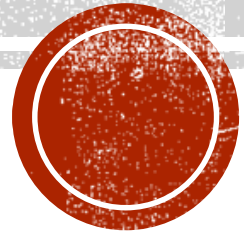
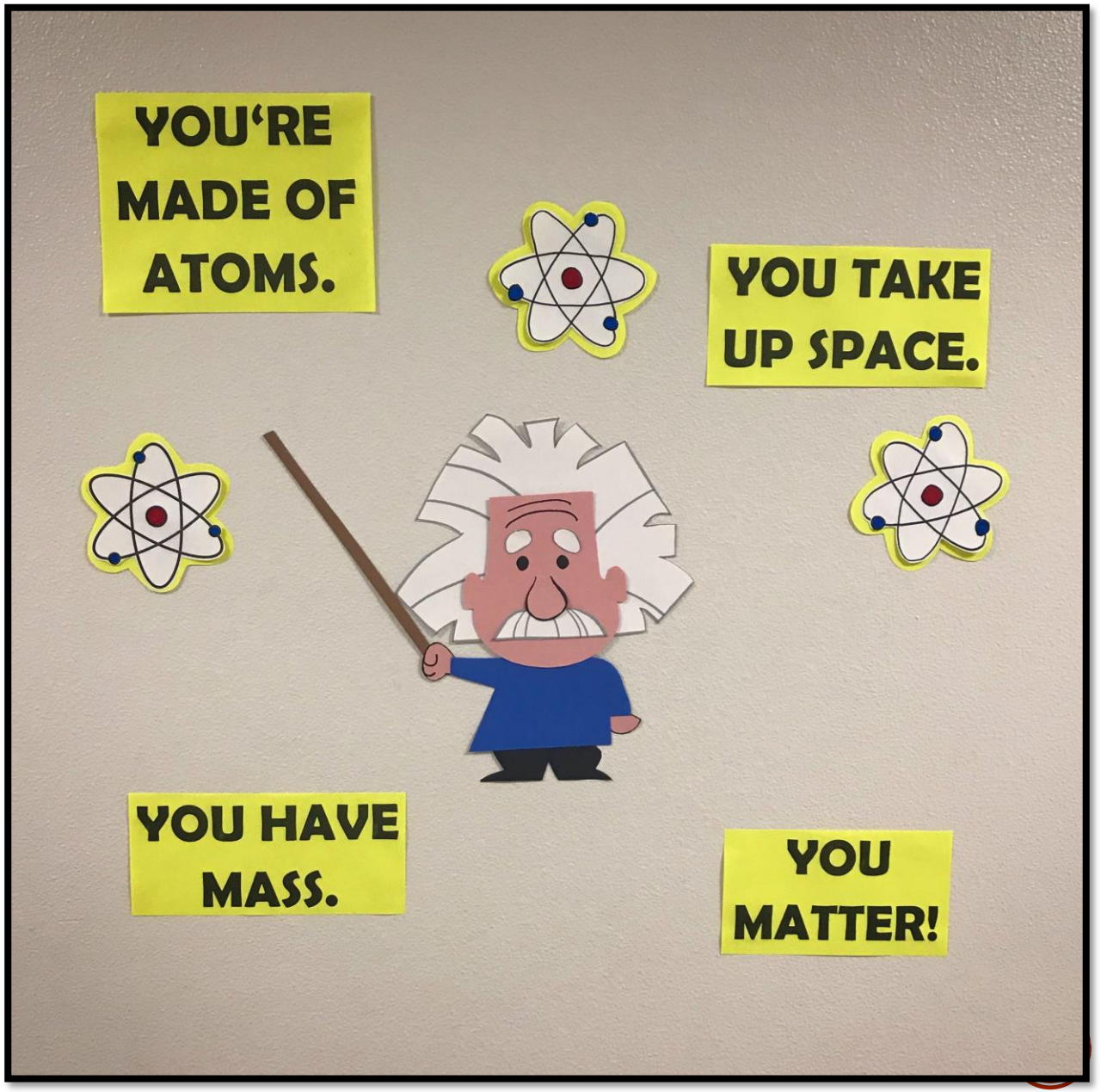
1.2 MASS



RECALL

- What is matter?
- **Anything that has mass and takes up space**



MASS

- Is a measurement of **HOW MUCH matter** is in a particular substance or object
- **IMPORTANT:** mass is not affected by gravity and therefore **does not change** from one place to another

WAIT... THEN HOW COME YOU WEIGH LESS ON THE MOON?

MASS

- **Mass:** is **how much matter you** have in you
  - How many particles

- **Weight:** the **force of pull** on matter caused by **gravity**
  - How strongly the object is being pulled by gravity

Mass vs Weight

Mass is a how much matter an object contains.

Weight is the force exerted on a mass by gravity.

Mass is a constant for a body and does not change with location.

Weight is not a constant. It changes from place to place.

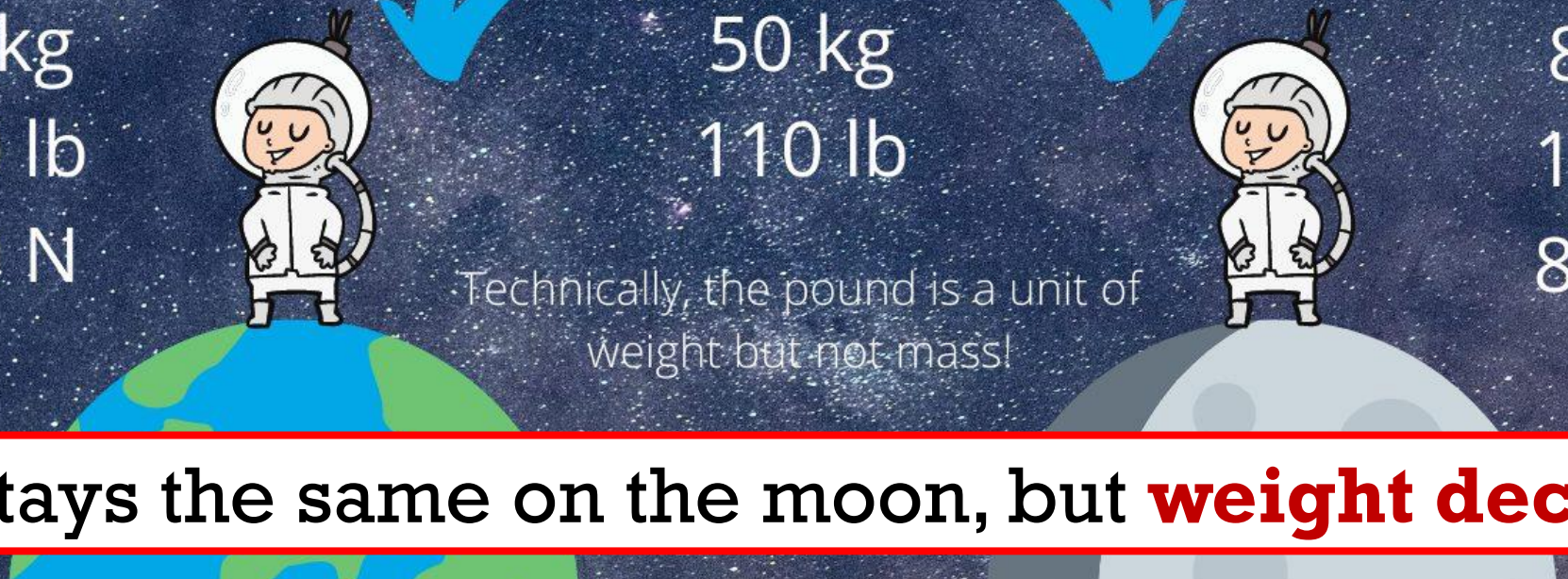
The kilogram is a unit of mass.

The Newton is a unit of weight.

Weight
50 kg
110 lb
490 N

Mass
50 kg
110 lb

Weight
8 kg
18 lb
82 N



Technically, the pound is a unit of weight but not mass!

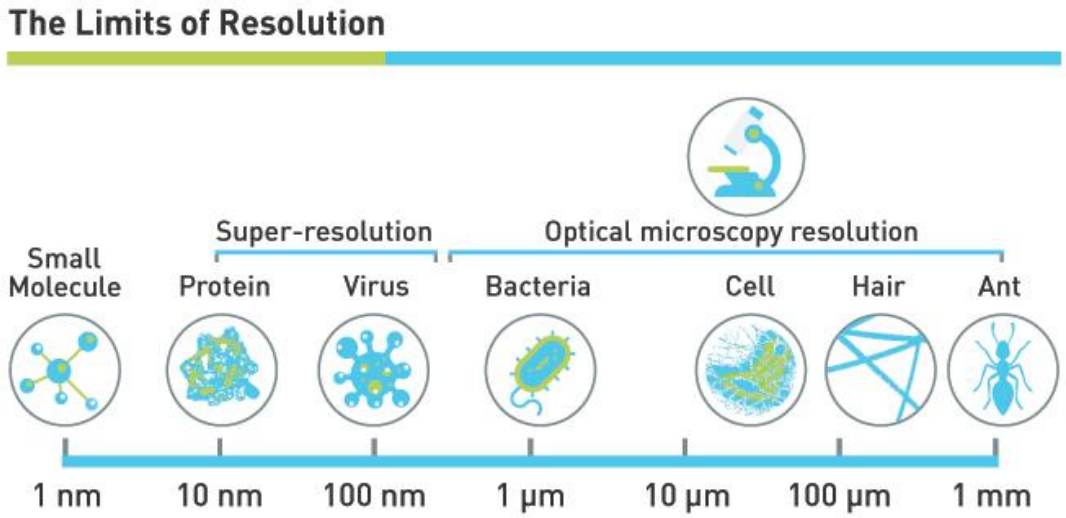
Mass stays the same on the moon, but **weight decreases**!

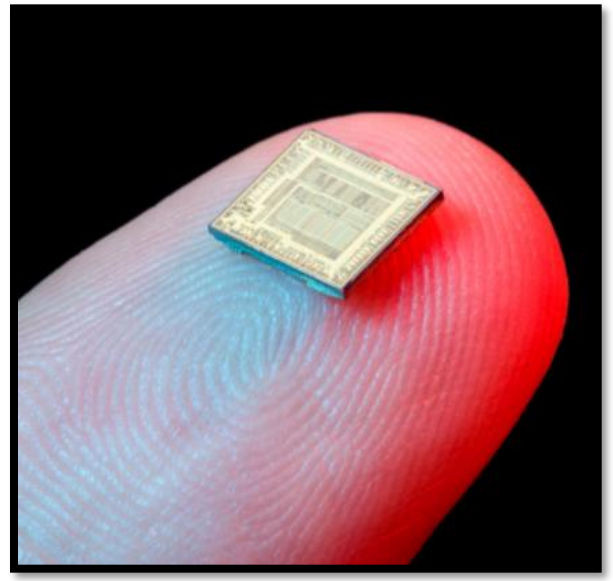
MEASURING MASS

- The basic unit of measurement for mass is the **kilogram**
  - But we can also use tonnes, grams, milligrams or even micrograms depending on the size of the object

MICROGRAM (µg)

- This is used for REALLY tiny objects
  - Often ones that are **micro**scopic or just barely visible to the naked eye





MILLIGRAMS (mg)

- For slightly larger objects, one could use milligrams
  - Chances are, if you would measure it in mm then its mass should be in mg

GRAMS (g)

- Objects are getting slightly bigger but still quite light
  - Chances are, if you would measure it in cm then its mass should be in grams

KILOGRAMS (kg)

- Most larger objects will be measured in kg
  - The kilogram is generally the standard unit of measurement for mass in science

TONNES (t)

- For VERY large objects

HOW DO WE MEASURE MASS?

With a balance!

LET'S PRACTICE!

https://www.wisc-online.com/learn/natural-science/chemistry/gch202/reading-a-triple-beam-balance

WORKBOOK

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