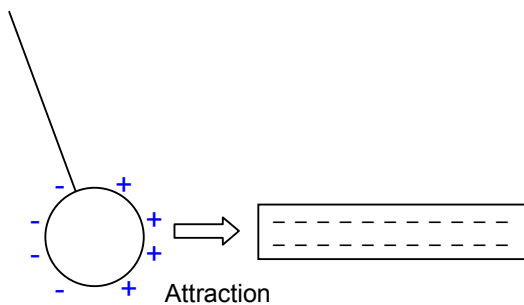




**2. Attraction of uncharged objects**

A2. A **negatively charged** rod is brought near an **uncharged conducting** sphere.  
Describe, with the help of a clear sketch diagram, how the sphere is attracted by the rod.

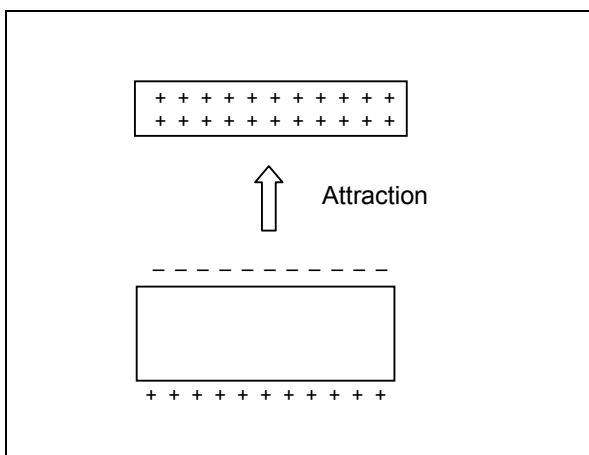
*Guidelines: Number the steps to indicate order of events and improve clarity of description.*



1. When the negatively charged rod is brought near the sphere, it repels electrons in the sphere to the left side.
2. Positive charges are induced on the right side of the sphere and negative charges are induced on the left side.
3. The rod attracts the right side of the sphere with a larger force and repels the left side of the sphere with a smaller force.
4. Hence the rod attracts the sphere with a net force.

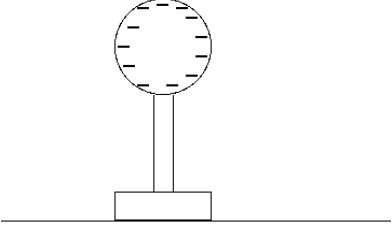
**B. Uncharged non-conducting object**

B2. A **positively charged** rod is brought near an **uncharged non-conducting** object.  
Describe with a clear sketch diagram how the object is attracted by the rod.



1. The positively charged rod causes the atoms in the object to align their negative charges towards the rod and positive charges away from the rod.
2. The rod's attraction of the negative side is greater than its repulsion of the positive side.
3. Hence, the rod attracts the uncharged non-conducting object.

### 3. Charging of conducting objects

Stages in the charging process	Description
	A. As the rod is moved near the insulated sphere, it attracts electrons and induces charges on the sphere.
	B. The left side of the sphere becomes negatively charged and its right side becomes positively charged.
	C. When the right side of the sphere is earthed, electrons flow upwards to neutralize the positive charges.
	D. Only negative charges remain on the sphere's left side.
	<p><i>[Draw the charges on the sphere]</i></p> <p>E. When the rod is moved away, the negative charges on the sphere repel each other and spread out evenly.</p>

### 4. Electric field patterns

