**Science Year 7 Energy Lesson 2 Worksheet**

* The soup continues to circulate until all the soup is hot.
* This means particles in warm soup move further apart.
* The warm soup rises to the top of the liquid and the cool soup falls to the bottom of the liquid.
* The base of the pan heats up.

1. **This means the warm soup is less dense than cool soup.**

* Soup at the bottom of the pan warms up.
* Particles in warm soup move faster than particles in cool soup.

Task 2

1. Explain in terms of particles, why convection happens in liquids or gases but not in solids.

Task 3

1. What does heating a solid do to it’s particles?
2. What does heating a liquid or gas do to it’s particles?

Task 4

|  |  |  |
| --- | --- | --- |
|  | Advantages | Disadvantages |
| Biomass |  |  |
| Tidal |  |  |
| Wind |  |  |
| Wave |  |  |
| Geothermal |  |  |
| Hydroelectric |  |  |
| Solar |  |  |

Task 5

1. 20J of energy in 10 seconds?
2. 150J of energy in 15 seconds?
3. 2kJ in a minute?
4. How much energy is transferred by a 60W bulb in a minute?
5. How much energy is transferred by a 4kW heater in 40 seconds?

Task 6

1. Calculate the energy transferred, in kilowatt hours in by a 2.4kW oven used for an hour a day during a week?
2. A Unit of electricity costs 10p, how much does the oven cost to run?

Task 7

1. Rob lifts a book with a weight of 2N from the floor and places it on a desk 1m high. What is the work done?
2. Hollie then slides the book 20cm across the desk with a force of 1N. What is the work done?
3. What is the work done when you carry a suitcase, weighing 150N up a flight of stairs (2.5m)?

Task 8

1. What is convection?
2. What is radiation?
3. How can you detect infra red?
4. What is a renewable energy resource?
5. What is the work done if an engine supplies a force of 1500N to move a car 1km?