

Fy nhaith ddysgu yn Ngwyddoniaeth/Thechnoleg/TGCh

My learning journey in **Science** and Technology/ICT



Uned ymholi/Enquiry unit: *Do you have what it takes to be a **Midwife**?*

Gwybodaeth a dysgu blaenorol/Prior knowledge and learning:

We will be developing on previous learning such as the role of different organs and systems that help plants and animals to live and grow and describe some of the changes in growth caused by hormones.

Yn ystod eich taith mi fyddwch yn …

During your journey you will …

- Explore different careers within STEM, including discovering the desirable skills and attributes of a Midwife and those in health care
- Use a range of models to explore abstract concepts such as specialised cells, fertilisation, the placenta and the menstrual cycle
- Describe the levels of cellular organisation and how cells perform biological processes
- Develop core practical and observational skills in microscopy
- Recognise what biological sex is, and identify the role of the male and female reproductive systems in creating offspring
- Appreciate the importance of making healthy lifestyle choices on the developing foetus during pregnancy

Yr ydym ar y daith hon oherwydd …

We are on this journey because …

- There are amazing career pathways and future opportunities for all of us in STEM
- We are learning to be ethical, informed citizens who can engage with contemporary issues such as IVF, cloning and designer babies
- Learning about human conception and variation allows us to understand the importance of sexual reproduction and maintaining healthy relationships
- As healthy, confident individuals, we will be able to make informed choices about our own health and lifestyle choices and how our decisions may affect others
- It is important for us to understand how our bodies are biologically different to one another and the role hormones play in our development

Eich tasgau/Your tasks:

Tasg/k 1: **Summative Assessment**: Pre and post topic quiz

Tasg/k 2: **Home Learning Task**: Creative Cells Model

Tasg/k 3: **Practical Skills**: Microscopy Challenge

Tasg/k 4: **Creative Assessment**: Careers Focused Task





Fy nhaith ddysgu yn Ngwyddoniaeth/Thechnoleg/TGCh

My learning journey in **Science** and Technology/ICT



Uned ymholi/Enquiry unit: *Do you have what it takes to be a **Motorsport Engineer?***

Gwybodaeth a dysgu blaenorol/Prior knowledge and learning:

Previously, you will have learnt about balanced forces and how forces can change the way an object moves. You have also had some experience in programming Microbits to collect data.

Yn ystod eich taith mi fyddwch yn …

During your journey you will …

- Explore different careers within STEM, including discovering the desirable skills and attributes required for a job within the Motorsports industry.
- Recognise the different forces acting upon a F1 car and how these forces can change the speed and direction of the vehicle.
- Investigate different fuels that can be used within vehicles and the benefits of changing to more sustainable options such as electric and hydrogen.
- Compete in a team-based project challenge whereby you will be tasked with designing and testing a working car.
- Develop mathematical skills with regards to shape, angle, speed calculations and scale drawings.
- Refine design technology skills including creating CAD designs, constructing a wind tunnel and research design approaches.

Yr ydym ar y daith hon oherwydd …

We are on this journey because …

- There are amazing career pathways and future opportunities for all of us in STEM. Formula One is one of the most popular industries around the world, being the most-watched motor racing sport globally with 525 million viewers
- Formula One has an estimated turnover of more than $4 billion and it employs over 50,000 people in more than 30 countries. The huge global industry isn't just about drivers and racing teams: reasons to work in Formula 1 include developing a career in mechanical engineering, team racing, management, electrical engineering and IT.
- World-class events where racing drivers compete against other drivers from different nationalities across the globe offers the opportunity to travel the world wherever the seasons are taking place, often in the most incredible cities imaginable.

Eich tasgau/Your tasks:

Tasg/k 1: **Summative Assessment**: Pre and post topic quiz

Tasg/k 2: **Home Learning Task**: Alternative Fuels Design

Tasg/k 3: **Practical Skills**: Vehicle Speed Test

Tasg/k 4: **Creative Assessment**: Careers Focused Task





Fy nhaith ddysgu yn Ngwyddoniaeth/Thechnoleg/TGCh

My learning journey in **Science** and Technology/ICT



Uned ymholi/Enquiry unit: *Do you have what it takes to be a **Nutritionist?***

Gwybodaeth a dysgu blaenorol/Prior knowledge and learning:

Previously, you will have engaged with scientific evidence to inform your own opinions, identified the threats to the development and health of organism and explained the role of different organs and organ systems that enable animals to live and grow.

Yn ystod eich taith mi fyddwch yn …

During your journey you will …

- Explore different careers within STEM, including discovering the desirable skills and attributes of a Nutritionist and Dietician
- Identify the macronutrients that form a healthy, balanced diet
- Recognise the importance of a range of vitamins and minerals in our food
- Explore where our food comes from and the benefits of healthy eating
- Explain the causes and effects of different deficiency diseases
- Demonstrate how to calculate the BMI of a person
- Describe the dangers of smoking and vaping on the body
- Explore the different risk factors that might lead to a person developing cardiovascular disease
- Analyse data related to global and local childhood obesity trends

Yr ydym ar y daith hon oherwydd …

We are on this journey because …

- There are amazing career pathways and future opportunities for all of us in STEM
- We all eat! Therefore, by learning about nutrition and consistently making healthier meal choices, we are helping to improve our own health, helping us to grow and repair damaged cells; and in the future, optimising fertility and prevent diseases from developing
- Obesity can affect both your physical and mental health, increase the risk of conditions such as high blood pressure and breathing difficulties, as well as the potential for developing low self-esteem
- There are lots of opportunities for us to act as ethical, informed citizens and engage in contemporary debates and issues such as the cost of food & food poverty, food security and food waste.

Eich tasgau/Your tasks:

Tasg/k 1: **Summative Assessment**: Pre and post topic quiz

Tasg/k 2: **Home Learning Task**: Food Waste Survey

Tasg/k 3: **Practical Skills**: Energy Content in Food Investigation

Tasg/k 4: **Creative Assessment**: Careers Focused Task





Fy nhaith ddysgu yn Ngwyddoniaeth/Thechnoleg/TGCh

My learning journey in **Science** and Technology/ICT



Uned ymholi/Enquiry unit: *Do you have what it takes to be an **Analytical Chemist?***

Gwybodaeth a dysgu blaenorol/Prior knowledge and learning:

Previously, you will have learnt about the three states of matter and their properties. You have also investigated how water can change state and undergo physical changes.

Yn ystod eich taith mi fyddwch yn …

During your journey you will …

- Explore different careers within STEM, including discovering the desirable skills and attributes required for a job within the Chemistry industry.
- Learn how scientists use models, such as the Particle Model, to explain tricky concepts in Science.
- Explore how gases behave, and how pressure can be dependent on both volume and temperature.
- Observe the melting and boiling points of different substances.
- Investigate how energy can be transferred using conduction, convection and radiation.
- Conduct experiments to separate mixtures using methods such as evaporation and distillation.
- Develop practical skills and techniques, including how to produce a chromatogram.

Yr ydym ar y daith hon oherwydd …

We are on this journey because …

- There are amazing career pathways and future opportunities for all of us in STEM.
- Chemistry is indeed an essential part of our everyday life; the clothes we wear, the food we eat, the perfumes we spray, the fertilisers, the paints on walls, the plastic we use, the medicines, and chemicals inside our home. We can't imagine our life without chemistry now.
- The contribution of chemistry-using professionals to the UK GDP is estimated to be over £90billion. There are approximately 275,000 chemistry-using jobs, supported by a further 425,000 jobs throughout the UK economy.
- There will always be a demand for chemical scientists worldwide because chemistry forms the basis of so many materials and processes; and demand for new medicines and medical devices continues to increase.

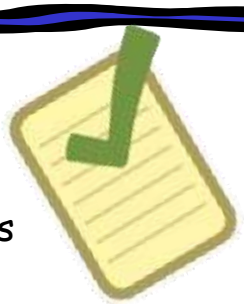
Eich tasgau/Your tasks:

Tasg/k 1: **Summative Assessment**: Pre and post topic quiz

Tasg/k 2: **Home Learning Task**: Cleaning Dirty Water

Tasg/k 3: **Practical Skills**: Thermal Conductors and Insulators

Tasg/k 4: **Creative Assessment**: Careers Focused Task





Fy nhaith ddysgu yn Ngwyddoniaeth/Thechnoleg/TGCh

My learning journey in **Science** and Technology/ICT



Uned ymholi/Enquiry unit: *Do you have what it takes to be* ***an Astrophysicist?***

Gwybodaeth a dysgu blaenorol/Prior knowledge and learning:

Previously, you will have used a variety of simple models to describe the forces acting on an object, described how magnetic fields behave, engaged with scientific and technological evidence to inform your own opinions and described the impacts of Science in your everyday life.

Yn ystod eich taith mi fyddwch yn …

During your journey you will …

- Explore different careers within STEM, including discovering the desirable skills and attributes of an Astrophysicist and Astronaut
- Understand the relative size and position of our planet within our Solar System, Galaxy and Universe
- Use models to visualise key concepts such as 'day and night', seasons and phases of the moon
- Evaluate the challenges and benefits of living on Mars
- Design an Astronaut Training Programme, considering the key skills and attributes required for the job
- Appreciate the difference between mass, weight and gravity
- Recognise how to interpret planet data using a range of formats such as graphs, tables and charts

Yr ydym ar y daith hon oherwydd …

We are on this journey because …

- There are amazing career pathways and future opportunities for all of us in STEM
- Talking about 'Space' promotes creative thinking and nurtures our curiosity and wonder.
- As ethical and informed citizens, we should engage with contemporary issues such as the increasing cost and environmental impact of space exploration and tourism
- By studying alien worlds and planets, we can better understand our own world in context
- We need to appreciate the frailness of Earth, recognising how we can protect our planet and the need to rely on other planets for raw materials or security in the future

Eich tasgau/Your tasks:

Tasg/k 1: **Summative Assessment**: Pre and post topic quiz

Tasg/k 2: **Home Learning Task**: Mars Rover & Colony

Tasg/k 3: **Practical Skills**: Testing Rockets and Craters

Tasg/k 4: **Creative Assessment**: Careers Focused Task





Fy nhaith ddysgu yn Ngwyddoniaeth/Thechnoleg/TGCh

My learning journey in **Science** and Technology/ICT



Uned ymholi/Enquiry unit: *Do you have what it takes to be a **Forensic Scientist**?*

Gwybodaeth a dysgu blaenorol/Prior knowledge and learning:

We will be refining and enhancing our key skills and knowledge such as being able to ask questions and suggest simple methods of inquiry, recognising patterns from our observations and inquiries and observing how and why materials change.

Yn ystod eich taith mi fyddwch yn …

During your journey you will …

- Explore different careers within STEM, including discovering the desirable skills and attributes of a Forensic Scientist
- Recognise the importance of collecting and analysing a range of evidence at a crime scene using scientific methods
- Demonstrate how we can keep ourselves safe and avoid contamination in a scientific laboratory
- Identify a range of different scientific apparatus and their uses
- Investigate how to take accurate measurements of temperature, time, volume and length
- Practise collecting repeatable and reproducible results using a scientific method
- Form predictions and conclusions about data collected from experiments

Yr ydym ar y daith hon oherwydd …

We are on this journey because …

- There are amazing career pathways and future opportunities for all of us in STEM
- Forensic Science is an excellent way to introduce core transferable skills and scientific principles that we can then connect and apply to different contexts
- Being curious and searching for answers is essential to understanding and predicting phenomena
- We need to understand how to take measured risks
- As a scientist, we need to appreciate how to find, evaluate and use evidence when forming views and we are developing key transferable skills such as problem solving, deduction and perseverance

Eich tasgau/Your tasks:

Tasg/k 1: **Summative Assessment**: Pre and post topic quiz

Tasg/k 2: **Home Learning Task**: Design a Mock Crime Scene

Tasg/k 3: **Practical Skills**: Bunsen Burner License

Tasg/k 4: **Creative Assessment**: Careers Focused Task





Fy nhaith ddysgu yn Ngwyddoniaeth/Thechnoleg/TGCh

My learning journey in **Science** and Technology/ICT



Uned ymholi/Enquiry unit: *Do you have what it takes to be* ***a Marine Engineer****?*

Gwybodaeth a dysgu blaenorol/Prior knowledge and learning:

Previously, you will have identified questions that can be used in scientific investigations, suggested suitable methods of inquiry and conclusions. Furthermore, you will have used a variety of simple models to describe the forces acting on an object.

Yn ystod eich taith mi fyddwch yn …

During your journey you will …

- Explore different careers within STEM, including discovering the desirable skills and attributes of a Marine Engineer
- Demonstrate how to measure forces using a Newton Meter
- Investigate the forces that enable objects to float on water, examining the effect of buoyancy and explaining why cruise and cargo ships float
- Describe how density can be calculated
- Outline ways in which we can protect boats and ships from rusting
- Explore why pressure changes underwater and what this means for submarine design
- Evaluate the effectiveness of various navigation systems such as sextants, compasses and sonar.
- Explore different magnetic materials, their properties and uses
- Investigate different magnetic fields
- Explain the uses and advantages of electromagnetism

Yr ydym ar y daith hon oherwydd …

We are on this journey because …

- There are amazing career pathways and future opportunities for all of us in STEM
- Wales has a coastline of 1680 miles and we live and work so close to the sea
- In a world where goods and products are available at the click of a button, it's easy to forget about the global supply chains that make our lives possible. The UK maritime industry is responsible for transporting more than 95% of global trade
- More than 80% of the ocean has never been mapped, explored or even seen by humans. So although there have been some amazing discoveries, there is still so much more to learn
- Learning about forces helps us understand how the world around us works

Eich tasgau/Your tasks:

Tasg/k 1: **Summative Assessment**: Pre and post topic quiz

Tasg/k 2: **Home Learning Task**: Submarine Design

Tasg/k 3: **Practical Skills**: Density Investigation & Tin Foil Boats

Tasg/k 4: **Creative Assessment**: Careers Focused Task

