration equation: $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$



...and some of our students spend six weeks in the summer doing their own research as part of a Nuffield project.

We are very proud of the results we get.

June 2019

- 67% of students achieved A*-B at A2 100% of students achieved A*-C

June 2018

- 60% of students achieved A*-B at A2 and 100% of students achieved A*-E

June 2017

- 60% of students achieved A*-B at A2

June 2016

- 57% of students achieved A*-B at A2 and 100% achieved A*-E



And we're proud of where our students go next.

- Ezza A – Diagnostic Radiography at University of Cumbria
- Daisy Langley – Occupational Therapy at University of Cumbria
- Leeford D – Pharmacy at Keele
- Brandon J – Biomedicine at Dundee
- Sarah S – Law at Oxford
- Georgia M – Animal Behaviour at York
- Leia H – Qualified doctor
- Karolina J – Biological Sciences at Edinburgh
- Lydia K – Natural Sciences at Durham
- Ruby O – Medicine at Leeds
- Charlie S – Medicine at Lancaster
- Aleksandra R – Biological Sciences at Lancaster
- Megan H – qualified midwife



- Leia who graduated as a doctor from Bristol University

What do our students say?

- Charlie says... “Studying Biology at A Level allowed us to build upon our GCSE knowledge whilst also developing our independent study skills.

Throughout the course I felt completely supported by my teachers which helped increase my confidence when it came to exam time.

The content was incredibly interesting to learn about and the practical assessments, whilst sometimes challenging were very fun to do. I thoroughly loved studying Biology at OLCC”

What do our students say?

- Lydia says... I absolutely loved studying Biology at OLCC 6th form! The content was really interesting and diverse, covering topics both new and familiar from GCSE. The regular practicals enabled us to actually see the things we'd been studying, and were always a welcome change from other subjects which just involve sitting at a desk.
Some lessons involved a lot of discussion, which really helped with understanding a topic. If we ever had any concerns, the teachers would always help out and explain a difficult concept again. This meant I went into the exams feeling really well prepared.
Biology A-level definitely helped prepare me for university study, not only with the content but also the skills and independence I gained from it. I would highly recommend it!

What do our students say?

Leeford says...

"I have always had a love for science but when I reached GCSE, I became most attached to biology. I found it so interesting and being able to do it at A level increased my interest as I got to learn more about myself and many other organisms"

So why not join us next year...

- The minimum entry requirement is a grade 5 Combined Science, although we will consider individual students who haven't met the requirement.
- Biology complements Chemistry, Physics, Health and Social Care, and Geography

Any questions?

Speak to Mrs Bates
(a.bates@olcc.lancs.sch.uk)