

# **Statements of What Matters**

## **Being curious and searching for answers is essential to understanding and predicting phenomena.**

Curiosity about science and technology leads us to ask questions about the world around us. By being encouraged to use logic, evidence and creativity, learners will be supported to inquire into and apply scientific knowledge to further understanding of how our world works. Developing and testing *models* will also help them make sense of its complexity. With evidence derived from observations, new theories can be developed, and existing ideas may be refined or challenged.

Learners need to be able to evaluate scientific claims to help make informed decisions that affect our environment and well-being, including regarding the climate and nature emergency. The choices we make depend on many factors, including moral viewpoints and personal beliefs. However, rigorous and robust evidence-based research provides a solid foundation on which to base decisions. As ethically informed citizens, learners will need to consider the impact of our actions and of scientific and technological developments, locally and elsewhere in Wales, as well as in the wider world, asking ‘Just because we can, does that mean we should?’

## **Design thinking and engineering offer technical and creative ways to meet society’s needs and wants.**

By applying their experiences, skills and knowledge, learners can design and shape innovative engineered solutions. Being part of a user-centred design process will encourage them to use creativity to develop ideas, manage and mitigate risks, and minimise complexities. When engineering products, services and systems, they will need to understand and control the interactions between materials, structures, components and users. The application of engineering processes allows learners to develop accuracy, precision, dexterity and craftsmanship. By designing and engineering outcomes in response to needs and wants, learners can become enterprising problem solvers.

## **The world around us is full of living things which depend on each other for survival.**

By recognising the diversity of living things and how they interact with their environment, learners can develop an understanding of how these have evolved over significant periods of time. All living things require specific conditions and resources to survive and they may have to compete with other organisms to do so. Humans form part of the living world and our decisions and actions, along with natural selection, can have a significant impact on the diversity of life. Knowing about the structures and functions of living things enables learners to understand how these things grow, develop and reproduce successfully. Developing an understanding of the factors which affect the health and success of organisms allows us to make informed decisions about our physical health and how we impact the natural world, including about the prevention and treatments of diseases.

## **Matter and the way it behaves defines our universe and shapes our lives.**

The universe and all living things are made up of *matter*. The behaviour of matter determines the properties of materials and allows us to use natural resources, as well as to create new substances. Understanding the nature of matter can help learners to appreciate the impact that chemistry has on the world around them, as well as how it contributes to advances in science and technology. Chemical reactions happen continuously in our environment as well as in living things. Learning how to control and apply these reactions has benefits to individuals and industry.

## **Forces and energy provide a foundation for understanding our universe.**

*Forces* and energy can be used to describe the behaviour of everything from the smallest building blocks of matter to the motion of planets and stars. Understanding forces and energy helps us to predict and control the behaviour of our environment. These ideas can be modelled and expressed formally, providing a consistent mathematical framework to describe physical systems. This has enabled some of society's greatest scientific breakthroughs and engineering achievements. An understanding of forces and energy can help learners overcome future challenges and

use our planet's resources efficiently and sustainably, helping them become responsible citizens of Wales and the world.

## **Computation is the foundation for our digital world.**

Computation involves *algorithms* processing data to solve a wide range of real-world problems. Computational processes have changed the way we live, work, study and interact with each other and our environment. They provide the foundation for all software and hardware systems, but learners should also be aware of the limitations of what computers can achieve. To create and use digital technologies to their full potential, learners need to know how they work. They also need to understand that there are broad legal, social and ethical consequences to the use of technology. This can help learners to make informed decisions about the future development and application of technology.