



## Heat and Temperature Webquest

Directions: Follow the links in each part to answer the questions. Answer all of the questions using complete sentences on your webquest answer sheet or in your notebook.

### Part I. Kinetic Energy and Temperature

[http://www.classzone.com/books/ml\\_science\\_physical/page\\_build.cfm?id=resour\\_ch4&u=1](http://www.classzone.com/books/ml_science_physical/page_build.cfm?id=resour_ch4&u=1)

Use the link above. On the right side, under the “green” box labeled “simulations” click on the

**Kinetic energy and temperature** link. Read the text, operate the animations and answer the questions that follow.

1. Which two factors affect the average kinetic energy of the particles of any type of matter?
2. What happens to the speed of the particles if the temperature is increased?
3. Click the “Next” button so you can change the mass of the particles. What happens to the speed of the particles if the size of the particle is increased?
4. Click the “Next” button so you can change the mass and temperature of the particles. What do you have to do to give the particles of the matter the most kinetic energy? Do the particles move fast or slow at this point?

### Part 2. Conduction, convection or radiation

Go back to the main site from above:

[http://www.classzone.com/books/ml\\_science\\_physical/page\\_build.cfm?id=resour\\_ch4&u=1](http://www.classzone.com/books/ml_science_physical/page_build.cfm?id=resour_ch4&u=1)

Now click on the “**Conduction, Convection, or Radiation**” link under the same the “green” box labeled “simulations”. Once you’ve finished dragging the pictures to the correct boxes, fill out the following table. **Do your best to describe each picture.**

Conduction	Convection	Radiation

Take a look at these “bite – sized” conduction, convection and radiation animations

<http://www.bbc.co.uk/schools/gcsebitesize/science/aqa/energy/heatrev1.shtml>

**You will only need to use the first two pages of this site to answer the questions below.**

5. In what three ways can heat be transferred?
6. What do conduction and convection use that radiation does not? What does radiation use instead?

7. Give your own example of the following:

Conduction -

Convection -

Radiation -

### Part 3. Matter and energy

Look at the PowerPoint slides at this site:

[http://intranet.landmark.edu/blord/psci1211/power\\_point/06\\_matter\\_and\\_energy\\_files/frame.htm](http://intranet.landmark.edu/blord/psci1211/power_point/06_matter_and_energy_files/frame.htm)

8. For slide number 3, notice that the mass of the water is different in each picture (the cups are different sizes) and the temperature of the water is different in each picture. Notice, however, that when the pitcher of water is poured on the ice block, each block melts about the same. This should tell you that the total amount of HEAT in a substance is dependent on which two factors? (**HINT: Look at your answer for Question #1**)

9. Using slide number 4, write down the definitions of heat and temperature. **Remember that KE is Kinetic Energy.**

HEAT -

TEMPERATURE -

10. Refer to slide number 8: Which substance; water, gold or ice needs the most energy to raise its temperature 1 degree Celsius?

11. Refer to slide number 8: What is the definition of specific heat?

### Part 4. Temperature and Temperature scales

Go to: [http://www.classzone.com/books/ml\\_science\\_physical/page\\_build.cfm?id=resour\\_ch4&u=1](http://www.classzone.com/books/ml_science_physical/page_build.cfm?id=resour_ch4&u=1)

From this site, click on the **Temperature Scales and Absolute Zero** link on the left side of the page.

12. What is the definition of absolute zero?

13. Click on the **JavaScript temperature converter** link. Normal body temperature is 98.6°F. Type in the temperature in the “input temperature” space and hit the “convert temperature” button. What is the temperature in degrees Celsius?

14. The current room temperature is 75°F. Type in the temperature in the “input temperature” space and hit the “convert temperature” button. What is this temperature in Kelvin?