Science Spiral Curriculum Pathway Map

Cells & genes Biology Big idea: Human body Cells are alive **Bodies are systems Building blocks** Cells & organisation Organ systems Variation & evolution • • Preventing & treating diseases **Gatsby benchmark links:** > A&E topic: explores the roles of nurses, paramedics, radiographers, GP's, porters, etc. - link with hospital

dissections.
 Forensic topic: explores the role of scientist working in a laboratory with protective services.

for junior doctor to come in and do

Live & kicking topic: pupils are trainee sports scientists working at an Academy to optimise athlete's diet, health and training.

Post 16 links:

- Health & Social Care Apprenticeship Level 1 (Truro) & 2: Camborne, St. Austell and Saltash
 - i. Entry level requirement:
 Funktional skills Level 1 English
 and Maths and employment
 place
- Entry to the uniformed services
 Diploma Level 2: Camborne.
 - i. Entry level requirement:
 English and Maths at Functional
 Skills Level 1
- ♣ Sport Progression Level 2: Truro
 - ii. Entry level requirement: Three GCSE grade 3 incl. English and/ or Maths.

Biology

Organisms



Big idea: Environment

- Ecosystem cycle resources
- Organisms are interdependent

Building blocks

- Plants & photosynthesis
- Food chains & biodiversity
- Plant reproduction & respiration
- Competition & adaptation
- Human interaction & global warming
- Waste management

Gatsby benchmark links:

- Creepy crawly unit: learn what plants and animals need through the eyes of farm workers, agricultural scientists, engineers & biodiversity officers – link with local CSAs
- Forest school: practical work using school grounds incl. outdoor cooking, built a bug hotel and den.
- Extinction topic: pupils are trainee reporters for environmental awareness channel Planet TV. As part of their assignments they learn about the changing atmosphere, adaptation & variation.

Post 16 links:

- Animal care Diploma Level 1: Duchy College Rosewarne.
 - i. Entry level requirement: GCSE
 English and Maths at grade 2, or
 equivalent qualification at Entry Level 3
- Marine conservation Diploma Level
 - 2: Falmouth Marine School
 - i. Entry requirement: Four GCSEs at grade 3, incl. English, Maths and ideally Science
- Land-based studies (horticulture): Duchy College Rosewarne
 - Entry level requirement: GCSE English and Maths at grade 2, or equivalent qualification at Entry Level 3
- Game keeping Diploma Level 1: Duchy College Rosewarne
 - i. Entry level requirement: GCSE
 English and Maths at grade 2, or
 equivalent qualification at Entry Level 3
- Eden gardener apprenticeship Level
 - 2: Eden Project
 - i. Entry requirements: GCSEs in English and Maths at grade 3







GCSE

Chemistry P Matter



Big idea: Elements, mixtures & compounds

- Structure defines properties
- Reactions means change

Building blocks

- States of matter
- Atomic structure & bonding
- The periodic table
- ♦ Metals & non-metals ● ●
- ♦ Chemical change ●
- Energy & rate of reaction

Gatsby benchmark links:

- > Pyrotechnic topic: problem solve and recognise hazards to apply engineering solutions in industries – visits to airport, train station, farms and building sites including yearly STEM Big Bang Fair.
- **Cook topic:** explores the world of gastronomy making and serving food. Practical application of skills in the kitchen and laboratory incl. risk assessment.

Post 16 links:

- Painting and Decorating Diploma Level 1: Camborne.
 - Entry level requirement: GCSE English and Maths grade 2
- Basic Plumbing studies Level 1: Camborne, St. Austell, Saltash.
 - Entry level requirement: Two GCSEs grade 2 and Entry-Level standard in Maths and English
- Level 2: Camborne, St. Austell, Saltash.
 - Entry level requirement: Functional skills as part of the programme of work
- ♣ Professional Cookery Diploma Level 1: Truro.
 - Entry level requirement: Three GCSE grade 2 incl. English and or Maths

Chemistry PEarth's resources



Big idea: Chemistry in our world

- Earth systems interact
- Changing climate

Building blocks

- Chemical tests
- Acids & alkalis
- Atmosphere, pollution & climate
- Carbon chemistry
- Human impact LCA
- Water for drinking

Gatsby benchmark links:

- Restless Earth topic: looks into vast amount of jobs linked to Earth resources: making products, Space mining, Human impact & recycling – visits to local recycling centres, forests, tin mines & Eden project.
- Forest school: recycling and human impact on environment in action
- Catastrophe topic: pupils become trainee geologists, volcanologist, etc. to analyse natural disaster – online up-todate links to current events around the world and jobs involved to provide engineering solutions.

Post 16 links:

- Eden Events Apprenticeship Level 2: Eden Projects and ST. Austell.
 - Entry level requirement: Two GCSEs at grade 2 and literacy and numeracy skills to Level 1
- Land-based studies (Agriculture) or (Countryside & Conservation): Duchy College Rosewarne
 - Entry level requirement: GCSE English and Maths at grade 2, or equivalent qualification Entry Level 3
- Bricklaying Diploma Level 1: Truro, Camborne, St. Austell
 - Entry level requirement: GCSE English and Maths at grade 2
- Carpentry Diploma Level 1: Truro, Camborne, St. Austell
 - Entry level requirement: GCSE **English and Maths grade 2**
- Plastering Diploma Level 1: Truro
 - Entry level requirement: GCSE **English and Maths grade 2**







Physics

Forces



Big idea: Magnetism, movement & Space

- Forces predict motion
- Fields produce forces

Building blocks

- Magnetism & electromagnets
- Speed & stopping distance
- ♦ Work
- Contact & non-contact forces <a>-
- ❖ Weight, mass & gravity ●



Gatsby benchmark links:

> Grand prix topic: work opportunities in the world of car industries by using engineering solutions – visit to Cornwall Skills Show at Royal Cornwall Showground to see HGV and farm machinery including yearly STEM competition 'bloodhound' and 'blue light day'.

Post 16 links:

- Transport Maintenance Diploma Level 1: Truro.
 - Entry level requirement: GCSE English, Maths and Science grade 2
- Introduction to land-based technology Level 1: Bicton college.
 - Entry level requirement: GCSE English and Maths at grade 2

Physics

Energy



Big idea: Electricity & waves

- **Electricity transfers energy**
- **Energy** is conserved

Building blocks

- Current & voltage
- Sound & light O
- Energy transfer
- Radioactivity
- Heating & cooling •

Gatsby benchmark links:

- **Electromancer topic:** pupils take on role of trainee electricians to master invisible forces of electricity, magnetism and electrostatics.
- Alien topic: pupils take part in a trainee programme as a new employee at SETI (www.seti.org), a real organisation leading the search for extra-terrestrial intelligence.

Post 16 links:

- Electrical Installation Diploma Level 1: Camborne.
 - i. Entry level requirement: GCSEs **English and Maths at grade 3**
- Introduction to information Technology Progression Level 1: Truro.
 - Entry level requirement: no prior qualification required but programme incl. GCSE in English and Maths
- Information & Creative Technology Progression Level 2: Callywith.
 - Entry level requirement: Three GCSEs incl. English and/ or Maths at grade 3

Pathway

keys



