

Magnetism Phenomenon Explanation for Individual Assessment (for teachers):

The drawing below illustrates the steps to demonstrate the magnetic phenomenon.

Step 1. The teacher uses a magnet and a nail to pick up the paperclip. The magnetic field of the magnet will cause the magnetic domains within the nail to realign, causing the nail to become temporarily magnetized such that the nail will act as a magnet. The magnetic domains in the paperclip will also align with the external magnetic field such that the paperclip is also temporarily magnetized.

Step 2. The teacher removes the magnet from the nail. The paperclip will remain attached to the nail after the magnet is removed. This is because the nail and the paperclip retain their temporary magnetism even though no longer in the presence of an external magnetic field.

Step 3. The teacher will then turn the magnet over, reversing the polarity of the external magnetic field.

Step 4. The teacher touches the nail with the magnet. This causes the paperclip to drop from the nail. This is because the magnetic domains of the nail will realign with the external magnetic field of the magnet. This will briefly cause the nail and paperclip to repel and the paperclip drops from the nail. (If the paperclip were to be held in place, the domains of the paperclip would also realign, and the paperclip would stick to the nail. However, the brief repulsion is enough for the force of gravity to cause the paperclip to drop.)

