

**Record: 1**

<b>Title:</b>	Heat movement.
<b>Benchmarks:</b>	Applied Sciences -- Measurement -- Temperature ; Physical Sciences - - Energy -- Alternative Sources
<b>Subject Terms:</b>	HEAT; FORCE & energy
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<b>Publisher:</b>	Mason Crest Publishers
<b>ISBN:</b>	1590844718
<b>Abstract:</b>	Heat moves by conduction, convection, and radiation. The best metals for conducting heat are silver, copper and gold. Insulators are materials that conduct heat slowly. Heat rays are invisible waves of infrared radiation. Warm air rises because it expands and becomes less dense than the cool air around it. Convection currents are circulation patterns set up as warm air or a liquid rises. (Copyright applies to all Abstracts)
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## Heat movement

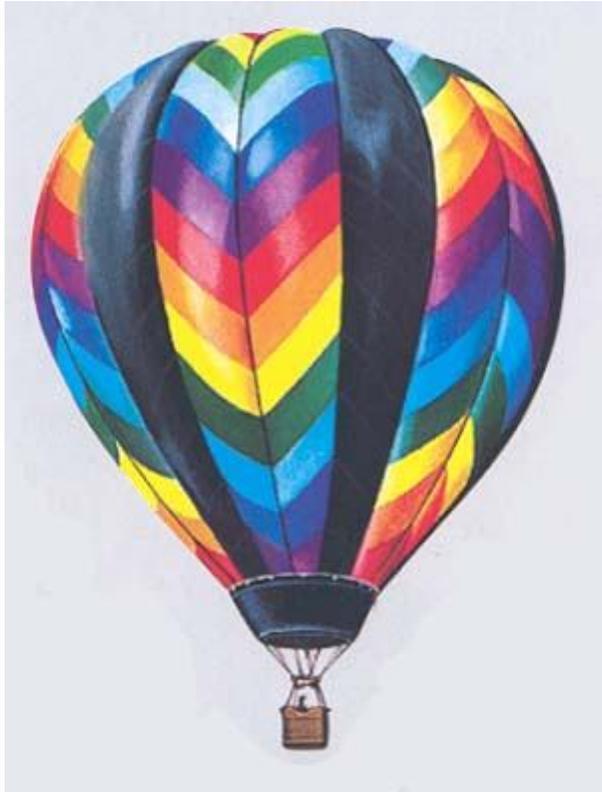
### Energy, force and motion

- **Heat moves** in three different ways: conduction, convection, and radiation.
- **Conduction** involves heat spreading from hot areas to cold areas by direct contact. It works a bit like a relay race. Energetic, rapidly moving or vibrating molecules crash into their neighbors and start them moving.
- **Good conducting materials** such as metals feel cool to the touch because they carry heat away from your fingers quickly. The best conductors of heat are the metals silver, copper, and gold, in that order.
- **Materials** that conduct heat slowly are called insulators. They help keep things warm by reducing heat loss. Wood is one of the best insulators. Water is also surprisingly effective as an insulator, which is why some divers and surfers often wear wetsuits.
- **Radiation** is the spread of heat as heat rays, that is, invisible waves of infrared radiation.
- **Radiation** spreads heat without direct contact.
- **Convection** is when warm air rises through cool air, like a hot-air balloon.
- **Warm air rises** because warmth makes the air expand. As it expands the air becomes less dense and lighter than the cool air around it.
- **Convection currents** are circulation patterns set up as warm air (or a liquid) rises. Around the column of rising warmth, cool air continually sinks to replace it at the

bottom. So the whole air turns over like a non-stop fountain.

**STAR FACT**

Convection currents in the air bring rain; convection currents in the Earth's interior move continents.



*Hot air balloons work because hot air is lighter and rises through cold air.*

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By John Farndon

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