

## Lesson 2: Ferromagnetic Substances



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## Characteristics of Magnets

1. An object that produces a magnetic field
2. Pulls on other ferromagnetic materials
3. Attracts or repels other magnets



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**A ferromagnetic substance is a substance that is attracted to a magnet.**

**This attraction can be observed by a pulling force from the magnet on the ferromagnetic object.**

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**There are three common ferromagnetic elements. Any object or substance that can be pulled by a magnet contains one or more of these elements:**

- 1. Iron (Fe)**
- 2. Nickel (Ni)**
- 3. Cobalt (Co)**

<b>Fe</b> 26 55.845  Iron	<b>Ni</b> 28 58.693  Nickel	<b>Co</b> 27 58.933  Cobalt
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**Ferromagnetic materials can be combined with other elements to create alloys – mixtures of a metal with another metal or nonmetal.**

**Common ferromagnetic alloys include steel (iron and carbon) and permalloy (iron and nickel).**

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**A magnet can be used to test the ferromagnetic properties of a substance.**

**Using a magnet, we can also separate ferromagnetic and non-ferromagnetic substances from a mixture.**

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## **Ferromagnetic Substances: Key Questions**

- 1. What is a ferromagnetic substance?**
- 2. Are all metals ferromagnetic? Explain how you can test the ferromagnetic properties of an object.**
- 3. Based on your observations, what are some common uses of ferromagnetic materials?**