



Umm Al Arab School
Science Department: Grade 9
2021 / 2022



Topic: Efficiency and Mechanical Advantage

Efficiency Equation

$$\text{efficiency (\%)} = \frac{\text{output work (in joules)}}{\text{input work (in joules)}} \times 100$$
$$e = \frac{W_{\text{out}}}{W_{\text{in}}} \times 100$$

Study tips:

- Identify the topic
- Is there an equation that you can use?
- Read the question
- What is the question asking?
- Read again, write the formula, substitute and solve

Activity 1:

Calculate the efficiency of a machine that does 800 J of work if the input work is 2000 J.

Activity 2:

The input work on a pulley system is 75 J. if the pulley system is only 85% efficient, then what was the output work?

Activity 3:

Decide if a machine that has an input work of 500 J and output work of 500 J , is efficient or not. Explain your answer.
