1. The unit of energy for SI is the joule with the symbol, J.

As an example, let's calculate how many joules are in 1 kw·h.

$$1\,kw\cdot h = 1\,kw\cdot h\left(\frac{10^3\,W}{1\,kw}\right)\left(\frac{3600\,s}{1\,h}\right)$$

$$= 3.6\times10^6\,W\cdot s$$

Looking at the units, a W is a $\frac{J}{s}$,

so $W\cdot s = \frac{J}{s}\cdot s = J$.

So, $1\,kw\cdot h = 3.6\times10^6\,J$

2. $W = F\cdot\Delta s$

Force, F has units of $kg\,m/s^2$

& displacement Δs has units of m.

Plugging in the units,

$W = F\cdot\Delta s$: $(kg\,m/s^2)(m)$

$= kg\,m^2/s^2$

W: $kg\,m^2/s^2$

3. Weight, $W = mg$ where m is a mass, and g is the acceleration due to gravity.

m has units of kg.

g has units m/s^2

$W = mg$: $(kg)(m/s^2) = kg\ m/s^2$

these are the units for a force.

4. $p = \frac{F}{A}$ A is an area: m^2

F is a force: $kg\ m/s^2$ or N.

$p = \frac{F}{A} = \frac{N}{m^2}$ or in fundamental units

$= \frac{kg\ m/s^2}{m^2} = \frac{kg}{m \cdot s^2}$

p: $\frac{N}{m^2} = \frac{kg}{m \cdot s^2}$