

Ferromagnetic Worksheet

1. Four circular pieces of metal were brought close to one another during a laboratory experiment. Only one of these pieces of metal is a magnet.

Combination	Attraction	
	Yes	No
Piece 1 with piece 2		✓
Piece 1 with piece 3		✓
Piece 1 with piece 4		✓
Piece 2 with piece 3	✓	
Piece 2 with piece 4	✓	
Piece 3 with piece 4		✓

Which piece of metal is a magnet? 2

2. The following observations were made when certain pairs of objects were brought close together.

STEP	TEST	OBSERVATION
1	Brought an iron nail near a zinc rod.	No reaction
2	Brought an iron nail near a steel rod.	Attraction
3	Brought a zinc rod near a steel rod.	No reaction
4	Brought an iron nail near another iron nail.	No reaction

Given these observations, which of the following statements are true?

- A) The iron nail is non-magnetic and the zinc rod is ferromagnetic
- B) The steel rod is ferromagnetic and the zinc rod is ferromagnetic.
- C) The steel rod is magnetic and the zinc rod is non-magnetic
- D) The iron nail is magnetic and the zinc rod is magnetic.

3. You have two ten-cent coins, one from 1965 and the other from 1994.

To determine whether these coins are magnetic, ferromagnetic or non-magnetic, you conduct tests and note your observations.

Step	Test	Observation
1	Bring a magnet near the 1965 coin.	No reaction
2	Bring a magnet near the 1994 coin.	Attraction
3	Bring each coin near an iron nail.	No reaction

Given the observations, what can you say about these coins?

- A) The 1965 coin is non-magnetic and the 1994 coin is magnetic.
- B) The 1965 coin is non-magnetic and the 1994 coin is ferromagnetic.
- C) The 1965 coin is magnetic and the 1994 coin is ferromagnetic.
- D) The 1965 coin is ferromagnetic and the 1994 coin is magnetic.

4. The following observations were made when certain pairs of objects were brought close together.

STEP	TEST	OBSERVATION
1	Brought a piece of iron near a piece of magnetite	Attraction
2	Brought a piece of aluminium near a piece of iron	No reaction
3	Brought a piece of tin near the piece of magnetite	No reaction
4	Brought a piece of tin near the piece of iron	No reaction
5	Brought a piece of aluminium near the piece of magnetite	Attraction

Given the reactions seen in the table, label the piece of iron, aluminium, tin and magnetite as a magnetic, ferromagnetic or non-magnetic substance.

magnetic
magnetite

Fm
Fe
Al

Nm
Tin