

(Science Focus) Maths Word Problems – UKS2 – Year 6

1. A country's population is recorded as 9,482,000 people in 2023, but by the end of 2024, it is projected to grow to 9,753,000 people. By how many people is the population expected to grow?
2. A recycling centre collected 3,875 kilograms of glass waste and 2,640 kilograms of plastic waste in January. In February, they collected 4,120 kilograms of glass waste. What is the total amount of waste collected for glass and plastic over these two months?
3. A project aimed to plant 9,500 trees by the end of the year. So far, 4,325 trees have been planted in the spring and 2,410 in the summer. How many more trees need to be planted in the autumn to meet the goal?
4. A factory produces 365 kilograms of recycled paper each day. If they operate 45 days this quarter, how much paper will they produce in total? If the factory increases production by 15 kilograms per day next quarter, how much will they produce in the next 45 days?
5. A community collected 12,480 kilograms of waste for recycling over 8 weeks. Each truck can carry 780 kilograms of waste. How many full trucks will be needed to transport all the waste?
6. A town reduced its energy usage by 15%. Originally, they used 5,600 kilowatts of energy. How many kilowatts were saved? What is their new energy usage?
7. A water conservation programme collects 6,000 litres of rainwater. If $\frac{3}{5}$ of the water is used for irrigation, how much water is left for other uses?
8. A city uses a ratio of 5:3 to distribute renewable energy between solar and wind power. If 2,400 kilowatts of renewable energy are available, how much energy comes from solar and how much from wind?
9. A green roof is designed with a length of 25 metres and a width of 18 metres. Another section of the roof is 12 metres long and 8 metres wide. What is the total area of the two sections of the green roof?
10. A team of volunteers plants 12 trees in 2 hours. If the team works for 10 hours over the weekend, how many trees can they plant? If they are joined by another team that can plant 18 trees in 2 hours, how many trees will both teams plant together in 10 hours?

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MARK SCHEME

1. $9,753,000 - 9,482,000 = 271,000$ people.
2. $3,875 + 2,640 + 4,120 = 10,635$ kilograms of waste.
3. Total trees planted so far:
 $4,325 + 2,410 = 6,735$ trees.
Trees still needed:
 $9,500 - 6,735 = 2,765$ trees.
4. Total paper produced in 45 days:
 $365 \times 45 = 16,425$ kilograms.
Next quarter with increased production:
 $380 \times 45 = 17,100$ kilograms.
5. Waste collected per week:
 $12,480 \div 8 = 1,560$ kilograms per week.
Number of trucks needed:
 $1,560 \div 780 = 2$ trucks per week.
Total trucks needed:
 $2 \times 8 = 16$ trucks.
6. Energy saved:
 $15\% \times 5,600 = 0.15 \times 5,600 = 840$ kilowatts saved.
New energy usage:
 $5,600 - 840 = 4,760$ kilowatts.
7. Water used for irrigation:
 $3/5 \times 6,000 = 3,600$ litres.
Water left:
 $6,000 - 3,600 = 2,400$ litres.
8. Total energy = 2,400 kilowatts.
Total parts in ratio $5 + 3 = 8$.
Energy from solar:
 $5/8 \times 2,400 = 1,500$ kilowatts.
Energy from wind:
 $3/8 \times 2,400 = 900$ kilowatts.
9. Area of first section:
 $25 \times 18 = 450\text{m}^2$.
Area of second section:
 $12 \times 8 = 96\text{m}^2$.
Total area:
 $450 + 96 = 546\text{m}^2$.

10. First team:

$12 \times 5 = 60$ trees in 10 hours.

Second team:

$18 \times 5 = 90$ trees in 10 hours.

Total trees planted:

$60 + 90 = 150$ trees.