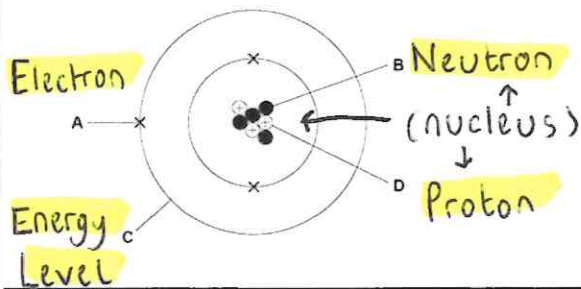




Do now: complete the quiz

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Atoms & the Periodic Table



Groups ↔ Periods

Key		relative atomic mass		atomic symbol		atomic (proton) number	
1	2	3	4	5	6	7	8
7	9	11	12	14	16	19	20
Li	Be	B	C	N	O	F	Ne
3	4	5	6	7	8	9	10
23	24	27	28	31	32	35.5	40
Na	Mg	Al	Si	P	S	Cl	Ar
11	12	13	14	15	16	17	18
Transition Metals							
39	40	45	48	51	52	55	56
K	Ca	Sc	Ti	V	Cr	Mn	Fe
19	20	21	22	23	24	25	26
85	88	89	91	93	96	101	101
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru
37	38	39	40	41	42	43	44
133	137	139	178	181	184	186	190
Cs	Ba	La*	Hf	Ta	W	Re	Os
55	56	57	72	73	74	75	76
[223]	[226]	[227]	[261]	[262]	[265]	[264]	[277]
Fr	Ra	Ac*	Rf	Db	Sg	Bh	Hs
87	88	89	104	105	106	107	108

* The Lanthanides (atomic numbers 58 – 71) and the Actinides (atomic numbers 90 – 103) have been omitted. Relative atomic masses for Cu and Cl have not been rounded to the nearest whole number.

Particle	Mass	Charge
Proton	1	+ 1
Electron	No mass	- 1
Neutron	1	0

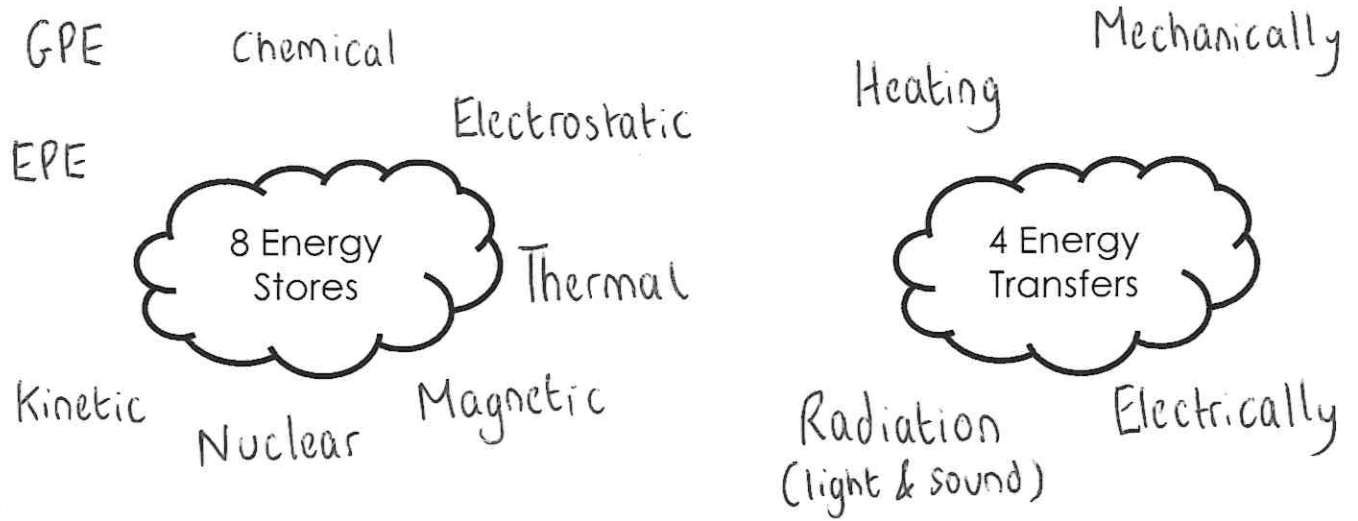
Mendeleev created the table using atomic weight. When protons were discovered, the table was updated.

Group 1	Group 7	Group 0
<p><u>Alkali metals</u></p> <p>Down the group, elements get more reactive. As the electron gets further away from the nucleus</p>	<p><u>Halogens</u></p> <p>Down the group, elements get less reactive and boiling point increases.</p>	<p><u>Noble Gases</u></p> <p>They have full outer shells so they are unreactive</p>

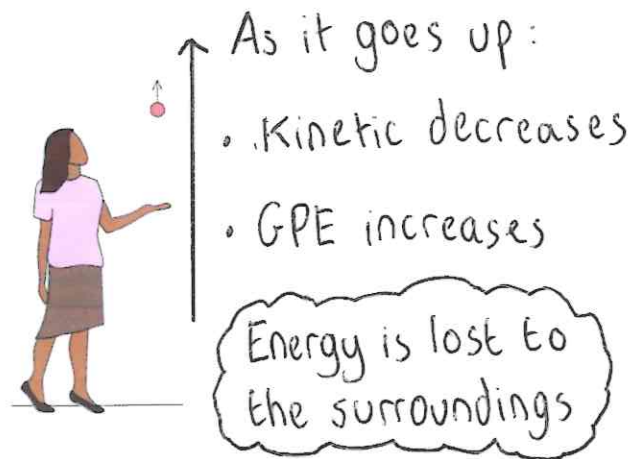
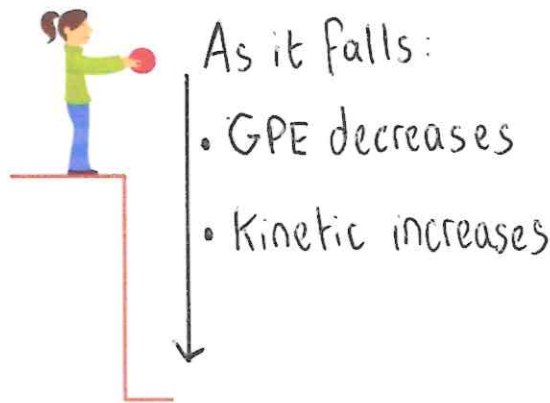
Checkpoint: answer the questions on the board

1.
2.

Energy Stores & Energy Transfers



Energy Changes:



Checkpoint: answer the questions on the board

1.

2.

3.

4.

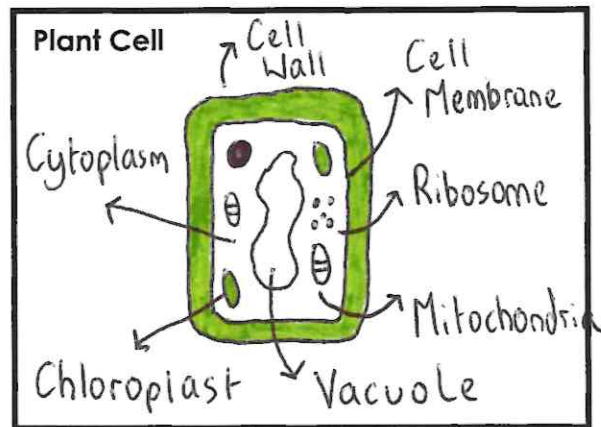
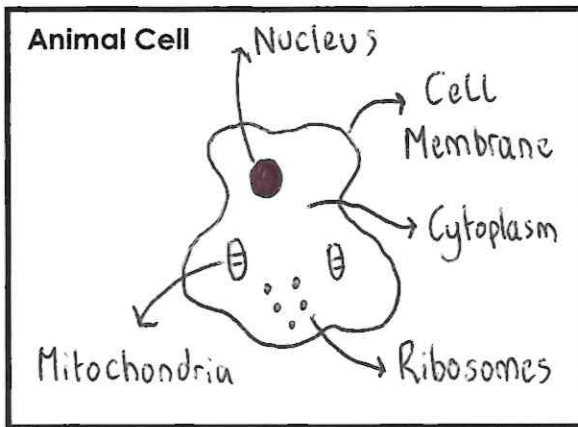
5.



Do now: complete the quiz

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Cell Biology



Functions of sub-cellular structures

Ribosome	site of protein synthesis (makes protein)
Mitochondria	releases energy from respiration
Cell Membrane	controls what enters and leaves the cell
Nucleus	controls the cell and contains DNA

Two Types of Cell

Eukaryotic	has a nucleus	e.g. animal, yeast, plant
Prokaryotic	has no nucleus	e.g. bacteria

Checkpoint: answer the questions on the board

1.
2.

The Heart Structure

Deoxygenated blood back to the lungs

Oxygenated blood to the rest of the body

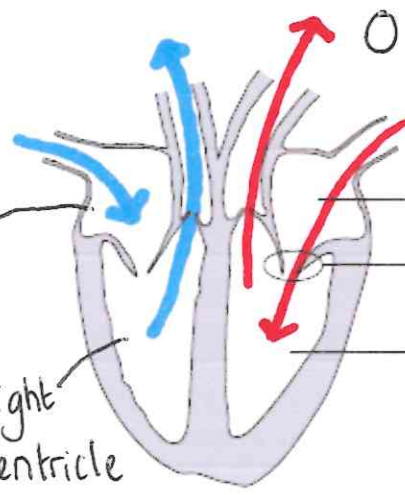
Right Atrium
Right Ventricle

Left atrium

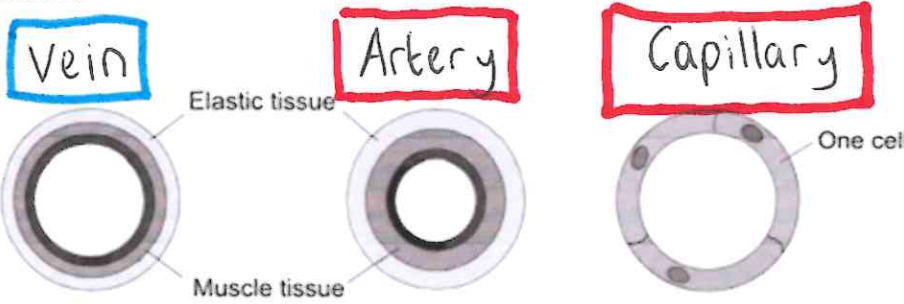
Valve

Left ventricle

* Valves: stop backflow of blood



The Blood Vessels



Deoxygenated blood
Low pressure due to thin muscle tissue.

Oxygenated blood.
High pressure due to thick muscle tissue.

One cell thick to make the exchange of O_2 faster.

Checkpoint: answer the questions on the board

1.

2.

3.

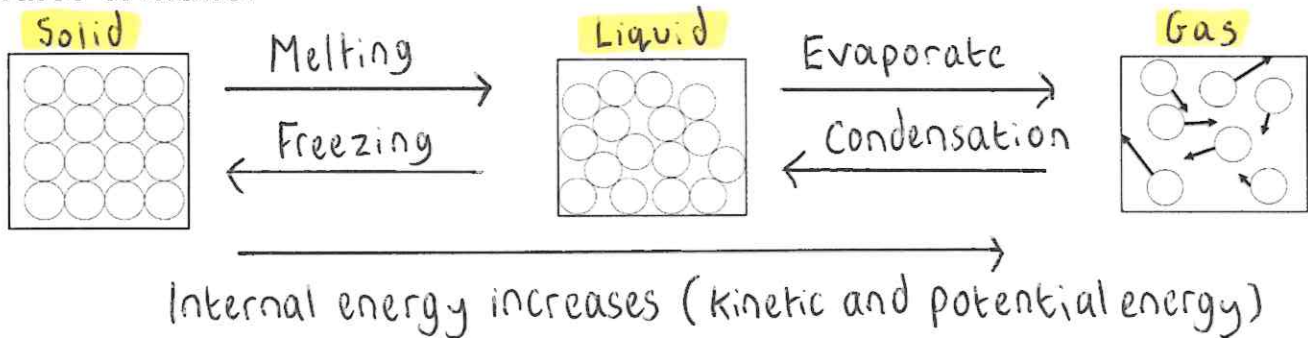
4.



Do now: complete the quiz

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

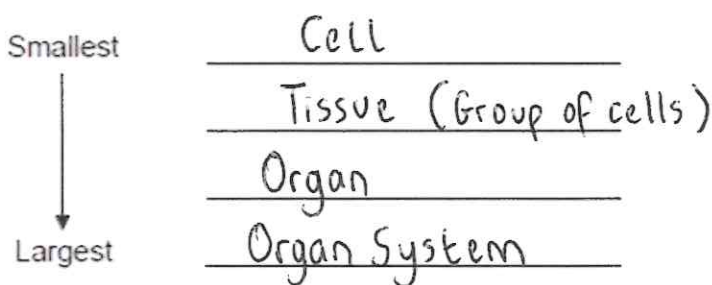
States of Matter



Limitations of the models (means problems with models)

- Only 2D, not 3D
- Does not show electrons

Organisation of Organisms



The image shows a cell. The real length of the cell was 0.05 mm.

Calculate the magnification of the cell.

$$\text{Magnification} = \frac{\text{image size}}{\text{real size}}$$

$$m = \frac{500}{0.05}$$

$$m = 10,000$$



Should be a big number

(not 0.0...)

Calculating Means & Uncertainty

Time in minutes	Temperature in °C			
	Test 1	Test 2	Test 3	Mean
0	25	25	25	25
5	31	32	33	32
10	42	45	45	X

Means

Add up all the 'tests', then divide by the number of tests

E.g. At 10 minutes: $42 + 45 + 45 = 132$
3 numbers, so $132 / 3 = 44$

Uncertainty

Range $\div 2$
= uncertainty

E.g. at 5 minutes (only do the tests)

Range (biggest - smallest) = $33 - 31 = 2$

So, $2 \div 2 = 1$

The uncertainty is ± 1

This sign means
add or take

Checkpoint: answer the questions on the board

1.

2.

3.

4.

5.