|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Particle Model** | **Changes of State** | **Heat Insulators & Conductors** | **Methods of Heat Transfer** | **Scientific Method** | **Forms of Energy** |
| **100** |  |  |  |  |  |  |
| **200** |  |  |  |  |  |  |
| **300** |  |  |  |  |  |  |
| **400** |  |  |  |  |  |  |
| **500** |  |  |  |  |  |  |

**Particle Model ()**

**100 True or False: Particles are in constant motion true**

**200 True or false: Particles in liquids are closer together and moving false-particles in liquids are**

**more slowly than in solids farther apart and moving more**

 **quickly**

**300 Heat energy causes particles to change their particles move more quickly (speed)**

 **motion in two ways. Describe the 2 changes in the particles move further apart (spacing)**

 **way particles move when heated**

**300 Choose the word more or less: less**

**Particles become \_\_\_\_\_\_\_\_\_\_\_\_\_ densely packed when heated**

**400 True or false: Particles carry heat energy during radiation, false-only in conduction and convection**

**conduction or convection**

**500 True or False: Particles exist in all matter.**

**Matter takes up space and has volume.**

**Changes of State (7-2-6)**

**100 Label correctly all changes of state on the change of state triangle see next page**

 **(see next page)**

**200 Would heat energy be added or taken away to freeze liquid water taken away**

 **into ice?**

**300 Name the change of state: solid air freshener fills the air with sublimation**

 **scented particles**

**400 Name the change of state: steam on a window after several condensation**

 **people breathing in the car**

**500 Label correctly each arrow on the change of state triangle with one see next page**

 **of the following phrases:**

**“heat added” (if heat must be added to make this change happen)**

**“heat taken out” (if heat must be taken out to make this change**

 **happen)**

**Changes of State (7-2-6)**

**Heat Insulators & Conductors (7-2-9)**

**100 What is the difference between a heat insulators prevent heat movement; conductors help**

**insulator and a heat conductor ? heat energy move**

**200 Name an everyday use of a heat insulator + heat insulators: thermos, tuque, home insulation**

 **conductor conductors: pots, pans**

**300 Which is correct? Heat energy will move**

 **a) from where there is more of it to where there is**

 **less of it OR**

 **b) from where there is less of it to where there is a) heat moves from more of it to less of it**

 **more of it**

**400 A heat insulator that uses an air-tight space to keep radiation**

 **heat energy in is preventing which type of heat transfer:**

 **radiation, conduction, or convection?**

**500 A heat conductor that uses metal layers to help energy conduction**

 **flow is preventing which type of heat transfer:**

 **radiation, conduction, or convection?**

**Methods of Heat Transfer (7-2-12)**

**State the method of heat transfer involved. In some cases you must answer more than 1 question correctly to get the points.**

**100 -Heat travels in waves radiation**

 **-Heat energy travels by particles bumping into eachother conduction**

**-Heat energy travels by making an area of particles convection**

 **less densely packed, causing it to rise, cool and then fall again**

**200 Heat energy can be absorbed (sucked up) or reflected (bounced back) radiation**

**300 A pot on a hot stove heats up quickly, showing that there is excellent conduction**

 **heat transfer by this method**

**400 The students warm up their hands by a fire. The heat reaches them by radiation**

 **this method of heat transfer**

**500 Air is warmed and so its particles move faster and farther apart. The air is convection**

**now less dense so it \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (choose rises or falls)**

**Scientific Method**

**Answer variable, fair test, controlled variable, independent (manipulated) variable, or responding variable for each of the following. Show these word choices using the next page.**

**100 variable that is kept the same to ensure a fair test controlled variable**

**200 variable that you change on purpose independent (manipulated) variable**

 **(Science Pirates called this the CAUSE)**

**300 variable that changes because of the variable you changed dependent (responding) variable**

 **on purpose**

**400 keeping all variables constant and only changing one variable fair test**

 **so you can observe its effect**

**500 anything that can affect the outcome of an experiment variable**

**Scientific Method**

**variable**

**fair test**

**controlled variable**

**dependent (manipulated) variable**

**independent variable**

**responding variable**

**Forms of Energy (7-2- )**

**State the method of heat transfer involved. In some cases you must answer more than 1 question correctly to get the points.**

**100 The law that says that energy can’t be made or destroyed; Law of Conservation of Energy**

**energy can only change forms**

**200 Seven types of energy studied sound, heat, light nuclear**

 **electrical, mechanical, chemical**

**300 Fill in the blank with the word often, sometimes or never often**

**When energy changes form from one form to another, heat energy**

 **Is made \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 **(often/sometimes/never)**

**400 When a fan blade is spinning, what is the useful energy made? Useful- mechanical**

 **What is the wasted energy? Wasted – sound**

**500 For this event, identify which energy form changed to which chemical energy changed to mechanical energy**

**other form: You eat a burger and then go for a jog**