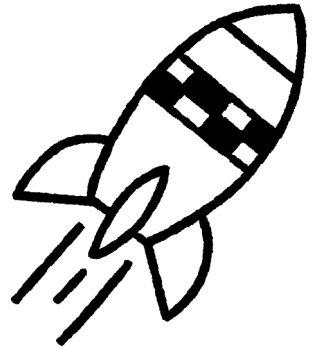


Ciraad magnetic (Magnetic poles)

Sayniska

Cutub: Magnets iyo electromagnets



Natiijo

Waxaan qeexi karaa sida magnets u soo jiitaan walxaha magnetic, iyo sidoo kale u soo jiitaan iyo u iska celiyaan magnets kale.

Erayada muhiimka ah

**cirif magnetic oo raadsada
woqooyi (north-seeking
magnetic pole)**

dhamaadka magnet ee tilmaamaya woqooyi

**cirif magnetic oo raadsada
koonfur (south-seeking
magnetic pole)**

dhamaadka magnet ee tilmaamaya koonfur

soo jiidasho (attract)

xoog (force) ka dhiga walxaha inay isu soo dhaqaaqaan

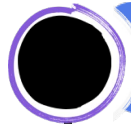
**beer magnetic (magnetic
field)**

meel uu cirif magnetic ku toosi doono jihada gaarka ah

iska celin (repel)

xoog (force) ka dhiga walxaha inay iska fogaadaan

Ciraadaha magnetic



Ciraadaha raadsada woqooyi iyo koonfur



Soo jiidasho iyo iska celin



Walxaha magnetic

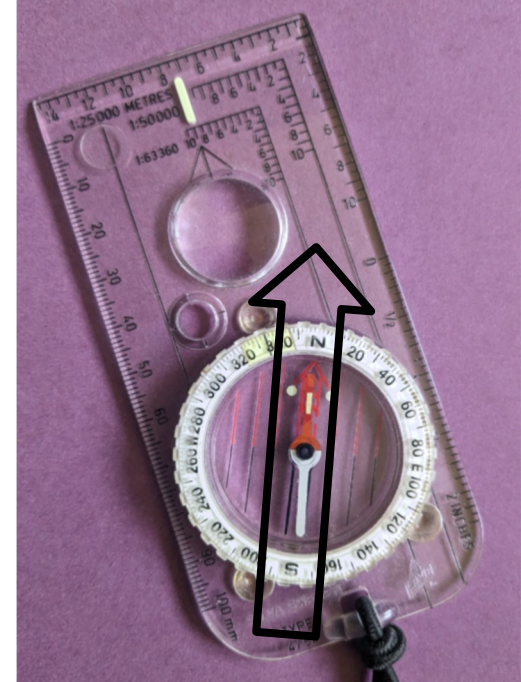
Ciraadaha raadsada woqooyi iyo koonfur

Ciribta compass waxay tilmaamaysaa woqooyi.

Waa birlabeyaal oo iyagu isu toosiyaan jiho woqooyi–koonfureed.

Dhamaadka ciribta magnetized ee tilmaamaya woqooyi waxaa loo yaqaan cirif magnetic oo raadsada woqooyi.

Dhamaadka kale waxaa loo yaqaan cirif magnetic oo raadsada koonfur.



Mid ka mid ah oraahdan soo socota ayaa si sax ah u sharxaysa dhamaadka cad ee irbadda compass-ka ee la muujiyey?

a

Dhamaadkanu waa tiir raadinaysa woqooyiga.

b

Dhamaadkanu waa tiir raadinaysa koonfurta.

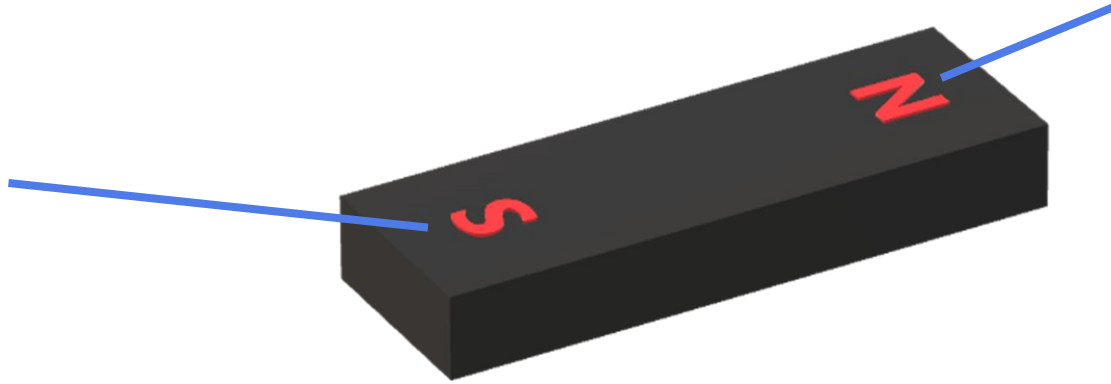
c

Dhamaadkanu ma aha tiir.



Birlabeyda waxaa inta badan ku qoran 'N' iyo 'S'.

Dhamaadka N waa tiir raadinaysa woqooyiga, oo macneheedu yahay wuxuu u jeedan doonaa woqooyiga haddii birtu xor u tahay inay dhaqaaqdo.



Dhamaadka S waa tiir raadinaysa koonfurta, oo macneheedu yahay wuxuu u jeedan doonaa koonfurta haddii birtu xor u tahay inay dhaqaaqdo.

Waa maxay waxyaabaha soo socda ee uu birtu leedahay?

a tiir raadinaysa woqooyiga ✓

b tiir raadinaysa koonfurta ✓

c tiir togan

d tiir taban

Birlabeyda waxaa laga heli karaa qaabab iyo cabbiro kala duwan.



Waxaa laga yaabaa inaad isticmaashay birtii (bar magnet-ka) sidan oo kale ah darasyada (science-ka).



Birtu waxay u rogi kartaa qaab faras-koobab.



Magnets-ka sidoo kale waxaa loo qaabayn karaa disk-yo yaryar.

Dhammaan magnets-kaan waxay yeelan doonaan cirif woqooyi-raadsada (north-seeking) iyo cirif koonfur-raadsada (south-seeking).



Mararka qaarkood cirifyadan waa la calaamadeeyaa, inta badan ma aha.

Cirifyada woqooyi-raadsada iyo koonfur-raadsada



Kee ka mid ah weedhahan ayaa sax ah oo ku saabsan cirifka magnet-ka ee la muujiyey?

a Waa cirif woqooyi-raadsada.

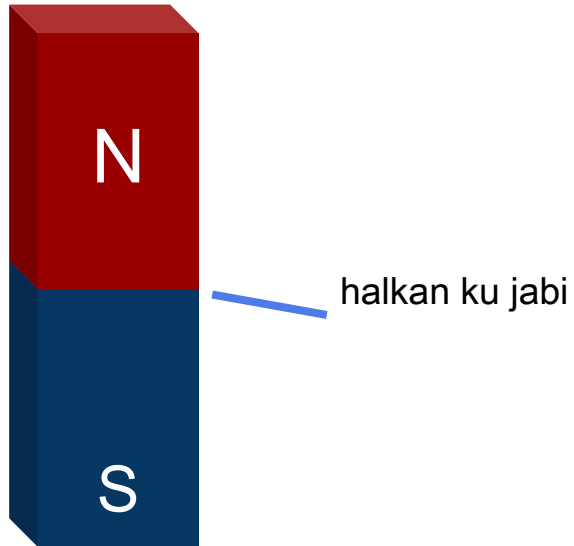
b Waa cirif koonfur-raadsada.

c Ma raadsado cirifna.

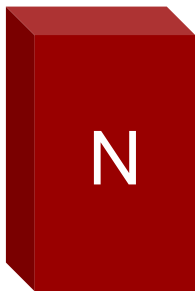
d Wuxuu raadsadaa cirifyada woqooyi iyo koonfur labadaba.



Magnet-ka waxaa loo jabin karaa laba qaybood.



Jabku waa inuu kala saaraa labada cirif.



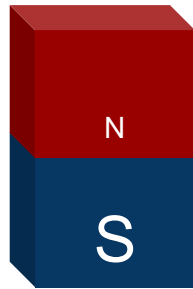
cirifka woqooyi-raadsada



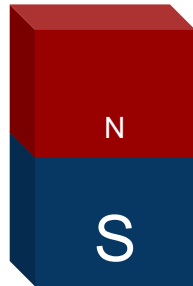
cirifka koonfur-raadsada

Tani ma dhacdo!

Labada qaybood ee kala duwan waxay yeelan doonaan laba tiir oo kala duwan.

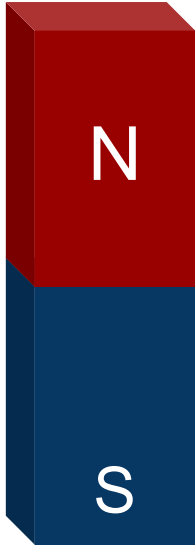


cirif koonfur-raadsada oo lammaane ah cirifka
woqooyi-raadsada



tiir raadinaya Waqooyi inuu lammaaneeyo tiir
raadinaya Koonfur

Saynisyahannadu kari waayeen inay gooni u soocaan hal tiir oo raadinaya Waqooyi ama Koonfur.



Birlabyadu had iyo jeer waxay leeyihiin lammaane tiir ah; tiir raadinaya Waqooyi oo la jira tiir raadinaya Koonfur.

Mid ka mid ah weedhahan soo socda ayaa sax ah oo ku saabsan tiirarka magnetic?

a Qaar ka mid ah birlabyadu waxay leeyihiin hal tiir oo keliya.

b Dhammaan birlabyadu waxay leeyihiin laba tiir.



c Bir laba geesood leh (bar magnet) wuxuu yeelan karaa laba tiir oo isku nooc ah.

Caasha iyo Nuur waxaa loo sheegay in birtan ay jabdo laba qaybood haddii la tuuro, iyo inay u baahan yihiin inay digtoonaadaan markay isticmaalayaan.

Haddii birta jabto, waxay lumin doontaa magnetismkeeda.



Caasha



Haddii birta jabto, waxaa jiri doona laba qaybood, hal tiir N iyo hal tiir S.



Nuur

Gee go'aaminta in arday kasta uu sax yahay iyo in khalad yahay, oo sharax sababta.

Gee go'aaminta in arday kasta uu sax yahay iyo in khalad yahay, oo sharax sababta.

Nuur waa khalad.

Waxaa jiri doona laba qaybood, mid kastaa wuxuu yeelan doonaa tiir raadinaya Waqooyi iyo tiir raadinaya Koonfur.

Bir birlabeed (magnet) had iyo jeer waxay yeelan doontaa tiirar raadinaya Waqooyi iyo Koonfur labadaba.

Caasha waa sax qayb ahaan.

Haddii magnet la garaaco, xoogga magnetka ayaa yaraan kara, laakiin haddii laba qaybood la soo saaro, labaduba weli waxay noqonayaan magnet.

Ciribta magnetic



Ciribta woqooyi raadisa iyo koonfur raadisa

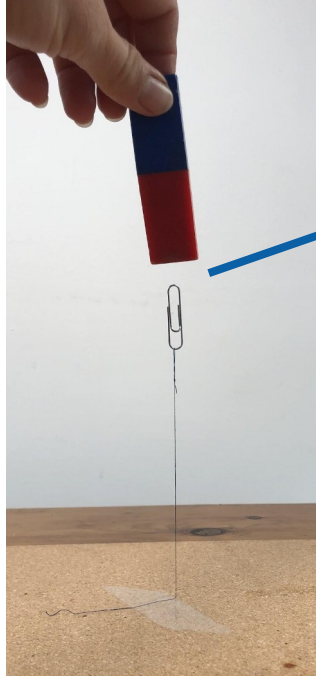


Soo jiidasho iyo iska caabin



Walxaha magnetic

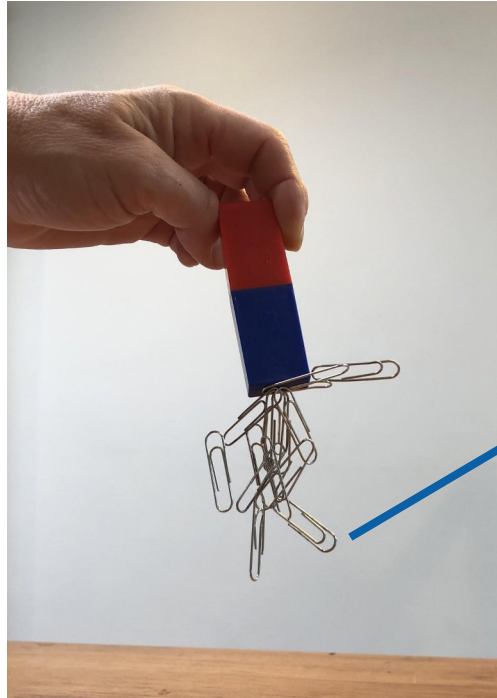
Xoogga magnetic waa xoog aan taabasho lahayn.



magnetku uma baahna inuu
taabto paperclip si uu u soo jiito

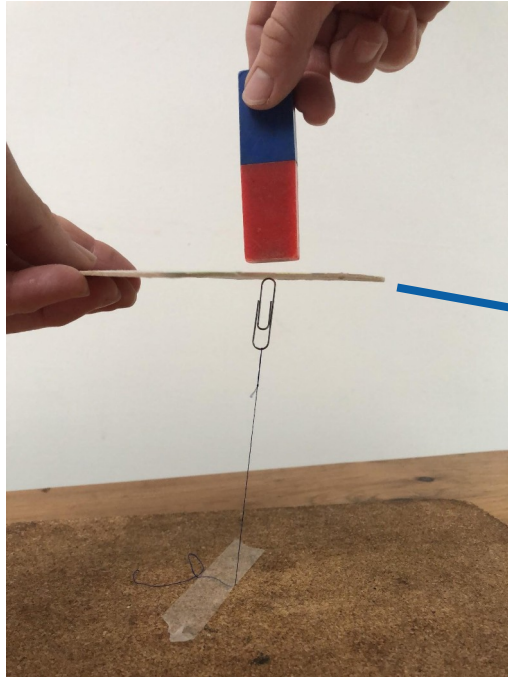
Soo jiidasho iyo iska caabin

Xoogga magnetic wuxuu kaloo awood u leeyahay inuu ku dhaqmo marka uu taabto paperclips.



qaar ka mid ah paperclips
waxaa soo jiita paperclips
kale

Xoogga magnetic wuxuu kaloo dhex mari karaa walxo qaarkood.



kaadhku ma xannibo
xoogga magnetic

Kee ayaa ka mid ah weedhahan ku habboon?

- a** Walxo qaarkood waxay noqdaan magnet marka ay taabtaan magnet. ✓
- b** Magnet waa inuu taabtaa shay si uu u soo jiito.
- c** Soo jiidashada magnetic waxaa xanniba waraaq.

Tijaabi isku darka soo socda ee magnets iyo magnets iyo sidoo kale musmaar bir ah, adigoo dhaqaajinaya laba kasta oo isku dhow oo fiirinaya waxa dhacaya.

1)



4)



2)



5)



3)



Hawsha B Soo jiidasho iyo is-celcelin (Attraction and repulsion)

1)



Soo jiidasho
(Attraction)

2)



Is-celcelin
(Repulsion)

3)



Is-celcelin
(Repulsion)

4)



Soo jiidasho
(Attraction)

5)



Soo jiidasho
(Attraction)

Tiirarka birlabeed (Magnetic poles)



Tiirarka woqooyi iyo koonfureed (North-seeking and south-seeking poles)



Soo jiidasho iyo is-celcelin (Attraction and repulsion)



Walxaha birlabeed (Magnetic materials)

Birlabyadu waxay soo jiidan karaan oo is-celin karaan birlabyo kale.

Tiirarka kala duwan ee birlabyadu way soo jiidmaan.



Soo jiidasho
(Attraction)

Tiirarka isku midka ah ee birlabyadu way is-celiyaan.



Is-celcelin
(Repulsion)



Is-celcelin
(Repulsion)

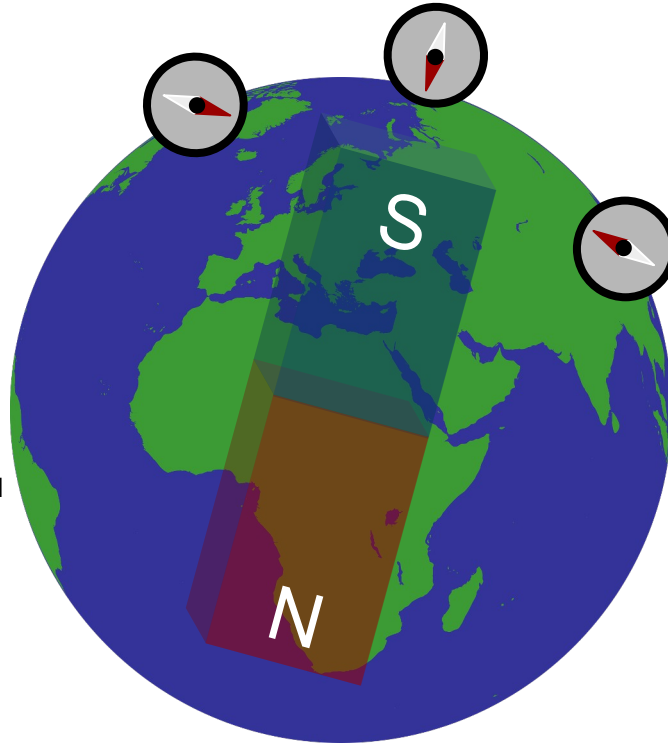
Cidhif bir ah oo keliya ayaa soo jiidmaya birlabta.



Cidhifka birta wuxuu ka samaysan yahay walxo magnetic ah.
Walxaha magnetic waxaa soo jiita labada cirif ee magnets.

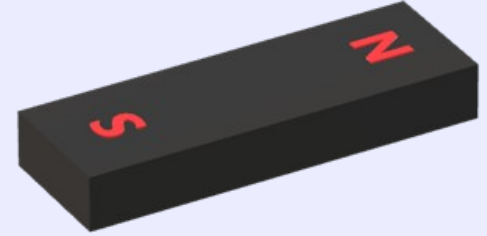
Dhulku wuxuu u dhaqmaa sidii
'magnet' gudihiisa ku yaal.

'Magnet-ka' khayaaliga ah wuxuu
leeyahay cirifyo ka soo horjeeda
cirifyada juqraafiga.



Cirifka woqooyi ee halbeegga
compass wuxuu tilmaamaa
cirifkan 'magnet-ka'.

Kee ka mid ah weedhahan ku saabsan cirifyada magnetic ee magnet-ka la muujiyay waa sax?



- a** N wuxuu soo jiitaa walxaha magnetic, S-na wuxuu soo jiitaa walxaha magnetic. ✓
- b** N wuxuu soo jiitaa S ee magnet kale, N-na wuxuu iska celiyaa N ee magnet kale. ✓
- c** N wuxuu leeyahay koronto togan, S-na wuxuu leeyahay koronto taban.
- d** N wuxuu leeyahay koronto dheeri ah, S-na wuxuu ka yar yahay koronto.

Waxaa jira saddex walxood oo magnetic ah oo keliya, waa biraha: iron, cobalt iyo nickel. Walxaha kale ma aha magnetic.

The image shows a standard periodic table of elements. Above the table is a legend for the element boxes:

- atomic symbol**: points to the large letter 'H' in the box.
- name**: points to the word 'hydrogen' in the box.

The periodic table itself contains the following elements, organized by rows:

- Row 1:** Li (lithium), Be (beryllium), B (boron), C (carbon), N (nitrogen), O (oxygen), F (fluorine), Ne (neon).
- Row 2:** Na (sodium), Mg (magnesium), Al (aluminium), Si (silicon), P (phosphorus), S (sulfur), Cl (chlorine), Ar (argon).
- Row 3:** K (potassium), Ca (calcium), Sc (scandium), Ti (titanium), V (vanadium), Cr (chromium), Mn (manganese), Fe (iron), Co (cobalt), Ni (nickel), Cu (copper), Zn (zinc), Ga (gallium), Ge (germanium), As (arsenic), Se (selenium), Br (bromine), Kr (krypton).
- Row 4:** Rb (rubidium), Sr (strontium), Y (yttrium), Zr (zirconium), Nb (niobium), Mo (molybdenum), Tc (technetium), Ru (ruthenium), Rh (rhodium), Pd (palladium), Ag (silver), Cd (cadmium), In (indium), Sn (tin), Sb (antimony), Te (tellurium), I (iodine), Xe (xenon).
- Row 5:** Cs (caesium), Ba (barium), La (lanthanum*), Hf (hafnium), Ta (tantalum), W (tungsten), Re (rhenium), Os (osmium), Ir (iridium), Pt (platinum), Au (gold), Hg (mercury), Tl (thallium), Pb (lead), Bi (bismuth), Po (polonium), At (astatine), Rn (radon).
- Row 6:** Fr (francium), Ra (radium), Ac (actinium*), Rf (rutherfordium), Db (dubnium), Sg (seaborgium), Bh (bohrium), Hs (hassium), Mt (meitnerium), Ds (darmstadtium), Rg (roentgenium), Cn (copernicium), Nh (nihonium), Fl (flerovium), Mc (moscovium), Lv (livermorium), Ts (tennessine), Og (oganesson).

The elements Fe (iron), Co (cobalt), Ni (nickel), Ru (ruthenium), Rh (rhodium), and Pd (palladium) are highlighted with a blue rectangular box, indicating they are transition metals.

atomic symbol → **H**
hydrogen ← name

Li lithium	Be beryllium																	B boron	C carbon	N nitrogen	O oxygen	F fluorine	Ne neon
Na sodium	Mg magnesium																	Al aluminium	Si silicon	P phosphorus	S sulfur	Cl chlorine	Ar argon
K potassium	Ca calcium	Sc scandium	Ti titanium	V vanadium	Cr chromium	Mn manganese	Fe iron	Co cobalt	Ni nickel	Cu copper	Zn zinc	Ga gallium	Ge germanium	As arsenic	Se selenium	Br bromine	Kr krypton						
Rb rubidium	Sr strontium	Y yttrium	Zr zirconium	Nb niobium	Mo molybdenum	Tc technetium	Ru ruthenium	Rh rhodium	Pd palladium	Ag silver	Cd cadmium	In indium	Sn tin	Sb antimony	Te tellurium	I iodine	Xe xenon						
Cs caesium	Ba barium	La lanthanum*	Hf hafnium	Ta tantalum	W tungsten	Re rhenium	Os osmium	Ir iridium	Pt platinum	Au gold	Hg mercury	Tl thallium	Pb lead	Bi bismuth	Po polonium	At astatine	Rn radon						
Fr francium	Ra radium	Ac actinium*	Rf rutherfordium	Db dubnium	Sg seaborgium	Bh bohrium	Hs hassium	Mt meitnerium	Ds darmstadtium	Rg roentgenium	Cn copernicium	Nh nihonium	Fl flerovium	Mc moscovium	Lv livermorium	Ts tennessine	Og oganeson						

Lodestone (sidoo kale loo yaqaan magnetite, oo ah isku darka iron iyo oxygen) waa walxo magnetic.



Waxaa markii ugu horreysay wax ka qoray Giriigga Thales of Miletus qarnigii 6aad BC.

Kee ka mid ah weedhahan soo socda waa sax?

a

Dhammaan walxaha birta ah waa magnetic.

b

Dhammaan walxaha aan bir ahayn (non-metal) ma leh xoog magnet ah. (magnetic). ✓

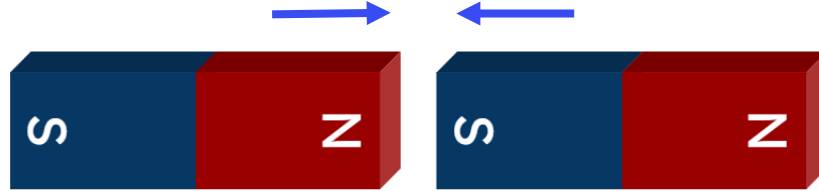
c

Qaar badan oo ka mid ah walxaha birtu (metal) ma leh xoog magnet ah. ✓

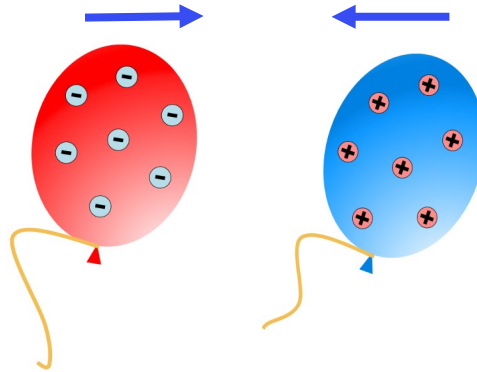
Walxaha magnet-ka (Magnetic materials)

Waxaan isbarbardhigi karnaa xoogga magnet-ka iyo xoogga korantada (electrostatic forces).

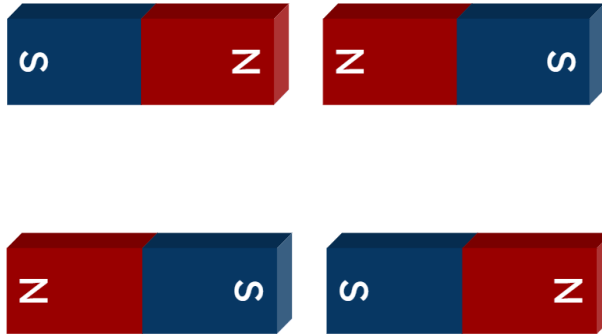
dabooyinka aan isku midka ahayn (unlike poles) ayaa is soo jiita



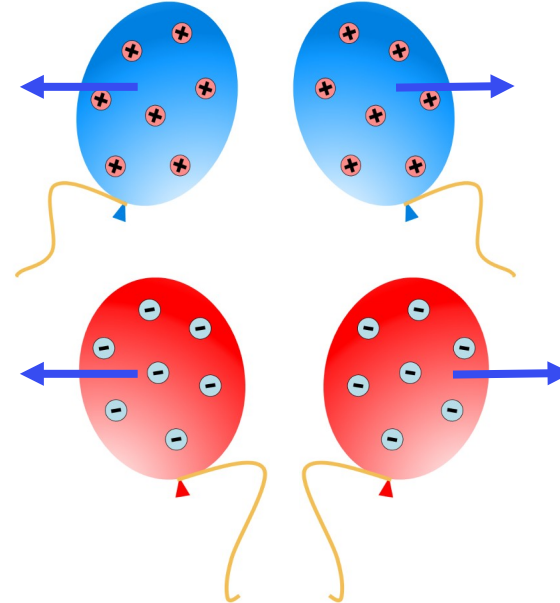
sharjiga aan isku midka ahayn (unlike charges) ayaa is soo jiita



Waxaan isbarbardhigi karnaa xoogga magnet-ka iyo xoogga korantada.

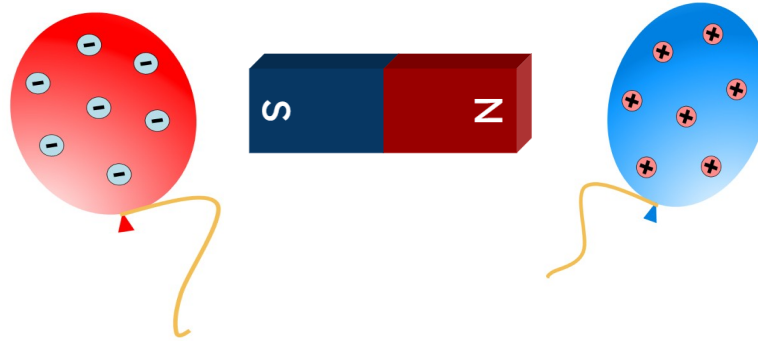


dabooyinka isku midka ah (like poles)
ayaa iska celiya



sharjiga isku midka ah (like charges)
ayaa iska celiya

Inkasta oo xoogga magnet-ka iyo xoogga korantadu ay isku mid yihiin, haddana waa noocyo kala duwan oo xoog ah.



Ma jiraan xoogag u dhexeeya buufinnada iyo magnet-ka.

Run mise been?

Walxaha aan bir ahayn (non-metals) waxay noqon karaan magnet haddii ay leeyihiin sharji koronto (electric charge).



Run



Been



Sabab u sheeg jawaabtaada



Sharjiga waxaa laga rari karaa iyadoo la isticmaalayo magnet.

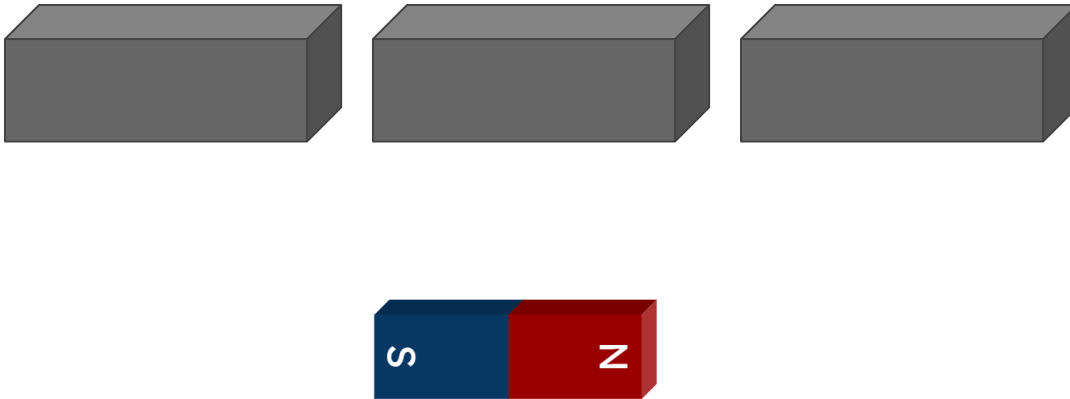


Xoogga magnet-ka iyo xoogga korantadu way kala duwan yihiin.



Sharax sida loo isticmaalo magnet si loo garto saddex baloog oo 'qarsoon' oo la rinjiyeeyay si ay u ekaadaan kuwa isku midka ah.

Baloogyadu waa bir (iron), naxaas (copper) iyo magnet.



Sharax sida loo isticmaalo magnet si loo garto saddex xabbo 'qarsoodi' oo la rinjiyeeyay si ay u ekaadaan kuwa isku midka ah.

Marka hore, soo dhowee dabo S (S pole) ee magnet-ka baloogga oo fiiri waxa dhaca.

Kadib, samee wax la mid ah iyadoo la isticmaalayo dabo N (N pole) ee magnet-ka.

Haddii aan jirin soo jiidasho midkoodna S ama N, waa naxaas (copper).

Haddii ay jirto soo jiidasho labadaba S iyo N, waa bir (iron).

Haddii ay jirto soo jiidasho hal cirif (pole) iyo is-celinis (repulsion) kan kale, waa magnet kale.

Dhammaan magnets-ku waxay leeyihiin cirif waji-woqooyi (north-seeking pole) iyo cirif waji-konfureed (south-seeking pole), cirif keliya ma jiri karo keliigiis.

Dhulku wuxuu leeyahay goob magnetic (magnetic field) oo keenta in magnets-yadu isku toosiyaan jihada woqooyi iyo koonfureed.

Cirifyada magnetic-ka isku midka ah way is-celiyaan (repel), kuwa kala duwanaanna way is-jiidaan (attract).

Birta (iron), cobalt-ka iyo nickel-ka ayaa ah saddexda element ee kaliya ee magnetic-ka ah. Alloys-ka iyo xeryahood ayaa mararka qaarkood sidoo kale magnetic ah.

Steel-ku waa alloy bir ah oo ka kooban carbon, waana magnetic.

