

## Work and power

### Worksheet 4 Teacher's notes

1. In physics the concepts of work and power help us understand and explain lots of things in our universe.
2. Positive work is the energy we put into the system.
3. Think of positive work as money being added to your bank account.
4. Work and energy are measured in Joules. .
5. We transfer energy into the clock, we turn the crank to raise the heavy metal cylinders inside the clock
6. That energy is stored as gravitational potential energy.
7. To raise the metal cylinders, we need to apply force equal to their weight.
8. The cylinders weigh 300Newtons which is pretty heavy
9. Power is the rate at which energy is transferred
10. In the metric system power is measured in Joules per second or Watts
11. James Watt came up with the concept of horsepower to measure the amount of power produced by a typical work horse.
12. Let's compare the amount of power it takes to run this grandfather clock to the power we'd need to run a bright 100 Watt light bulb.
13. Before we let the clock run, the energy is stored as gravitational potential energy of the cylinders.
14. If we let the clock run, the cylinders slowly move downward and the energy is leaving the clock.
15. How much power does the clock use?
16. You can run a clock in every house in a medium sized city with that much power.