



# Brighten your house

research and design electrical circuits for the lightning systems.

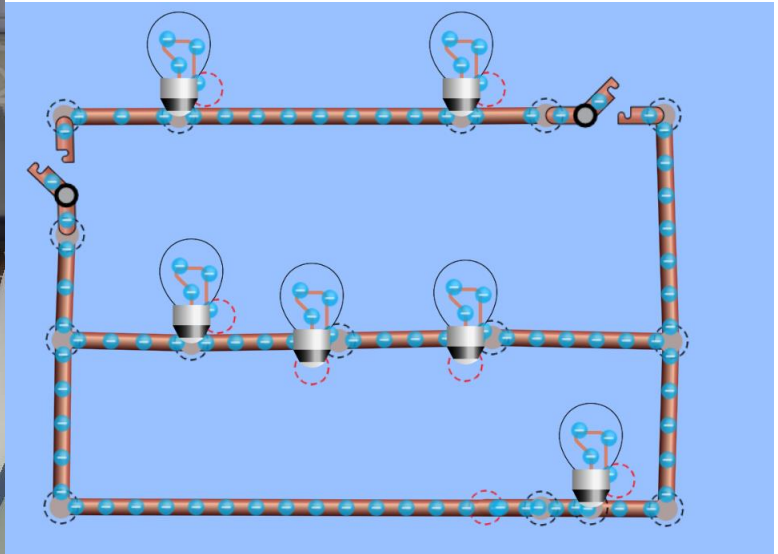
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We designed this house to simulate and make our idea clear. Note: we used LED lights for every room because the cost on the electricity bill will decrease and won't use up a lot of heat energy.



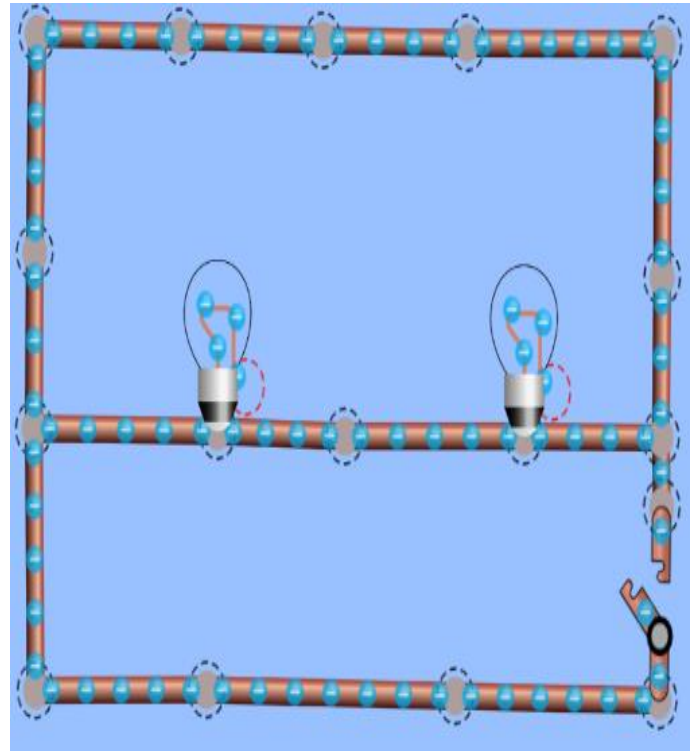
## LIVING ROOM



We added 2 bulbs (represents table lamps) between the TV and a switch and 2 sockets in the first branch. in the 2<sup>nd</sup> branch we added 3 light bulbs for the ceiling lamps and its switch is beside the door. The last branch contains a side lamp and has a socket beside it

type of components used	Number of components used	Prices of components
<b>Led light bulb</b>	4 bulbs	$1.5 \times 4 = 6\text{JD}$
<b>Electrical sockets</b>	2 sockets	$0.5 \times 2 = 1\text{JD}$
<b>Fancy switch</b>	2 switches	$0.75 \times 2 = 1.5\text{JD}$
<b>wires</b>	14 meters	14 JD

# KITCHEN

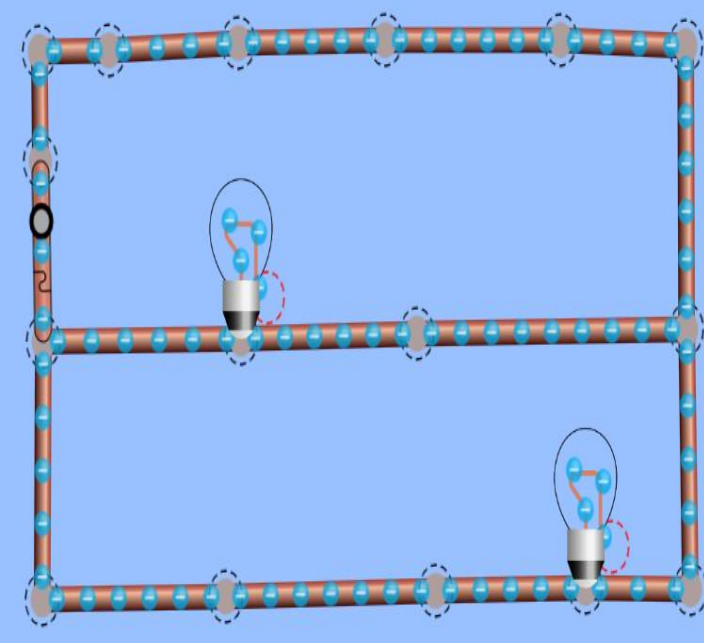


In the first branch there would be 3 sockets (for the microwave, coffee maker and fridge). In the second branch the 2 light bulbs represent the hanging ceiling light between the counter and a switch on the side.

type of components used	Number of components used	Prices of components
<b>LED light bulb</b>	2 light bulbs	$1.5 \times 2 = 3 \text{ JD}$
<b>Electrical socket</b>	3 sockets	$0.5 \times 3 = 1.5 \text{ JD}$
<b>Ordinary switch</b>	1 switch	0.5 JD
<b>Wires</b>	11 meters	11 JD



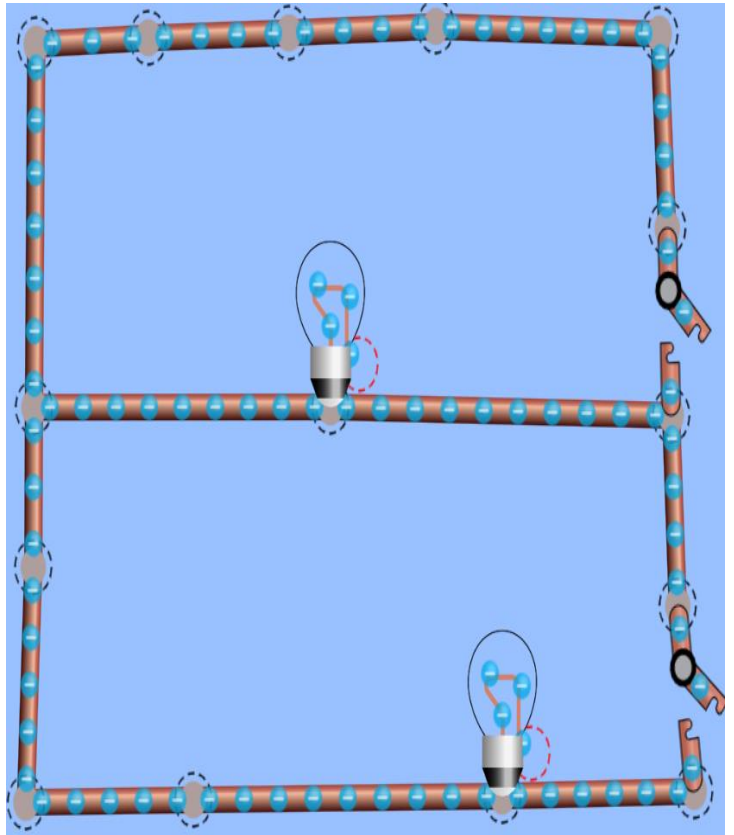
# Bedroom



*There would be a switch next to the door for the light above the bed. In the last branch there would be a side lamp and a socket to plug it in.*

<b>type of components used</b>	<b>Number of components used</b>	<b>Prices of components</b>
<b>LED light bulb</b>	2 light bulbs	$1.5 \times 2 = 3 \text{ JD}$
<b>Electrical socket</b>	1 socket	0.5
<b>Ordinary switch</b>	1 switch	0.5
<b>wires</b>	15 meters	15 JD

## Bathroom



There would be a switch next the door to control the ceiling light and the light above the toilet is in the last branch and a switch next to it to control it.

Type of components used	Number of components used	Prices of components
<b>LED light bulb</b>	2 lights	$1.5 * 2 = 3JD$
<b>Ordinary switch</b>	2 switch's	$0.5 * 2 = 1JD$
<b>Wires</b>	7 meters	7 JD

# TOTAL COST OF MATERIALS FOR EACH ROOM

Room	Total cost of materials JD
<b>Bed Room</b>	19 JD
<b>Bath Room</b>	11 JD
<b>Living Room</b>	22.5 JD
<b>Kitchen</b>	16 JD
<b>Total cost of materials of all rooms</b>	68.5 JD



# Calculation's

Living room=  $12*250= 3000 \text{ lux}$

$3000 \div 80 = 4 \text{ lamps (LED)}$   $\longrightarrow 4 \text{ lamps} * 10 = 40 \text{ W}$

Kitchen=  $10*250= 2500 \text{ lux}$

$2500 \div 1400 = 2 \text{ lamps (LED)}$

Bedroom =  $10*250= 2500 \text{ lux}$

$2500 \div 1400 = 2 \text{ lamps (LED)}$

}  $4 * 14 = 56 \text{ W}$

Bathroom=  $6*250= 1500 \text{ lux}$

$1500 \div 800 = 2 \text{ lamps}$   $\longrightarrow 2 * 10 = 20 \text{ W}$

Total number of bulbs used in the house = 10 LED light

Total cost of bulbs =  $10 * 2.5 = 15 \text{ JD}$

Total watts in the bulbs =  $40 + 56 + 20 = 116 \text{ watts}$

$116 \div 1000 = 0.116 \text{ KW}$

Energy in joules= power (kw)\*hr

$= 0.116 * 10$   $120 \longrightarrow 0.12 \text{ JD}$

$= 1.16 \text{ KW hr.} * \text{price (1} \longrightarrow 1000 \text{kw hr)}$

$1.16 * 0.12 = 0.1392 \text{ JD TOTAL ELECTRICITY BILL PER 10 HRS}$

Per month  $0.1392 * 30 = 4.71 \text{ JD}$