

Work is force × distance

by Andy "Dijon" French. 1/12/2020.

Tune based upon "9 till 5" by Dolly Parton.

Single note pluck intro:

F# x12 F# F# E F
F# x12 F# F# E F

(all subsequent chords are bar chords)

F#7
Get off your chair and stand up straight
B7
Gravity acts, it's called Weight
F#7 C#7
You'll have to spend some joules on the way
F#7
mgh is what it costs
B7
You'll get it back, sans a loss
F#7 C#7 F#7
GPE to KE you will say

CHORUS

B7
Work is: F times d, that's force times distance
F#7
It's an energy, you can spend against resistance
B7
F, d parallel, like the prongs of a pitchfork
G#7 C#7
Or it's a moment, couple or a torque

B7
Work is: F times d, that's force times distance
F#7
It's an energy, you can spend against resistance
B7
But F increases, as you stretch a spring
G#7 C#7
 $\frac{1}{2}kx^2$, is an area thing!

F#7
A freight train travels at a constant speed
B7
A constant force gives, what it needs
F#7 C#7
The work done, is against the drag
F#7
But suck away the surrounding air
B7
In a vacuum tube from here to there
F#7 C#7 F#7
Accelerate to even greater speed

CHORUS

B7
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F#7
It's an energy, you can spend against resistance
B7
F, d parallel, like the prongs of a pitchfork
G#7 C#7
Or it's a moment, couple or a torque

B7
Work is: F times d, that's force times distance
F#7
It's an energy, you can spend against resistance
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But F increases, as you stretch a spring
G#7 C#7
 $\frac{1}{2}kx^2$, is an area thing!

F#7
Now get a piston, petrol, fire
B7
Connected with cranks and wheels with tyres
F#7 C#7
Move a gas around in p, V space
F#7

Calculate, the work rate
B7
Find p of V , and integrate
F#7 C#7 F#7
It's balanced, by the heat exchanged

(Slow, single strums)

F#7
See work's involved in all of Science
B7
In every technical appliance
F#7 C#7
Motors, rockets, magnets and machines
F#7
But does it still apply on a cosmic scale?
B7
Without dark matter, will it fail?
F#7 C#7 F#7
Or do we not yet know what this means? (!)

Well, until we find out....

B7
Work is: F times d, that's force times distance....

(repeat **CHORUS** to fade or until the audience gets fed up).