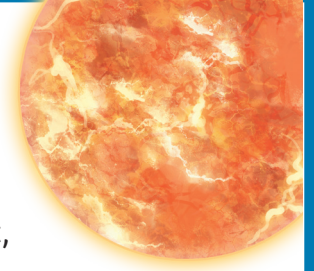


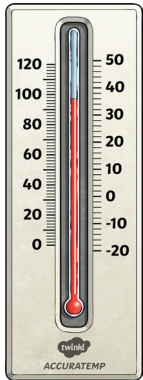
# Heat

Heat is a form of energy. It can be found in natural and artificial forms. The greatest natural source of heat on Earth is the Sun. Without it, no animal or plant life would be able to survive. Artificial forms of heat, also known as man-made forms of heat, include items such as microwave ovens and kettles.



Temperature is a measure of how hot or cold something is. Temperature can be measured in degrees Celsius or degrees Fahrenheit. Thermometers are used to measure temperature. At 100°C water will boil and it will begin to change from a liquid to a gas. At 0°C water will begin to freeze and will start to change from a liquid to a solid.

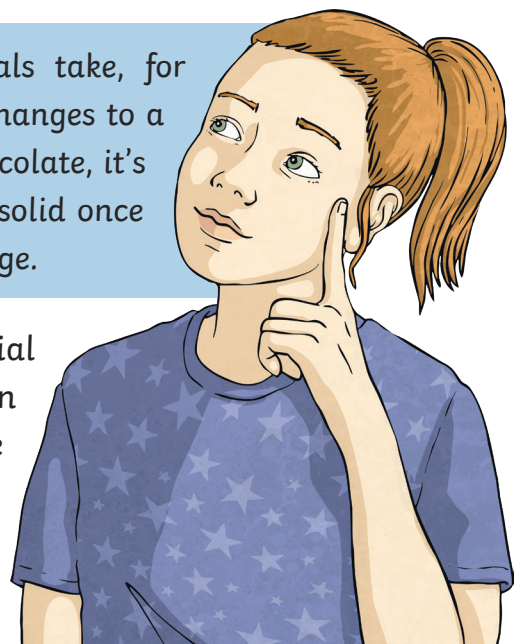
The temperature beneath the surface of the Earth is extremely hot. It is here that you will find magma, which is melted rock. When a volcano erupts, it is the magma that makes its way to the surface of the Earth and flows out of the volcano. The heat that is in the Earth can be used in some heating systems, particularly in modern homes. This type of heating is known as geothermal.



Conduction is the name for the movement of heat between objects. Heat likes to move from hot objects to cooler objects. Some materials allow heat to move through them easily and these materials are called conductors. Metal is an example of a good conductor of heat. However, there are also materials that stop heat moving through them and these materials are known as insulators. Wood is an example of a good insulator.

Heat can change the form that some materials take, for example, when we heat chocolate it melts and changes to a liquid. When we take the heat away from the chocolate, its temperature will decrease, and it will become a solid once again. This is sometimes called a reversible change.

Sometimes heat changes the form of a material irreversibly. For example, heating an egg on a frying pan will cause the egg to change completely. This change cannot be reversed by cooling the egg. This change, created by the heat, is a permanent change.



# Questions

1. What is heat?

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2. Explain the difference between artificial and natural heat sources?

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3. Why is the sun important?

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4. Give three sources of heat in your home or school and state whether they are artificial or natural sources of heat.

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5. Where does geothermal heat come from?

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6. What is conduction?

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7. Can heat travel through all types of materials?

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8. What can be used to measure temperature?

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9. Give an example of how heat can create a reversible change in a material?

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10. Describe a permanent change that can occur when heat is applied to a material?

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# Answers

1. What is heat?  
**Heat is a form of energy.**
2. Explain the difference between artificial and natural heat sources?  
**Natural sources of heat occur naturally on planet Earth, for example, the Sun. Artificial sources of heat are man-made and are not found naturally on Earth, for example, a microwave.**
3. Why is the sun important?  
**The sun is the greatest source of heat on Earth and without it plants and animals would struggle to survive.**
4. Give three sources of heat in your home or school and state whether they are artificial or natural sources of heat.  
**Teacher check.**
5. Where does geothermal heat come from?  
**Geothermal heat uses the heat deep in the ground.**
6. What is conduction?  
**Conduction is the name for the movement of heat between objects.**
7. Can heat travel through all types of materials?  
**No, some materials are insulators and they stop heat travelling through them.**
8. What can be used to measure temperature?  
**Thermometers are used to measure temperature.**
9. Give an example of how heat can create a reversible change in a material?  
**When we heat chocolate, it melts and changes to a liquid but when the heat is removed from the chocolate it will become a solid once again.**
10. Describe a permanent change that can occur when heat is applied to a material?  
**A permanent change occurs when heating an egg on a frying pan as the egg will change completely and cannot return to its original state.**