Work

Answers

KS3 science quick questions

This topic online

Activate 2: Energy; Activate 3: Energy

Q	Answer	Remember
1	work	In science, work is only done when a force makes something move.
2	distance	Work done = force × distance moved in the direction of the force.
3	joule	Work done is energy transferred, so it uses the same unit as energy: joules.
4	longer	A lever swaps force for distance: a smaller push, but your end moves further.
5	metre	Newtons × metres gives joules, so change cm or km into metres first.
6	200 J	50 × 4 = 200 J.
7	friction	Wheels roll instead of scraping, so far less friction acts against your push.
8	0	No movement means no distance, so no work is done on the wall - even though Leo gets tired!
9	doubles	Work done = force × distance, so twice the distance means twice the work.
10	transferred	Work done is one way of transferring energy - the joules done as work equal the joules transferred.
11	lever	Levers let a small force move a big load.
12	pivot	On a seesaw, the pivot is the bit in the middle.
13	force	Machines cut the force you need, but you have to move it further - they do not cut the work.
14	pulley	Pulling down on a rope is easier than lifting up - and more wheels reduce the force even more.
15	elastic	Stretched or squashed things store energy - let go and it is transferred back out.
16	30 kJ	2000 × 15 = 30 000 J, and 1 kJ = 1000 J, so 30 kJ.
17	5 m	Distance = work done ÷ force = 600 ÷ 120 = 5 m.
18	1500 N	Force = work done ÷ distance = 9000 ÷ 6 = 1500 N.
19	2 m	To balance, force × distance must match on each side: 400 × 1.5 = 600, and 600 ÷ 300 = 2 m.
20	The force is smaller but you push the box a longer distance, so force × distance stays the same (or a bit more because of friction).	Machines trade force for distance - you never get work for free.

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