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| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** |
| Energy stores and systems | GCSE6.1 | Energy stores and systems | What are the energy stores and transfers that happen within a torch?  Heating + Lighting   1. Chemical Thermal   Electricity   1. Chemical Heat and Light   Heating   1. Electrical Thermal    * 1. Electrical 2. Chemical Light | When an apple falls from a tree describe the energy stores and processes just before it hits the ground?  Kinetic  A. Chemical sound  Falling  B. Kinetic Thermal  Kinetic  C. GPE Thermal  Falling  D GPE Kinetic |
|  |  | Answer | Heating + Lighting  A. Chemical Thermal | Falling  D GPE Kinetic |
| Energy stores and systems | 6.1 | Energy stores and systems | Question 3 | Question 4 |
|  |  |  | What is meant by the conservation of energy?   1. The total energy of the system will only stay the same if there are no changes 2. The total energy stays the same regardless of changes in the system 3. The energy store stays the same all the time regardless of any changes in the system 4. Energy is lost during changes to the system | Which of these are a correct list of Energy stores:   1. Heat, sound, kinetic, chemical 2. Kinetic, thermal, light, chemical 3. Chemical, thermal, kinetic, electrical 4. Chemical, thermal, kinetic, Gravitational potential |
|  |  | Answer | 1. The energy store stays the same all the time regardless of any changes in the system | D. Chemical, thermal, kinetic, Gravitational potential |

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| Topic heading | Syllabus Ref | Idea cluster | Question 1 | Question 2 | Question 3 | Question 4 |
| Energy | 6.1 | Changes in energy | An object with a mass of 250g was travelling at 5m/s what is the value of the kinetic energy store  A. 625 J  B. 3125 J  C. 3,125,000 J  D. 3.125 J | The energy stored in a spring is given by elastic potential energy = 0.5 X spring constant X (extension)2.A spring is stretched by 20cm storing 4 joules of energy, what is its spring constant  A. 40N/M  B. 200N/M  C. 0.4 N/M  D. 0.005 N/M | An object with a mass of 300kg at the start of it’s motion is travelling at 18m/s vertically upwards. What is the maximum height it can reach if gravity equals 10?  A. 32.4 M  B. 16.2 M  C. 162 M  D. 0.9M | What is the definition of specific heat capacity?   1. The amount of energy needed to raise the temperature of 1kg of a substance by 1C 2. The amount of energy needed to change the state of 1kg of a substance 3. The amount of energy needed to raise the temperature of a substance to its melting point. 4. The amount of temperature needed to raise the temperature of 1kg of a substance |
| Answer |  |  | D. 3.125 J | B. 200 N/M | B. 16.2 M | A |
|  |  | Power and efficiency | Two motors lift the same weight through the same height but the first one does it quicker than the second one. How would you compare the two motors?   1. They both transfer the same energy but the first is more powerful than the second because it transfers the energy in less time 2. The first motor transfers more energy and therefore is more powerful. 3. The first one transfers less energy as it is on for less time and therefore less powerful. 4. The second one is more powerful as it is on for longer therefore it is more powerful | What is efficiency?   1. useful in/total out 2. total in/useful out 3. Useful out/total in 4. Total out/total in | Efficiency should always be less than 100% what is the reason for this?   1. In all system changes energy is spread out into less useful stores 2. All energy stores are transferred into useful energy 3. In a change in a system some energy is created 4. In an energy store some extra energy can be created | Buildings are insulated to reduce the rate of cooling, what factors will affect rate of cooling?   1. The materials that the walls are made from 2. The thermal conductivity the walls 3. The shape of the walls 4. what house number you live at |
| Answer |  |  | A | C | A |  |
|  |  | Energy resources | Which of the following are a selection of non renewable resources?   1. coal, oil gas, wind 2. Coal, oil, nuclear, gas 3. Oil, gas, nuclear, geothermal 4. Wind, biofuel, nuclear, gas | Which of the following are a selection of renewable resources?   1. A. coal, oil gas, wind 2. Coal, oil, nuclear, gas 3. Oil, gas, nuclear, geothermal   D. Wind, biofuel, hydroelectric, geothermal | During operation which of the following pairs of energy resources release carbon dioxide into the atmosphere?   1. Coal and nuclear 2. Nuclear and bio fuels 3. Hydroelectricity and coal 4. Coal and oil | Which of the following pairs are not reliable energy resources?  A. Nuclear and hydro  B. Waves and oil  C. Wind and Solar  D. Nuclear and oil |
|  |  |  | B | D | D | C |
| Forces | GCSE | Types of forces | Which of these is not a contact force  A.friction  B. air resitance  C. Tension  D. Magnetism | What is a vector?   1. Has magnitude and direction and can be respresented by an arrow 2. Only has a magnitude and no direction and can be represented by an arrow 3. A vector is a direction on a graph 4. Only has a direction and is represented by an arrow. | What is the resultant force acting on this objectMacintosh HD:private:var:folders:90:jvkqh4jj1tl6c7l1nsgzxl_c0000gp:T:TemporaryItems:u2l2d1.gif   1. 400 N down 2. 400 N up 3. 2000 N down 4. 2000 N up | What is weight and where does it act from?  A. Weight is the mass of the object and acts from the bottom of the object  B. It is gravity and acts from the centre of the object  C. Weight acts from a centre of mass and it is the force acting on an object due to gravity  D. Weight is how heavy you are and acts against other objects |
|  |  |  | D | A | B | C |
| Electrical circuits | GCSE |  |  |  |  |  |