|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year 8 Term 3.1 - Maths** | |  | | | | | |
| **Enquiry Question: Can we write a root in index form and vice versa?** | | | | | | | |
| **Unit title: Indices and Roots**  **Why now?** You have been introduced to square numbers briefly in primary school and in an earlier unit at the start of this year called Integers.  In this unit you will learn about **laws of indices** and **roots**. You develop this further with **standard form** later in **Year 8** and use indices and roots in many topics throughout the time at **LPS**. **In year 10** you will learn about **irrational numbers** and later you will learn more in depth about **indices and** you will be introduced to **surds** and their rules. | | | | | | | |
| **Knowledge**  Students will know about… | **Application/Skills**  Students will be able to… | | **Vocabulary**  *(Tier 2 and 3)* | **Home**  **Learning** | **Assessment** | **Extra Resources**  **Extended Reading** | **Cultural**  **Capital** |
| 1. Indices and repeated multiplication 2. Laws of indices in arithmetic 3. Generalising to laws of indices with algebra 4. What do 0 and negative indices mean? 5. Why are fractional indices connected to square and other roots? 6. From Arabic to Latin to English- the history of roots 7. Euclid and the idea of ratio | 1. Define and use key mathematical language. 2. Convert between numbers in ordinary form and index form.      1. Secure fluency with numbers in index form. 2. Reason with roots and indices. | | ***Tier 2***  Power  Vice versa  Inverses  Estimate  ***Tier 3***  Indices  Roots  Squares  Disprove  Counterexample  Base  Coefficient | **Pre-classroom:**  Pre-lesson tasks on **google classroom** to get you thinking.  Diagnostic questions  **Post-Classroom:**  Post lessons online tasks:   * My Maths * Google Form Quizzes * Independent learning notes | Formative assessment at the end of the units in their LPS books.  This will be a combination of students presenting what they know in a creative way followed by some differentiated questions.  Summative Assessment at the end of T4. | **Enrichment:**  **Explore Euler’s Number**  a) Explore **Logarithms** and **John Napier.**  b) Explore the **graphs** of **exponential functions**.  c) Explore other **transcendental** numbers | **Cultural Capital:**  The Winton Gallery at the Science Museum allows students to explore the stories of famous mathematicians and uncover how their contributions have shaped the course of history. <https://www.sciencemuseum.org.uk/learning/mathematics-winton-gallery-school-info> |
| **Numeracy**  Product  Sum  Total  Add  Subtract  Difference |