

HOW MUCH ALCOHOL IS IN A DRINK?

SCIENCE/ ENVIRONMENTAL STUDIES 12 - 16 WORKSHEET 7

The alcohol content of drinks can vary enormously. It depends on the type, size and strength of the drink.

Units are the official measurement of alcohol in the UK. A 'unit' is equivalent to 8 grams of pure alcohol, but the alcohol volume in products varies a lot. It's not as simple as one drink = one unit. Some strong beers contain nearly 3 units per pint rather than the 2 units found in ordinary strength lager. The measures may vary too (a 'double' vodka will have double the units), while a medium glass of white wine (175ml) can be over 2 units.

There is a formula which can be used to work out how much alcohol is in a drink. You need to know how strong the drink is (alcohol by volume %) and how big the glass or bottle is (ml). You can work out how many grams of alcohol are in a drink using this calculation:

$$\frac{\text{volume of glass/bottle (ml)} \times \text{ABV}^* (\%)}{1000}$$

(*ABV = alcohol by volume).

If you know the number of grams of alcohol, you can also work out the number of units in the drink. (There are 8g of pure alcohol in one UK unit).

ACTIVITY ONE

1. Fill in the empty columns in a table similar to the one shown. Use the formula to work out the number of grams of alcohol in each of the drinks listed. Then calculate the number of units.
2. Plot a bar chart of your results.
3. What conclusions can you draw?

Drink	Volume of glass/ bottle (ml)	ABV (%)	Grams of alcohol	Units (give to nearest 0.5 unit)
Beer, lager or cider	330 ml bottle	5		
Beer, lager or cider	440 ml can	5		
Beer, lager or cider	500 ml can	9		
Cider	1 litre bottle (1000ml)	9		
Wine	125 ml glass	12		
Wine	175 ml glass	12		
Wine	Half bottle (375 ml)	12		
Spirits	25 ml measure	40		
Spirits	35 ml measure	40		
Sherry or port	50ml measure	40		