Бүгінгі күндеріңіз сәтті өтсін!!!

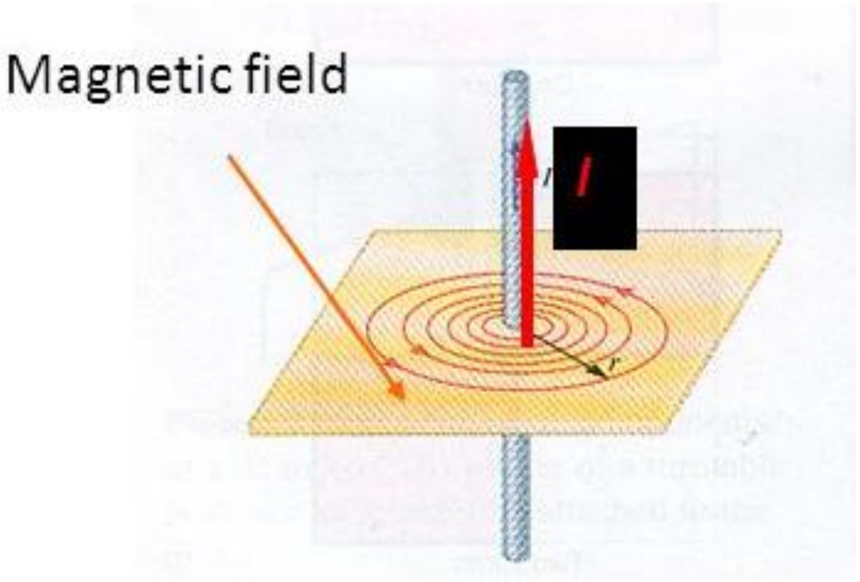
Magnetic field strength.Right-hand rule
Ampere’s Force. Left-hand rule

Magnetic Field of a current Loop	Дөңгелек токтың магнит өрісі
Electric charge	Электр заряды
Right-hand rule	Оң қол ережесі
Current	Ток күші
Magnetic field strength	Магнит индукция векторы
Vacuum permeability	Магниттік тұрақтысы
Straight parallel conductors	Түзу параллель өткізгіштер
Ampere’s Force	Ампер күші
Left-hand rule	Сол қол ережесі
Gimlet rule	Бұрғы ережесі
Wire	Сым

Group work

I	II	III
Magnetic field strength. Right-hand rule p.238,239	**Ampere's Force. Left-hand rule** p.240,241	**Physics in practice** Physics2,p.261,265, 277,286;Internet

Magnitude of the Field of a Long Straight Wire



We can determine the formula :

$$B = \frac{\mu_0 I}{2\pi d}$$

Where

B = magnetic field strength in Tesla (T)

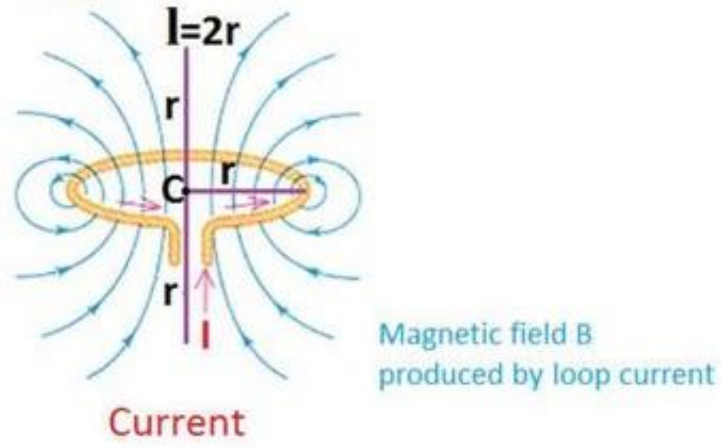
I = current in Amps (A)

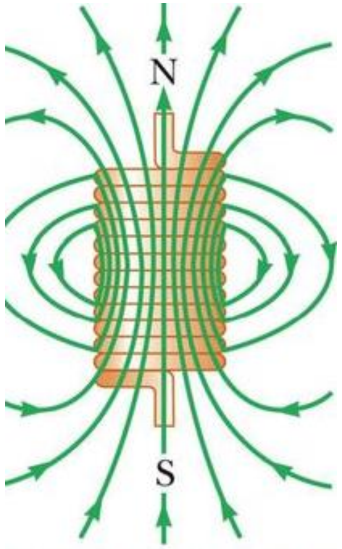
d = distance from current carrying wire (m)

π = 3.14

μ_0 = permeability of free space (air) = 1.26×10^{-6} (TmA^{-1})

Magnetic Field of a current Loop



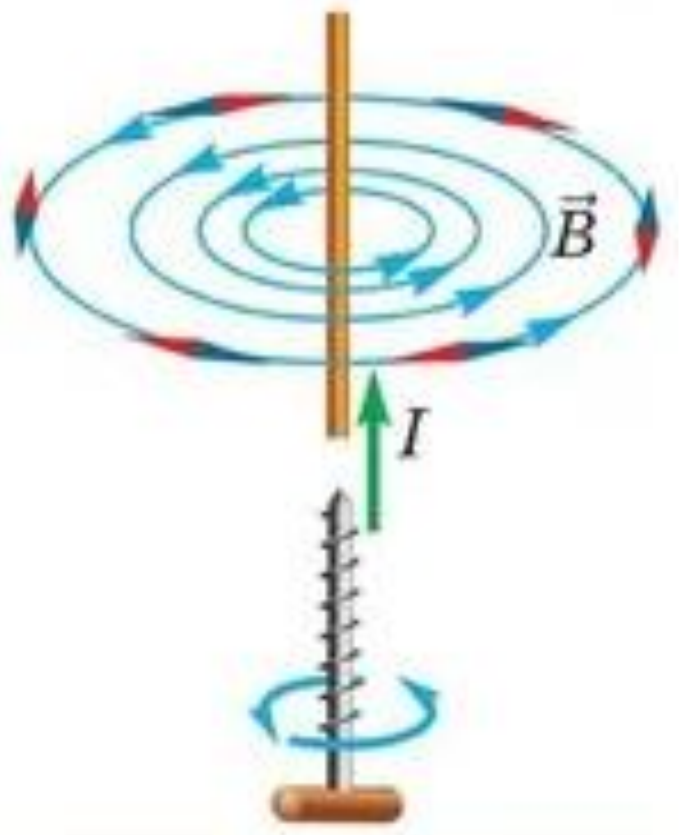


- The magnitude of the magnetic field at the center of a circular loop with a radius *R* and carrying current *I* is

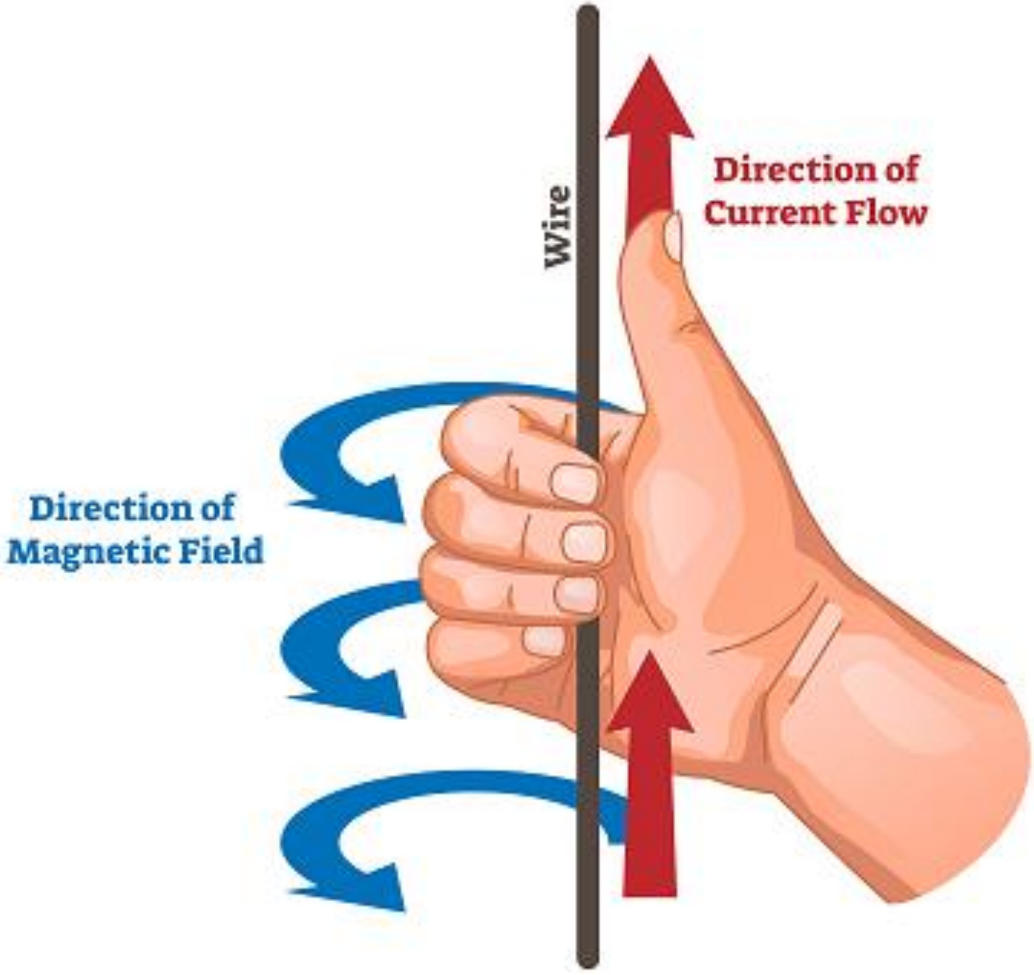
$$B = \frac{\mu_0 I}{2R}$$

- With *N* loops in the coil, this becomes

$$B = N\frac{\mu_0 I}{2R}$$



CURL RIGHT HAND RULE

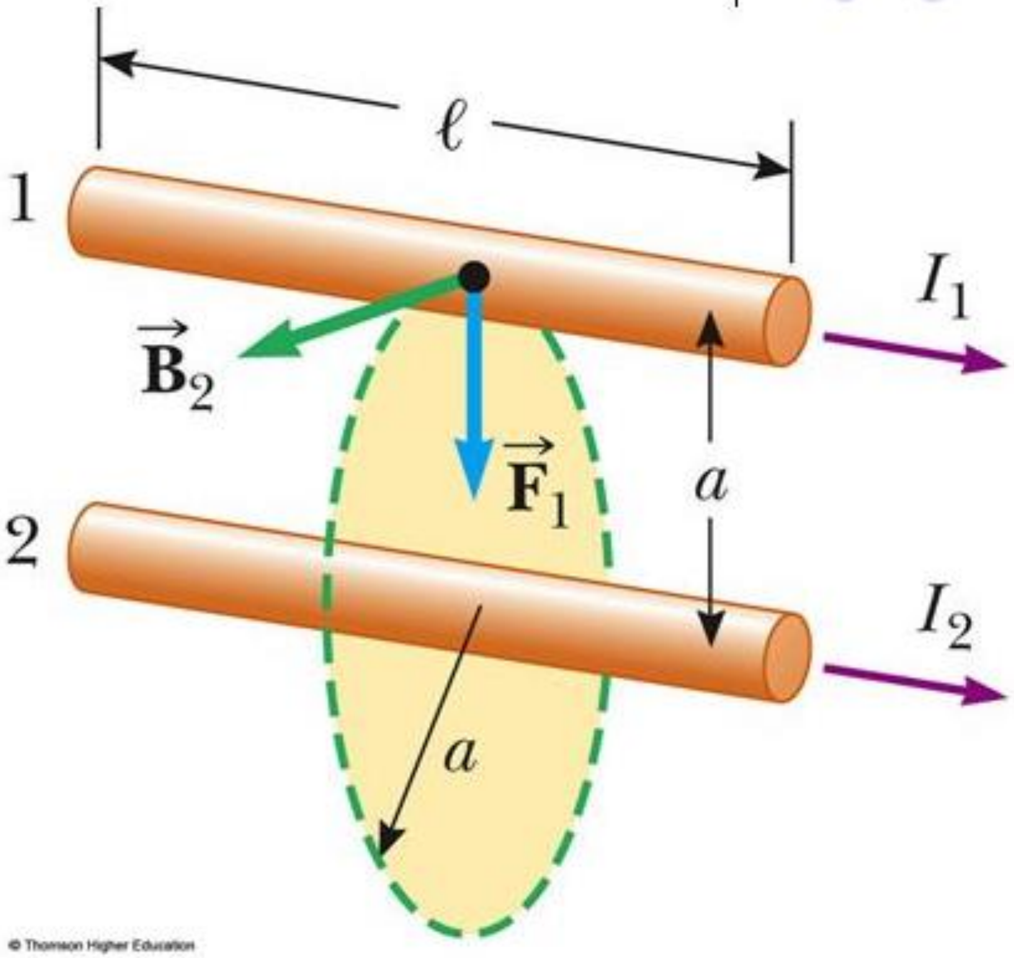


Magnetic Force Between Two Parallel Conductors

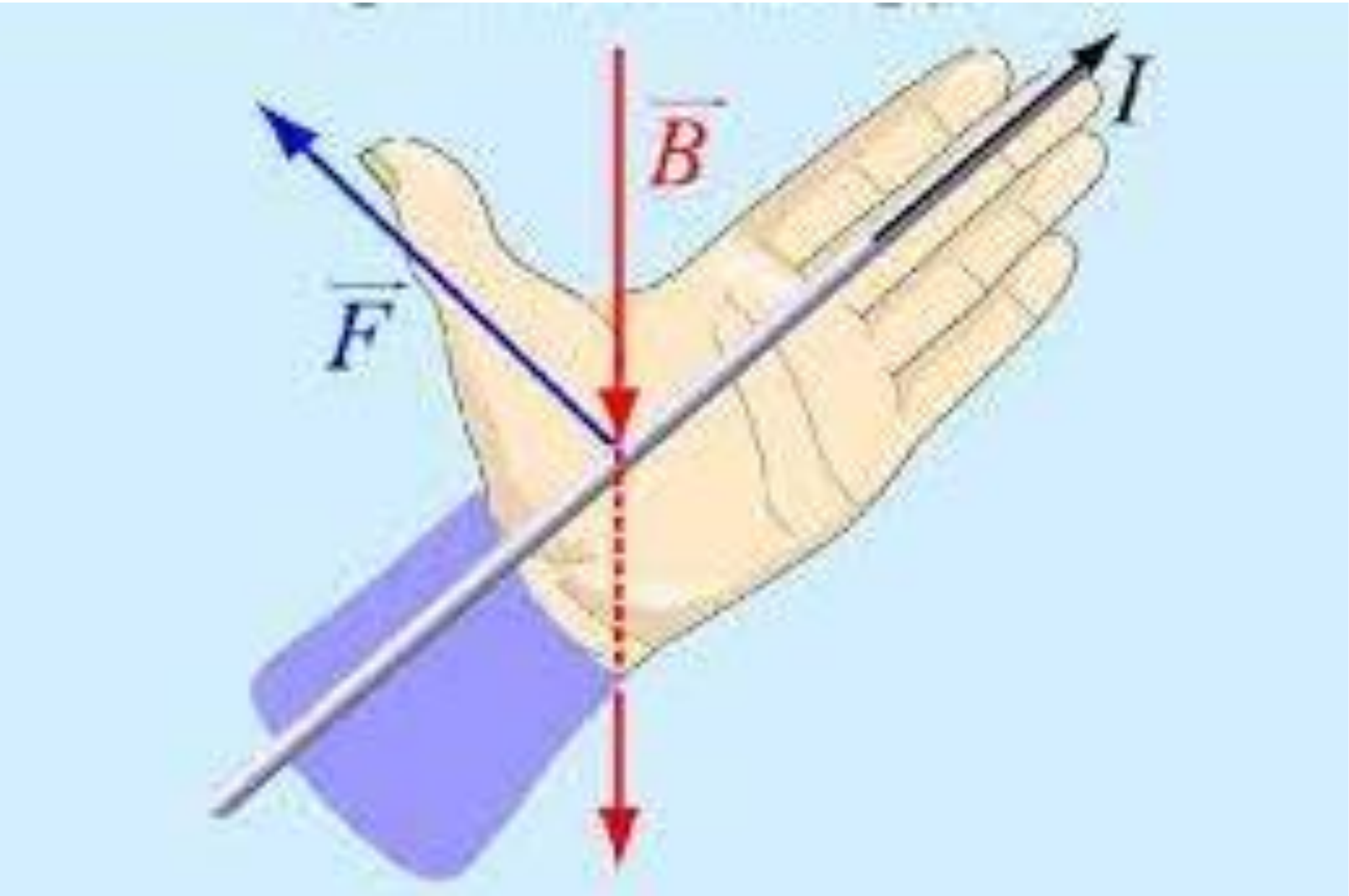
- Two parallel wires each carry steady currents
- The field $\vec{\mathbf{B}}_2$ due to the current in wire 2 exerts a force on wire 1 of $F_1 = I_1 \ell B_2$
- Substituting the equation for gives

$$F_1 = \frac{\mu_o I_1 I_2}{2\pi a} \ell$$

    - Check with right-hand rule:
        - same direction currents attract each other
        - opposite directions currents repel each other



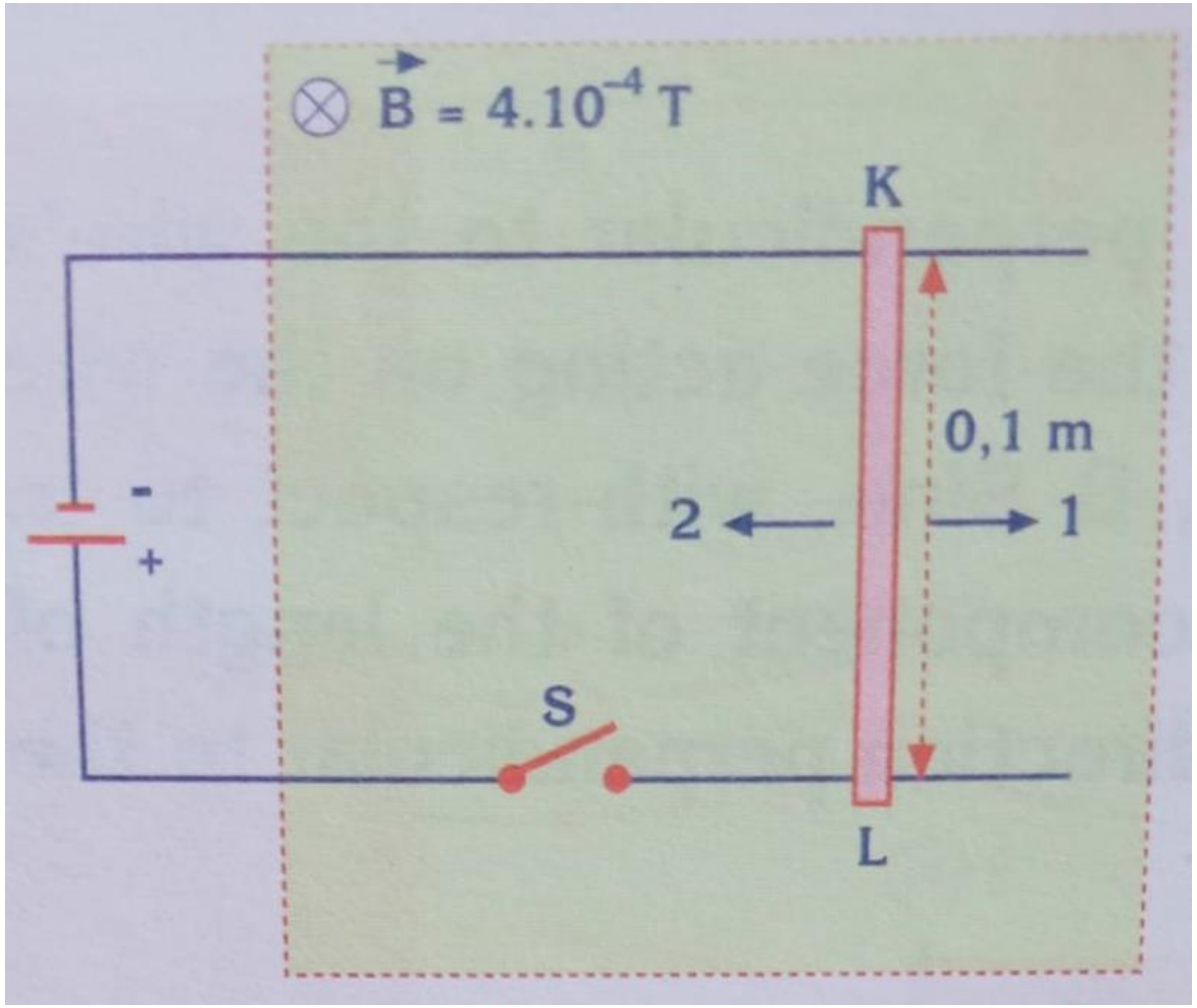
Left-hand rule



Solve a problem

The system shown in the figure is placed in a magnetic field that is perpendicular to the plane of the page. What is the magnitude of the force acting on the conducting rod KL and in which direction does the rod move when the switch S is closed?

(Neglect friction, $i = 0.5$ A)



Discussion

I team

magnetic field is good

II team

magnetic field is bad