Name: _____ Date: 12/5/18

Science 7

Work and Machines NOTES

Aim: I can calculate the efficiency of a machine. F

Do Now: How much power is used if a force of 35 N is used to push a box a distance of 10 meters (D) in 5 seconds (T)?

Formula	Substitution	Final Answer with Units
$W = f \times d$	$W = 35\,N \times 10\,m$	$W = 350\,J$
$P = \frac{W}{t}$	$P = \frac{350\,J}{5\,s}$	$P = 70\,W$

Notes:

What is efficiency?

- The percentage of the Input work that is converted to the _____ work.
- To calculate the efficiency of a machine, divide the output work by the input work and multiply by 100 percent.

$$\text{Efficiency} = \frac{\text{output work (joules)}}{\text{input work (joules)}} \times 100\%$$

$$\text{Efficiency} = \frac{W_{out}}{W_{in}} \times 100\%$$

Real and Ideal Machines

- A machine with 100% efficiency would be an ideal machine.
- All machines have an efficiency less than 100%.