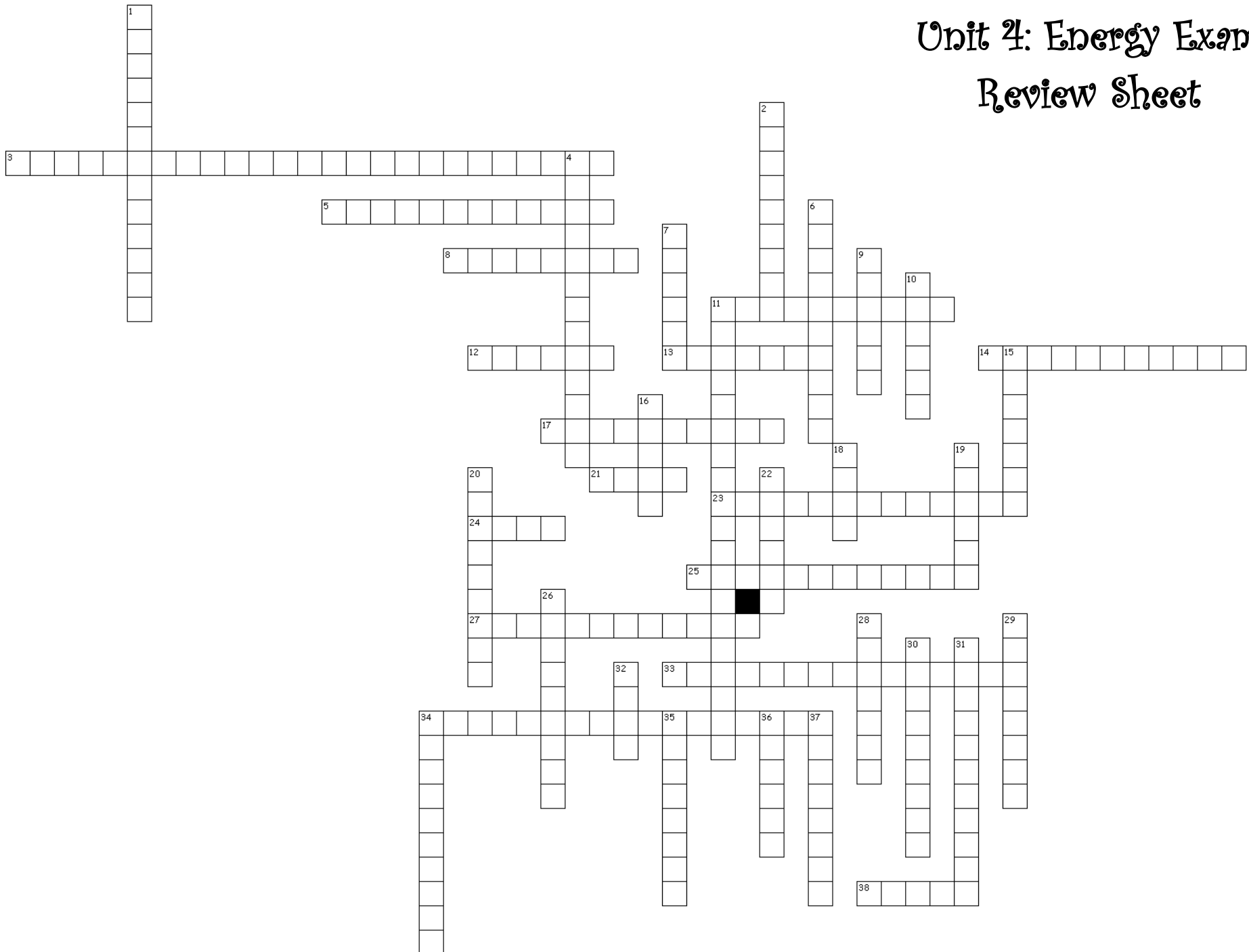


Unit 4: Energy Exam Review Sheet



Name _____ Date _____ Mod _____ Exam Date _____

Across

3. First law of thermodynamics; states that in a system, energy cannot be created or destroyed
5. The amount of energy transferred as heat that will raise the temperature of 1 kg of a substance by 1 K.
8. Energy always goes _____ from high to low.
11. The transfer of energy by the movement of liquids or gases with different temperatures.
12. SI system of temperature measurement; based on absolute zero
13. These indicate the resistance to heat flow
14. A measure of the average kinetic energy of all of the particles in an object
17. Customary system of temperature measurement; based on the freezing point of a concentrated salt water solution
21. The m in $Q=mc\Delta T$
23. The sum of the KE and PE of the particles in an object
24. As water is heated, it expands becomes _____ dense, and rises.
25. According to the second law of thermodynamics, the energy in the universe is _____ and the entropy is increasing
27. According to the third law of thermodynamics, this temperature is unattainable.
33. stored energy
34. The flow of a fluid due to heated expansion followed by cooling and contraction
38. Any material that can flow is a _____.

Problems:

Temperature

1. The temperature in Phoenix, AZ is supposed to reach 104°F today, what is this in °C and in K?
2. The average temperature of Lake Erie on the first day of summer is 63°F, what is this in °C and in K?
3. The warmest recorded temperature on the planet Mars was 20.0°C, express this in K and in °F.
4. Water is most dense at 4.00°C, what is this temperature in °F and in K?
5. The coldest recorded temperature on Mars was -140.°C. Express this in K and in °F.
6. Mercury metal will freeze (become solid) at 234.31 K, what is this in °C and in F?

Material	Specific Heat (J/kg·K)	Material	Specific Heat (J/kg·K)
Air	1007	Iron	449
aluminum	897	Mercury	140.
Copper	385	Water	4186

Down

1. Energy of motion or movement
2. The transfer of energy by electromagnetic waves
4. Potential energy stored due to an object's position
6. The entropy of the universe is _____
7. The transfer of thermal energy by convection and conduction both require _____.
9. Many conductors, such as silver and copper, are _____.
10. Units of energy
11. The ΔT in $Q=mc\Delta T$
15. A measure of disorder (randomness)
16. Solids are better conductors than gases because they are more_____.
18. Energy transferred between objects because of a difference in temperature
19. The type of contact required for energy transfer as conduction to occur
20. In the thermal energy equation, m is measured in _____.
22. The higher the R value, the _____ the insulator.
26. A material through which energy can easily be transferred as heat
28. Metric system of temperature measurement; based on the boiling and freezing point of water
29. Specific heat is this kind of property.
30. A material that is a poor energy conductor
31. Energy can be _____ between objects and is conserved
32. Insulators _____ the transfer of energy as heat
34. The transfer of energy as heat between particles as they collide within a substance or between two objects in contact
35. Potential energy stored in chemical bonds
36. The ability to change or move matter
37. Thermal energy is sometimes called energy in _____.

Specific Heat

1. How much energy is required to heat 2.92 kg of aluminum from 27.2°C to 41.5°C?
2. How much energy is necessary to raise the temperature of an 852.5 g sample of iron from 40.1°C to 75.5°C?
3. A particular sample of iron requires 562 J to raise its temperature from 25.0°C to 50.0°C, what must the mass of the sample be?
4. If 100. J of energy is applied to a 0.025 kg sample of mercury, how much will the temperature of the mercury change?
5. A 0.295 kg aluminum engine part has an initial temperature of 3.00°C. If it absorbs 8.50×10^4 J of energy, what will its final temperature be?
6. A 45.0 kg brass sculpture gains 1.80×10^5 J of energy as its temperature increases from 28°C to 40.°C. What is the specific heat of brass

