

## Year 7 Maths Summer Challenge

### Compulsory Task 1: Mathematical Poster

**This task is compulsory for all students.** Design and create a Mathematical poster based on one of our two themes: Maths in the Real World, OR Famous Mathematicians. The best posters will be displayed on your classroom walls, and the winners will be put in the Maths Corridor to be seen by the whole school.

Your Maths teacher will ask you for this piece of work in your first lesson. Good luck!

#### Success criteria:

- Your poster is very Mathematical (the more real Maths on your poster, the more likely to win)
- Your poster is interesting and exciting (include some things you did not learn in school)
- Nothing is copied and pasted off the internet: any research is written in your own words
- Your poster is A3 or A4, packed with information, brightly coloured, and visually attractive.

Suggestions of what you could include are below:

<b>Maths in the Real World</b>	<b>Famous Mathematicians</b>
<p>You could choose one of the following:</p> <ul style="list-style-type: none"><li>• Maths in the Workplace: quiz parents, family friends, neighbours or relatives about the Maths in their job, and write about Maths in the workplace. Write down examples of the real Maths they do at work. Maybe include photos of the workplace(s) you are writing about.</li><li>• Maths on my Holidays: take some Maths related photographs on your travels: train timetables, currency conversions, and photos of Mathematical patterns. Write about the history of Maths in the country you are visiting (or England?). Or you might even visit the Science Museum or the Greenwich Meridian or similar and base your poster on that. Add some calculations showing the Maths you discovered.</li><li>• Maths in Nature: you could research this on the internet, and take photos of Maths in Nature. Try looking at Fibonacci sequences. Include some Maths in your poster.</li></ul>	<p>You could include:</p> <ul style="list-style-type: none"><li>• A picture or photograph of the mathematician</li><li>• Details of their life story</li><li>• Details of the Mathematical discoveries they made (get loads of Maths in!)</li><li>• How is their Maths relevant to you, your Maths, or the real world?</li><li>• Do you find them inspiring? Explain why.</li></ul> <p>Some famous Mathematicians include: Johnson, Ramanujan, Gauss, Liu Hui, Hypatia, Kovalevskaya, Nightingale, Qin Jiushao, Lovelace, Noether, Germain, Mirzakhani, Napier, Leibniz, Luogeng, Euler, Pythagoras, Al-Kwarizmi, Sun Tzu, Khayyam, Einstein, Hilbert, Brahmagupta, Pascal, Bhaskara II, Descartes, Al-Karaji. Or find one we haven't heard of!</p>

## Optional Task 2: How many can *you* solve? No calculators!

This is an optional Maths Summer Challenge designed to get really get your mathematical skills warmed up for the new term. You can choose to do this but you do not have to. There are 24 puzzles for you to solve.

You need to complete this challenge on lined or squared paper. Make sure you set your work out neatly and demonstrate your working out. Make sure you have written your name carefully on the top of your work.

### Success Criteria

- Read through the instructions and questions carefully before you begin.
- Set out your work neatly and carefully.
- Demonstrate your working out.
- Use your mental maths skills only.

1. The first year we had a school fete we raised £600. We raised ten times as much money this year. How much did we raise?



2. The coldest temperature recorded on the school thermometer this year was  $-6$  degrees Centigrade. The highest temperature was 25 degrees Centigrade. What is the difference between the two temperatures?



3. 5639 people attended a football match. The previous week 7564 people attended a match. What is the difference in attendance figures for the two weeks?



4. A netball team is made up of 7 players. If 212 children turn up to a netball tournament, how many full teams could you make?



5. 3 friends agree to split the cost of a meal. They each pay £12.68. How much was the meal?



6. I buy a £10 phonecard, I already have £2.65 credit on my phone. I make a call costing £1.83, how much credit have I got now?



7. To make a litre of light blue paint you need 2 tins of blue paint and 3 tins of white paint. If I need 9 litres of light blue paint, how many tins of blue paint and how many tins of white paint do I need?



8. Miss Harrison's favourite chocolates in the selection box are truffles. For every 2 truffles in a box there are 4 toffees. If the box contains 24 toffees, how many truffles will there be?



9. We are going to the garden centre to buy plants for the school allotment. Plants are 43p each. A tray contains 10 plants; a box contains 10 trays. If we buy a box of plants, how much would it cost?



10. Miss Ashraf is replacing the ribbons on a school display. She needs lengths of ribbon that are 356cm long. If she has bought 80m of ribbon, how many lengths can she cut?



11. 24 children pay £14.65 towards a school trip. How much money is collected?



12. For Mrs McMullan's holiday to France she needs to change some money. For every £1 she exchanges, she receives 1.62 Euros. If she changes £350, how many Euros will she receive?



13. In a half price sale I buy a stereo for £110.65, a mobile phone cover for £3.80 and a DVD player for £126.50. What would have been the total I would have paid for these items if there had not been a sale?



14. For every 5km Mr Gillo cycles on a sponsored cycle, his uncle has sponsored him £6. If Mr Gillo cycles 12.5km, how much money will his Uncle need to give?



**15.** Both my brother's ages and mine are prime numbers. My brother is 6 years older than me. What could our ages be?



**16.** For every child in the reception class, there are four children in Key Stage 2. If there are 26 children in the reception class, how many children are in Key Stage 2? One quarter of the children in Key Stage 2 were in your Year six class. How many children were there in your class?



**17.** Mrs Williams asks us to write fractions that are equivalent to  $\frac{4}{5}$  on our whiteboards. The fractions our class writes are  $\frac{8}{10}$ ,  $\frac{3}{7}$  and  $\frac{16}{20}$ . Mr Williams says one of them is wrong, but which one?



**18.** In the computer shop there is a 25% off everything sale. I buy a scanner, which at full price should have been £240. How much do I pay for it? When I go to pay for it, the assistant says I can have a further 5% off if open a storecard. What would the price be if I opened a storecard?



**19.** It costs 75p to go on the waltzers at the fair. At the end of the night, £752.25 has been paid for waltzer rides. How many people paid for a ride?



**20.** Mum is having a new carpet fitted. The carpet costs £480 but Mum must add on 12.5% to the price to have the carpet fitted. How much does it cost to buy the carpet and have it fitted?



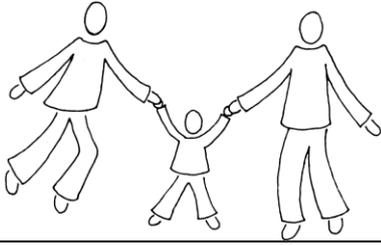
**21.** I've chosen to investigate the weight of my family. Mum weighs 66.7Kg, My brother weighs 71.8kg, I weigh 45.1Kg and Dad weighs 85.6Kg What is the mean weight in our house?



**22.** A bus seats 52 passengers. If the school is taking 242 children and 31 adults on a school trip, how many buses will be needed?



**23.** I am  $\frac{2}{3}$  the age of my brother, he is three times younger than my dad. Mum is 5 years younger than Dad. If Dad is 54, how old are my brother and my mum and how old am I?



**24.** It takes Miss Harrison an hour and ten minutes to get to work. Her journey is 35km long. What is her average speed on her journey?

