

Kilograms of CO2 per passenger kilometre for different modes of transport within the UK

Taken from Transport Direct (<http://www.transportdirect.info/web2/>)

	Small car 1 passenger	Small car 2 passengers	Large car 1 passenger	Large car 2 passengers	Large car 4 passengers	Train	Coach	Plane
Calculated by:	kilometres x 0.1276	kilometres x 0.063	kilometres x 0.257	kilometres x 0.1288	kilometres x 0.064	kilometres x 0.06	kilometres x 0.089	kilometres x 0.1753
London to Edinburgh (return) - about 720 miles - 1155km	147.4	73.7	297.5	148.8	74.4	69.6	103	202.6
London to Birmingham (return) - about 212 miles - 340 km	43.4	21.6	87.6	43.8	22.0	20.6	30.4	59.9
Exeter to Liverpool (return) - 461 miles - 742 km	94.7	47.4	191.0	95.6	47.8	44.8	66.0	130
London to Bristol (return) -about 226 miles - 363 km	46.3	23.2	93.5	46.8	23.4	21.8	32.4	63.7
Southampton to Aberdeen (return) - about 1063 miles - 1719 km	218.1	109.0	440.2	220.1	110.0	103.0	152.4	299.8

The assumptions used for these calculations:

Carbon Emission Assumptions (6th May 2008) - Kilograms of CO2 per passenger per kilometre

We assume the following factors (kg CO2 per passenger km) apply to each type of public transport:

Air journeys	0.1753	Source: DEFRA
Bus / Coach journeys	0.0891	Source: NAEI
Light Rail journeys	0.0650	Source: NAEI
Rail journeys	0.0602	Source: DEFRA company reporting guidelines

NAEI is the National Atmospheric Emissions Inventory.
DEFRA is the Department for Environment, Food and Rural Affairs
DfT is the Department for Transport

Miles per gallon for different engine size

Using the [RAC's vehicle running costs tables](#) for new cars we base our estimations on the miles per gallon for different engine sizes.

For the purpose of these estimations we assume a **small petrol engine** is up to 1.2 litres (below 150 grams CO2 per kilometre), a **medium petrol engine** is up to 1.8 litres (150 - 185 grams CO2 per kilometre), and a **large petrol engine** is up to 3 litres (185 - 250 or more grams CO2 per kilometre).

We assume a small diesel engine is up to 1.4 litres, a medium diesel engine is 2 to 2.2 litres and a large diesel engine is over 3 litres.

To illustrate some kinds of car, and their fuel economy:

(see <http://www.vcacarfueldata.org.uk>)

Large cars:



The Toyota Avensis, 2.0 VVT-i Tourer produces 224 grams CO2 per kilometre, (= 30.1 mpg)



or the Vauxhall Zafira, MY2008 Turbo 200PS produces 228 grams CO2 per kilometre, (= 29.7 mpg)



or the Peugeot 308 Estate / SW 1.6 (140 bhp) SW produces 194 grams CO2 per kilometre, (= 34.4 mpg)

Small cars:



Toyota Yaris 1.0 VVT-i 3 & 5 door produces 127 grams CO2 per kilometre, (= 52.3 mpg)



Honda Civic 06 - diesel - produces 140 grams CO2 per kilometre, (53.3 mpg)



Smart fortwo Coupé produces 124 grams CO2 per kilometre, (54.3 mpg)