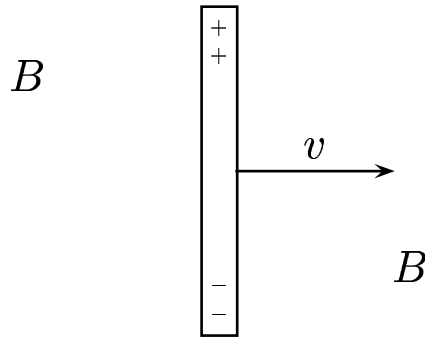


Given: A copper bar is moving from left to right while its axis and its velocity are maintained perpendicular to a magnetic field (the magnetic field is perpendicular to the plane of the paper).



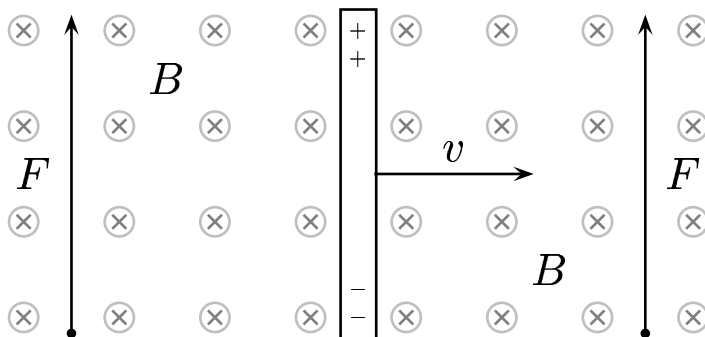
If the top of the bar becomes positive relative to the bottom of the bar, what is the direction of the magnetic field?

- A) into the plane of the paper (\times)
- B) out of the plane of the paper (\bullet)
- C) the magnetic field is zero Tesla.

Positive charges will move in the direction of the magnetic force, while negative charges move in the opposite direction.

To produce the indicated charge separation, the positive charges in the conductor experience upward magnetic forces while the negative charges in the conductor experience downward magnetic forces leaving the charge separation shown in the figure.

Using the right-hand rule with $\vec{F} = q\vec{v} \times \vec{B}$, to produce this force on positive charges, the magnetic field \vec{B} must be directed into the plane of the paper (\times).



Answer **A**.