Subject: Science

Year: 7 Teaching block: 1

Topic: Working scientifically, Cells, Body Systems, Particles

Assessment week: w/c 3rd December

The scientific skills you will be learning to use are:
Planning experiments, Analysing results and writing scientific conclusions.

During this topic you will develop and demonstrate the following PLTS:

Creative thinker		Team player	
Reflective learner		Effective participator	
Independent enquirer		Self- manager	

What I will learn?
How to plan an investigation
The parts of animal and plant cells and how cells can be specialised to do different jobs.
How substances move in and out of cells
What a unicellular organism is
What multicellular organisms are, organ systems and how we breathe
The function of the skeleton and of muscles
That everything is made of particles and this can be used to explain how substances, freeze, melt and boil and what diffusion and gas pressure is.

Key vocabulary for this topic:

Cell, nucleus, cytoplasm, cell wall, cell membrane, diffusion, multicellular, unicellular, tissues, organs, respiration, breathing, joints, bones, hinge, ball and socket, force, Newtons, tendon, ligament, antagonistic, particle, atom, mixture, solid, liquid, gas, change of state, melting point, boiling point, freezing, evaporation, condensation, sublimation, diffusion, collide, gas pressure, variable, independent, dependent, control, accurate, precise, line graph, pie chart, bar chart, table, mean, outlier, line of best fit, random error, systematic error. continuous. discrete.

Independent learning: 4 pieces of homework plus revision

HOMEWORK

What?	**When?**
Cells	September
Body Systems	October
Study for Cells and Body System assessment	October
Particles	November

What the best student will understand/be able to do at the end of the teaching block?

How to ask a scientific question, identify variables, write a plan for an investigation that covers all the steps required and could be followed by someone else, recognise what makes data accurate and precise, write a risk assessment, record observations and measurements independently in tables and graphs, calculate a mean, , find patterns and interpret data and evaluate an experiment.

Describe animal and plant cells accurately using specialised terms, the functions of the components of that cell and the differences and similarities between animal and plant cells. Describe a number of specialised cells in detail. Name substances that move in and out of cells and explain the process of diffusion using correct terminology. Describe what a unicellular organism is and the structures of an amoeba and a euglena again accurately using specialised terms.

Define and state examples of tissues, organs and organ system. Explain the hierarchy of organisation in a multicellular organism. Describe the structure of the gas exchange system and how parts of that system are adapted to their function. Describe and explain the processes of inhaling and exhaling and explain how to measure lung volume. Describe the structure and function of the skeletal system, the role of joints in movement and how to measure the force exerted by different muscles. Describe the function of major muscle groups and how antagonistic muscles cause movement.

Describe how materials are made up of particles and use the model to explain why different materials have different properties. Use the particle model to explain changes of state and the properties a substance has in different states. Interpret data about changes of state. Use the particle model to explain diffusion and describe evidence for diffusion. Use the particle model to explain gas pressure and the factors that affect it.