OCR 21st Century Science (2012 spec)

**Unit P4b Statements**

Forces and energy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1** | The two forces in an interaction pair are … |  | the object pushes down on the surface, the surface pushes up on the object with an equal force, and this is called the reaction of the surface |  |
| **2** | For two surfaces which slide over each other… |  | the sum of all the individual forces acting on it, taking their directions into account |  |
| **3** | The interaction between an object and a horizontal surface it is resting on: … |  | each surface experiences a force in the direction that prevents (or tends to prevent) relative movement; this interaction is called friction |  |
| **4** | The resultant force on an object is … |  | equal in size and opposite in direction, and that they act on different objects |  |
| **5** | If a resultant force acts on an object, … |  | a. greater than the counter force, the vehicle will speed up  b. equal to the counter force, the vehicle will move at constant speed in a straight line  c. smaller than the counter force, the vehicle will slow down |  |
| **6** | For an object moving in a straight line, if the driving force is: |  | it causes a change of momentum in the direction of the force |  |
| **7** | When work is done on an object, energy is transferred to … |  | and this results in an increase in its kinetic energy |  |
| **8** | When a force acting on an object causes its velocity increase, the force does work on the object … |  | and as it falls, its gravitational potential energy decreases |  |
| **9** | The greater the mass of an object and the faster it is moving, … |  | the object and when work is done by an object, energy is transferred from the object to something else |  |
| **10** | As an object is raised, its gravitational potential energy increases, … |  | by the lifting force; this increases the gravitational potential energy |  |
| **11** | When an object is lifted to a higher position above the ground, work is done … |  | weight × vertical height difference (joules, J) (newtons, N) (metres, m) |  |
| **12** | gravitational potential energy = |  | the greater its kinetic energy |  |

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| **3** | The interaction between an object and a horizontal surface it is resting on: … |  | each surface experiences a force in the direction that prevents (or tends to prevent) relative movement; this interaction is called friction | 2 |
| **4** | The resultant force on an object is … |  | equal in size and opposite in direction, and that they act on different objects | 1 |
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| **6** | For an object moving in a straight line, if the driving force is: |  | it causes a change of momentum in the direction of the force | 5 |
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| **8** | When a force acting on an object causes its velocity increase, the force does work on the object … |  | and as it falls, its gravitational potential energy decreases | 10 |
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| **12** | gravitational potential energy = |  | the greater its kinetic energy | 9 |