



# DIVERSITY IN STEM EDUCATION

projects including the variability of teaching methods, for talented students, for inclusive learning, cooperation between younger and older students etc.

## The conservation of energy using simple machine

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SCAN ME for video



SCAN ME for document

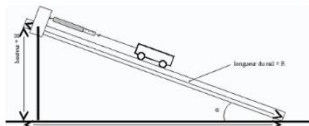
TO LIFT THE SAME 1 KG MASS LOAD AT THE SAME 1 M HEIGHT

### THE WORK IS THE SAME!

ENERGY IS CONSERVED

**F** ↓      **d** ↑

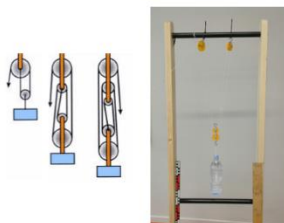
## Inclined plane



The inclined plane

	Motive force	Displacement of the force application point	Work (J) $W_F = F_M \cdot d$
Inclined plane 1	$F_M = 8,85\text{N}$	$d = 1,13\text{ m}$	$W_F \approx 10\text{J}$
Inclined plane 2	$F_M = 6,1\text{N}$	$d = 1,63\text{m}$	$W_F \approx 10\text{J}$
Inclined plane 3	$F_M = 5\text{N}$	$d = 2\text{m}$	$W_F \approx 10\text{J}$

## Pulleys



The pulleys

	Motive force	Displacement of the force application point	Work (J) $W_F = F_M \cdot d$
Hoist 1	$F_M = 10\text{N}$	$d = 1\text{ m}$	$W_F \approx 10\text{J}$
Hoist 2	$F_M = 5\text{N}$	$d = 2\text{m}$	$W_F \approx 10\text{J}$
Hoist 3	$F_M = 2,5\text{N}$	$d = 4\text{m}$	$W_F \approx 10\text{J}$
Hoist 4	$F_M = 2\text{N}$	$d = 5\text{m}$	$W_F \approx 10\text{J}$

## Lever



The lever

	Arm lever (motive and resistant)	Motive force	Displacement of the force application point	Work (J) $W_F = F_M \cdot d$
Lever 1	$l_M = 1,1\text{m}$ et $l_R = 1,1\text{m}$	$F_M = 10\text{N}$	$d = 1\text{ m}$	$W_F \approx 10\text{J}$
Lever 2	$l_M = 1,1\text{m}$ et $l_R = 0,82\text{m}$	$F_M = 7,5\text{N}$	$d = 1,33\text{m}^*$	$W_F \approx 10\text{J}^*$
Lever 3	$l_M = 1,1\text{m}$ et $l_R = 0,19\text{m}$	$F_M = 1,7\text{N}$	$d = 5,88\text{m}^*$	$W_F \approx 10\text{J}^*$

\*values not measured in the laboratory but calculated with the mechanical advantage.