

Heat vs Temperature

IB PHYSICS | THERMAL PHYSICS

Temperature – What is it?

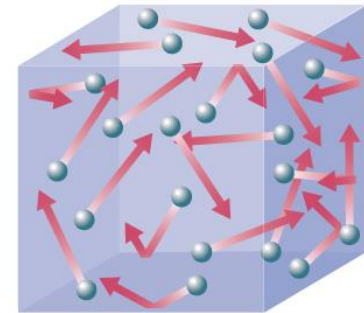
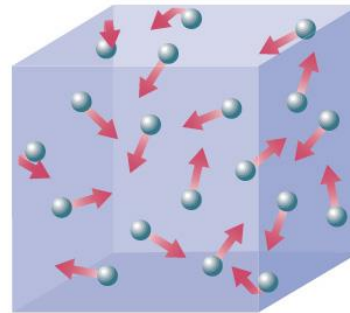
Measure of how **hot** or **cold** something feels

Quantitative
or Qualitative?

Temperature is the average _____
of the molecules of a substance

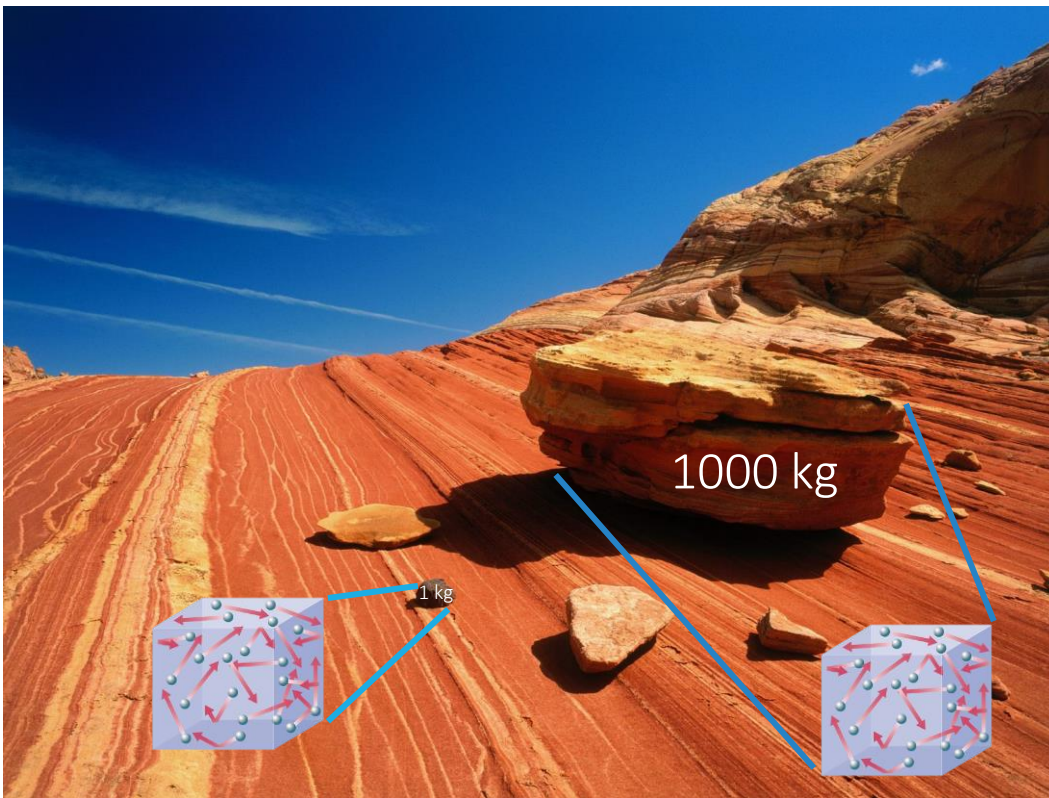
The faster the particles move, the
more temperature _____

Circle the container with
the highest temperature



Temperature

Which rock has a higher temperature (average kinetic energy)?



Absolute Zero

At absolute zero, all molecules _____



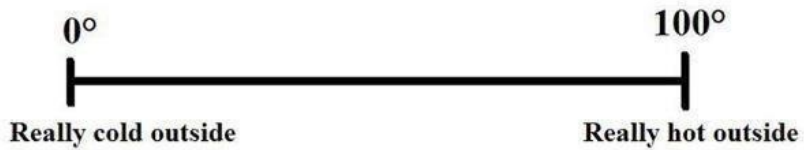
Celsius and Kelvin

$$T (\text{K}) = T (^\circ\text{C}) + 273$$

-40°C	233 K
0°C	273 K
22°C	295 K
100°C	373 K

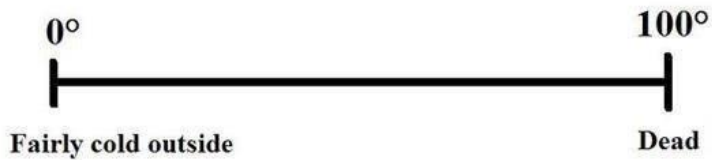
Temperature Scales

Fahrenheit



VS

Celsius



VS

Kelvin



Temperature

Which has a higher temperature?



Burning Match



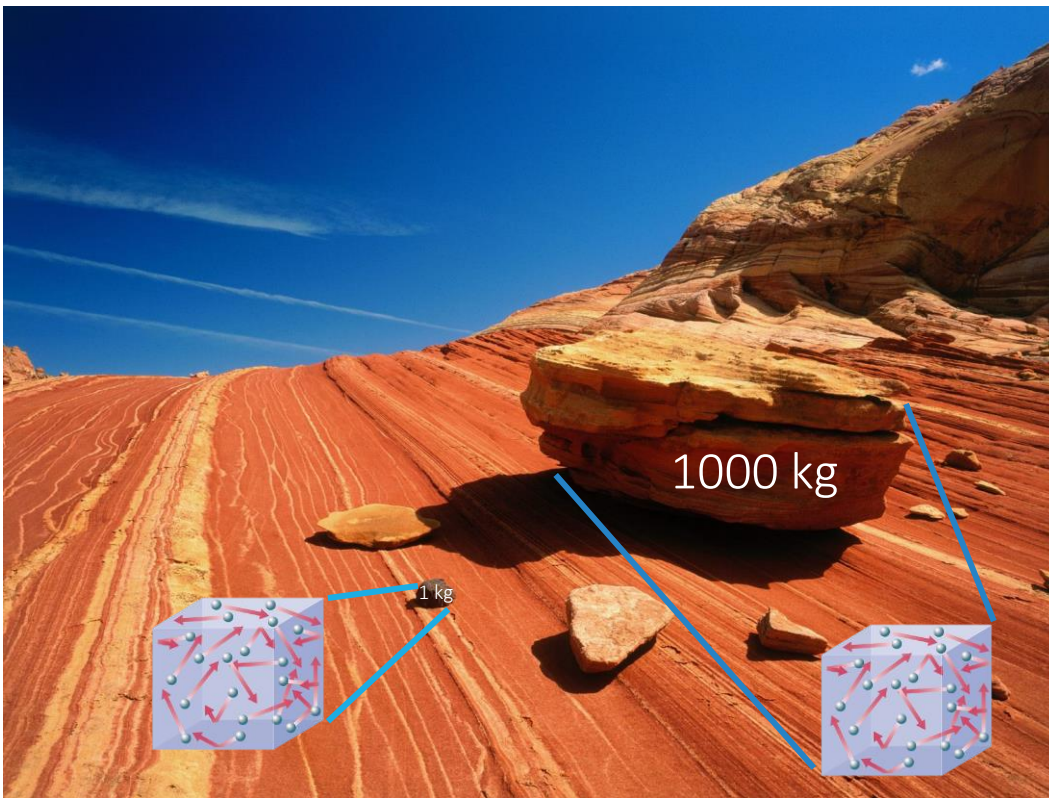
Ice Sculpture

Total Internal Energy

$$E_{\text{INT}} = E_{\text{K}} + E_{\text{P}}$$

Internal Energy

Which rock has a higher internal energy?



Internal Energy

Which has more internal energy?



Burning Match



Ice Sculpture

Heat

Heat is the _____ of thermal energy

Always flows from _____ to _____



Heat Flow

Which is correct?



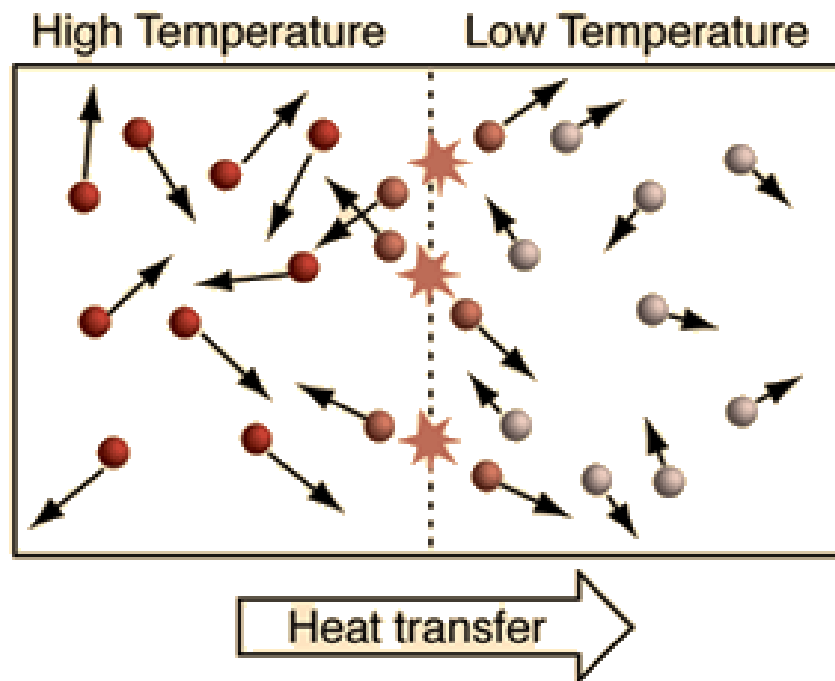
Heat flows from the hand to the ice cube



Heat flows from the ice cube to the hand

Heat Flow

Why does heat flow?



Energy is Energy



r/NoStupidQuestions

MrWaterplant 3.0k points 6 days ago

If kinetic energy is converted into thermal energy, how hard do I have to slap a chicken to cook it?

Lesson Takeaways

- I can explain the relationship between temperature and molecular kinetic energy
- I can describe the energies present in an object's total internal energy
- I can convert between Celsius and Kelvin
- I can describe the nature of molecules when at a temperature of absolute zero
- I can explain the difference between temperature, internal energy, and heat