**LANGDON PARK SIXTH FORM**

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| **Subject: Biology**In Biology we want our students to have an inquisitive mind and be curious about the world around them. | **Year: Y12 Term 1** | **Topic: 2.1.2 Cell structures****Enquiry Question:** How have microscopes contributed to our understanding of living organisms? |
| ***What and Why*?** Biology is the study of living organisms. Every living organism is made up of one or more cells, therefore understanding the structure and function of the cell is a fundamental concept in the study of biology. Since Robert Hooke coined the phrase ‘cells’ in 1665, careful observation using microscopes has revealed details of cell structure and ultrastructure and provided evidence to support hypotheses regarding the roles of cells and their organelles. Students will have studied cells structure at GCSE but this will be the first time that they would have studied many of the organelles in the cell and gain a better understanding of their functions and interrelationship between the organelles in the cells.  |

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| **Tier 2 Vocabulary**magnificationresolutionbondingretention | **Tier 2 Vocabular** | **Key terms**MicrofilamentMicrotubuleMiddle lamellaMitochondrionEukaryoticNucleolus | **Numeracy:**magnification formula as well as expression of decimal and standard form |

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| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Home learning**  | **Extension – Cultural Capital and Reading** |
| Comparison of light microscopes, TEMs. SEMs and laser scanning confocal microscopes.The use of microscopy to observe and investigate different types of cell and cell structure in a range of eukaryotic organisms.the preparation and examination of microscope slides for use in light microscopyThe ultrastructure of eukaryotic cells and the functions of the different cellular componentsThe similarities and differences in the structure and ultrastructure of prokaryotic and eukaryotic cells.The interrelationship between the organelles involved in the production and secretion of proteins The importance of cytoskeleton | Consult your issued textbooks in the first instance, then look at other textbooks in the library for alternative diagrams, other examples or further explanations. <https://www.sciencephoto.com/dennis-kunkel-microscopy-collection>[https://www.stem.org.uk/big-cture/resource-collection](https://www.stem.org.uk/big-cture/resource-collection%20) [www.microscopy-uk.org.uk/](http://www.microscopy-uk.org.uk/)[www.pbrc.hawaii.edu/bemf/microangelo](http://www.pbrc.hawaii.edu/bemf/microangelo)[www.cellsalive.com](http://www.cellsalive.com) | Required practicalWritten TaskPractical write up.Production of scientific drawings with annotations. End of unit assessment | Research and planning on practical work.A written task on history of microscope.[www.seneca.co.uk](http://www.seneca.co.uk) | [***https://www.famousscientists.org/robert-hook***](https://www.famousscientists.org/robert-hook)<https://www.dailymotion.com/video/x4fjy56>http://cellpics.cimr.cam.ac.uk/ |

**Pre-assessment content review**

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| I feel secure in | I need to focus on | My action plan |

**Pre-assessment skills review**

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| I feel secure in | I need to focus on | My action plan |

**Post-assessment review**

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| Weaknesses in content knowledge | Skills I need to focus on | My action plan |
| Retest / review – teacher and student comment |

**Revision planning**

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| Spec point | Notes complete | Revision materials | Past paper Qs  | Timed conditions |
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