**Chapter 4 temperature and thermal energy**

**-cup activity p59**

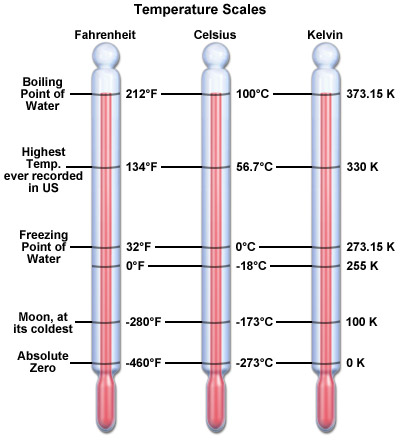
**Temperature is more than measure of hotness or coldness.**

**Temperature scales**

**Fahrenheit scale-**

**Celsius scale-**

**Kelvin scales-**

[](http://images.search.yahoo.com/r/_ylt=A0PDoS_u3jlPxCQAdqajzbkF;_ylu=X3oDMTBpcGszamw0BHNlYwNmcC1pbWcEc2xrA2ltZw--/SIG=13l032qr8/EXP=1329221486/**http%3a/www.magnet.fsu.edu/education/tutorials/magnetacademy/superconductivity101/fullarticle.html)

**p61 sink activity**

**p61 water in glass activity**

**scientific models**

**-example of students demonstrating phases of matter**

**-in a solid, molecules of any substance are in constant motion next to each other, in a liquid they are faster and can move around each other and as a gas they move faster and can go anywhere in the room**

**-this explains the different ways that the food coloring moves in hot vs cold water**

**-a hotter substance = more kinetic energy than an equal number of atoms in a cold substance**

**How does a thermometer work?**

**Sink explanation**

**-valve in handle from hot to cold expands and contracts so the amount of water vary coming out in different temperatures**

**Thermal energy vs temperature**

**Temperature**

**How can a cold object have more thermal energy than a hot object?**

**A swimming pool full of cold water has more thermal energy than cold water**

**-p65 balloon, bottle, coin activity**

**Kinetic theory of gases**

**-fast moving gas molecules DO NOT need more space than slow moving molecules and don’t really have to expand(how strong is your container)**

**-slow moving molecules take up the same amount of space but don’t move faster**

**-in bottle example, air molecules move faster and hit the coin and can move it**

**-in the balloon example, the molecules move faster hitting the walls of the balloon so there is a greater overall push in the balloon**