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Achievement objective GM6-2

In a range of meaningful contexts, students will be engaged in thinking mathematically and statistically. They will solve problems and model situations that require them to:

- apply the relationships between units in the metric system, including the units for measuring different attributes and derived measures.

Indicators

- Converts between units for the attributes given in the table below. (This includes converting between units for volume (capacity) and mass, and between simple derived units.)
- Understands the role of prefixes as conversion factors of base units, for example, kilo means one thousand, milli means one thousandth.

Attributes, units, and abbreviations

Attribute	Units
Length	metre (m), millimetre (mm), centimetre (cm), kilometre (km)
Area	square metre (m ²), square millimetre (mm ²), square centimetre (cm ²), hectare (ha), square kilometre (km ²)
Volume	cubic metre (m ³), cubic centimetre (cm ³), cubic kilometre (km ³)
Capacity	litre (L), millilitre (mL)
Mass	gram (g), microgram (µg), milligram (mg), kilogram (kg), tonne (t)
Time	second (s), microsecond (µs), millisecond (ms), minute, hour, day, etc
Temperature	degree Celsius (°C)
Angle	degree (°)

- Uses derived measures to describe rates, for example:
 - speed (kilometres per hour km/h, metres per second m/s)
 - fuel and energy consumption (litres per 100 kilometres L/100km, joules or calories per minute)
 - unit price (cents or dollars per gram)
 - density (kilograms per cubic metre, kg/m³, grams per cubic centimetre g/cm³)
 - More complicated derived measures such as those for pressure, force, and power are not expected at level 6.

Progression

GM6-2 links to M8-4.

What is new/changed?

- This is a new objective.

Possible context elaborations

- Speed
- Fuel and energy consumption

- Unit prices
- Activity: Water woes
- Activity: How does your cell phone measure up?

Assessment for qualifications

NCEA achievement standards at level 1 and 2 have been aligned to the *New Zealand Curriculum*. Please ensure that you are using the correct version of the standards by going to the [NZQA website](#).

Aligned level 3 achievement standards will be registered by NZQA for use in 2013.

Full information on the level 3 draft standards and the alignment process can be found on [NCEA on TKI](#).

The following achievement standard(s) could assess learning outcomes from this AO.

- AS91030 Mathematics and statistics 1.5 Apply measurement in solving problems

Refer to the draft standards matrix.

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