

Project SOS

the Science of Sustainability

operates through the
Palouse Discovery Science Center in Pullman, WA.



The goals of the project are that youth gain a basic understanding of the physics of heat transfer, learn to work collaboratively on team challenges, bring their interest and information home to their families, and begin to think about the future and how their families can save energy.

Youth learn the basic concepts of physics through demonstrations and several simple hands-on exhibit activities and then work together to conserve energy in a model house using energy-saving measures they learned from the exhibits. They also learn how to use simple tools to become “heat science detectives” to test their own home by performing an energy audit to find areas where heat energy can escape in the winter or enter in the summer.



Through Project SOS, youth and their families have learned how to apply their new skills and knowledge to find ways to make their own homes more energy efficient.



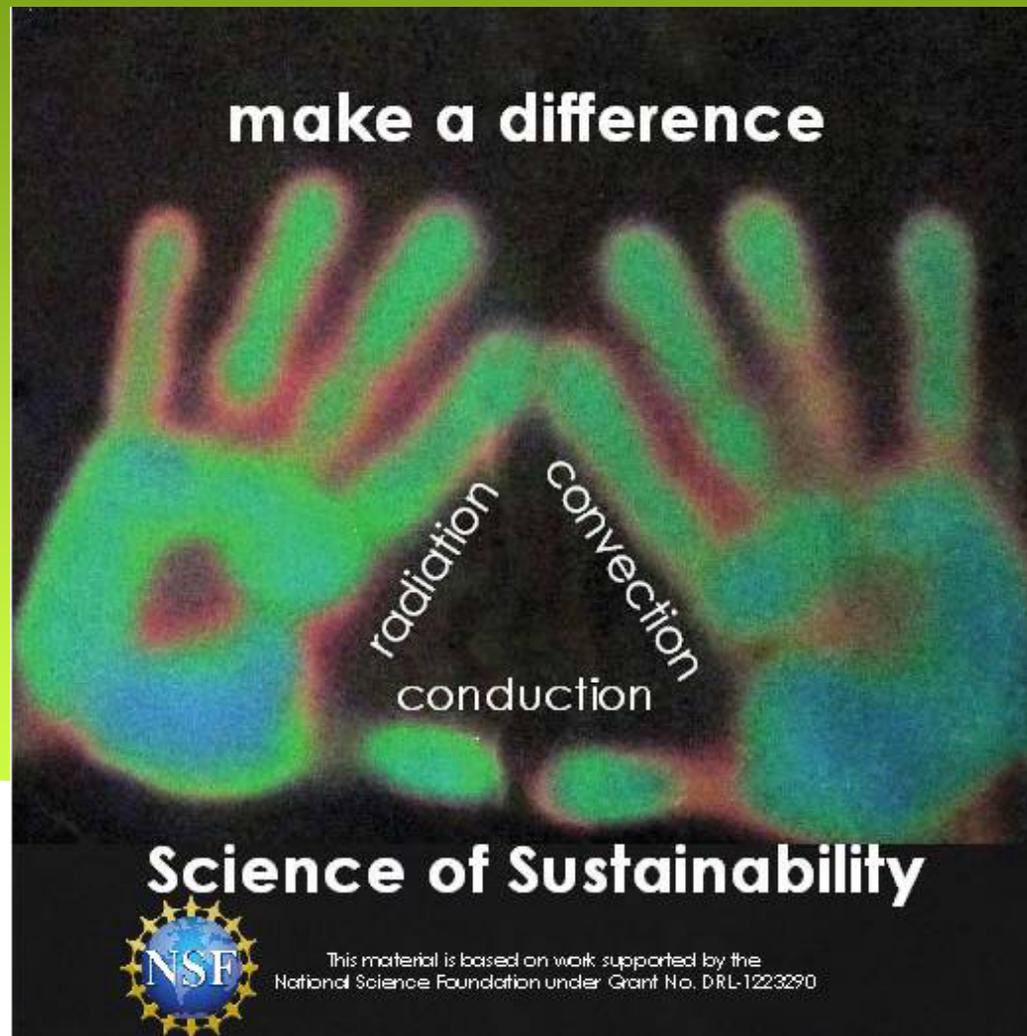
**For more information about Project SOS and future plans,
contact Kathy Dawes at outreachpdsc@gmail.com
or call 208-310-2922**

<http://creativecommons.org/licenses/by-nc-sa/4.0/>

See more at www.palousescience.net/#!/sos-introduction/c1mws

Project SOS

the Science of Sustainability



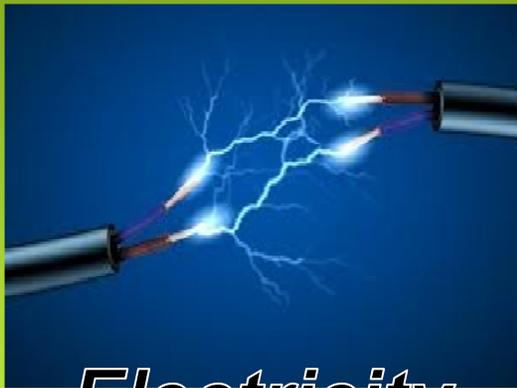
Why are we doing Project SOS?

SOS – The **S**cience of **S**ustainability

What does sustainability
mean?

to “aim for low or zero net energy use”
is a goal for sustainable housing

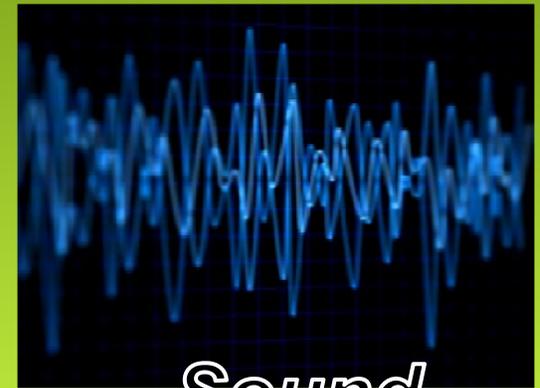
Different forms of energy ...



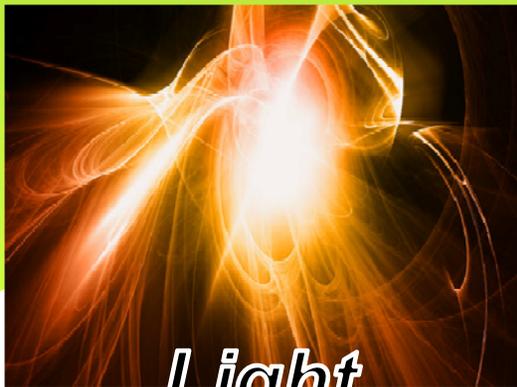
Electricity



Magnetism



Sound



Light



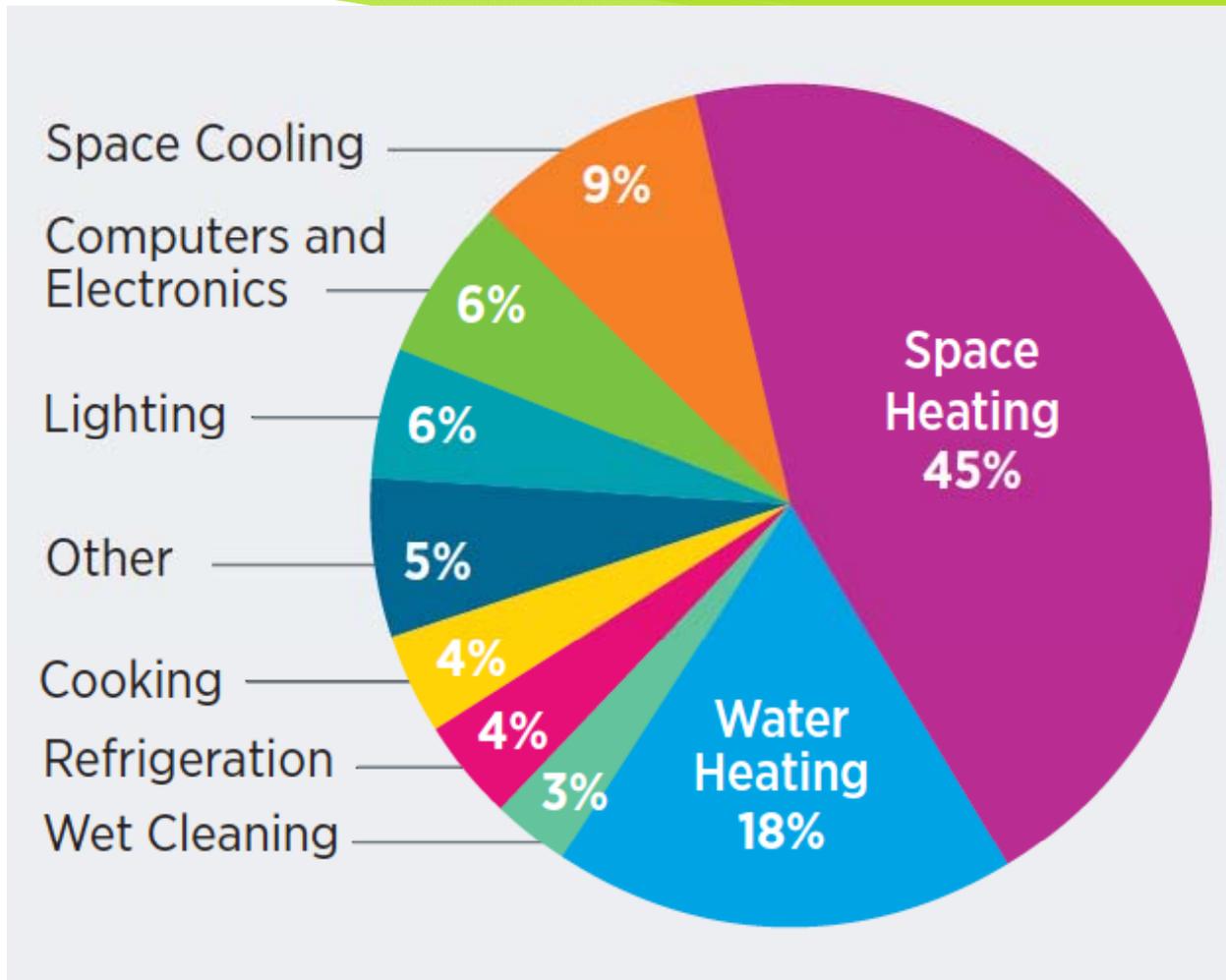
Chemical



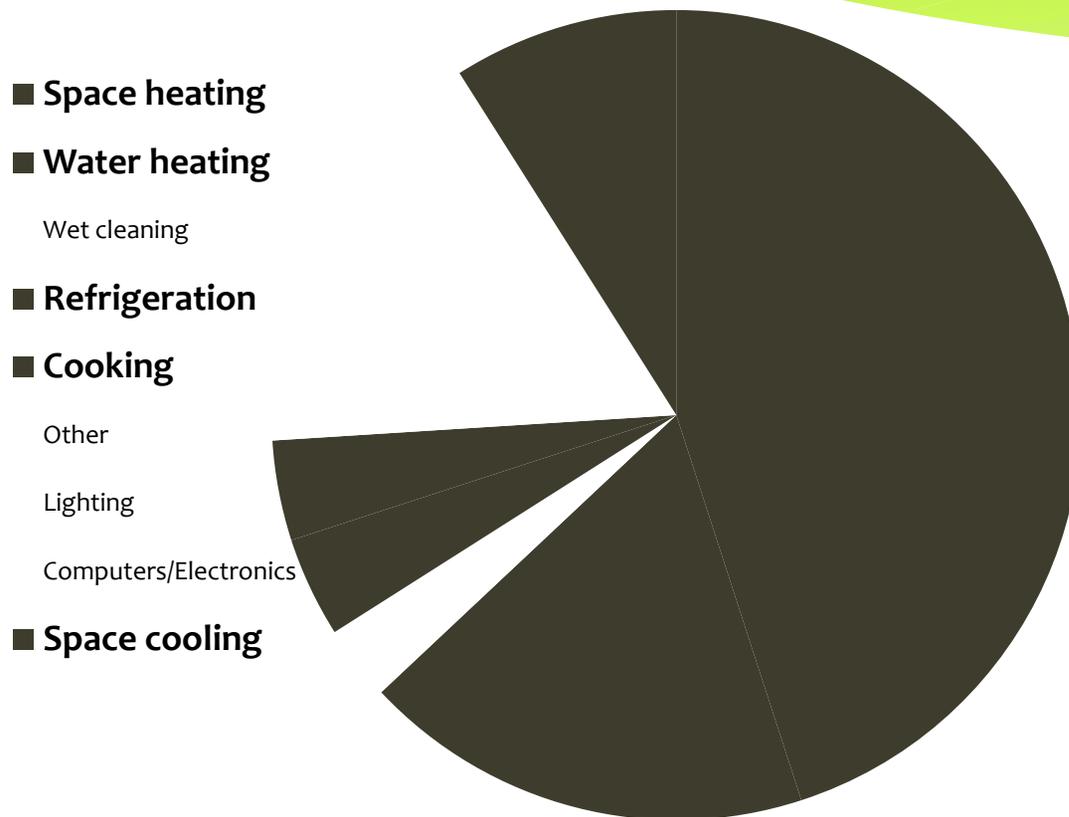
Heat

Did you know???

Home energy use



Home energy use that's related to Heat =



80%

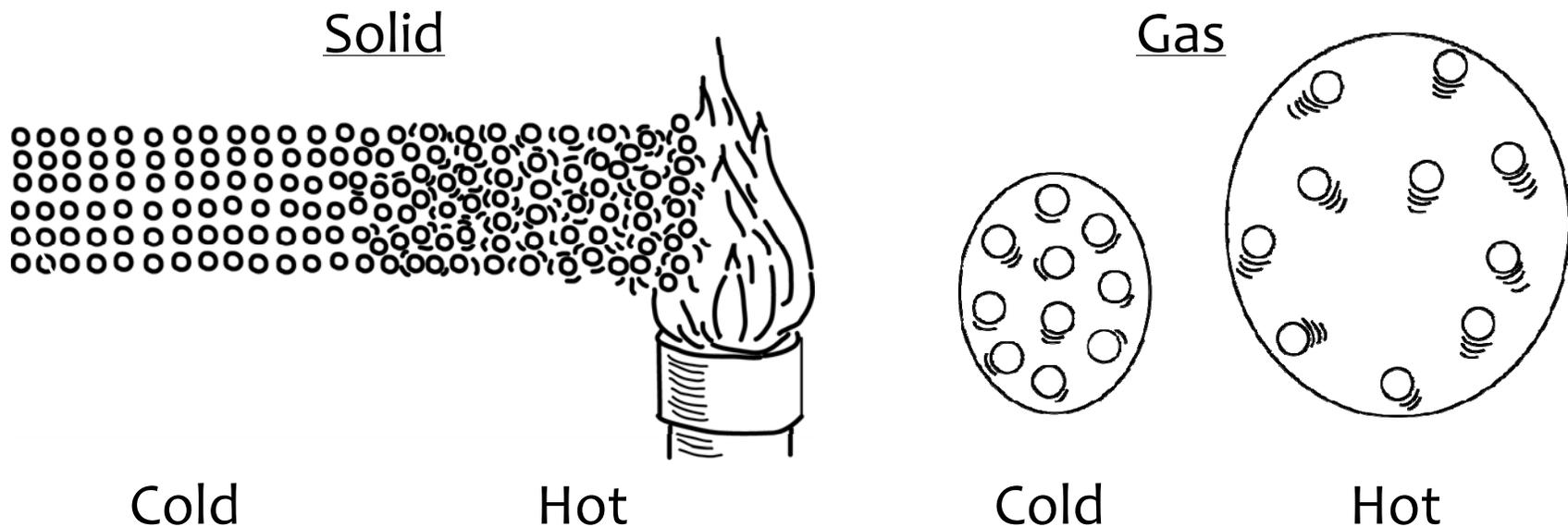


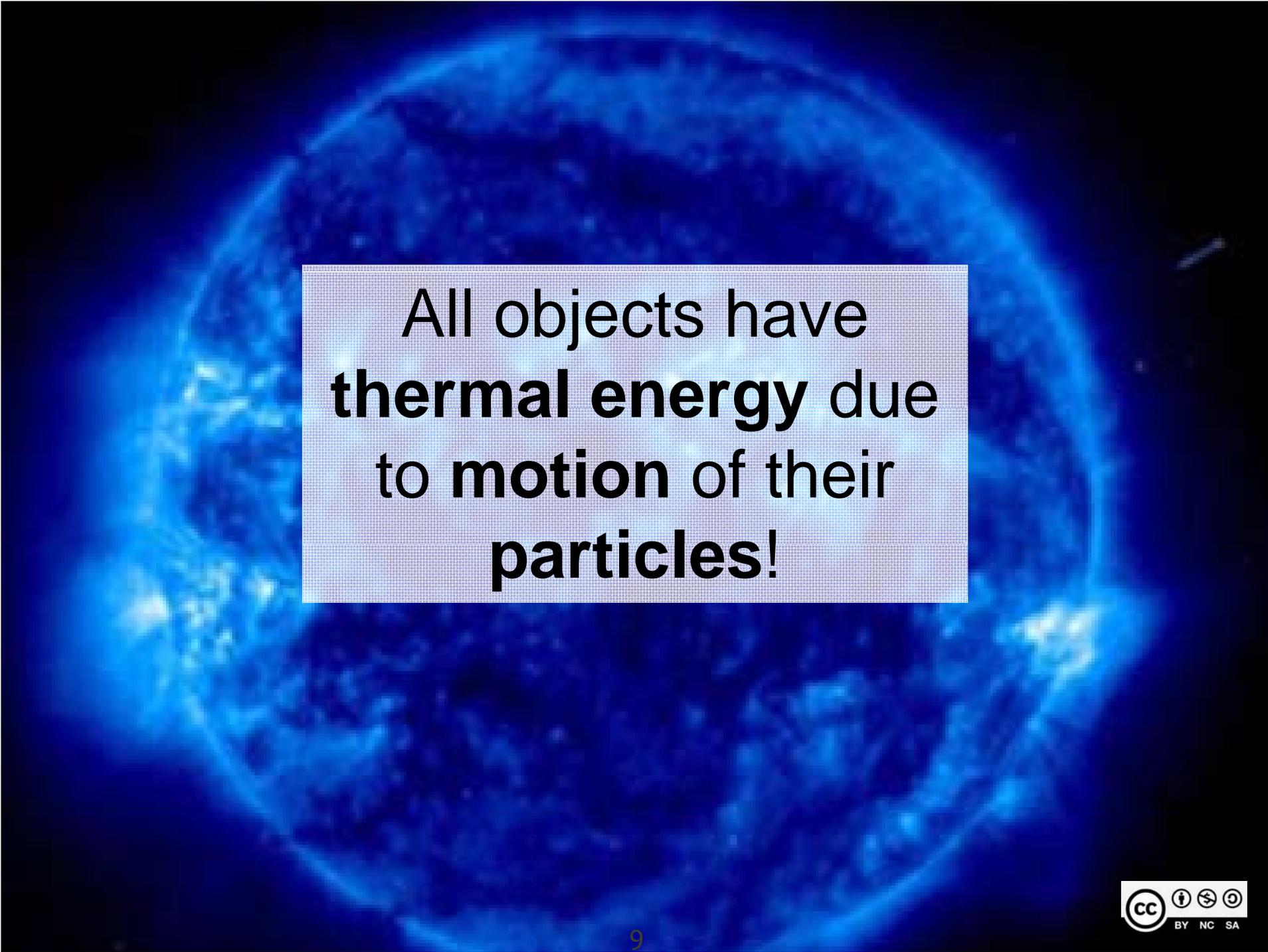
That's why we're Exploring **Heat Energy**



Temperature

The measure of the average motion of atoms in a substance

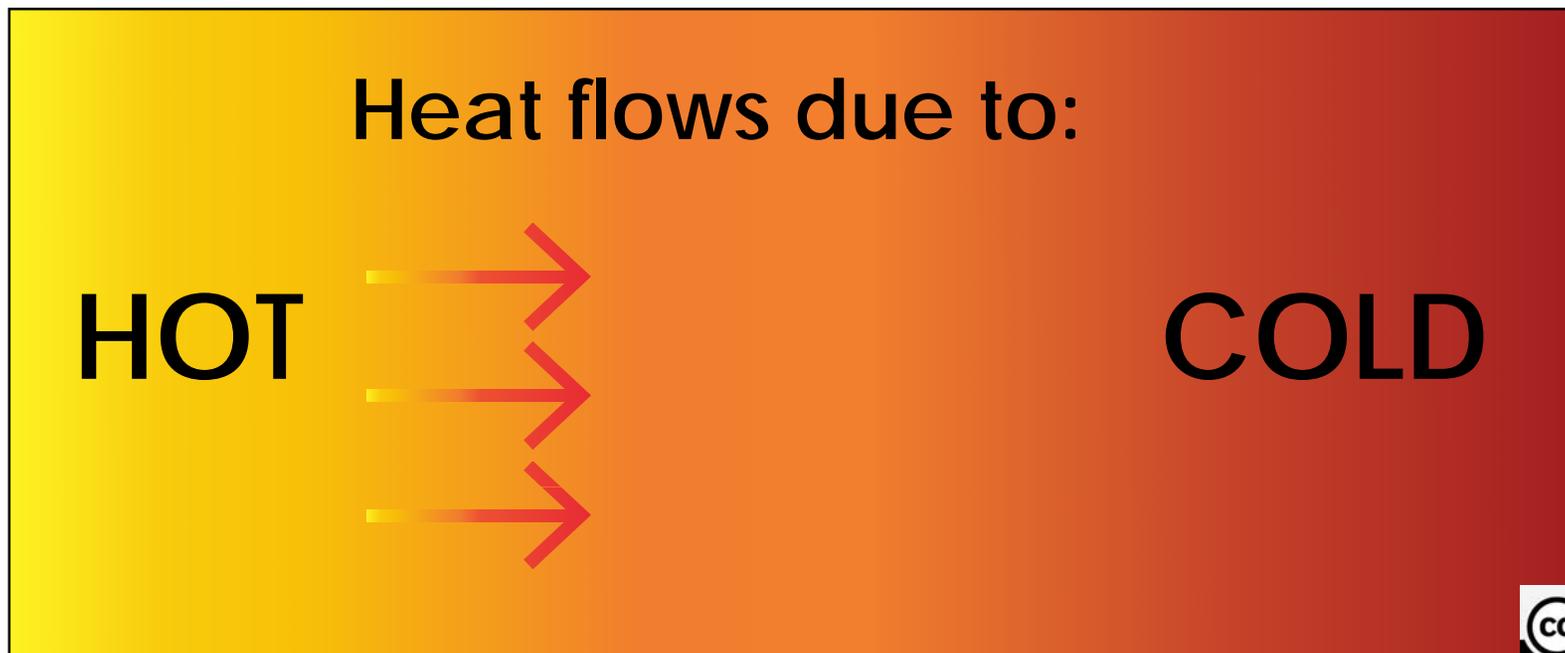




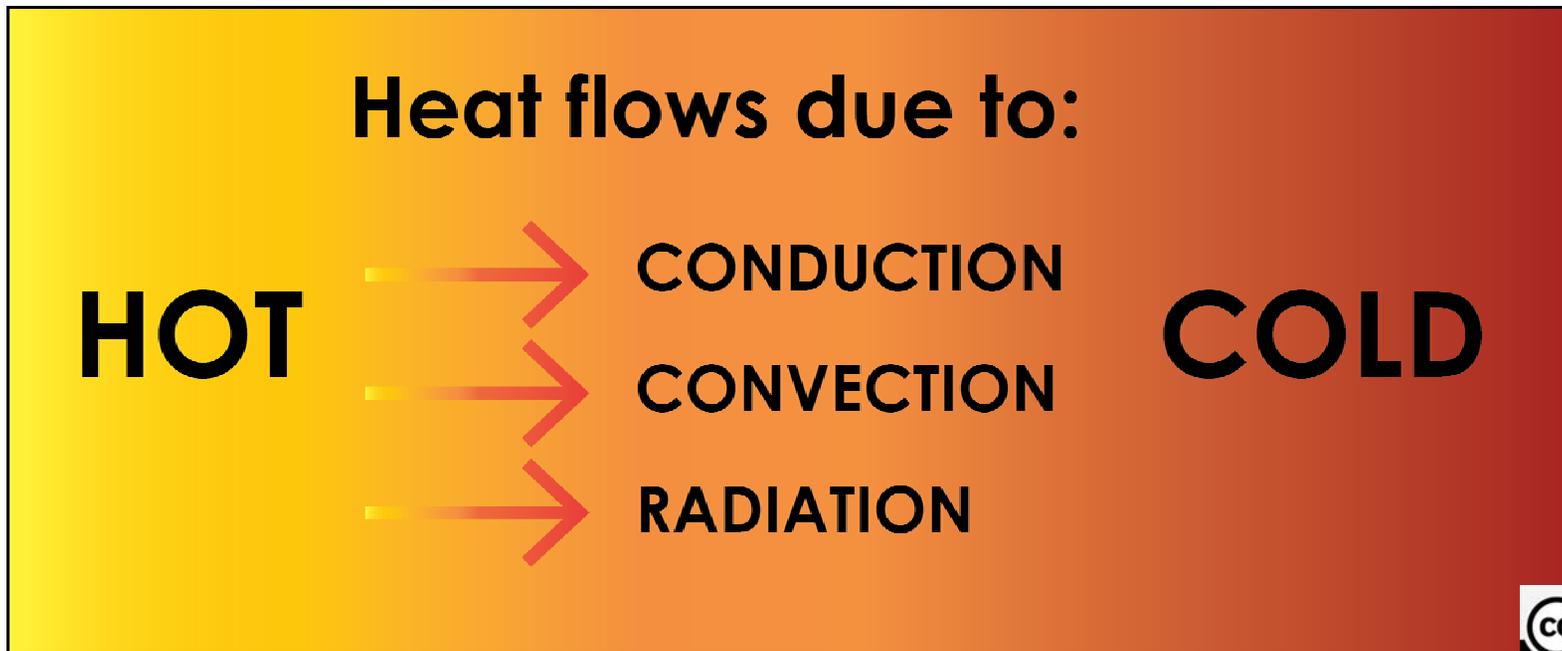
All objects have
thermal energy due
to **motion** of their
particles!

Heat Energy

flows from hotter to colder areas
when there is a temperature difference
across an object or between two objects



Heat flows three ways:



How and when does heat energy flow???

Only when there is a **temperature difference...**

Always from **hotter to colder ...**

The **greater the temperature difference,**
the **faster** it flows...

And it **flows** until **everything reaches the same temperature!**





Let's do an
experiment...



We “**feel cold**” when...

...our surroundings are colder than we are, so heat moves from our body to our surroundings!



We “**feel hot**” when...

...our surroundings are hotter than we are, so heat moves from our surroundings to us!

Forms of Heat Transfer...

radiation



conduction



convection



Conduction

When **heat moves between materials**
that are **touching**



Animation Link:

https://youtu.be/_6LlkgRciak

Convection

When **heat** moves as hot gases,
or **liquids** rise

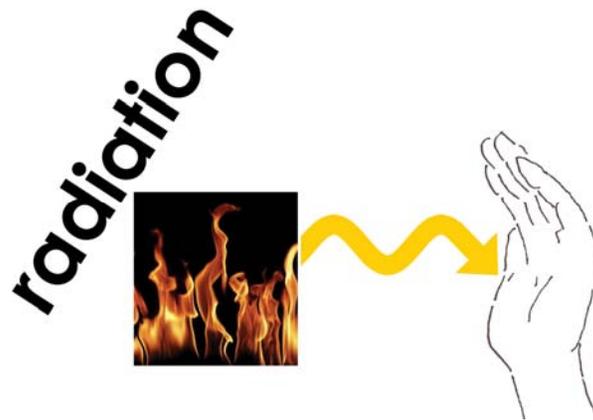


Full of Hot Air Demo link:
<https://youtu.be/E4ViB2wCeCo>

Animation Link:
https://youtu.be/teEiou_sj-o

Radiation

When **heat moves in all directions**
as invisible infrared light

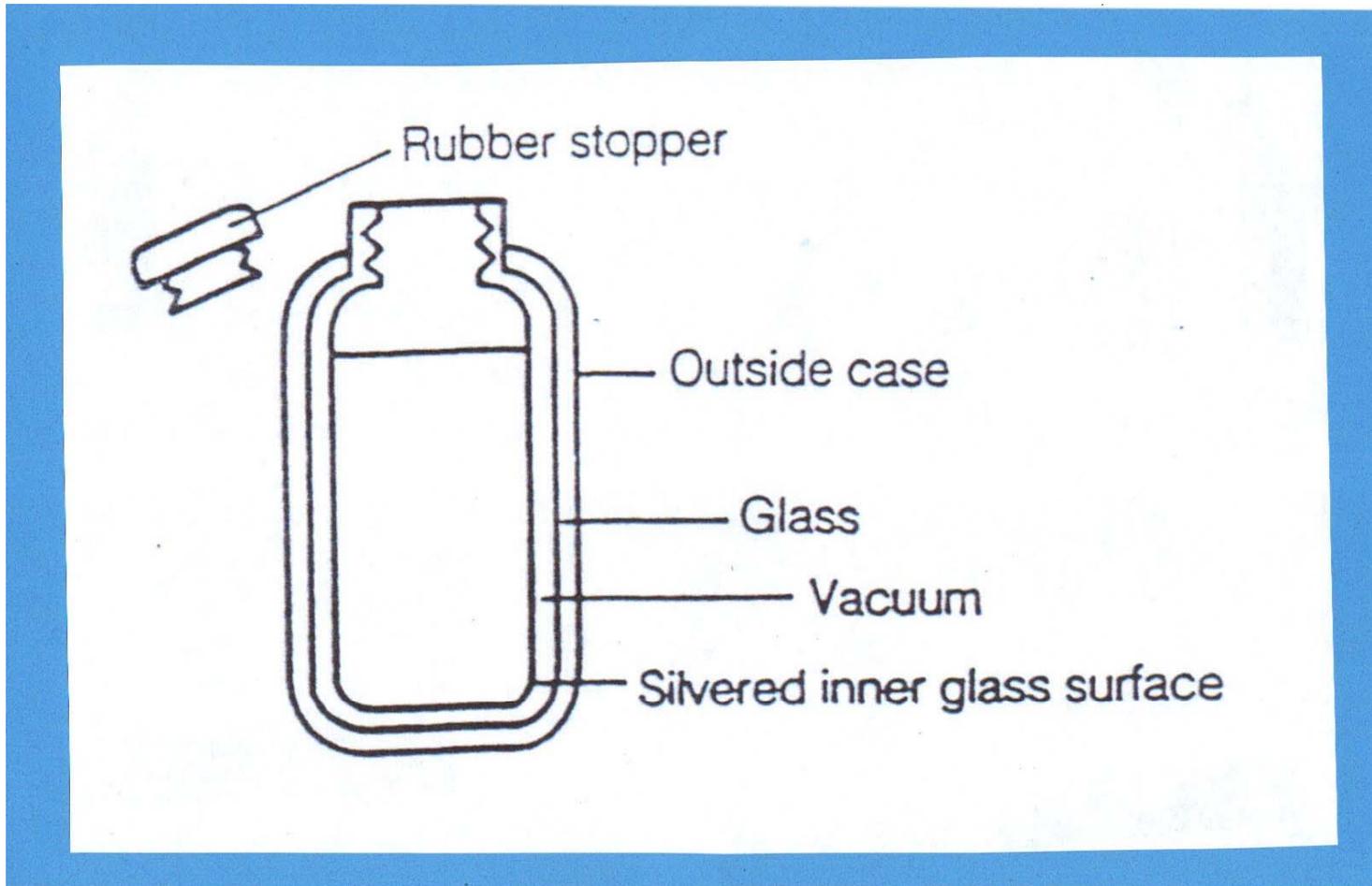


Animation Link:

<https://youtu.be/RtFqo7ORWP8>

What's the smartest invention ever made?

THE **THERMOS** BOTTLE!
How does it 'know'???





Let's do another
experiment...

Your team
challenge: **Keep the
hot cocoa HOT!**

Project SOS

the Science of Sustainability

operates through the
Palouse Discovery Science Center in Pullman, WA.



The goals of the project are that youth gain a basic understanding of the physics of heat transfer, learn to work collaboratively on team challenges, bring their interest and information home to their families, and begin to think about the future and how their families can save energy.

Youth learn the basic concepts of physics through demonstrations and several simple hands-on exhibit activities and then work together to conserve energy in a model house using energy-saving measures they learned from the exhibits. They also learn how to use simple tools to become “heat science detectives” to test their own home by performing an energy audit to find areas where heat energy can escape in the winter or enter in the summer.



Through Project SOS, youth and their families have learned how to apply their new skills and knowledge to find ways to make their own homes more energy efficient.



**For more information about Project SOS and future plans,
contact Kathy Dawes at outreachpdsc@gmail.com
or call 208-310-2922**

<http://creativecommons.org/licenses/by-nc-sa/4.0/>

See more at www.palousescience.net/#!/sos-introduction/c1mws