



Applied General Science (TVQ01028, TVQ01029) formulae

**For use in exams from the January 2017
series onwards**

BIOLOGY

- Magnification = $\frac{\text{observed size}}{\text{actual size}}$

CHEMISTRY

- moles = $\frac{\text{mass}}{M_r}$
- $PV = nRT$
- $Q = mc\Delta T$
- moles = vol (dm³) x concentration (mol dm⁻³)

PHYSICS

Energy and Efficiency

- efficiency = $\frac{\text{useful energy (or power) output}}{\text{total energy (or power) input}}$
- $U = \frac{Q}{At \Delta T}$

Electricity and Circuits

- $I = Q/t$
- $P = IV$
- $I = V/R$
- rate of heat loss = I^2R
- $R_{\text{total}} = R_1 + R_2 + R_3$
- $1/R_{\text{total}} = 1/R_1 + 1/R_2 + 1/R_3$

Dynamics

- $F = ma$
- $p = mv$
- $F = \Delta p/t$
- (average) $v = s/t$
- $v = u + at$
- $v^2 = u^2 + 2as$
- $s = ut + \frac{1}{2}at^2$
- $GPE = mgh$
- $KE = \frac{1}{2}mv^2$
- $P = E/t$
- weight = mg