

Science: Matter 1



Y7: Term 1

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| Why this? | Builds on Ks2 matter(solids liquids and gases) |
| Why now? What are we building on? | Building on from KS2 Matter. Then moves on to Year 8 Matter 2 |

| Key Vocabulary | Sources Or content | Create Independent learning |
|---|---|--------------------------------------|
| <ul style="list-style-type: none"> • Solid • Liquid • Gas • Solute • Solvent • Solution • evaporation • Melting • Condensation • Diffusion • saturations | <ul style="list-style-type: none"> • Science KS3 National Curriculum • BBC Bitesize, Activate Resources | Seneca Phet simulations matter |

| Knowledge | Skills |
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| Describe arrangement of particles in solids liquids and gases Identify and name changes of state Understand differences between pure substances and mixtures Explain how solutions are formed | Follow written practical instructions Separate rock salt using correct apparatus Correctly draw particle models for solid liquid and gases |

| Links to other curriculum areas? | Links to Primary national curriculum? |
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| Ks4 chemistry collision theory C6 Ks4 particle physics P3 | Ks2 matter |

Diversity and Personal Development

Bettye Washington greene, first black female to work for Dow chemical publishing several papers related to how particles behave in emulsions

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| <p>Common misconceptions</p> | <p>Particles expand when heated Gases disappear Matter is continuous rather than being formed from discrete particles</p> | | |
| <p>What will I have learnt at the end of this unit?</p> | <p>What is the assessment of this learning? SUMMATIVE</p> | <p>What assessments are their for learning? FORMATIVE</p> | <p>What subject knowledge and skills will I have the opportunity to remember, revisit and develop? (from when)</p> |
| <p>How to draw particle diagrams for solids liquids and gases How to separate a mixture of rock salt Identify changes of state Explain how diffusion occurs in liquids and gases Understand solution, solute and solvents</p> | <p>End of topic test (20 marks)</p> | <p>Mini white boards Questioning Mini quizzes kahoot</p> | <p>Ks2 solids liquids and gases The knowledge from this year will come up in ks4 physics topic 3 Ks4 chemistry unit 1 separation of mixtures and pure substances unit 8</p> |
| <p>Concepts explored</p> | <p>Opportunities for Oracy</p> | <p>Careers in the curriculum</p> | <p>Developing and Challenging my own learning Seneca learning Phet simulations(matter)</p> |
| <p>Particle model of matter Movement of particles from area of high to low concentration</p> | <p>Explaining how to separate rock salt</p> | <p>Particle physicist</p> | <p>Opportunities to experience matter in action? Separating rock salt Exploring properties of solids liquids and gases Heating curves for water</p> |

Science: Forces 1



Y7: Term 1

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| Why this? | Students will develop an understanding of Forces. Objects can affect other objects at a distance. Changing the movement of an object requires a net force to be acting on it |
| Why now? What are we building on? | Building on from KS2 Forces. Then moves on to Year 8 Forces-2 and Year 11 AQA Forces (P5) |

| Key Vocabulary | Sources Or content | Create Independent learning |
|---|---|-----------------------------|
| air resistance, gravity, non-contact force, newton meter, resultant force, balanced, unbalanced, tension, compression | Science KS3 National Curriculum, BBC Bitesize, Activate Resources | Seneca Bbc bitesize |

| Knowledge | Skills |
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| <p>If the overall, resultant force on an object is non-zero, its motion changes and it slows down, speeds up or changes direction. (Y8)</p> <p>When the resultant force on an object is zero, it is in equilibrium and does not move, or remains at constant speed in a straight line.</p> <p>One effect of a force is to change an object's form, causing it to be stretched or compressed. In some materials, the change is proportional to the force applied.</p> | <p>Make a simple prediction about what will happen in an investigation</p> <p>Follow written instructions to carry out a practical investigation</p> <p>Identify the variables that you are changing and measuring in an investigation. These are known as independent and dependent variables.</p> <p>Make and record observations in tables</p> |

| Links to other curriculum areas? | Links to Primary national curriculum? |
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| P5 forces KS4 Vectors Maths | KS2 forces |

Diversity and Personal Development

Fabio Gianotti- She joined Cern in 1994, where she worked on the Atlas experiment, which pinpointed the Higgs, the sub-atomic particle that helps give mass to the building blocks of nature

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| Common misconceptions | <p>If an object has an unbalanced force on it will move backwards.</p> <p>There are no forces on an object unless it moves.</p> <p>If an object is on a table the only force acting on it is gravity</p> |
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| What will I have learnt at the end of this unit? | What is the assessment of this learning? SUMMATIVE | What assessments are their for learning? FORMATIVE |
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| Type of forces Contact and non contact forces Balanced and unbalanced forces Calculating a resultant force Explain the effect of different forces on an object. | End of unit exam questions 20 marks | White boards Mini quizzes Dialogic questioning kahoot |

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| What subject knowledge and skills will I have the opportunity to remember, revisit and develop? (from when) |
| Year 8 forces KS4 unit 5 forces year 10 |

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| Developing and Challenging my own learning Seneca can be used as homework and independent learning |
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| Concepts explored | Opportunities for Oracy | Careers in the curriculum |
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| Balanced and unbalanced forces Types of forces acting upon objects | Questioning explaining hypotheses for investigations | Engineering Astrophysicist Road safety data analyst Vehicle crash test engineer |

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| Opportunities to experience forces in action? Car and ramps Streamlining investigations |
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