

Mark schemes

1

- (a) as chemical energy ✓
if more than one box is ticked, award no mark 1 (L6)
- (b) by electricity ✓
if more than one box is ticked, award no mark 1 (L6)
- (c) (i) light 1 (L6)
- (ii) thermal transfer
*do **not** accept 'heat'* 1 (L6)
- (d) potential energy
*accept 'gravitational potential energy'
or 'gravitational energy' **or** 'the same amount as the girl has given it'* 1 (L6)

[5]

2

- (a) •
- | | |
|---|-----------------|
| 2 | 20 |
| 3 | 45 or 46 |
| 4 | 80 |
- all three** answers are required for the mark* 1 (L5)
- (b) any **one** from
- the height for 4 cm is 4 times the height for 2 cm
*accept 'for 2 cm it went 20 cm but for 4 cm it went 80 cm'
a mark may be awarded for other correct figures
accept 'if I double the distance it goes four times as high'
'when she doubled the distance it did not double the height'
is insufficient*
 - the graph is a curve
accept 'the graph is not a straight line'
 - the height for 2 cm is not twice the height for 1 cm
accept 'if it goes from 2 to 3 cm, the height more than doubles'
 - the height should have been 40 cm when he pressed it down 4 cm
accept appropriate arguments for other values 1 (L6)

- (c) (i) • some
some
both answers are required for the mark 1 (L6)
- (ii) • most
least
both answers are required for the mark
answers must be in the correct order 1 (L6)
- (iii) • least
least
both answers are required for the mark 1 (L6)

[5]

3

- (a) (i) kinetic
accept 'movement' or 'motion' 1 (L7)
- (ii) sound
accept 'kinetic' or 'movement' or 'motion' 1 (L7)
- (b) any **one** from
answers must refer to 'energy' or 'power'
- loud sounds dissipate more energy than quieter sounds
accept 'energy is used or needed more quickly'
 - energy is transferred more quickly
accept 'it is using more power' or 'more energy is transferred per second'
 - more potential **or** kinetic energy is converted to sound
accept 'more energy is converted to sound'
accept 'it is using or transferring more energy'
accept 'it produces more electrical energy'
do not accept 'it uses more electricity' 1 (L7)

- (c) any **one** from
- solar energy **or** light energy is used
*accept 'the radio is run by sunlight **or** light'*
 - less energy is provided by **or** taken from the spring
accept 'the light provides a second source of energy'
 - energy is provided by the solar cell
accept 'the radio is run by the Sun'
accept 'the radio has two sources of energy'
- 1 (L7)

- (d) any **one** from
- batteries **or** mains electricity are not available
 - batteries **or** mains are not needed
 - people cannot afford batteries **or** mains electricity
accept 'the energy resource is free'
accept 'they are cheap to run'
'they are cheap' is insufficient
- 1 (L7)

[5]

4

- (a) **B** or bungee cords
- 1
- C** or springs or playground ride
each additional answer loses 1 mark minimum mark zero
- 1
- will go back to original shape/size
- 1
- (b) (i) newton
- 1
- (ii) 0 – 5 (N) or 5
accept 1 – 5 (N)
*do **not** accept 4*
- 1
- (iii) 16 (cm)
- 1
- (iv) 2.5 (N)
accept answer between 2.4 and 2.6 inclusive
- 1

[7]