BIOLOGY CONVERSION HELP SHEET

giga (G)	mega (M)	kilo (k)	hecto (h)	deka (da)	Base Unit	deci (d)	centi (c)	milli (m)	micro (μ)	nano (n)
10^9	10^6	10^3	10^2	10^1	10^0	10^{-1}	10^{-2}	10^{-3}	10^{-6}	10^{-9}
example		0.001 kg=	0.01 hg =	0.1 dag =	1 g =	10 dg =	100 cg =	1000 mg		

Helpful Hints:

if moving from R to L--add zeros

example: 20 m = _____ cm | m | dm | cm |

move 2 so add 2 zeros (same as 10^2)

20 m = 2000 cm OR 20 x 10^2 cm OR 2.0 x 10^3 cm

*REMEMBER: if moving the decimal, add or subtract a zero depending on which direction you move; in this example, changing the 20 to 2.0 moves the decimal to the left, so we add another zero--the 10^2 changes to 10^3

if moving from L to R--subtract zeros

example: 500 cm =_____ km | km | hm | da m | m | dm | cm |

move 5 so subtract 5 zeros OR move decimal 5 to the left (same as 10^{-5})

500 cm = 0.00500 km OR 500 x 10^{-5} km OR 5.0 x 10^{-3} km

*REMEMBER: we moved the decimal 5 spaces to the left to convert to km BUT if put in scientific notation, we MUST have the decimal after the 5. To move the decimal from 0.00500 to 5.0 we move 3 spaces to the right. Since we're now moving to the right, we have to subtract 3 zeros, or 10^{-3}.

1 inch= 2.54 cm 1 gm =1 ml = 1 cm^3 1 mile = 1.6 km 1 kg = 2.2 pounds

Helpful Conversion Hints:

example: 10 kg = _____ lb

first take what is given: 10 kg

find a conversion with kg in it: 1 kg = 2.2 lb

because we want to end up with lb, we want the kg to cancel out

we started with 10 kg so we want 1 kg on the bottom and 2.2 lb on the top:

$$10\ \text{kg} \left(\frac{2.2\ \text{lb}}{1\ \text{kg}}\right) = 22\ \text{lb}$$

example: 2 miles = _____ in

follow the same procedure, but we will have to use several conversion factors

first take what is given: 2 miles

find a conversion with miles in it: 1 mile = 1.6 km

convert km to cm: 1 km = 100000 cm

convert cm to inches: 1 inch = 2.54 cm

$$2\ \text{miles} \left(\frac{1.6\ \text{km}}{1\ \text{mile}}\right) \left(\frac{100{,}000\ \text{cm}}{1\ \text{km}}\right) \left(\frac{1\ \text{inch}}{2.54\ \text{cm}}\right) = 125{,}984.25\ \text{in}$$

***REMEMBER: when the units that you want are on top, you are done converting**