

Working with standard form: diagnostic exercises

Education in Chemistry

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Use these diagnostic questions to assess your students' fluency with standard form notation. Once you have their responses, use course A, B or C from the article for your next lesson.

Students shouldn't use calculators for these diagnostic exercises.

Diagnostic question, age groups 14–16 or post-16

Select the box which only contains numbers which can also be expressed as 10.

1×10^0 10×10^{-1} 0.001×10^4 100000000×10^{-6}	10^1 0.000001×10^6 $100 \times 10^{1/2}$ 0.1×10^2 10000000×10^{-7}
10^1 1×10^1 10×10^0 0.1×10^2 1000×10^{-2}	1000000×10^6 1×10^0 10×10^1 0.01×10^{-2} 0.001×10^{-3}

Diagnostic question, post-16

Which quantity is the largest?

<p>The number of oxygen atoms in a room at standard room temperature and pressure.</p> <p>Room dimensions = $4 \times 5 \times 2.5 \text{ m}^3$</p>	<p>The number of electrons required to power a 14A bulb for an hour.</p> <p>Charge on an electron = $1.602 \times 10^{-19} \text{ C}$</p> <p>Charge (C) = Current (A) x Time (s)</p>
<p>The number of chlorine atoms in 2 litres of chloroform (CHCl_3).</p> <p>Chloroform has a density of 1.49 g cm^{-3}</p>	<p>The number of carbon atoms in a line of carbon atoms (touching side to side) to the sun and back.</p> <p>Distance to the sun = 149 million km</p> <p>Atomic radius of carbon = 75 pm</p>