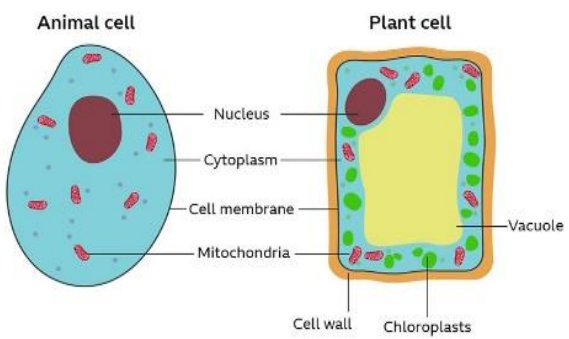
Kemnal Technology College

Year 7 – Kemnal Keys

ambitious minds

	Biology	Chemistry	Physics
1		**Atoms**: the smallest part of an element that can exist. Made of Proton's [+], Neutrons [neutral] and electrons [-]. Elements: Pure substance made of only one type of atom Compound: 2 or more elements chemically bonded to form a new substance.	There are 7 types of **energy stores**; Thermal, Kinetic, Chemical, Gravitational Potential, Elastic Potential, Electrostatic and magnetic.
2	**Eukaryotic cell** any **cell** or organism that has DNA stored inside the nucleus. A **prokaryotic cell** is a simple, single-celled organism that lacks a nucleus and membrane-bound organelles.	The periodic table is made of rows called periods and columns called groups. Each element has a unique number called its atomic number e.g. Hydrogen (H) 1. Group 1 – Alkali Metals Group 2 – Alkali Earth Metals Middle of the periodic table are transition metals. Group 7 – halogen gases Group 0 – Noble gases.	Conservation Law of Energy: Energy **cannot** be created or destroyed, it can only be transferred from one store to another. Energy transfers are never perfect; energy will always be wasted: **Total energy input = useful energy + wasted energy.**
3	**Specialised cells** carry out a particular job. They have features that make them good at this. Example: a root hair cell has large surface area to absorb water	The Dalton model of the atom. 1. All matter is made up of atoms. 2. There are different types of atom. 3. Each elements contains a different type of atom	**Gravitational Potential Energy**: Anything in a gravitational field. (anything that can fall). The higher up = more energy stored.
4	We view cells using a **microscope. Magnification** is the amount an image is scaled up when viewed through a microscope e.g. x10	**Electrons** are arranged in shells around the nucleus of the atom, each shell represents a different energy level. The lowest energy level is shown by the shell that is nearest to the nucleus. The electrons in an atom occupy the lowest available energy level they can.	**Kinetic Energy**: Anything that is moving. Examples; Cars

5	Nucleus – controls the activities of the cell Cytoplasm – chemical reactions take place Cell membrane – controls what enters and leaves the cell Mitochondria – energy is released from respiration Cell Wall – supports the cell shape	<u>Law of conservation of mass</u>. The total mass of reactants is exactly the same as the mass of the new product. No additional mass is gained or lost – mass is **conserved**.	Elastic Potential: Anything that is being stretched or compressed. Example; Springs
6	Vacuole – stores cell sap Chloroplasts – contains chlorophyll which is needed for photosynthesis	**Atoms**: the smallest part of an element that can exist. Made of Proton's [+], Neutrons [neutral] and electrons [-]. Elements: Pure substance made of only one type of atom Compound: 2 or more elements chemically bonded to form a new substance.	**Chemical Energy**: Anything with energy that can be released by a chemical reaction. Examples; Food, fuel. Renewable Energy – Energy sources that will never run out. Non –renewable Energy – energy sources that will run out one day.

Quiz Time

Week 1 Quiz

1. Identify the 5 parts (organelles) of an animal cell
2. Which 3 organelles does a plant cell have that an animal cell does not?
3. Identify 3 types of energy stores
4. Particles are tightly packed and regular in which type of matter?
5. In a gas the particles move in all directions very _____?

Week 2 Quiz

1. What cell has a clearly defined nucleus?
2. What type of forces hold particles in their positions?
3. What is the conservation law of energy?
4. There is both useful energy and _____ energy
5. Place Solid, Gas and Liquid in order of particles containing the most energy

Week 3 Quiz

1. Where will an aeroplane have more GPE, on the runway or in the air?
2. Describe a specialized cell.
3. Describe a pure substance
4. Describe a mixture
5. Why would a root hair cell have a large surface area?

Week 4 Quiz

1. In science, _____ enlarge the image of cells so we can study them
2. Describe the difference between simple and fractional distillation
3. Describe the term kinetic energy
4. Describe the process of using a microscope
5. Describe the particle arrangement of liquid

Week 5 Quiz

1. Name 3 parts of a cell and describe their role
2. Describe the process of chromatography
3. Describe elastic potential energy
4. Identify an object that could have elastic potential energy
5. True or False a eukaryotic cell has a clearly defined nucleus?

Week 6 Quiz

1. Identify 3 parts of a plant cell and describe their role
2. Describe the process of filtration
3. Describe the process of evaporation
4. Describe the differences between renewable and non-renewable energy
5. Give an example of chemical energy