**Year 8 Mid-Topic Test Revision**

1. What is Energy?
2. What is another name for stored energy?
3. There are 3 main types of stored energy:
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eg. a stretched rubber band, windup toy.
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eg. candle (wax) is burning to give out light and heat
6. Gravitational Potential energy. eg.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the unit for energy?
2. How many joules in a kilojoule?
3. Convert:
4. 6 kJ to J\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. 40 kJ to J\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. 0.04 kJ to J\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. 30,000 J to kJ\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. 400 J to kJ\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. How many joules in a mega joule?
10. Convert:
    1. 3 MJ to J\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    2. 16 MJ to J\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. How many kilojoules in a mega joule?
12. Convert:
    1. 12 MJ to kJ\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    2. 20 MJ to kJ\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    3. 14 000 kJ to MJ\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    4. 7000 kJ to MJ\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Efficiency = Useful Energy Output x 100

Energy Input

1. Calculate the efficiency of a torch that uses 600 J of chemical potential energy to produce 40 J of light energy.
2. How much wasted energy is produced?
3. What is the main form of wasted energy produced?
4. If a petrol engine of a car is 25 %, how much kinetic energy will it produce when it uses a litre of fuel that contains 20 MJ of energy?
5. State the energy transformation:
   1. flashlight’s batteries
   2. talking on the phone
   3. green plants undergo photosynthesis
   4. Eating high energy food and drink, so that you can run faster.
6. Complete the terminology table.

|  |  |  |
| --- | --- | --- |
| Term | Definition | Unit |
| Energy |  |  |
| Temperature |  |  |
| Heat |  |  |

1. Classify the following forms of energy as potential or action energy.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| gravitational | electrical | elastic | chemical | nuclear | light | sound | kinetic |

|  |  |
| --- | --- |
| Kinetic energy (doing energy) | Potential energy (stored) |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. Complete the table by using one of the types of heat transfer – Conduction, Convection and Radiation.

|  |  |
| --- | --- |
| Explanation | Type of heat transfer (conduction, convection, radiation) |
| Heat transfer by direct collision of particles |  |
| Occurs mainly in solids |  |
| Does not involve a transfer of matter |  |
| Occurs in fluids (gases and liquids) |  |
| How the sun’s energy reaches earth |  |
| Is the transfer of heat by the movement of particles |  |

1. Place the words into the sentences about heat transfer by convection.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| solid | strongly | energy | more | convection | gases |
| Kinetic | move | current | circular | less | free |

1. The transfer of thermal \_\_\_\_\_\_\_\_\_\_\_\_\_\_through a fluid is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Fluids are liquids and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Convection occurs in fluids because the particles in fluids are \_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_.
4. When convection is occurring, the particles in the fluid move in a \_\_\_\_\_\_\_\_\_\_\_ path.
5. Particles close to the heat source gain \_\_\_\_\_\_\_\_\_\_\_\_\_ energy and move further apart.
6. The heated fluid becomes \_\_\_\_\_\_\_\_ dense and rises.
7. As the fluid moves away from the heat source the particles lose \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy and the fluid becomes more dense.
8. Cooler \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dense fluid comes into replace the rising fluid.
9. This circular path is called a convection \_\_\_\_\_\_\_\_\_\_\_\_\_.
10. Convection cannot occur in a \_\_\_\_\_\_\_\_\_\_\_\_.
11. This is because the particles in a \_\_\_\_\_\_\_\_\_\_\_\_ are held together too \_\_\_\_\_\_\_\_\_\_\_\_\_.
12. Write 4 sentences explaining how heat is transferred by conduction.

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |

Kinetic energy is the energy an object has because of its mass and velocity(speed).

Ek= ½ mv2

Ek = kinetic energy(J)

m= mass (kg)

v= velocity (m/s)

1. Calculate the kinetic energy of a 2 kg rock that has fallen off a ledge and is travelling at 20 m/s.

1. Which has more kinetic energy, the Road Runner or the Coyote? Explain why.