Science
Year 7

The Lowry Academy
The best in everyone™
Part of United Learning

OVERVIEW

At The Lowry Academy our aim is to ensure all children are scientifically literate individuals who can critically evaluate information to make informed decisions about their lives. At The Lowry Academy we equip pupils with both the knowledge and skills to understand the world around them and develop curiosity. A wealth of opportunities to learn about our local and diverse scientific community shows every child how they can involve science in their future, should they wish to. **In science at year 7 we cover the fundamentals for biology through the cells unit, chemistry through the particles unit and physics through the energy unit. We then proceed to learn about reproduction, chemical reactions and forces and motion.**

AUTUMN

7CP - Particles
The students start with the particle model and the movement of particles in diffusion and changing state. Separation techniques are then taught, which forms the bases for the first GCSE Chemistry unit. Within separation, pure and impure need to be covered, as well as planning and carrying out a practical based on rock salt purification. Distillation and saturation is also covered towards the end of the unit, followed by the effect of temperature on solubility.

7PE – Energy
Students look at the main energy stores and pathways. This follows on to look at conservation of energy and the three methods of heat transfer, conduction, convection and radiation. From there, students will study the relationship between power and energy and how to calculate electricity costs. The unit finishes with a study of energy resources.

ASSESSMENT

Fluency is completed once a week which is based on skills.

December End of Topic Assessment on 7CP & 7PE (30 mins).

PERSONAL DEVELOPMENT

Students learn about the awe and scale of living things from the smallest microorganisms to largest.

SPRING

7BC – Cells, Tissues and Organs
Students learn how to use a microscope to estimate size, then looks at cell structure in unicellular organisms before moving on to plants and animals as multicellular organisms, linking structures to the 7 life functions. From there, organisation of multicellular organisms in terms of cells-tissues-organs-systems and why complex organisms need these systems in order to keep cells alive. Diffusion and transport are the connecting ideas.

7BR – Reproduction
Students are taught the structure of the male and female reproductive system and progresses to sexual reproduction, fertilisation, embryo development and implantation, development of the foetus, birth and growth. The cycle is completed by coming back to puberty and menstruation. The unit then moves on to look at plant sexual reproduction and seed dispersal methods.

ASSESSMENT

Fluency is completed once a week which is based on skills.

March End of Topic Assessment on 7BC & 7BR (30 mins).

PERSONAL DEVELOPMENT

Students learn about issues related to smoking and drinking alcohol during pregnancy.

SUMMER

7CC – Chemical Reactions
This unit begins by recapping physical and chemical change and how to spot evidence for a chemical reaction. This work continues into using oxidation as a common example of a reaction and simple word equations are introduced. The unit then moves onto acids and alkalis, using simple indicators and neutralisation as a further common chemical reaction.

7PF – Forces and Motion
Students are first taught to name forces, draw force diagrams & measure forces. This leads into looking at effect of balanced and unbalanced forces on the motion of objects. The link is made between force and pressure, allowing students to perform pressure calculations.

8BE – Ecological Relations and Classifications
Students look at factors that affect populations of organisms, impacts of changing populations and undertake the required practical to estimate daisy population. Then students look at how well adapted organisms are to their environment and how these adaptations may improve over time by mutations and natural selection.

ASSESSMENT

Fluency is completed once a week which is based on skills.

June End of Topic Assessment on 7CC & 7PF (30 mins).

PERSONAL DEVELOPMENT

Students learn about the impact of the changing environment on food chains.

Useful resources for supporting your child at home:

- **BBC Bitesize** - KS3 Science - KS3 Science - BBC Bitesize
- **Knowledge Organiser** – The science knowledge organiser contains all the key definitions students need to know for each unit. You could test your child on their ability to remember these facts, or get your child to self-quiz using the 'Look, Cover, Write, Check' technique

Homework

Homework will be set weekly on Sparx Sceince and we will inform students which section of the knowledge organiser to self-quiz themselves on.