Historically

Heat is a form of energy and like all forms of energy, it is easier to observe the effects of the energy rather than to explain what energy is. You will however recall from Motion and Forces that "energy is the ability to do work". If you are sitting in front of a working heater, you can feel the difference so the heat energy is doing work on your skin (increasing the kinetic energy of your skin's molecules) and you feel warmer.

The ancient Greek views on heat were that heat caused expansion and vaporisation and cold caused liquids and gases to congeal and harden. Like so many theories this view persisted for many centuries. It wasn't until the 16th century that Sir Francis Bacon drew the conclusion that "heat is motion" caused by tiny particles within each substance moving. As the molecule had not yet been discovered, this hypothesis was not supported and the view of heat was a 'fluid' that filled spaces between particles of substances and 'flowed' from one object to the next still persisted into the 19th century. This may explain why we talk about heat 'flowing' from one object to the next. This is known as the 'caloric' theory.

The Caloric Theory suggests that different materials had a set amount of heat and therefore there was a limit to the amount of heat that could 'flow'. But Benjamin Thompson (1753-1814), when studying heat from friction, found no limit to the amount of heat obtained, he just had to keep the motion, and hence friction, going between the two objects. He believed that heat was produced by the motion between particles of the two objects rubbing together.

It was not until the mid 19th century that scientists began to believe that the heating process was an energy change from work (mechanical energy) to heat and the understanding of energy transfer was developed. We now explain heat in terms of the transfer of energy from a hotter object to a cooler object and this is the central idea of the kinetic theory of heat, which relies on the kinetic molecular theory.