



Year 9 – Physics – Particles of Matter – Summer Term 1 – KNOWLEDGE OVERVIEW

| Year group: | | Unit: | | Date (from and to): | |
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| Week beginning: | Big question / concept: | Learning intentions: | Resources | | |
| | | | Online including links on how to access these: | | |
| 12 th and 19 th April 2021 | What is heavier – a tonne of bricks or a tonne of feathers? | <p><u>You should be able to:</u></p> <p>Define and apply the equation for density</p> <p>Recognise and draw simple diagrams to model the difference between solids, liquids and gases</p> <p>Use appropriate apparatus to make and record measurements to determine the density of regular and irregular objects (REQUIRED PRACTICAL)</p> | <p>Read and make notes on pages 5-6 of the particle model of matter pack.</p> <p>Complete exam question on page 8</p> <p>Read and make notes on page 7 of the particle model of matter pack.</p> <p>Complete exam question on page 10</p> <p>Check your response using page 11</p> | <p>Lesson on particle models https://classroom.thenational.academy/lessons/particle-models-6tj34r</p> <p>Lesson on density of solids https://classroom.thenational.academy/lessons/density-of-solids-60w3at</p> <p>Lesson on density of liquids https://classroom.thenational.academy/lessons/density-of-liquids-64tp8c</p> <p>Lesson on: Density REQUIRED PRACTICAL https://classroom.thenational.academy/lessons/density-required-practical-6hhk2r</p> <p>GCSE Pod video on density required practical https://members.gcsepod.com/shared/podcasts/title/10980/67628</p> <p>Exam question on Density required practical https://iugupaq.exampro.net/</p> | |
| 26th April 2021 | | <p><u>You should be able to:</u></p> <p>Describe different changes in state, when mass is conserved.</p> | <p>Read and make notes on page 13 of the particle model of matter pack.</p> <p>Complete exam question on pages 14-15</p> <p>Check your answers on pages 16-17</p> | <p>Lesson on heating and cooling substances https://classroom.thenational.academy/lessons/heating-and-cooling-substances-c4wp4c</p> <p>Exam question on Density required practical https://eeueruf.exampro.net/</p> | |

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| <p>3rd May 2021</p> | | <p><u>You should be able to:</u></p> <p>Define internal energy</p> <p>Explain the link between changes in internal energy and temperature change or change in state.</p> | <p>Read and make notes on pages 20-21 of the particle model of matter pack.</p> <p>Complete exam question on page 22</p> <p>Check your answers on pages 23-24</p> | <p>Lesson on internal energy https://classroom.thenational.academy/lessons/internal-energy-70t6ad</p> <p>GCSE Pod video on heat and temperature https://members.gcsepod.com/shared/podcasts/title/10981</p> <p>Exam question on internal energy and particle theory https://oazikux.exampro.net/</p> |
| <p>3rd May 2021</p> | <p>Why does a cup of tea only cool down to room temperature?</p> | <p><u>You should be able to:</u></p> <p>Apply and rearrange the equation for specific heat capacity to calculate different components</p> <p>Define specific latent heat</p> <p>Apply and rearrange the equation for specific latent heat to calculate a component during a change in state</p> | <p>Read and make notes on pages 27-28 of the particle model of matter pack.</p> <p>Complete exam question on pages 29-31</p> <p>Check your answers on pages 32-33</p> <p>Read and make notes on pages 35-36 of the particle model of matter pack.</p> | <p>Lesson on specific latent heat https://classroom.thenational.academy/lessons/latent-heat-chjk2r</p> <p>Lesson on multi-step energy calculations https://classroom.thenational.academy/lessons/multi-step-energy-calculations-crv36r</p> <p>GCSE Pod videos on specific latent heat and specific heat capacity https://members.gcsepod.com/shared/podcasts/title/10981</p> |

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| | | <p>Interpret heating and cooling graphs that involve a change in state</p> <p>Distinguish between specific heat capacity and specific latent heat</p> | <p>Read and make notes on page 37 of the particle model of matter pack.</p> <p>Complete exam question on pages 38-39</p> <p>Check your answers on pages 40-41</p> | <p>Exam question on specific heat capacity and specific latent heat https://luselex.exampro.net/</p> |
| 10 th May 2021 | How do hot air balloons fly? | <p><u>You should be able to:</u></p> <p>Explain how the motion of molecules in a gas is related to both its temperature and pressure</p> <p>Explain the relationship between temperature of a gas and its pressure at a constant volume</p> | <p>Read and make notes on pages 44-46 of the particle model of matter pack.</p> <p>Complete exam question on pages 47-48</p> <p>Check your answers on page 49</p> | <p>Lesson on gas pressure https://classroom.thenational.academy/lessons/gas-pressure-69hp6r</p> <p>Exam question on gas pressure https://vehanif.exampro.net/</p> |

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| 17 th and 24 th May 2021 | Compression of gases | <p>Use the equation: $[pV = \text{constant}]$ to describe how the pressure inside a container is dependent upon the volume of gas inside the container.</p> <p>Explain using the equation $[pV = \text{constant}]$ how increasing the volume of a container will lead to a decrease in pressure quantitatively.</p> <p>Find out why the CO₂ cartridges used by cyclists to inflate their tyres have an insulating material placed around the cartridge.</p> | <p>Read and make notes on pages 51-54 of the particle model of matter pack.</p> <p>Complete exam question on pages 55-57</p> <p>Check your answers on pages 58-59</p> | <p>Lesson on pressure and volume part 1 https://classroom.thenational.academy/lessons/pressure-and-volume-part-1-chhk8c</p> <p>Lesson on pressure and volume part 2 https://classroom.thenational.academy/lessons/pressure-and-volume-part-2-6xhkjr</p> |
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