Equations	Why we use it
Making Buffers $g = (Fw)(V)(C)$	To determining the amount of a substance to weigh out for a buffer
$\text{Molarity} = \frac{\text{moles}}{L}$	To determine the concentration based on moles and volume or vise versa
Percent weight per volume (w/v) $g = (\%\text{ in decimal form})(mL)$	Used in preparing buffers to determine how much of a substance to weigh out.
$\text{moles} = \frac{\text{grams}}{Fw}$ or $\text{grams} = (\text{moles})(Fw)$	For determining how many moles or grams a substance is made up of
Dilutions $V_1C_1 = V_2C_2$	When doing experiments, often you have to dilute concentrated solutions to an experimental level. Here are two ways to calculate dilutions. The V_1C_1 are the for the stock reagent and the V_2C_2 are for the experimental conditions
DNA Calculations μg/mL of double stranded DNA = $(50\ \mu g/mL)(D.F.)(Abs_{260nm})$	For the calculations of DNA concentration after measuring the absorbance of a sample at 260nm.
Dilution Factor = $\frac{V(\text{stock DNA}) + V(H_2O)}{V(\text{stock DNA})}$	Usually a sample of a DNA stock solution is measured with a spectrophotometer. During this process it is important to calculate the dilution factor in order to figure out the concentration of the stock solution.
Centrifugation Conversion $G's(\text{times gravity}) = 11.2 \times r(RPM/1000)^2$	When reading protocols, sometimes the directions are given in RPMs and sometimes in x g. It is important to be able to convert the two.
Calculation of Primer Melting Temperature $(\#As+\#Ts)*2 + (\#Cs+\#Gs)*4 = T_m$	Used in designing primers for PCR.

Legend

Fw = Formula Weight   % = percent

C = Concentration   r = radius

Basic Property	Unit of Measurement	Abbreviation
Mass	grams	g
Volume	Liters	L
Concentration	Molarity	M
Temperature	Degrees Celsius	°C
Length	meter	m

Prefix	Symbol	Base Unit Multiplied by
mega	M	1,000,000 = 10^6
kilo	k	1,000 = 10^3
hecto	h	100 = 10^2
deka	da	10 = 10^1
deci	d	0.1 = 10^{-1}
centi	c	0.01 = 10^{-2}
milli	m	0.001 = 10^{-3}
micro	μ	0.000 001 = 10^{-6}
nano	n	0.000 000 001 = 10^{-9}
pico	p	0.000 000 000 001 = 10^{-12}

Rules for determining significant figures

1. Zeroes in the middle of a number are significant. 69.08 g has four significant figures, 6, 9, 0, and 8.
2. Zeroes at the beginning of a number are not significant. 0.0089 g has two significant figure, 8 and 9.
3. Zeroes at the end of a number and after the decimal points are significant. 2.50 g has three significant figures 2, 5, and 0. 25.00 m has four significant figures 2, 5, 0, and 0.
4. Zeroes at the end of a number and before an implied decimal points may or may not be significant. 1500 kg may have two, three, or four significant figures. Zeroes here may be part of the measurements or for simply to locate the unwritten decimal point.