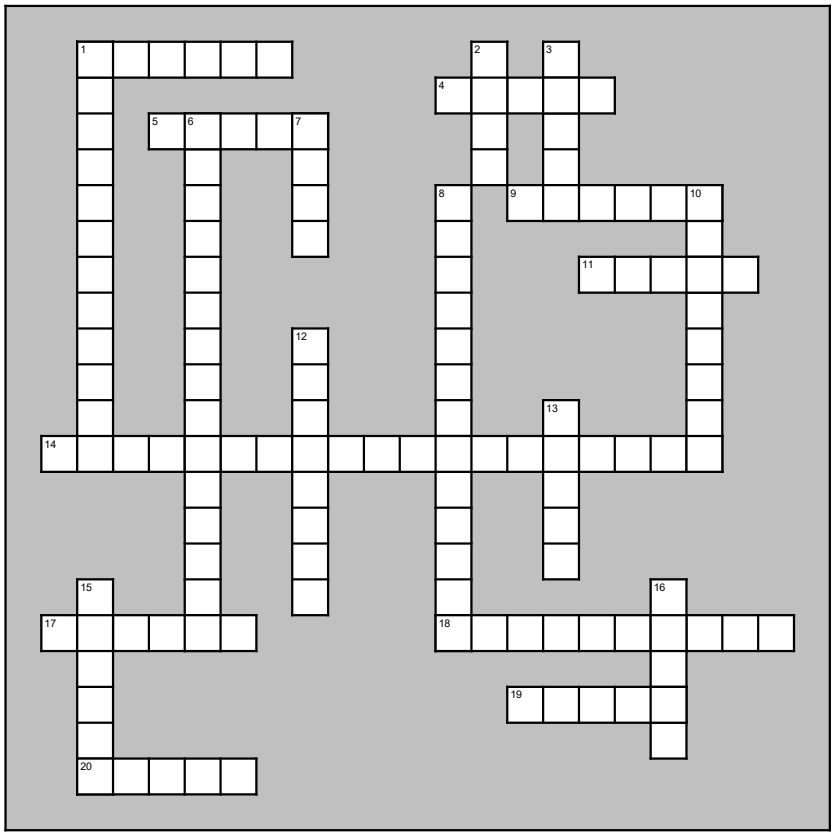
# Crossword



**Across**

1. Mass times the acceleration due to gravity (mg). Changes depending on where you are (on the moon, this is 1/6 of that on earth).
4. The amount of work done over the time it takes to do the work. Measured in W (watts) in the metric system.
5. A simple machine that is an inclined plane wrapped around a central bar or cylinder to form a spiral. Used for wood or corks. e.g. corkscrew slide, jar covers.
9. Class of lever in which the load (resistance) is in-between the effort and fulcrum. e.g. wheel barrow, nut cracker, car door.
11. Class of lever where the fulcrum is in-between the effort and resistance. e.g. see saw, scissors.
14. The benefit (MA) a machine yields in doing work. Output force / Input force; input distance / output distance; resistance force /effort force; effort distance / resistance distance.
17. A simple machine that is a rope, belt or chain wrapped around a grooved wheel. The mechanical advantage can be determined by the number of ropes supporting the load (resistance).
18. In an ideal situation, the amount of work done by a machine equals the energy used. (Work / Effort or Work output / work input) 100% is ideal. In real life, this is never 100% due to friction, heat, etc..
19. Distance and ___ are always involved in doing work. This can be input (effort) or output (resistance/load).
20. Class of lever where the effort is in-between the load (resistance) and the fulcrum. e.g. fishing pole, tennis racket, sweeping with a broom.

**Down**

1. Machine made up of two circular objects of differents sizes connected as one unit. Screwdriver, bicycles, ferris wheels, gears, wrenches, doorknobs and steering wheels.
2. Force times the distance an object is moved. Measured in "joules" in the metric system. Also equals the change in kinetic energy.
3. A simple machine consisting of two inclined plane that move. Knife, ax, locks, zipper.
6. A combination of two or more simple machines that operate together. e.g. bicycle, appliances.
7. Metric unit of power. Power = Work / time. Power = Joules/second.
8. A simple machine that is a slanted surface. Ramps, escalators.
10. Most machines are used to decrease effort force (input) at the expense of ___. e.g. a wheel chair ramp increases ___ despite being much easier for the person to do the same work.
12. One of the main reason that machines are not 100% efficient. e.g. heat is produced.
13. The work done on an object through a distance. This relates to effort.
15. The work that needs to be done on an object through a distance. This relates to resistance or load. e.g. a heavy object moved a distance.
16. A simple machine which has a rigid bar free to pivot around a fixed point, the fulcrum. Divided into three classes.