

An elementary research
about how to save electric
energy by changing
fluorescent lights by LEDs



Our centre



A wonderful place for
learning and live together



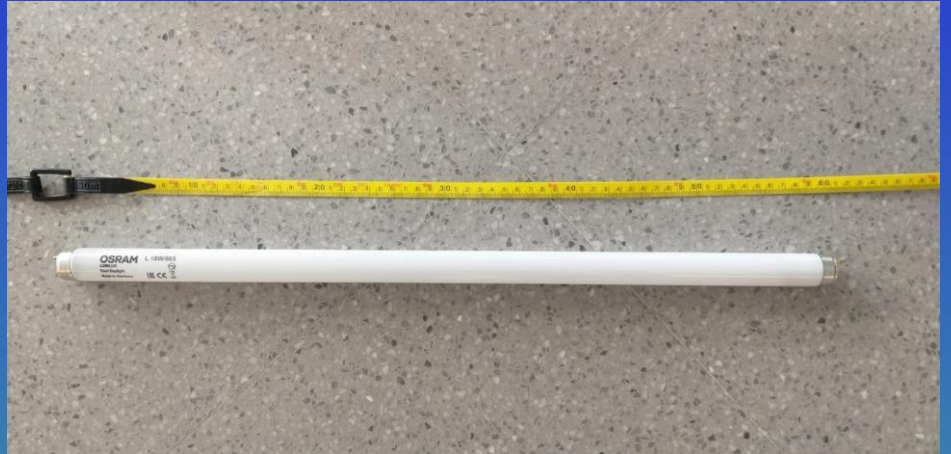
But education consumes many resources, like light.



Although we take advantage
of natural light



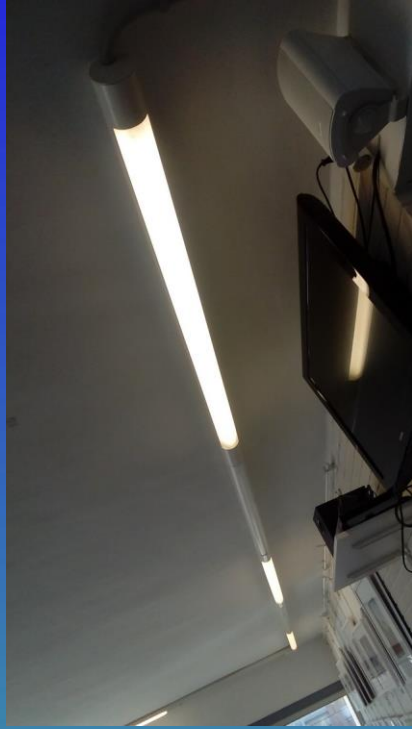
We need thousands of them



X 703



X 2835



X 301



X 61



X 27



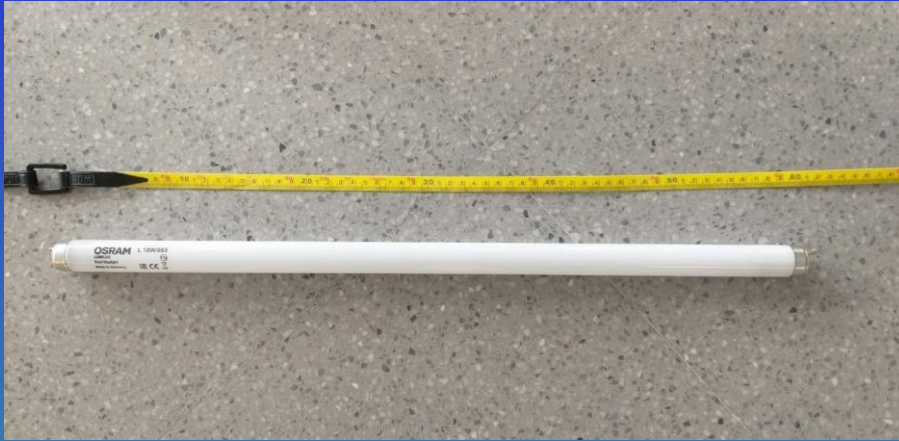
X 34

...but, how can we reduce energy consumption?



Fluorescent tube 0'6m

LED tube 0'6m



18 w

9 w

26791 kwh/y → 13395 kwh/y

2930 €/year 1465 €/year

Fluorescent tube 1'5m LED tube 1'5m



58 w

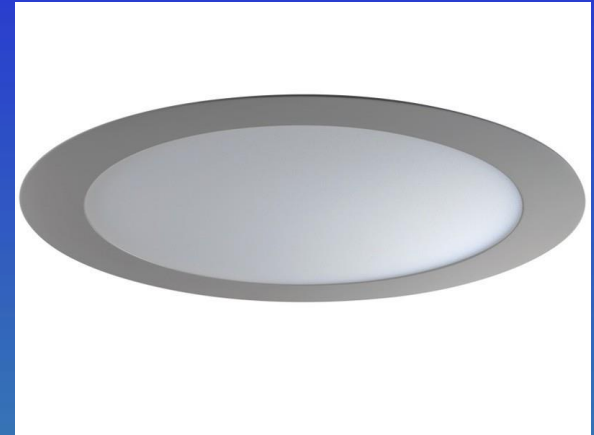
22 w

18331 kwh/y \longrightarrow 6953 kwh/y

2005 €/year 761 €/year

Double fluorescent lamp

LED downlight



52 w

20 w

1665 kwh/y



641 kwh/y

182 €/year

70 €/year

Single fluorescent lamp



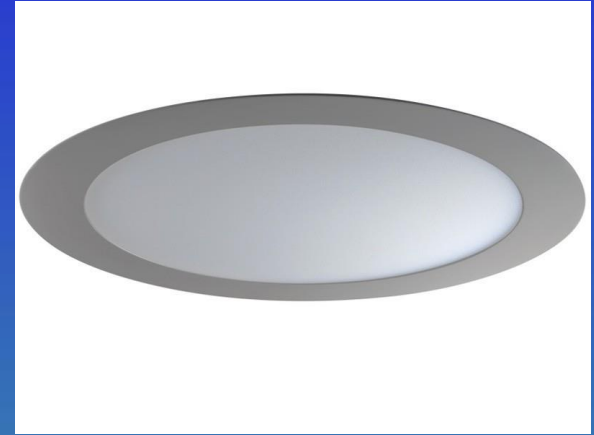
23 w

326 kwh/y

36 €/year



LED downlight



12 w

170 kwh/y

19 €/year



halogen lamp



70 w

1250 kwh/y

137 €/year

Linear LED lamp



10 w

179 kwh/y

20 €/year



	Total	Power per unit (W)	Power per unit LED (W)	Brightness (Lm)	Hours per day	Operating days	Current annual consumption (kwh)	Annual consumption with LED (kwh)	Price per unit (€)	Total price (€)	Annual expenditure (€)	Annual expenditure with LED (€)	Difference (€)	Years of amortization
Short tubes	2835	18	9	870	3	175	26791	13395	7	19845	2930	1465	1465	13,54
Long tubes	301	58	22	2250	6	175	18331	6953	9	2709	2005	761	1244	2,18
Single fluorescent lamp / Downlight	27	23	12	930	3	175	326	170	8	216	36	19	17	12,67
Double fluorescent lamp / Downlight	61	52	20	1500	3	175	1665	641	10	610	182	70	112	5,44
Halogen lamp / Linear LED lamp	34	70	10	1000	3	175	1250	179	8	272	137	20	117	2,32
Totals							28040	13574		23652	5290	2334	2956	8,00

On the other hand, we spend a total amount of electricity per year of 96144 kwh. So, 29% of electric power spent corresponds to lighting.

And we would save 1 4 4 6 6
kwh with LEDs.

That is:

52% of energy used in lighting
or

15% of total electric energy



- Electric energy not for lighting
- Saving of energy for lighting
- Consumption with LEDs

A not negligible saving.

Finally, the hole inversion
would be amortized in eight
years.

...not too much time.