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| **Year 7 Curriculum Map : Chemistry** | | | |
|  | **Autumn** | **Spring** | **Summer** |
| **Assessment Objectives** | **AO1** - Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures (40%)  **AO2** - Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures. (40%)  **AO3** - Analyse information and ideas to: interpret and evaluate; make judgements and draw conclusions; develop and improve experimental procedures. (20%) | | |
| **Unit Length** | **Topic:** C1 Particles - 16 lessons. | **Topic:** C2 Separation techniques – 12 lessons. | **Topic:** C3 Chemical reactions 13 lessons. |
| **Key Learning Outcomes** | 1. How can we stay safe in the lab? 2. How do we use Bunsen burners safely? 3. What is the particle model? 4. How do particles in different states of matter act? 5. How do particles act during melting and freezing? 6. How do particles act when during boiling? 7. Explain how particles evaporate and condense. 8. Progress assessment 9. How do particles react in diffusion? 10. What is Brownian’s motion? 11. How do gases exert pressure? 12. Revision 13. End of unit assessment 14. Reteach 15. DIRT | 1. What is purity? 2. How to use key words and terms in this topic? 3. What are the misconceptions in solubility? 4. How separate substances by filtration? 5. How do I plan and conduct an investigation into solubility? 6. How does chromatography separate mixtures? 7. Progress assessment 8. What is distillation? 9. Revision 10. End of unit assessment 11. Reteach 12. DIRT | 1. What are chemical and physical reactions? 2. What is the difference between an atom, element, and compound? 3. How can we describe substances using their properties? 4. How can we use word equations to represent chemical reactions? 5. How can we use symbol equations to represent chemical reactions? 6. What are the signs of a chemical reaction? 7. Progress assessment 8. What is conservation of mass and how can we show this in a reaction? 9. What is an exothermic and endothermic reaction? 10. Revision 11. End of unit assessment 12. Reteach 13. DIRT |
| **Prior knowledge** | **Year 6:**  **(2d)** Is able to describe solids, liquids and gases based on their molecular structures.  **(3a)** Is beginning to understand the difference between reversible and irreversible change.  **Year 5:**  **Year 4:**  **(2a-b)** Has the ability to group materials into solids, liquids and gases and compare their properties.  **(3a-f)** Is able to describe physical changes when materials are heated or cooled and can state the temperature that these changes occur (e.g. freezing and boiling points of water). | **Year 7 C1:**  **What are particles and the particle model**  **States of matter**  **Year 5/6**  Dissolving sugar in water during the solutions topics  **Scientific content:**  **Year 6:**  5) Is able to decide how best to separate a mixture through 5a) filtration, 5c) distillation or 5b) evaporation.  5) Shows an understanding that a solute can be retrieved from a solvent and can suggest how to do this.  **Year 5:**  3a) Demonstrates an understanding that some materials dissolve in liquid to form a solution.  5) Is able to separate a mixture by 5a) filtration and 5c) distillation. | SCIENCE  Working Scientifically Skills: C1 and C2  Scientific content:  KS2 Year 1  Is able to describe the physical properties of everyday materials using some scientific words (e.g. hard/ shiny/bendy/transparent).  Has the ability to independently sort and group objects by their physical properties.  KS2 Year 4  Is able to describe physical changes when materials are heated or cooled and can state the temperature that these changes occur (e.g. freezing and boiling points of water).  KS2 Year 5  Demonstrates an understanding of reversible and irreversible changes.  KS2 Year 6  Is beginning to understand the difference between reversible and irreversible change. |
| **CEIAG**  **Specific careers links** | All careers in science require an understanding of particles and how they react. | Meteorologist.  Astro naught  Seismologist. | Particle physicist  Research analyst  Metallurgist. |
| **RRSA** | Article 14: Freedom of thought, belief and religion  Article 24: Health and the Health services  Article 28: Right to education  Article 29: Goals of education  Article 27: Adequate standard of living | Article 14: Freedom of thought, belief and religion  Article 24: Health and the Health services  Article 28: Right to education  Article 29: Goals of education  Article 27: Adequate standard of living | Article 14: Freedom of thought, belief and religion  Article 28: Right to education  Article 29: Goals of education  Article 27: Adequate standard of living |
| **Cross curricular links** | Chemistry – States of matter, atoms, elements and compounds. Chemical reactions etc.  Technology – Substances and materials  Space – Pressure on different planets and in the vacuum of space.  Biology – Effect of increased and decreased pressure on the body. | Numeracy- Maths  Seismic waves – Geography.  7 colours of religion RE | Biology – Diffusion  Physics – Particle model and gas pressure  Maths – Numeracy and graph analysis |
| **Useful websites/videos** | Particles demos: <https://www.youtube.com/watch?v=OOI5yVVxMQE>  Brownian motion: <https://www.youtube.com/watch?v=i7tQLjGZR0A>  9 Amazing ice experiments: <https://www.youtube.com/watch?v=i7tQLjGZR0A> | Separating mixtures, Chemistry matters: <https://www.youtube.com/watch?v=wuJ1xyqo2Hk>  TED Ed: Separating the inseparable <https://www.youtube.com/watch?v=q8Ent5CXhfY>  Ex: TED EdWhy oil and water don’t mix: <https://www.youtube.com/watch?v=h5yIJXdItgo> | Chemical changes crash course: <https://www.youtube.com/watch?v=37pir0ej_SE>  Accidental discoveries of chemical reactions that changed the world: <https://www.youtube.com/watch?v=Xowen_a787Y>  Challenge: Ted Ed: What triggers a chemical reaction?: <https://www.youtube.com/watch?v=8m6RtOpqvtU> |
| **Wider Reading** | BBC Bitesize particles information and quizzes: <https://www.bbc.co.uk/bitesize/guides/zc9q7ty/revision/1>  Oak lesson particles: <https://teachers.thenational.academy/units/particles-f50c> | Oak lesson separating mixtures: <https://teachers.thenational.academy/lessons/separating-mixtures-6xgkge>  BBC Bitesize separating techniques: <https://www.bbc.co.uk/bitesize/guides/zb2f3k7/revision/2> | BBC Bitesize chemical reactions: <https://www.bbc.co.uk/bitesize/topics/zypsgk7>  Oak lesson chemical reactions: <https://classroom.thenational.academy/units/chemical-reactions-5ffa> |
| **Literacy Programme** | * Decode it NOW * Guided practice/model answers * Sentence Starters * Writing strategies | * Decode it NOW * Guided practice/model answers * Sentence Starters * Writing strategies | * Decode it NOW * Guided practice/model answers * Sentence Starters * Writing strategies |
| **Independent Learning Tasks** | Mind-map revision homework  Retrieval practice homework  Knowledge Organiser practice Questions.  Selective reading activity.  Points grid ILT. | Mind-map revision homework  Retrieval practice homework  Knowledge Organiser practice Questions.  Selective reading activity.  Points grid ILT. | Mind-map revision homework  Retrieval practice homework  Knowledge Organiser practice Questions.  Selective reading activity.  Points grid ILT. |