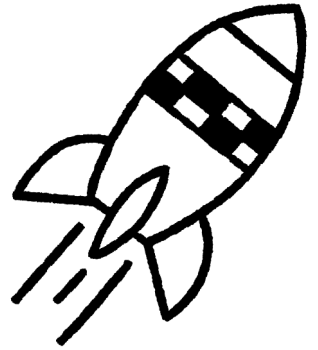


Qiyaasida korantada (voltage)

Sayniska

Cutub: Wareegyo taxane ah (series circuits)



Natiijo

Waxaan qiyaasi karaa sida loo qiyaaso korantada (voltage) iyo saamaynta korantada unugyada ama baytariyada kala duwan ee wareegga korantada.

Erayada muhiimka ah

voltmitir (voltmeter)

koronto (voltage)

farqiga awoodda (potential difference, p.d.)

volts (V)

baytari (battery)

Erayada muhiimka ah

Voltmitirku (voltmeter) waa aalad qiyaasa korontada (voltage) ay siiso unug ama baytari ama qayb ka mid ah wareegga.

Korontadu (voltage) waa cabbirka 'riixista' unugga ama baytariga ee dhaqaajisa danabka (charge) wareegga.

Farqiga awoodda (potential difference, p.d.) waa erey rasmi ah oo loo isticmaalo korontada (voltage); waxaa la isku beddeli karaa.

Voltmitirku (voltmeter) wuxuu qiyaasaa korontada (voltage) ama farqiga awoodda (potential difference) oo lagu qiyaaso cutubyo la yiraahdo volts (V).

Labo unug ama in ka badan oo isku xiran taxane ayaa sameeya baytari (battery).

Qiyaasida korontada (voltage)



Isticmaalka voltmitirka (voltmeter)



Waa maxay koronto (voltage)?

Isticmaalka voltmitirka (voltmeter)

Qaybta la muujiyay waa voltmitir (voltmeter).

Waxaa loo isticmaalaa in lagu qiyaaso danab (voltage) ee qaybaha (components).

Wuxuu muujiyaa korontada (voltage) oo ku qoran volts (V).

Farqiga awoodda (potential difference, p.d.) waa erey rasmi ah oo loo isticmaalo korontada (voltage).

Astaanta voltmitirka (voltmeter) waa:



Isticmaalka voltmeter (voltmeter)

Mid ka mid ah sawirradee waa voltmeter (voltmeter)?



a ✓

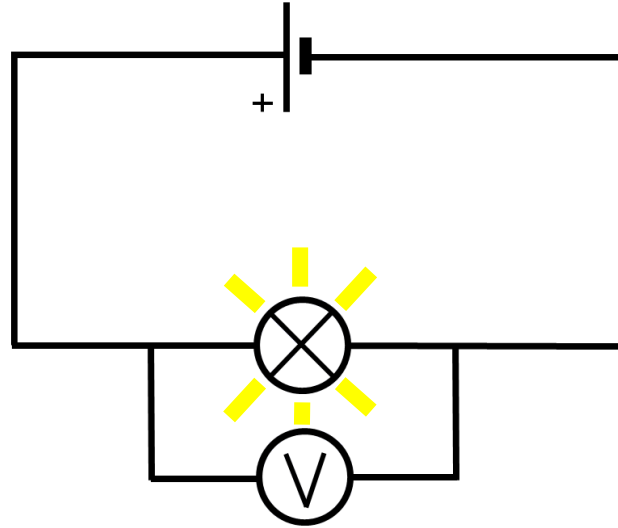


b

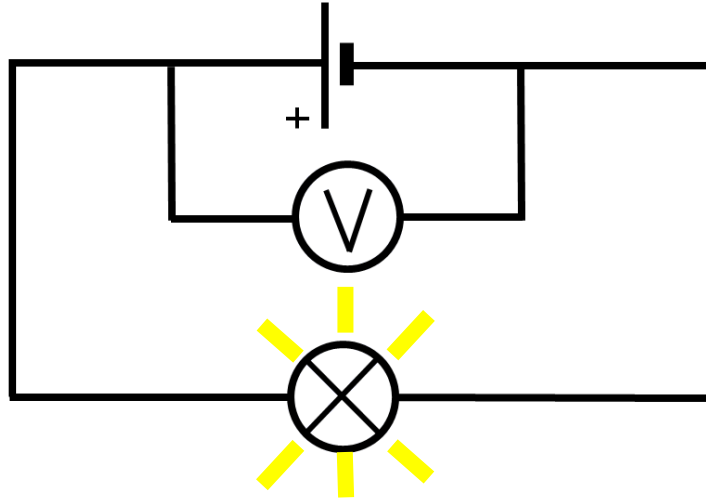


c

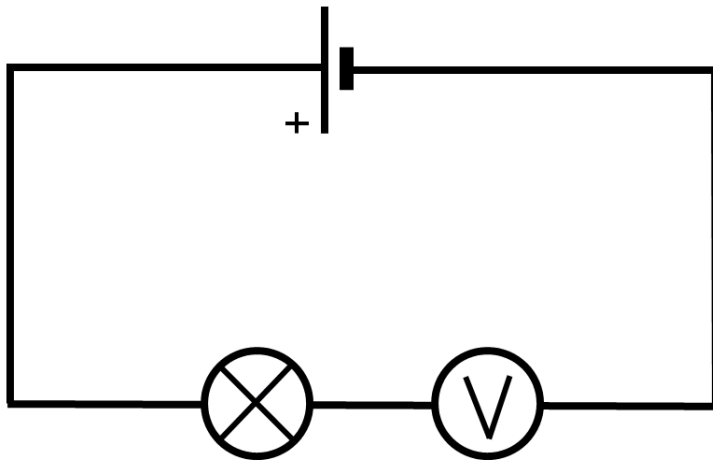
Voltmeter (voltmeter) waxaa la dhigi karaa qayb (component) dhinaceeda:



Voltmeter (voltmeter) sidoo kale waxaa la dhigi karaa unug (cell) dhinaceeda:



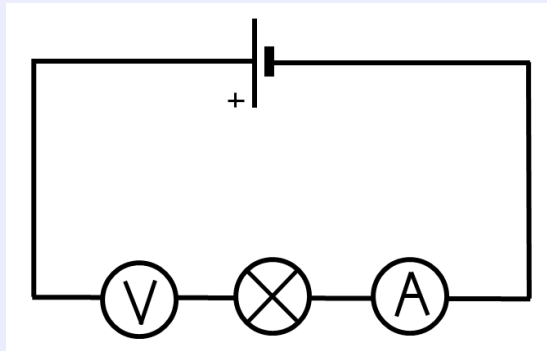
Voltmeter (voltmeter) waa in aan la dhigin isku xig (series):



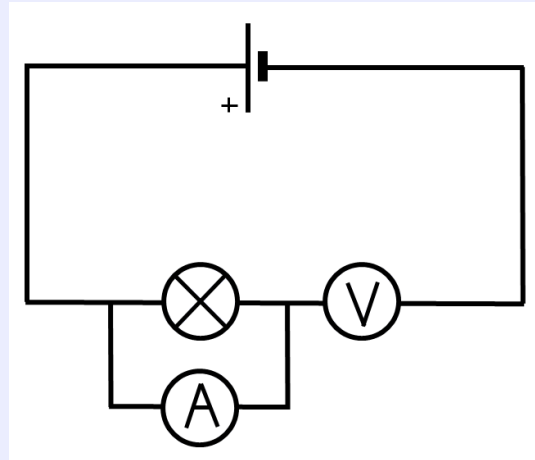
Voltmeter (voltmeter) wuxuu xannibaa socodka (current) oo wuxuu ka hortagaa shidda laambadda (lamp).

Isticmaalka voltmeter (voltmeter)

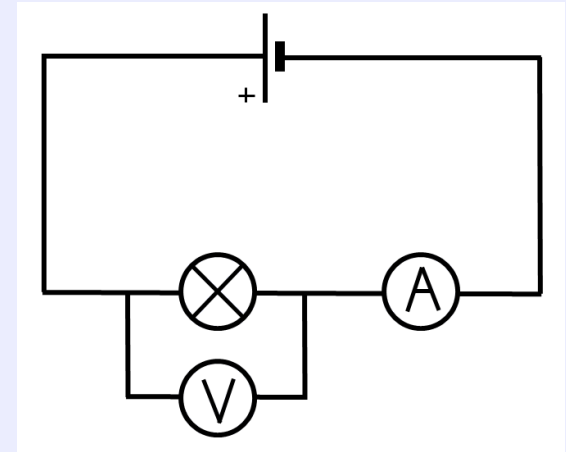
Jajabka (circuit diagram) midkee wuxuu muujinayaa voltmeter (voltmeter) oo si sax ah u qiyaasaya danabka (voltage) laambadda (lamp) dhinaceeda?



a



b

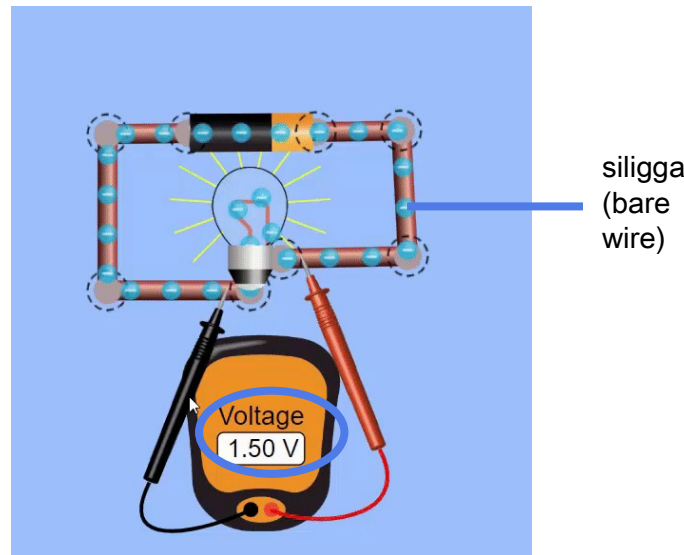


c



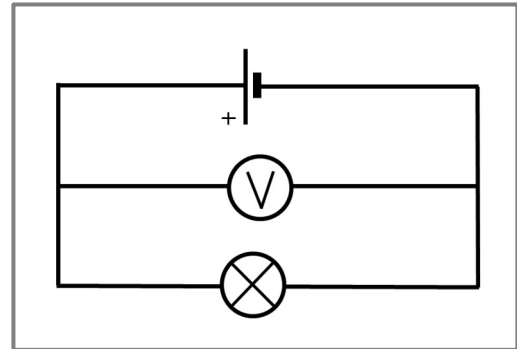
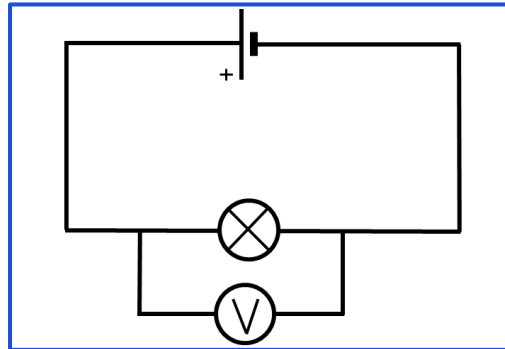
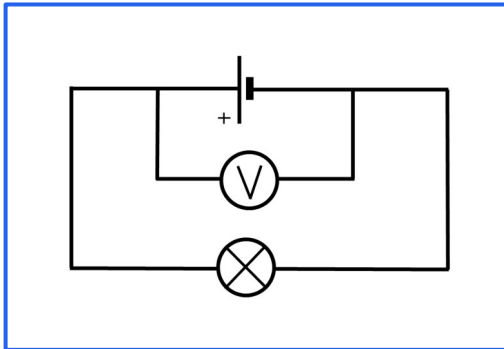
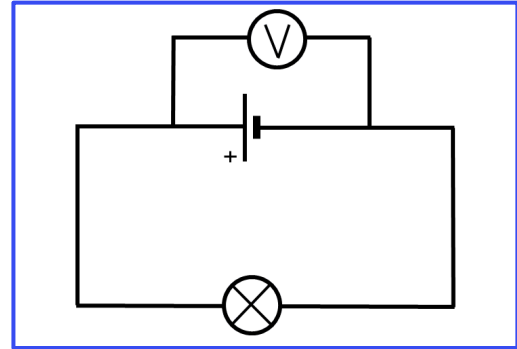
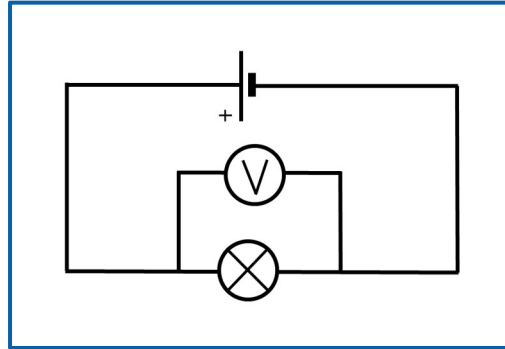
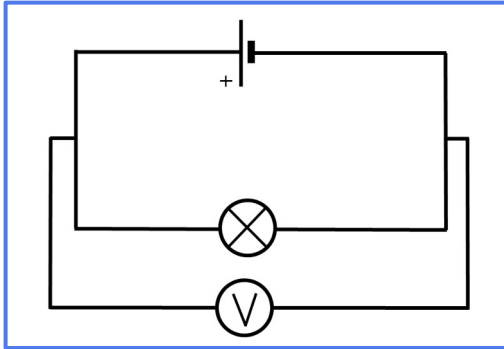
Qiyaasta danabka (voltage) siligga (wires) oo aan qaybo (components) lahayn kama beddelo akhrinta voltmeter (voltmeter).

Jilista (simulation) dhexdeeda, akhrintu waxay ku sii haddaa 1.50 V xitaa marka suullada (probes) voltmeter (voltmeter) loo raro boosas kala duwan oo siligga (wires) ah.



Isticmaalka voltmeter (voltmeter)

Jajabka (circuits) kasta, isku danab (voltage) ayaa la qiyaasayaa voltmeter (voltmeter) ku:



Isticmaalka voltmitir (voltmeter)

Run mise been?

Voltmeter (voltmeter) ee jajabka (circuit) ku yaal wuxuu si sax ah u qiyaasayaa danabka (voltage) laambadda (lamp) dhinaceeda.



Run



Been

Sabab u sheeg jawaabtaada

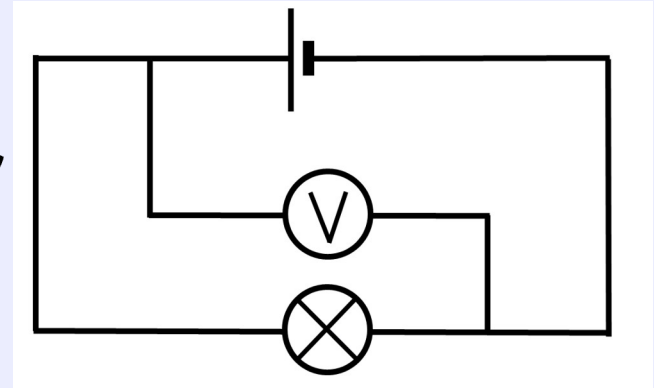
a

Silicyada (leads) voltmeter (voltmeter) saamayn kuma laha danabka (voltage) la qiyaasay.

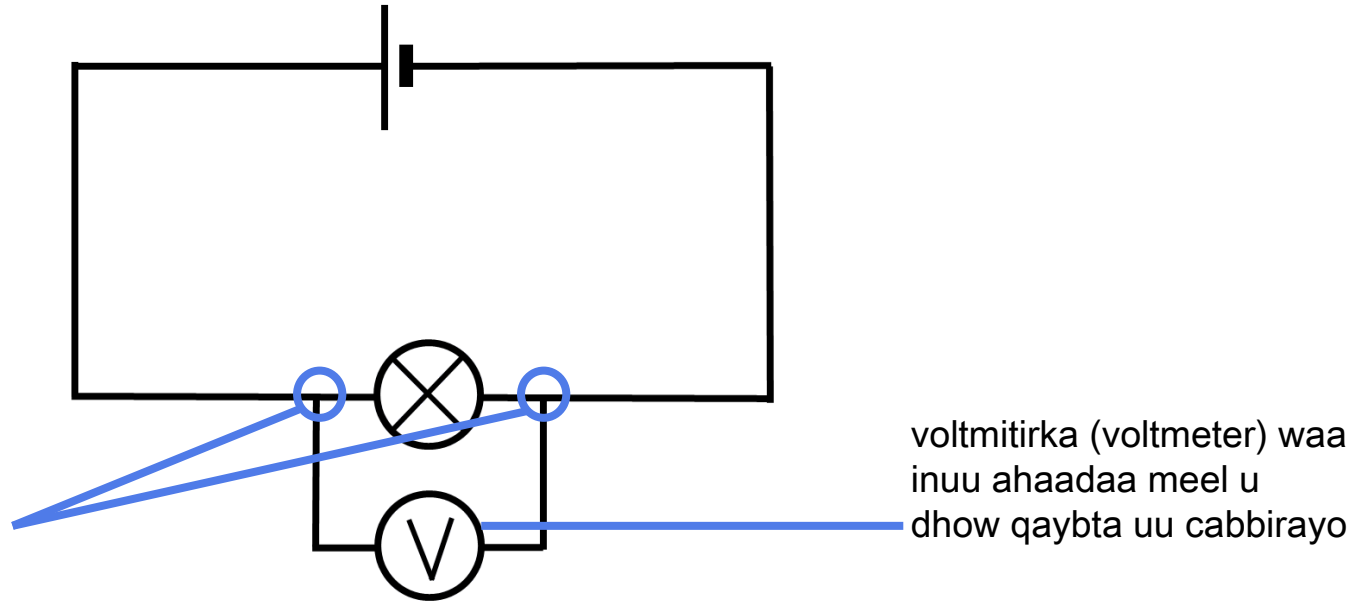


b

Silicyada (leads) voltmeter (voltmeter) waa in lagu xiraa labada dhinac ee laambadda (lamp).



Wareegyada dhabta ah waxay noqon karaan kuwo adag, marka jaantusyada wareegyada waa in lagu hayaa kuwo fudud oo cad.

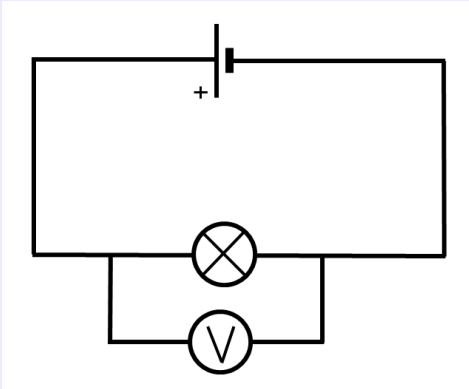


xiriirada waa inay ahaadaan kuwo u dhow iyo labada dhinac ee qaybta

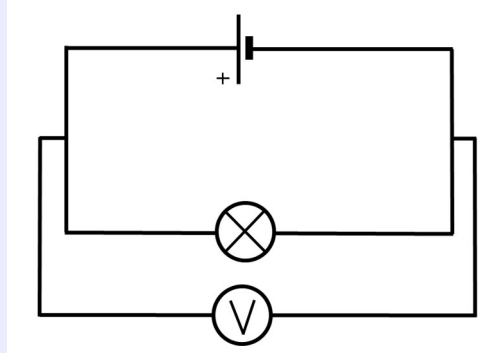
voltmitirka (voltmeter) waa inuu ahaadaa meel u dhow qaybta uu cabbirayo

Isticmaalka voltmitir (voltmeter)

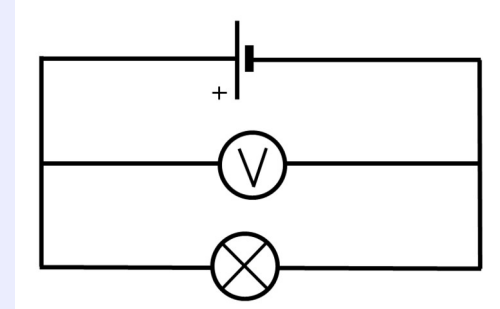
Jaantusyada wareegyada ee soo socda, kee baa si fiican u muujinaya sida loo cabbiro danabka (voltage) korontada lampada?



a ✓



b

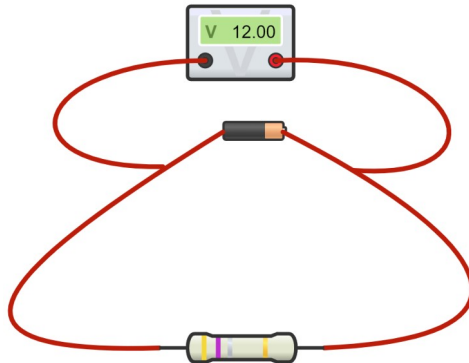


c

Caasha iyo Nuur waxay samaynayaan sawirada wareegyada ay baranayaan.

Sawirkani wuxuu muujinayaa voltmitir (voltmeter) oo cabbiraya danabka (voltage) resistor-ka.

Caasha



Maya, waxay cabbirayaan danabka (voltage) unugga (cell).

Nuur



Sharax haddii arday kastaa sax yahay iyo in kale, oo caddee jawaabtaada.

Sharax haddii arday kastaa sax yahay iyo in kale, oo caddee jawaabtaada.

Caasha waa sax in voltmitirku (voltmeter) cabbirayo danabka (voltage) resistor-ka. Meesha xadkhaha voltmitirku (voltmeter) kuma saamayn cabbirka, ilaa ay ka maqan yihiin qaybo dhexdooda iyo resistor-ka. Xadkuhu kuma saamayn akhrinta danabka (voltage).

Nuur sidoo kale waa sax; voltmitirku (voltmeter) wuxuu cabbirayaa danabka (voltage) unugga (cell).

Danabka (voltage) unugga (cell) wuxuu la mid noqonayaa danabka (voltage) resistor-ka, maadaama resistor-ku yahay qaybta kaliya ee kale ee wareegga. Mar labaad, meesha xadkhaha voltmitirku (voltmeter) kuma saamayn cabbirka danabka (voltage).

Cabbirka danabka (voltage)



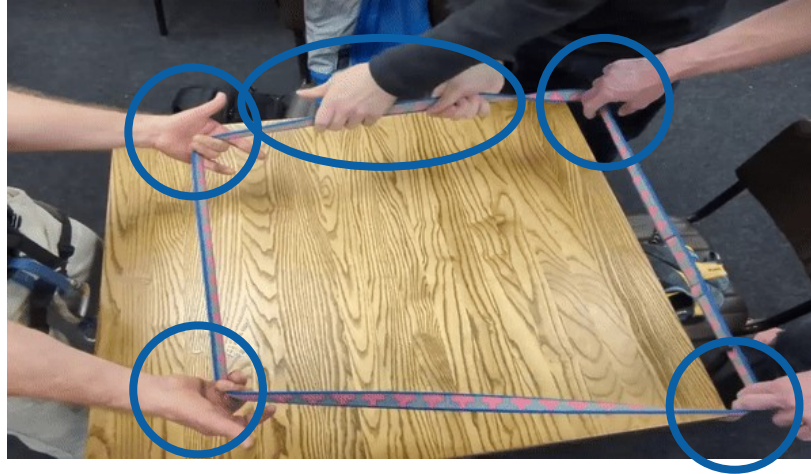
Isticmaalka voltmitir (voltmeter)



Waa maxay danab (voltage)?

Waa maxay korantada (voltage)?

Korantada (Voltage) waa cabbirka 'riixista' (push) unugga ama batteriga (cell/battery) ee dhaqaajiya korantada (charge) wareegga (circuit).



Si adag u jilista hadda adiga (the wire) ay keenta wareegga (loop) isophalkaas ula socdo.

Tani waxay matali kartaa howr ka dhacda (the decrease in voltage) taas oo keenta korantada sare (higher current).

Waa maxay korantada (voltage)?

Marka cajaladda (tape) si tartiib ah loo dhaqaajiyo jilitaanka (simulation), tani waxay matali kartaa labadan mid ee soo socda?

- a** korantada sare (higher voltage)
- b** korantada hoose (lower voltage) ✓
- c** korantada sare (higher current)
- d** korantada hoose (lower current) ✓



Waa maxay korantada (voltage)?

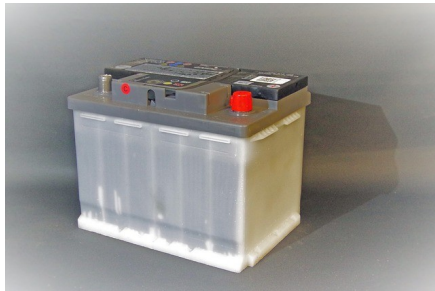


Sharaxaad

Halkan waxaa ah korantada (voltages) caadiga ah:

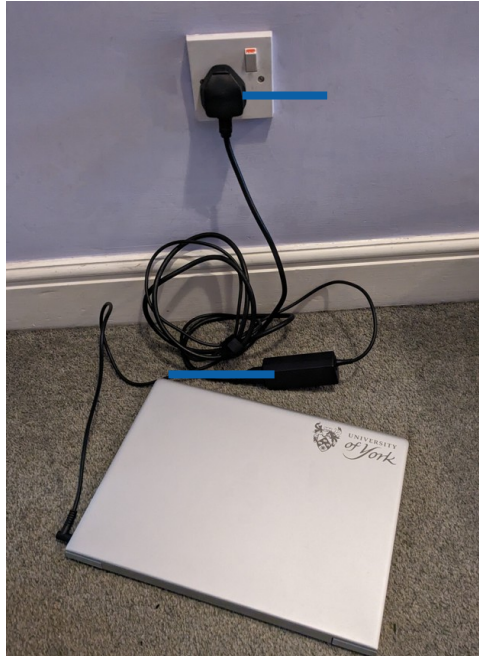


batteriga lithium-ion (lithium-ion battery) – 4 V



Waa maxay korantada (voltage)?

Qalabka kala duwan waxay u baahan yihiin korantada (voltages) kala duwan si ay si sax ah u shaqeeyaan.



Korantada guud (mains voltage) aad buu u sarreeyaa in lagu dallaco (charge) laptop-kan.

Adabtar (adaptor) wuxuu hoos u dhigaa voltage-ka ilaa 20 V.

Laptop-ku wuxuu si ammaan ah u shaqeeyaa voltage-kan hooseeya.

Haddii voltage-ku aad u sarreeyo, wuxuu keeni lahaa current (current) badan oo qulqulaya, taasoo dhaawici karta laptop-ka.

Waa maxay voltage?

Unugyada (cells) yaryar waxay yeelan karaan voltage ka sarreeya kuwa waaweyn.

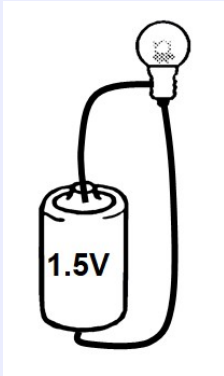


Voltage-ku wuxuu ku xiran yahay falgalyada (reactions) kiimikaad ee unugga (cell) dhexdiisa.

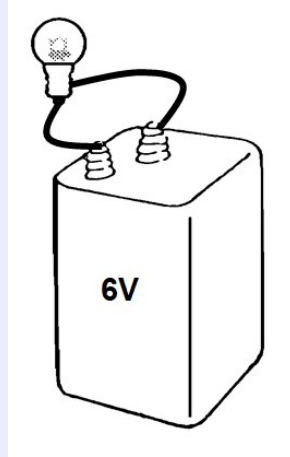
Haddii loo baahdo voltage sare, unugyada (cells) waxaa lagu dari karaa si taxane (series) si ay u sameeyaan battery (battery) unugyo ah, taasoo kordhinaysa voltage-ka.

Waa maxay voltage?

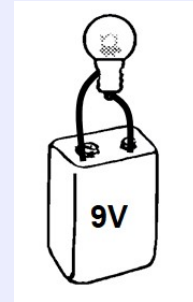
Unugga (cell) ama battery-ga (battery) kee baa iftiimiya nalka (bulb) si ugu iftiin badan?
Nooca nalka (bulb) isku mid ah ayaa la isticmaalaa mar kasta.



a



b



c



Waa maxay voltage?



Sharaxaad

Unugyadan (cells) waxay isticmaalaan falgal (reaction) kiimikaad isku mid ah waxayna leeyihiin voltage ah 1.5 V.



Unugga (cell) ka weyn wuxuu ka kooban yahay kiimikooyin badan, taasoo u oggolaanaysa inuu si dheer u shaqeeyo.

Unugga (cell) ka yar wuxuu si dhakhso ah u wareejin doonaa tamartiisa oo dhan sababtoo ah wuxuu leeyahay kiimikooyin yar.

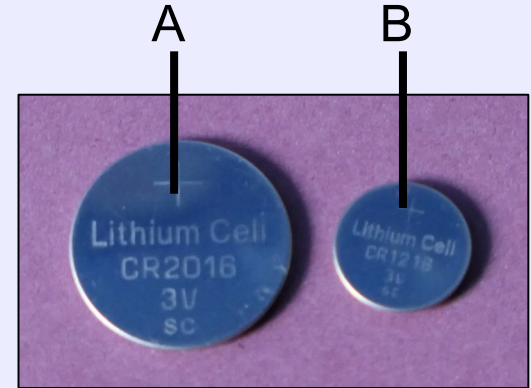
Waa maxay voltage?

Unugyada (cells) A iyo B waxay ku jiraan wareegyo (circuits) isku mid ah oo la isticmaalay waxayna ka kooban yihiin kiimikooyin isku mid ah. Kee baa ka mid ah hadalladan soo socda oo sax ah?

a Waxay si isku mid ah u shaqayn doonaan muddo isku mid ah.

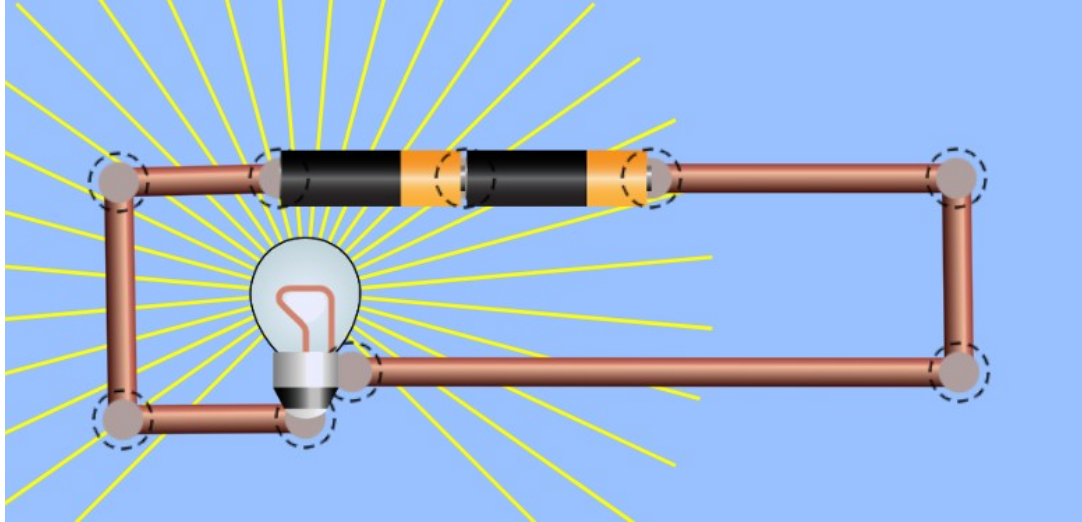
b A wuxuu ka sii dheer shaqayn doonaa B. ✓

c B wuxuu ka sii dheer shaqayn doonaa A.



Waa maxay voltage?

Ku darista unug (cell) labaad wareeggan (circuit) si loo sameeyo battery (battery)...

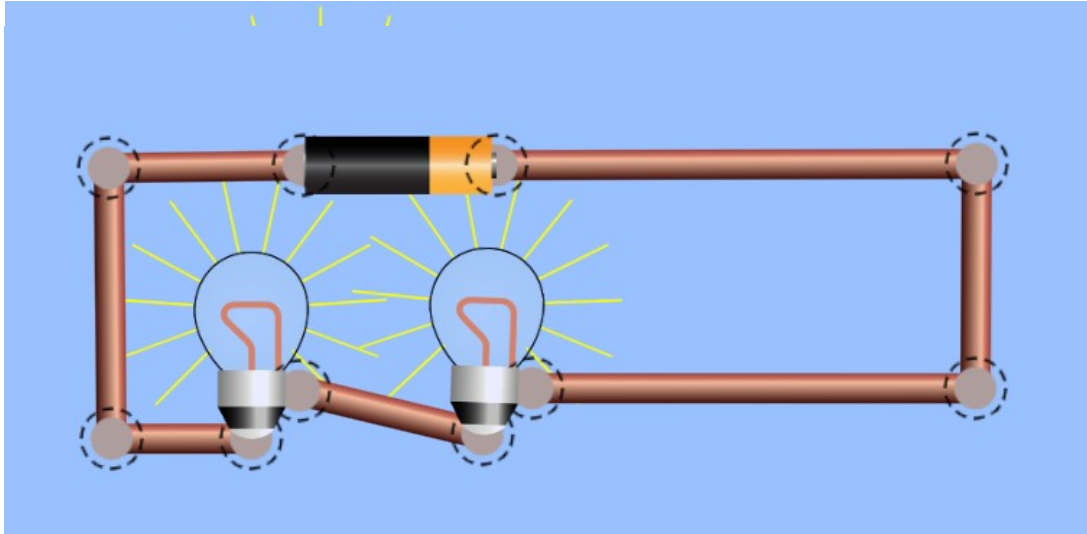


...waxay keentaa riix (push) weyn iyo current (current) badan oo qulqulaya.

Nalka wuu iftiima badan yahay.

Waa maxay danab (voltage)?

Ku darista nalka wareeggan (circuit)...



...waxay ka dhigaysaa mid adag in korontadu (current) socoto.
Maadaama unuggu (cell) aanu sii riixi karin, nalka wuu yaraadaa.

Waa maxay danab (voltage)?

Maxay ku darista unug (cell) 1.5 V oo labaad wareeggan (circuit) u keentaa in korontadu (current) kordho?

a

Batari 3.0 V wuxuu korontada (current) u dhaqaajin doonaa xoog (force) ka badan unugga (cell) 1.5 V.

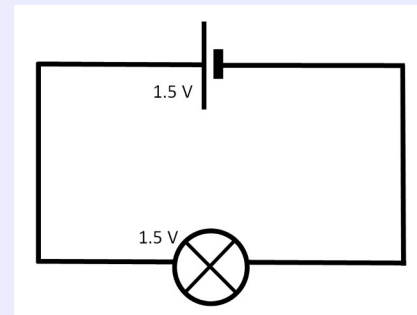


b

Waa adag tahay labada unug (cell) inay korontada (current) u dhaqaajiyaan nalka.

c

Waxaa jira koronto (current) badan labada batari marka loo eego midka.



Waa maxay danab (voltage)?

Maxay ku darista nalka labaad wareeggan (circuit) u keentaa in korontadu (current) yaraato?

a

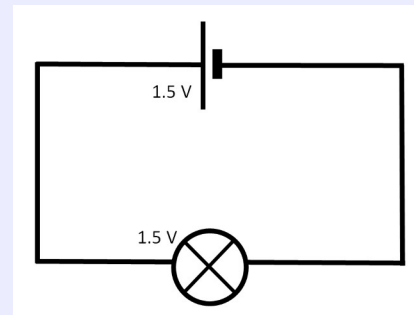
Laba nal ayaa isticmaala koronto (current) ka badan mid.

b

Unuggu (cell) ma riixi karo si ka sii adag, labada
Nal waxay ka dhigaan mid adag in korontada (current) la dhaqaajiyo.

c

Unuggu (cell) ma riixo si adag marka ay jiraan laba nal.



- 1) Sharax sida jilidda (simulation) xadhigga wareega (rope loop) u muujiso waxa ku dhaca korontada (current) marka danabka (voltage) la kordhiyo.
- 2) Sharax sida jilidda (simulation) xadhigga wareega (rope loop) u muujiso waxa ku dhaca korontada (current) marka qaybo (components) badan lagu daro wareegga (circuit).





- 1) Sharax sida jilitaanka (simulation) ee xarigga (rope loop) u muujiyo waxa ku dhaca hadda (current) marka korantada (voltage) la kordhiyo.

Jilitaanka (simulation), kordhinta korantada (voltage) waxaa lagu muujiyaa in la adeegsado xoog (force) dheeri ah si loo dhaqaajiyo xarigga. Xoogga kordhay wuxuu sababaa in xariggu u dhaqaaqo si degdeg ah, taasoo muujinaysa kororka hadda (current).

- 2) Sharax sida jilitaanka (simulation) ee xarigga (rope loop) u muujiyo waxa ku dhaca hadda (current) marka qaybo dheeri ah lagu daro wareegga (circuit).

Marka qaybo dheeri ah lagu daro wareegga (circuit) ee jilitaanka (simulation), xarigga waxaa qabsada gacmo badan, taasoo ka dhigaysa mid adag inuu dhaqaaqo.

Maaddaama batteriga uusan kordhin karin xoogga (force) uu ku riixo, xariggu wuxuu u dhaqaaqaa si gaabis ah, taasoo muujinaysa hoos u dhaca hadda (current).

Soo koobid Cabbirista korantada (voltage)

Voltmeter-ku wuxuu cabbiraa korantada (voltage) ama farqiga awoodda (potential difference) ee qaybta.

Halbeegyada korantada (voltage) waa volts (V).

Voltmeter-yadu uma oggolaadaan hadda (current) inuu dhex maro.



Xadkhaha korantada (electrical leads) ee u dhexeeya qaybaha saar _____ da (voltage).

Korantada (voltage) ee unugga ama batteriga iyo qayb keliya ee isku wareeg (series circuit) isku mid bay ahaan doonaan.