

Dear Year 6 - This maths should be split over the next two or maybe even three days!! I will post the answers on Monday

Your school are planning to run a vintage car festival to raise funds over the summer. Year 6 have been asked to help out with planning and running the event.



Vintage Car Festival

There's plenty of work to do and lots of mathematical thinking needed to get the festival off the ground – read on and rise to the challenge.

The school have looked into the council rules regarding the number of people and cars they will be allowed to have on site. The Head Teacher has given you a link to a website which gives guidance and she wants you to calculate how many tickets they can sell for cars and visitors.

1. The school site is 250m^2 . How many people and cars can attend the festival?

You need to inform the local police as they have to provide 2 officers for every 50 visitors who attend, to help with traffic and security. We can assume each car will have 2 people with it and these must be counted in the policing figures.

2. How many police officers can we expect to be in attendance?

Quick Links
Festival search
Police contact
Resources
Refuse support
Gallery
Contact Us

Health and Safety: community projects

Attendance & Tickets
For every 5m^2 of the site, you can sell 4 tickets.
For every 10m^2 , you are able to host 3 cars.

3. There is a fundraising target of £2500 for ticket sales. Taking this into account, how much should you charge per ticket to meet the target?

The ratio of adult to children's tickets is likely to be 2:1.

4. If you set your children's tickets at £5, how much will your adult tickets need to be to ensure you make enough money? Round your ticket price to the nearest 50p.

Reasoning and Problem Solving – Ratio – Year 6

The Year 5 children and their parents have decided to run a car wash at the event and will need plenty of water and soap to do a really good job. There are rolling barrels which can hold 40 litres of water. The children have calculated that they will use soap and water in the ratio of 1:19.



5. If they plan to wash 50 cars, and each car needs 15 litres of soapy water, how many barrels will they fill and transport? How much soap will they need?

We need to advertise the event to car owner clubs and visitors. The school produce two flyers: one for car owners and one for visitors.

6. Using the information in question 2, what ratio should they print the flyers for owners to visitors? Write the ratio in its simplest form.

Looking at previous events, the printers advise that you deliver more flyers than the number of people you expect to attend. Their suggested ratio is 4:1 (4 flyers for every 1 expected attendee).

7. How many flyers should the school order for car owners and visitors?

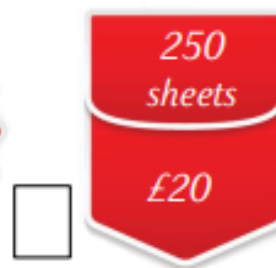
Year 4 decide to raise money by selling photos of people in their favourite car. They canvas the owners who have signed up and $\frac{4}{5}$ of the replies agree to take part.

8. What ratio of owners agreed?



The cost of photo paper varies widely from one shop to another.

9. Which of the following represents the best value for money?



To staff the event, school will be relying on volunteers. All parents in school are asked whether they can help out. $\frac{3}{8}$ of the 400 parents reply and the ratio of yes to no is 3:2.

10. How many parents have agreed to help?

Reasoning and Problem Solving – Ratio – Year 6

To book a place at the event, vintage car owners must complete a form giving details of their car's make, model and colour. There have been so many entries that you now need to manage how to display the cars. To ensure the festival looks inviting, a good mix of colours will need to be parked along side each other. The school council devise a ratio to ensure each arena is enticing to visitors. So far red, green and black cars have all entered. The ratio is 4:2:1.

11. You have space for 48 red cars, how many green and black spaces are there?

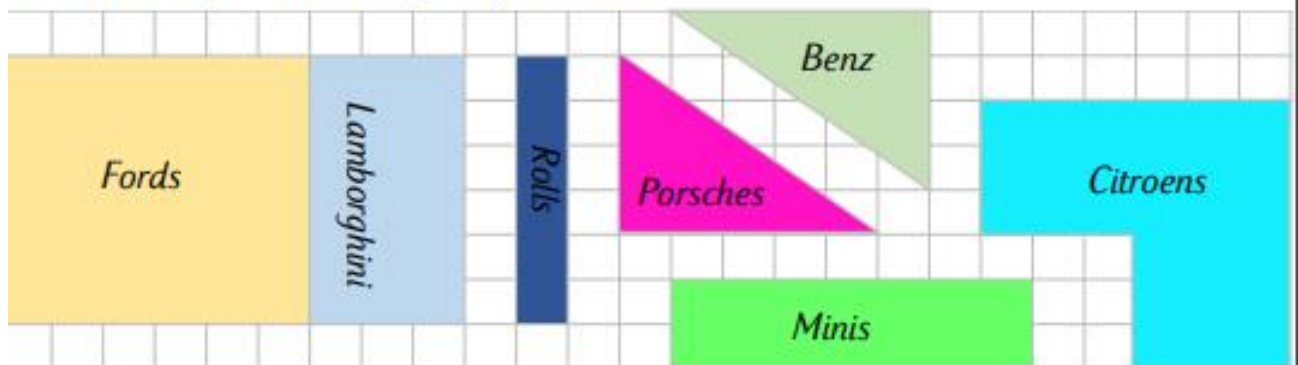
At the last minute, an influx of yellow cars applications arrive. The council decide there should be as many yellow cars as green and black put together.



12. Write the new ratio for red, green, black and yellow entries.

13. How many cars do we have altogether now? By how much will the school have to increase their space? (use Qu 1. to help)

A plan of the different car displays is created so that the areas can be marked out before the day. See the original plan below.



Due to an increase in the number of Porsches, Benz, Minis and Rolls vintage vehicles, the fields need to be made larger by a scale factor of 1.5. There have been less Ford, Lamborghini and Citroen entries than expected so they will need to be reduced by a scale factor of $\frac{1}{3}$.

14. Use the grid on the next page to redraw the plan. You may need to rotate the grid to complete the task. Remember to label your parking areas.

The festival is underway and your help has been invaluable in ensuring the day runs smoothly. All that is left to do is decide which car is your favourite and go get a photo!!



Reasoning and Problem Solving – Ratio – Year 6

Final Map of Parking for Car Festival.

