 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

   Explain the energy transfers in a hand-crank torch.

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| Know -1 |  | Apply2 |
| Ideas |  |  |  |
| K1 | We can describe how jobs get done using an energy model where energy is transferred from one store at the start to another at the end. |  | A1 | Describe how the energy of an object depends on its speed, temperature, height or whether it is stretched or compressed. |
| K2 | When energy is transferred, the total is conserved, but some energy is dissipated, reducing the useful energy. |  | A2 | Show how energy is transferred between energy stores in a range of real-life examples. |
|  |  | A3 | Calculate the useful energy and the amount dissipated, given values of input and output energy. |
| Key words |
| K3 | **Thermal energy store:** Filled when an object is warmed up. |  | A4 | Explain how energy is dissipated in a range of situations. |
| K4 | **Chemical energy store:** Emptied during chemical reactions when energy is transferred to surroundings. |  |  |  |
| K5 | **Kinetic energy store:** Filled when an object speeds up. |  |  |  |
| K6 | **Gravitational potential energy store:** Filled when an object is raised. |  |  |  |
| K7 | **Elastic energy store:** Filled when a material is stretched or compressed. |  |  |  |
| K8 | **Dissipated:** Become spread out wastefully. |  |  |  |

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| 3 | Extend |  |  |  |
| E1 | Compare the percentages of energy wasted by renewable energy sources. |  | E4 |  |
| E2 | Explain why processes such as swinging pendulums or bouncing balls cannot go on forever, in terms of energy. |  |  |  |
| E3 | Evaluate analogies and explanations for the transfer of energy. |  |  |  |
| E5 |  |  |  |  |
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