**UNIT OVERVIEW:** GCE Astrophysics (Physics)

**ENQUIRY: How has Astrophysics increased our knowledge about Space?**

|  |
| --- |
| **Unit intention: Understand concepts in Astrophysics** |
| **Success criteria: Telescopes. Classification of stars. Star magnitudes. HR diagrams. Supernovae, neutron stars and Black holes. Cosmology** | 🗸 | X |
| 1. Explain using ray diagrams how a refracting and reflecting telescope works2. Explain the conditions needed for IR, UV and X-ray telescopes. The role of radio telescopes3. Recall Rayleigh’s criterion and the importance of minimum angular resolution and collecting Power4. Describe the classification of stars in terms of temperature, colour and spectral class. Use of the equation for star magnitudes5. Construct a HR diagram and label the white dwarf, main sequence, red giants, super red Giants6. Explain what are supernovae, neutron stars and black holes7. Describe the Doppler effect and Hubble’s law8. Recall and explain the evidence for the Big Bang Theory9. Discuss the importance of quasars10. Describe methods to identify exoplanets |  |  |
| **Unit summative and formative assessment details:**MinitestsAssessment on milkTailored Exampro QuestionsExam paper questions  |
| **Home Learning (What and how often):**[http://www.schoolphysics.co.uk](http://www.schoolphysics.co.uk/)<https://phet.colorado.edu/en/simulations/category/physics>CGP Revision GuideAQA Physics TextbookResearch on Black holes and CosmologyResearch on radio telescopes |
| **Student Activities Log** * Watch GCE Physics videos on Youtube and make notes before lesson – Flip learning task.
* Complete worksheets on Astrophysics
* Research the use of different types of telescopes
 | **🗸** | X |
| **Topic Sequence:*** Reflecting and Refracting telescopes
* Single dish radio telescopes, I-R, U-V and X-ray telescope
* Rayleigh’s criterion and, minimum angular resolution and power
* Classification of stars and luminosity
* Equation for Apparent and Absolute magnitudes
* Classification of stars by temperature, black-body radiation
* The Hertzsprung-Russell (HR) diagram
* Supernovae, neutron stars and black holes
* Doppler effect and Hubble’s Law
* The Evidence for the Big Bang Theory
* Detection of exoplanets
 |  |  |

**PRE-ASSESSMENT EVALUATION**

|  |
| --- |
| **Success criteria** – Have you met them? Show your evidence in preparation for your assessment. |
| **1.** |
| **2.** |
| **3.** |
| **4.** |
| **5.** |
| **6.** |
| **How will you improve your work?** |

