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| **Year 10 Term 6.1 - Maths** |  |
| **Enquiry Question: why is** $\sqrt{8}$ **half of** $\sqrt{32}$ **?** |
| **Unit title: Indices and Surds****Why now?** This unit builds on work from **Years 7 & 8,** where we learn about the **Language of Maths, Indices and Roots**, as well as **Estimation** in Year 9. This unit now, leads on from these ideas as we look at identifying **irrational numbers**, then moving on to estimate and solve calculations with **Surds.** This knowledge is essential for students aiming to do well in GCSE and potentially **A-level Maths.** |
| **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. Recap laws of indices
2. Recap negative, zero and fractional indices
3. Real, rational and irrational numbers
4. Surds
5. Estimating surds
6. Simplifying and manipulating surds
 | 1. Use and apply the laws of indices.
2. Problem solve with rational and irrational numbers.
3. Estimate with numbers.
4. Secure fluency with arithmetic of surds.
 | ***Tier 2***PowerRaisedRecallIdentify***Tier 3***CoefficientBaseSurdsIntegerConjugateDenominator  | **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
 | Summative Assessment at the end of T6.  | **Enrichment:**Fold a piece of A3 paper in half to get an A4 size sheet. Fold in half again to get an A5 sheet. Note that all three sizes are similar shapes with the lengths of the sides of the A5 sheet being exactly half that of A3. Deduce that the ratio of height to width of all three pieces of paper must be a surd: $\sqrt{2}$ | **Cultural Capital:** Look at the Golden Ratio, ϕϕ, which has a nice surd formϕ=1+5√2≈1.618034ϕ=1+52≈1.618034and understand how it is utilized supposedly on aesthetically beautiful architecture appearing all over the world, like places such as the Parthenon <https://www.goldennumber.net/parthenon-phi-golden-ratio/> |
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