

Reasoning and Problem Solving

Converting Units – Year 6

About This Resource

This resource is aimed at Year 6 Secure and has been designed to give children the opportunity to consolidate the skills they have learned in Spring Block 4 Measurement: Converting Units.

The questions are based on a selection of the same ‘small steps’ that are addressed in the block, but are presented in a different way so children can work through the pack independently and demonstrate their understanding and skills.

Small Steps

Metric measures

Convert metric measures

Calculate with metric measures

Miles and kilometres

Imperial measures

National Curriculum Objectives

Mathematics Year 6: (6M5) [Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places](#)

Mathematics Year 6: (6M6) [Convert between miles and kilometres](#)

Mathematics Year 6: (6M9) [Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate](#)

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A British school is planning an exchange with a high school in Portugal. The school have been learning Portuguese in anticipation of the children coming to visit. They will stay with the families of children who will then visit Portugal later in the year.

It's time to make the final arrangements but there's a hitch! All the information from Britain is in imperial measures and the Portuguese School only use the metric system! You will need to make sure all the details below are transferred to metric before the deadline to ensure the trip runs as smoothly as possible.

Souvenir hoodies have been ordered and the measurements from Portugal have arrived, but the printer needs them in imperial.



1. Convert the children's heights to imperial (feet and inches).

135cm	1.5m	144cm	155cm	1.65m	150cm	1.32m	1.48m



The coach hire company in Portugal will be bringing the children to the school via a ferry from Spain. They have calculated the journey will take $34\frac{1}{4}$ hours of driving. They three coaches booked and for insurance purposes need to know the total number of hours their three drivers will be driving (in days) for the entire journey there and back.

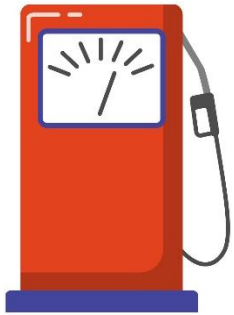
2. Calculate the total amount of driving time in days (to the nearest half day), for the trip to England and the return trip to Portugal.

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The coach travel company require some more information to give their full quote. The distance from the Portuguese school to the British school is 2,193km. Your Headteacher estimates the planned trips, while the Portuguese children are visiting, will be another 55 miles of journey distance.

3. Calculate the full distance in miles. Give your answer to 2 decimal places.

4. With diesel costing £1.20 per litre and each bus running at around 40 miles to the gallon, how much is the fuel bill for one bus likely to be? Use the distance rounded to the nearest mile. Round to 2 decimal places where necessary.



5. The headteacher is checking parking at the visit venues and has compiled a list of the parking spaces available at each place of interest.

The Portuguese school have confirmed their coaches will be 12m long.

Tick which venues can accommodate the coaches?

Venue	Museum	Seaside	Country Park	Shopping Mall	Theme Park
Maximum Space in feet	40'	43'	39.5'	41'	39'
Maximum Space in metres					
Is it suitable?					

The online map, which you are using to plan routes between trips, has highlighted some bridges and tunnels with restrictions.



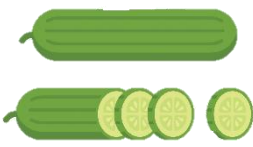

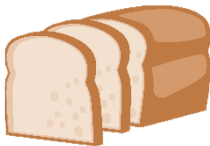
The fully loaded bus weighs 14,998kg and is 644cm tall.

6. Tick which of the restricted bridges and tunnels the coach will have to avoid.

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The school kitchen will be providing packed lunches for the visitors and have asked the Portuguese school for details of the current use of key ingredients for the children involved for a week. They sent the information below.

7. Complete the table to help the kitchen place their order in time.

Item	Per Child	8 children	Imperial
	750g		lbs
	1.5kg		lbs/st
	0.158kg		lbs
	3.5l		gallons
	0.8g		lbs/st

Just when we thought it was time to relax, the school secretary has taken a message from the travel company. They have altered their weight and size limit for luggage.

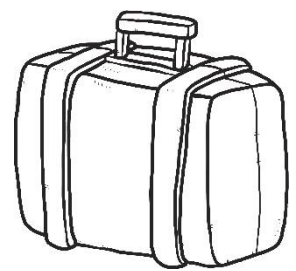
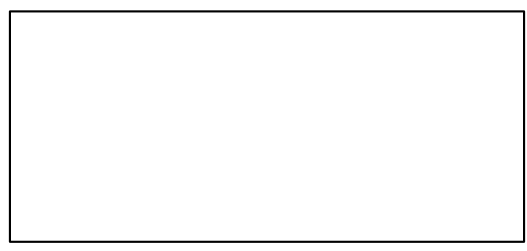
8. Translate the measurements from imperial to metric to send to the Portuguese School.

Carry on luggage size limit:

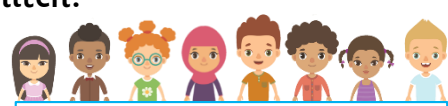
$1' 1'' \times 1' 1'' \times 9''$

Stow away weight limit:

3 stone 2lbs



The trip is on all thanks to your conversions. Well done! Everything should go with out a hitch!



Bem-vindo à Grã-Bretanha



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Answers may vary depending in conversion rates/rounding used.

1.

135cm	1.5m	144cm	155cm	1.65cm	150cm	1.32m	1.48m
4' 5"	4' 11"	4' 9"	5' 1"	5' 5"	4' 11"	4' 4"	4' 10"

2. Three drivers driving $34\frac{1}{4}$ hours each way, so $68\frac{1}{2}$ each for the whole journey. $3 \times 68\frac{1}{2} = 205\frac{1}{2}$
 There are 24 hours in a day so $205.5 \div 24 = 8$ remainder $13\frac{1}{2}$. The remainder is just over half a day so to the nearest half day there are $8\frac{1}{2}$ days travelling time for all drivers for the whole trip.

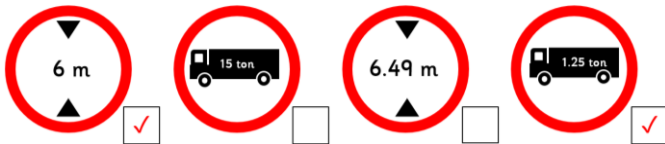
3. 5 miles is around 8 kilometres using this we can calculate $2,193 \div 8 = 274.125$, $274.125 \times 5 = 1,370.63$ miles (to nearest 2 decimal places), plus 55 miles of trips, 1,425.63 miles in total.

4. 1,425.63 to the nearest mile is $1,426 \div 40 = 35.65$ gallons of fuel. There are approximately 4.5 litres in a gallon so $35.65 \times 4.5 = 160.43$ litres at £1.20 each = £192.52

5. (1 metre = 3.28 feet)

Venue	Museum	Seaside	Country Park	Shopping Mall	Theme Park
Maximum Space in feet	40'	43'	39.5'	41'	39'
Maximum Space in metres	12.20m	13.11m	12.04m	12.50m	11.89m
Is it suitable?	✓	✓	✓	✓	

6. (100cm in a metre and 1,000kg in a tonne)



7. (2.20lbs in a kg; 4.55 litres in a gallon)

Item	Per Child	8 children	Imperial
	750g	$750g \times 8 = 6,000g = 6kg$	6×2.2 13.2lbs lbs
	1.5kg	12kg	$12 \times 2.2 = 26.4lbs$ 1 stone 12lbs lbs/st
	0.158kg	1.264kg	1.264×2.2 2.78lbs lbs
	3.5l	28l	$28 \div 4.55$ 6.15 gallons gallons
	0.8g	6.4kg	6.4×2.2 14lbs (1 stone) lbs/st

8. 1 inch = 2.54cm. 13 inches $\times 2.54 = 33.02$; 9 inches $\times 2.54 = 22.86$; $33.02cm \times 33.02cm \times 22.86cm$. 2.20lbs in a kg. 3 stone 2 lbs = 44lbs. $44 \div 2.20 = 20$ kg

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