Mountains of Gold…

If you stacked a tower of £2 coins as tall as Mount Everest what would it be worth?

Have a guess!

What do I need to know to answer this question?

What calculations will I have to complete?

What assumptions will I have to make?

Core Maths student

You can look-up **2 facts**.

What do you think these should be?

What is Core Maths?

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"Many entrants to university and employment do not have the mathematical skills expected of them."

"Qualifications should provide a sound basis for the mathematical demands that students will face at university and within employment across a broad range of academic, professional and technical fields"

Sources: Government policy documents and announcements

"It is essential that Core Maths qualifications help prepare students for higher education and employment."

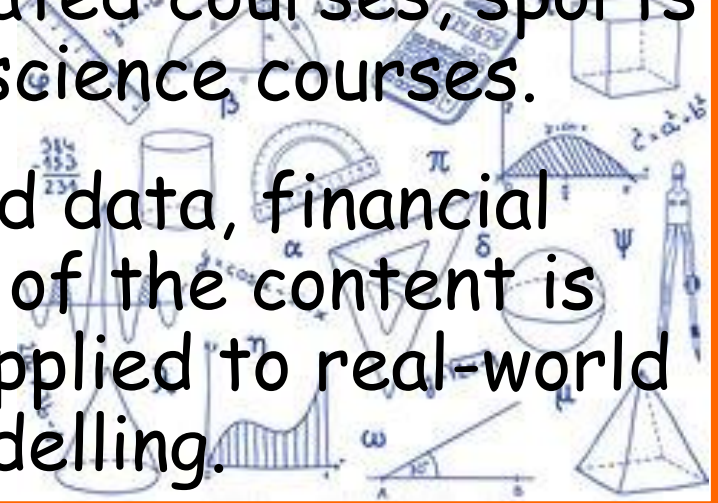
"Core Maths is the most significant development in post 16 mathematics in a generation"

"We are seeing growth in the new Core Maths qualifications introduced in 2014, which are designed to prepare students for the mathematical demands of university study, employment and life. These have been endorsed by a large number of universities, including many in the Russell Group.

What is Core Maths?

AQA LEVEL 3 MATHEMATICAL STUDIES

- Equivalent to an AS level qualification with the same number of UCAS points.
- Graded from A to E. Nationally, 35% of students obtained a grade A or B in 2019.
- It is taken alongside 3 A levels or BTEC. Studied over 2 years, with 4 teaching hours a fortnight.
- Designed to support the study of other subjects such as psychology, business-related courses, sports and social sciences, and natural science courses.
- Topics studied are: statistics and data, financial maths and estimation. Only 30% of the content is new (not studied at GCSE) but applied to real-world contexts using mathematical modelling.



What do I need for studying Core Maths?

- GCSE maths grade 4-9.
- An interest in applying maths to problem-solving.
- Commitment to attend all lessons and to complete independent study tasks, as for any other 6th form course at Ralph Allen.
- To prepare for formal examination at the end of year 13 (two $1\frac{1}{2}$ hour calculator papers).
- A fx-991EX casio calculator is highly recommended. (£19 on school website)

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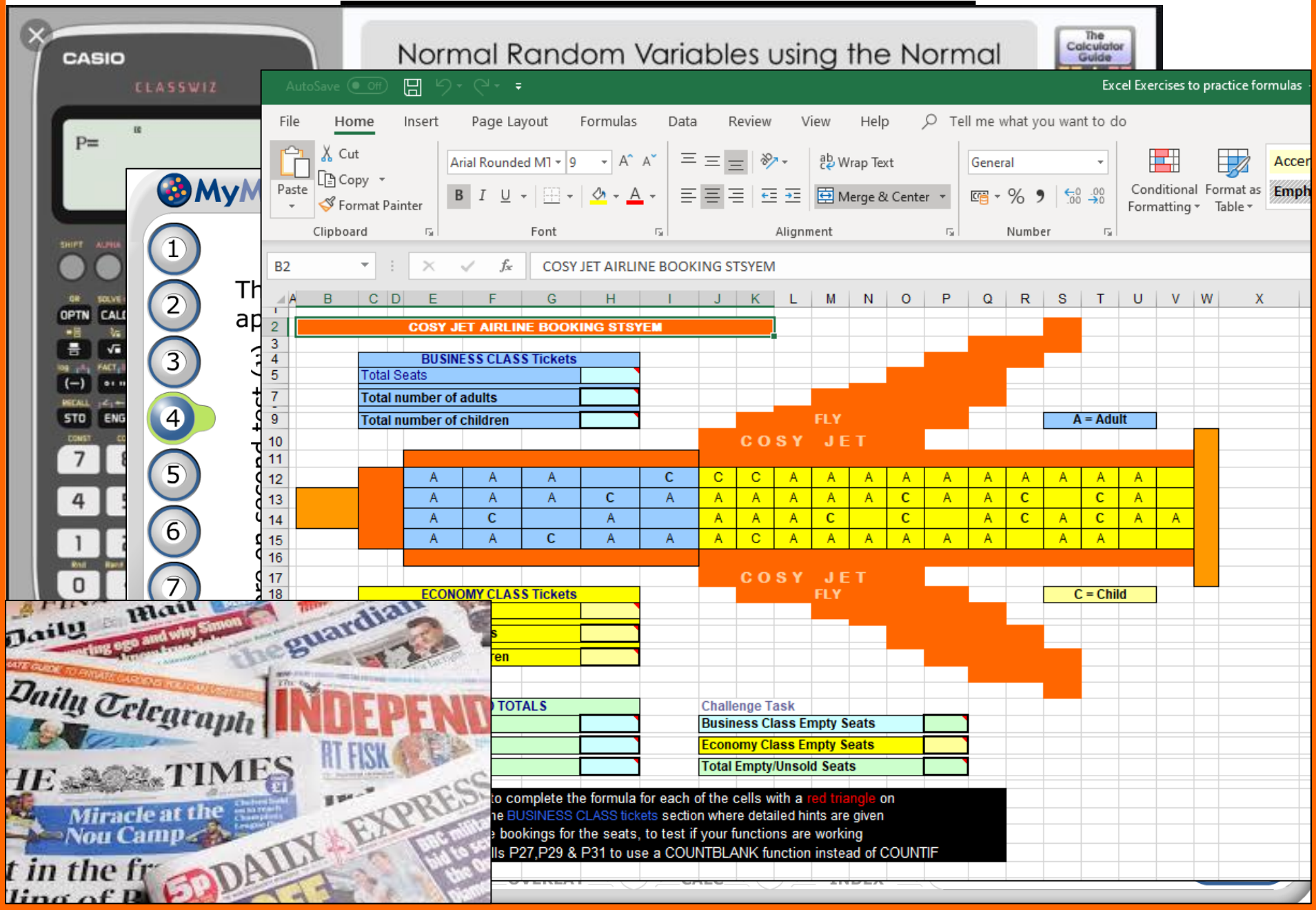
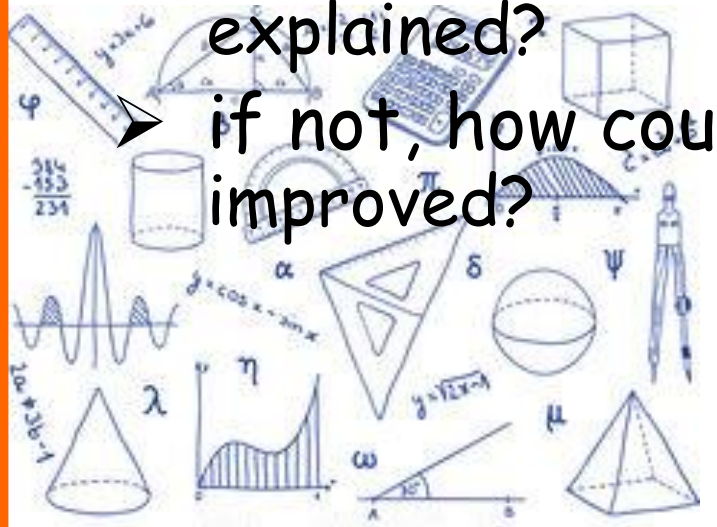
Core Maths Resources



Preparation for Core Maths

- Complete the year 11 Bridging work. Details on the school website
- Watch and read the news, look out for the maths content, ask yourself
  - ➢ does this number seem right?
  - ➢ what is that graph actually showing?
  - ➢ has the maths been clearly explained?
  - ➢ if not, how could it be improved?



GCSE to Core Maths Year 11 to Year 12 Bridging Work Contact: Ms Woodhouse c.woodhouse@ralphallenschool.com	Core Maths is all about using the maths skills you learned at GCSE and applying them to real-world situations. These bridging activities are based on two of the weekly practical tasks which have been set as fun maths tasks for the lower school. You will now use them as a springboard to revise key GCSE methods and to start communicating mathematically. The activities have been broken down into tasks. We suggest one task a week.
Task 1a: Fundraising Cake Sale Complete the MyMaths 'Best Buys' lesson and homework task. Username is ralphallen, password is reciprocal. Calculate the total cost of the ingredients needed to make these chocolate cupcakes.	**Optional: Make!** Make a batch of these cupcakes (or another favourite recipe). Think about what other maths is involved in following a recipe. Revise units of mass and volume.
Task 1b: Fundraising Cake Sale Plan a cake sale for year 11 Prom! Prepare a budget plan, detailing: • total costs (number of cakes, ingredients, cases, advertising, etc) • selling price • expected profit	**Optional: Research** Read some of these articles about fundraising on the excellent money saving expert website: • £10m pledge • Christmas Gifts • Best charity giving websites
Task 1c: Fundraising Cake Sale Complete the MyMaths 'Change as a Percentage' lesson and homework task. Calculate the expected percentage profit of this cake sale. Make best-case and worst-case calculations (eg all the cakes sell, only half do)	**Task to be submitted** Produce a 1-page report to support an application to the Finance Officer for a fundraising loan. Give a breakdown of how much money you want to borrow, demonstrate you'll be able to repay it and persuade that it's a good idea!
Task 2a: Exercise Challenge Complete the BBC Bitesize 'Units of Measure' lessons and test. Key ones for Core Maths are : Length(1), Area & Vol (2), Speed(3), Unit Pricing(6), Converting (7). Measure the height of 1 step and count them to calculate the height of your staircase.	**Optional: Research** Find out what 'Fermi' estimates are and why they're called this. Investigate some Fermi problems. Revise units of length.
Task 2b: Exercise Challenge Estimate how many times a day you climb your stairs. What would be a reasonable daily challenge? Complete the MyMaths 'Estimating' lesson and homework tasks. Estimate how long it would take to climb Ben Nevis's height on your stairs.	**Optional: Do!** Complete the Ben Nevis challenge on your stairs! Can you do it in a week? How much longer would Mount Everest take?
Task 2c: Exercise Challenge **Task to be submitted** Produce a double-page magazine fitness article on the 'Ben Nevis' home challenge. Give clear calculations, inspire your reader – you could include calorie calculations too!	**Optional: Do more!** You can view all of the practical maths tasks here! Choose another one and investigate the maths involved.

Core Maths

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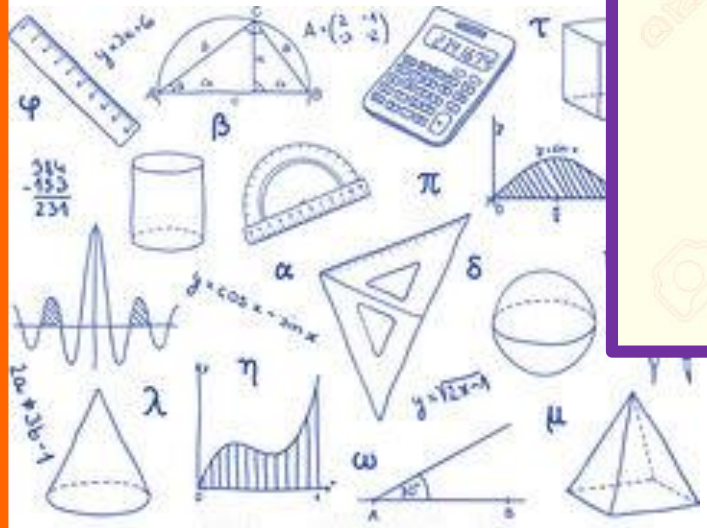
any questions

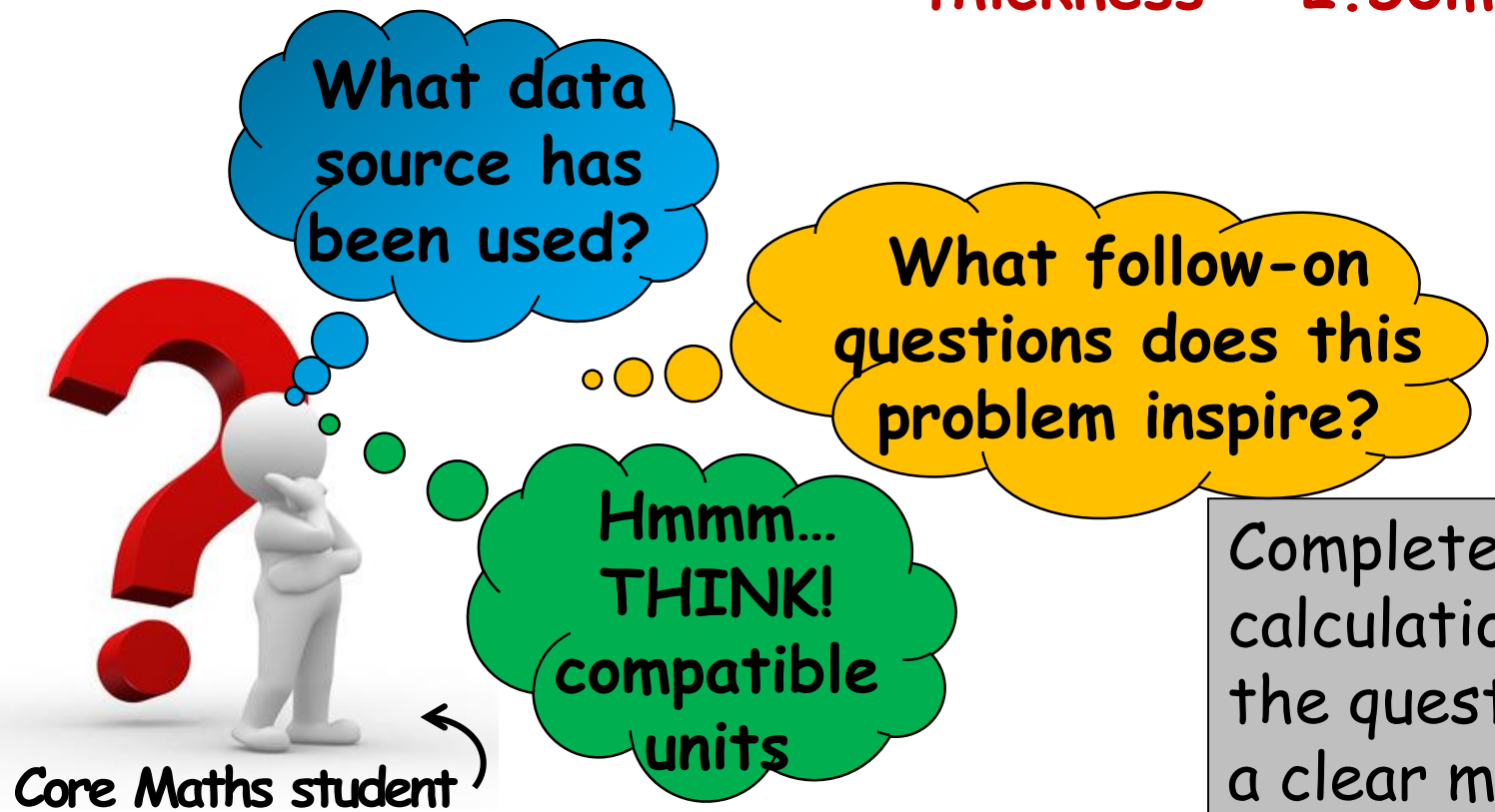


Mountains of Gold…

If you stacked a tower of £2 coins as tall as Mount Everest what would it be worth?

Height of Mount Everest: **8848m**

Dimensions of a £2 coin: **diameter = 28.4mm**
thickness = 2.50mm



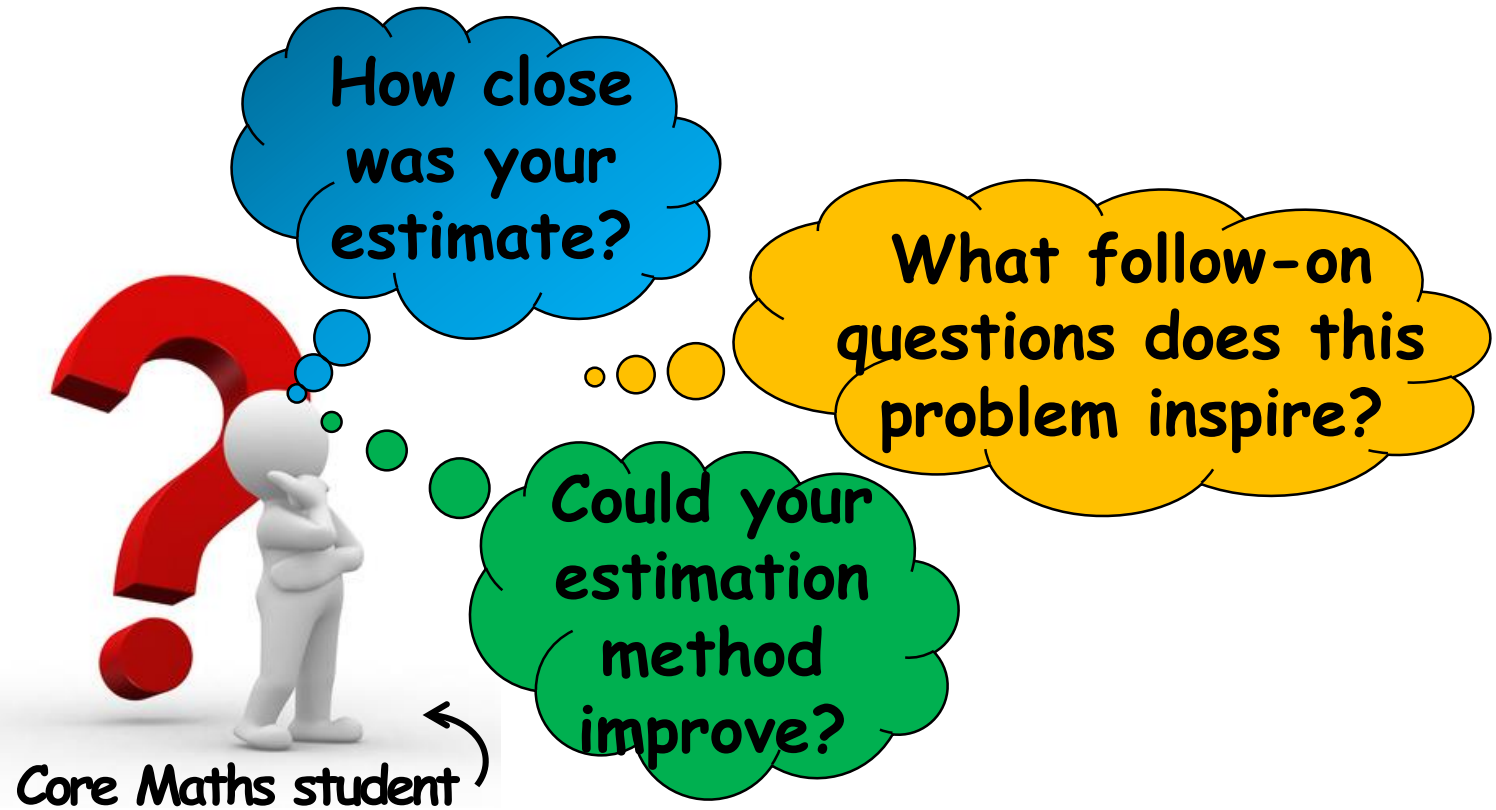
Complete a suitable calculation to answer the question, showing a clear method.

Mountains of Gold: **Answers**

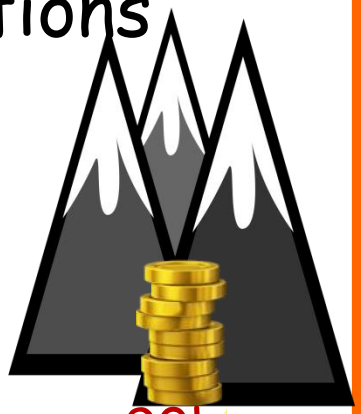
8,848,000mm ÷ 2.50mm = 3,539,200 coins

= £7,078,400

approximately **£7million**



Mountains of Gold: Extension Questions



1. If all the coins were placed in a line on the ground, how long would it be? Where would this reach from Bath?

   Recap: approx. £7million of £2 coins, each of diameter 28.4mm, thickness 2.5mm

   approx 90km Bath-Oxford, Bath-Weymouth

2. What is the weight of all these coins? Is it heavier than an average elephant?

   Extra info: weight of a £2 coin is 12.0g

   40 tons
   approx 10 elephants

3. Would all these coins fit in a suitcase? In the boot of a car? In your sitting room?

   Estimate: dimensions of a suitcase/car boot/sitting room

   Suitcase: no
   Car boot: no
   Sitting room: yes

4. What could you buy with this money?!

   Calculate!