**A Level Biology Y12 wider reading schedule**

|  |  |  |
| --- | --- | --- |
| **Weeks** | **Recommendations** | **Topic link** |
| Autumn1 1+2 | <https://www.technologynetworks.com/neuroscience/articles/what-is-super-resolution-microscopy-sted-sim-and-storm-explained-328572>  <https://www.rsb.org.uk/biologist-features/focus-on-cryo-electron-microscopy>  <https://www.chemistryworld.com/news/explainer-what-is-cryo-electron-microscopy/3008091.article> | Read about revolutionary technologies: super-resolution microscopy and cryo-EM |
| Autumn1 3+4 | <https://instruct-eric.org/what-is-structural-biology>  <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4697198/>  <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10337885/> | Read about the field of structural biology, from its history to some recent developments |
| Autumn1 5+6 | <https://teachmephysiology.com/biochemistry/molecules-and-signalling/enzyme-kinetics/>  [https://bio.libretexts.org/Courses/Wheaton\_College\_Massachusetts/ Principles\_of\_Biochemistry/07%3A\_Enzymes\_catalysis\_and\_kinetics/ 7.02%3A\_Derivation\_of\_Michaelis-Menten\_equation](https://bio.libretexts.org/Courses/Wheaton_College_Massachusetts/Principles_of_Biochemistry/07%3A_Enzymes_catalysis_and_kinetics/7.02%3A_Derivation_of_Michaelis-Menten_equation) | Read more about the Michaelis-Menten model of enzyme kinetics |
| Autumn1 7+8 | <https://www.mskcc.org/news/newly-discovered-organelle-fierce>  [https://bio.libretexts.org/Bookshelves/Microbiology/ Microbiology\_(Boundless)/04%3A\_Cell\_Structure\_of\_Bacteria\_ Archaea\_and\_Eukaryotes/4.06%3A\_Specialized\_Internal\_Structures\_ of\_Prokaryotes/4.6D%3A\_Magnetosomes](https://bio.libretexts.org/Bookshelves/Microbiology/Microbiology_(Boundless)/04%3A_Cell_Structure_of_Bacteria_Archaea_and_Eukaryotes/4.06%3A_Specialized_Internal_Structures_of_Prokaryotes/4.6D%3A_Magnetosomes) | Read about some other organelles! |
| Autumn half term | <https://fromtbot.com/life/evolution-of-the-plasma-membrane-models/>  [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4304622/pdf/13062\_ 2014\_Article\_32.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4304622/pdf/13062_2014_Article_32.pdf)  <https://www.sciencedirect.com/science/article/pii/S0005273623000172> | Read about the history of membrane models and recent developments to the fluid-mosaic model |

|  |  |  |
| --- | --- | --- |
| **Weeks** | **Recommendations** | **Topic link** |
| Autumn2 1+2 | <https://www.newswise.com/articles/everything-you-know-about-osmosis-is-probably-wrong>  <http://umdberg.pbworks.com/w/file/fetch/65882793/Osmosis-Kramer%26Myers-AJP.pdf>  <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10457415/> | Read about some common misconceptions about osmosis. Have you heard any of these before? |
| Autumn2 3+4 | <https://www.ibiology.org/genetics-and-gene-regulation/experiment-meselson-and-stahl/>  https://embryo.asu.edu/pages/meselson-stahl-experiment-1957-1958-matthew-meselson-and-franklin-stahl | Learn more about the Meselson-Stahl experiment |
| Autumn2 5+6 | <https://www.youtube.com/watch?v=jPhvic-eqbc>  <https://proto.life/2021/06/rethinking-the-biology-as-machine-metaphor/>  <https://lsspjournal.biomedcentral.com/articles/10.1186/s40504-018-0077-y> | What are the limitations of bottom-up machine analogies in cell biology? |
| Autumn2 7+8 | <https://news.cancerresearchuk.org/2014/10/06/from-yeast-to-sea-urchins-the-story-of-a-nobel-prize/>  <https://www.crick.ac.uk/research/research-reports/cyclin-dependent-kinases-and-the-ordering-of-the-cell-cycle>  <https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/regulation-of-cell-cycle/a/cell-cycle-regulators> | Learn about the discovery, and action, of key cell cycle regulators |
| Christmas holiday | <https://hsci.harvard.edu/stem-cells-and-cancer>  <https://www.science.org/content/blog-post/chasing-cancer-stem-cells>  <https://www.cell.com/action/showPdf?pii=S1934-5909%2824%2900131-0> | Cancers also have stem cells (at least some of them)! Read about the challenges of targeting CSCs therapeutically. |

|  |  |  |
| --- | --- | --- |
| **Weeks** | **Recommendations** | **Topic link** |
| Spring1 1+2 | <https://arstechnica.com/science/2023/07/dinosaurs-and-the-evolution-of-breathing-through-bones/>  <https://svpow.com/2007/11/03/tutorial-3-pneumaticity/>  <https://svpow.com/2022/02/17/sauro-throat-part-3-what-does-dollys-disease-tell-us-about-sauropods/> | Read about gas exchange in sauropod dinosaurs – specifically, the role of their skeletons in breathing! |
| Spring1 3+4 | <https://www.youtube.com/watch?v=QPi4VGY5f_I>  <https://www.youtube.com/watch?v=uVd1CYZDhnU> | These lectures go into detail about plant immunity! |
| Spring1 5+6 | <https://www.cancerresearchuk.org/about-cancer/treatment/targeted-cancer-drugs/types/monoclonal-antibodies>  <https://science-line.com/jlsb/attachments/article/80/JLSB%2010(5)%2059-69,%202020%20-%20Therapeutic%20application%20of%20monoclonal%20antibodies.pdf> | Read about how monoclonal antibodies can be produced to treat cancer! |
| Spring half term | [https://www.youtube.com/playlist?list=PLj4hydpCQFUH799oBGMygm WQitnQAwiNn](https://www.youtube.com/playlist?list=PLj4hydpCQFUH799oBGMygmWQitnQAwiNn)  <https://www.youtube.com/watch?v=fXItudpU9X0>  <https://www.fun-mooc.fr/en/courses/introduction-to-histology-exploring-the-tissues-of-the-human-body/> | Interested in medicine? Learn about histology. You could even take a MOOC to support your application! |

|  |  |  |
| --- | --- | --- |
| **Weeks** | **Recommendations** | **Topic link** |
| Spring2 1+2 | <https://derangedphysiology.com/main/cicm-primary-exam/cardiovascular-system/Chapter-003/cardiac-cycle> | Read this deep dive into the cardiac cycle! |
| Spring2 3+4 | <https://evolution.berkeley.edu/phylogenetic-systematics/>  <https://ucmp.berkeley.edu/clad/clad4.html>  <https://ucmp.berkeley.edu/clad/clad1.html> | Learn more about modern classification: cladistics and systematics |
| Spring2 5+6 | <https://www.geol.umd.edu/~tholtz/H259C/lectures/259Cevol.html>  <https://www.strangescience.net/lamarck.htm>  <https://www.theguardian.com/science/2022/jun/28/do-we-need-a-new-theory-of-evolution> | Read about the history and future of evolutionary thought |
| Easter holiday | <https://www.pnas.org/doi/full/10.1073/pnas.1522151112>  <https://askabiologist.asu.edu/pleistocene-rewilding-and-de-extinction>  <https://www.pnas.org/doi/full/10.1073/pnas.1521757113> | Read about Pleistocene rewilding – an ambitious goal or a ridiculous suggestion? |

|  |  |  |
| --- | --- | --- |
| **Weeks** | **Recommendations** | **Topic link** |
| Summer1 1+2 | <https://besfeg.wordpress.com/2024/01/11/lidar-for-forest-ecology/>  <https://www.youtube.com/watch?v=kTRqnB0usO8> | Learn about an example of sampling via remote sensing: LIDAR |
| Summer1 3+4 | <https://www.nature.com/scitable/knowledge/library/water-uptake-and-transport-in-vascular-plants-103016037/>  <https://www.frontiersin.org/journals/plant-science/articles/10.3389/fpls.2013.00108/full> | Learn about how the transpiration stream can break, and how plants repair it! |
| Summer1 5+6 | <https://www.jic.ac.uk/advances/how-do-plants-fix-nitrogen/>  <https://onlinelibrary.wiley.com/doi/epdf/10.1111/jipb.13207> | Read about how nitrogen fixation works in plants! |
| Summer half term | <https://www.nature.com/collections/qghhqm> | Explore this series of articles about statistics for biologists |

|  |  |  |
| --- | --- | --- |
| **Weeks** | **Recommendations** | **Topic link** |
| Summer2 1+2 | <https://www.nature.com/scitable/knowledge/library/succession-a-closer-look-13256638/>  <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2745.13132>  <https://www.pnas.org/doi/full/10.1073/pnas.1716665115> | Learn more about recent research into succession |
| Summer2 3+4 | <https://www.amacad.org/news/mathematical-population-biologist>  [https://bio.libretexts.org/Courses/Gettysburg\_College/01%3A\_Ecology \_for\_All/10%3A\_Population\_modeling](https://bio.libretexts.org/Courses/Gettysburg_College/01%3A_Ecology_for_All/10%3A_Population_modeling)  <https://sheffield.pressbooks.pub/introducingmathematicalbiology/> | Explore the importance of mathematical methods for modelling population dynamics |
| Summer2 5+6 | <https://www.indefenseofplants.com/blog/2015/9/18/cam-photosynthesis>  <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6862505/pdf/ijms-20-05321.pdf>  <https://www.mdpi.com/2311-7524/7/3/50> | Learn about additional ways that plants respond to drought stress |
| Summer holiday | **Top recommendation:** Books from CUP's Understanding Life series  <https://www.cambridge.org/core/series/understanding-life/17E712EFBC65CB12BB9CBBE1A1C2EAA8>  **Interested in developmental biology?**  Endless forms most beautiful, Carroll (2005)  **Interested in medicine?**  Biomedicine and the human condition, Sargent (2005)  **Interested in conservation?**  The Missing Lynx, Barnett (2019)  **Interested in cells?**  How we live and why we die, Wolpert (2009)  **Interested in evolution?**  Why evolution is true, Coyne (2011) | Recommended longer reads |