

Year 7

Autumn 1	The particle model How do we represent particles? What are the different states of matter? Changing shape How do we represent forces? What different forces can act on an object? Maritime: What factors affect buoyancy?
Autumn 2	Animal cells What can be found in an animal cell? How do body systems work in animals? The atom How do elements and compounds differ? What happens when atoms undergo reactions? Maritime: How is hydrogen used in the maritime industry?
Spring 1	Astrophysics How are the planets in our Solar System different? How can you calculate weight by using gravity? Maritime: How does the Moon affect the tides? Changes of state How are physical and chemical changes different? What happens to particles when a solid dissolves? Maritime: What is the impact of impurities in sea water?
Spring 2	The breathing system What is diffusion and how does it work? How is the respiratory system set up and how does it work? Maritime: How does air pollution affect maritime ecosystems? Types of reaction What happens during a chemical reaction? What is combustion and how is it useful? Maritime: How are flares used for safety at sea?
Summer 1	The cycles What different types of rocks are there and how do they differ? How is water cycled through natural systems? Maritime: How are oil spills cleaned up to preserve nature? Human reproduction What are the structures in the male and female reproductive systems? How is the menstrual cycle important to fertilisation?

Year 8

Summer 2	Healthy living How is disease spread and prevented? What are communicable and non-communicable disease? Purity What is the difference between a mixture and a compound? What techniques can be used to separate mixtures? Maritime: How does the saltiness of the sea affect the properties?
Autumn 1	The pH scale What is the pH scale and what does it measure? How do acids react with metals and alkalis? Maritime: What happens if the oceans are acidified? The digestive system How do we test for different nutrients? What makes up a healthy diet? Our atmosphere What gases are present in our atmosphere? What is the greenhouse effect and the impact on climate change? Maritime: How will climate change affect maritime ecosystems?
Autumn 2	Principles of energy What are the different energy stores? How does energy get transferred during various processes? Heating and cooling How can heat be transferred? What is a thermal equilibrium? Maritime: How is energy important at sea? Cellular respiration What is the difference between aerobic and anaerobic respiration? What is fermentation and how is it used?
Spring 1	Energy in the home How do renewable and non-renewable energy sources differ? How is energy transferred and paid for? Plant cells How do plant cells differ from animal cells? How do plants reproduce and disperse seeds? Maritime: How do water based plants differ from those on land?
Spring 2	Electrical circuits How are current and potential difference measured in a circuit? How do series and parallel circuits differ? Mechanical Waves How do waves travel? How do animals detect sound? Maritime: How is sonar used at sea?
Summer 1	Photosynthesis What is photosynthesis and why is it important? What factors can affect the rate of photosynthesis? Forces and Motion What is a distance-time graph and what does it show? How do we calculate speed from the movement of an object?
Summer 2	The periodic table What can the periodic table show us? How do groups 1, 7 and 0 react and what are the patterns? Changing forces How do forces change the shape of an object? What is Hooke's Law relating to springs?

Year 9

Autumn 1	Magnetism How are magnetic fields represented? How do compasses use magnetism? Maritime: How are compasses useful at sea? Interdependence How can a food web represent an ecosystem? How does a toxin build up in a food web?
Autumn 2	Gas pressure Why are objects able to either float or sink? How does drag affect a moving object? Maritime: Why are some objects more buoyant than others? Inheritance and evolution In what ways can variation exist in a species? How do organisms evolve over time? Maritime: How do some species evolve to live in or on water?
Spring 1	Light waves What is the difference between reflection and refraction? How does the eye use light to create an image? Maritime: How does light refract images at sea? Life on earth How does the tilt of Earth create the seasons? What allows Earth to experience night and day?
Spring 2	Static electricity What is static electricity and how is it generated? How are electrostatic forces used? The reactivity series of metals What does the reactivity series of metals show? How are metals able to behave as catalysts?
Summer 1	Cells to cells systems How do microscopes allow us to view cells? How do stem cells lead to specialised cells? How does the heart allow our circulatory system to work? Atoms and the periodic table How was the atomic model and periodic table developed? How are relative atomic masses calculated? Why do groups 1, 7 and 0 react as they do? Energy and the particle model How can we investigate density of an object? What is specific heat capacity and specific latent heat?
Summer 2	Chromatography and analysis How can we tell if a substance is pure? What is chromatography and how is it analysed? Forces 1: Defining forces What is the difference between a scalar and a vector? How to forces act on elastic objects?