**Colton Hills Community School medium term planning**

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| **Topic title:**  Particles and atoms | **Year: 7  Term: 1** | **Why we teach this:** …We start our Science journey by learning about the building blocks of the Universe so that we can understand what everything is made of | **Why we teach this here:** … The Science journey from atomic to cosmic starts with the parts that make up our Universe, materials and all living things. This allows us to build on this idea in later topics | |
| **Big questions:**   1. What is a particle? 2. What is an element? 3. What is a mixture? 4. What is a compound? 5. How do we separate mixtures? | | **Builds on previous topics:** … KS2 Science | **Links to future topics:**  … All Biology, Chemistry and Physics | |
| **Key knowledge:**   * How atoms make up elements * compounds and the difference between them. * how the chemical formula tells us what elements are present and how many of them there are for a given compound. * The concept of a pure substance. * What mixtures are and how they work, including dissolving, diffusion in terms of the particle model, simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography and the identification of pure substances. | **Key knowledge continued:**   * the 3 states of matter * the particle model describe similarities and differences * explain sublimation. * particular nature of water and ice and the transition stages. * explain Brownian motion, diffusion conduction, and how temperature and pressure affect particle behaviour. * changes with temperature in motion and spacing of particles; * internal energy stored in materials. | |
| **Skills developed:**  Recording observations, researching information, make predictions using scientific knowledge and understanding, present observations and data using appropriate methods, including tables and graphs, select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent, and control variables where appropriate. | |
| **Mini/Interim assessments:**   * Multiple choice questions * Retrieval questions   **Termly summative assessment:**   * End of topic test * Year 8 Spaced learning assessment | | **Independent study tasks/resources:**   1. OAK<https://teachers.thenational.academy/units/particles-f50c> 2. Seneca <https://app.senecalearning.com/classroom/course/419c7523-d408-4bc7-9b96-f7f12abdacae/section/b6c07589-15f7-4ff0-969e-11343f86646c/session> 3. Seneca <https://app.senecalearning.com/classroom/course/419c7523-d408-4bc7-9b96-f7f12abdacae/section/ba2ff895-06bc-4053-950f-15f207d97d38/session> | **Key vocabulary** Periodic Table  Atom  Element  Compound  Mixture | **Key vocabulary** Reactant  Product  Conservation of  Mass  Chemical Reaction  Physical Reaction |
| **Cultural capital opportunities:** …  Practical applications of separating techniques. Social: why shouldn’t people smoke in their cars/ outside pub? “Atoms are the building bricks of the Universe” so where do we all come from? | | **Whole school Curricular Concept links:** …Technological progress |

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| **Week/ Phase** | **Key Features** | |
| 1 | **Small Questions:** … | |
| **Key Activities/Resources:** … | **Retrieval focus:**  …  **Independent study:**  … |
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| 2 | **Small Questions:** … | |
| **Key Activities/Resources:**  … | **Retrieval focus:**  …  **Independent study:**  … |
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| 3 | **Small Questions:** … | |
| **Key Activities/Resources:**  … | **Retrieval focus:**  …  **Independent study:**  … |
| **Week/ Phase** | **Key Features** | |
| 4 | **Small Questions:** … | |
| **Key Activities/Resources:**  … | **Retrieval focus:**  …  **Independent study:**  … |
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| 5 | **Small Questions:** … | |
| **Key Activities/Resources:**  … | **Retrieval focus:**  …  **Independent study:**  … |
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| 6 | **Small Questions:** … | |
| **Key Activities/Resources:**  … | **Retrieval focus:**  …  **Independent study:**  … |