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

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

Investigate how to prevent heat loss by conduction, convection and radiation.



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| Know  1 | |  | Apply  2 | |
| Ideas | |  |  |  |
| K1 | The thermal energy of an object depends upon its mass and temperature and what it’s made of. When there is a temperature difference, energy transfers from the hotter to the cooler object. |  | A1 | Explain observations about changing temperature in terms of energy transfer. |
| A2 | Describe how an object's temperature changes over time when heated or cooled. |
| K2 | Thermal energy is transferred through different pathways, by particles in conduction and convection, and by radiation. |  | A3 | Explain how a method of thermal insulation works in terms of conduction, convection and radiation. |
|  | |  | A4 | Sketch diagrams to show convection currents in unfamiliar situations. |
| Key words | |
| K3 | **Thermal conductor:** Material that allows heat to move quickly through it. |  |  |  |
| K4 | **Thermal insulator:** Material that only allows heat to travel slowly through it. |  | A5 |  |
| K5 | **Temperature:** A measure of the motion and energy of the particles. |  |  |  |
| K6 | **Thermal energy:** The quantity of energy stored in a substance due to the vibration of its particles. |  |  |  |
| K7 | **Conduction:** Transfer of thermal energy by the vibration of particles. |  | A6 |  |
| K8 | **Convection:** Transfer of thermal energy when particles in a heated fluid rise. |  |  |  |
| K9 | **Radiation:** Transfer of thermal energy as a wave. |  |  |  |
| 3 | Extend |  |  |  |
| E1 | Sketch a graph to show the pattern of temperature change against time. |  |  |  |
| E2 | Evaluate a claim about insulation in the home or for clothing technology. |  |  |  |
| E3 | Compare and contrast the three ways that energy can be moved from one place to another by heating. |  |  |  |
| E4 |  |  |  |  |
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| E5 |  |  |  |  |
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