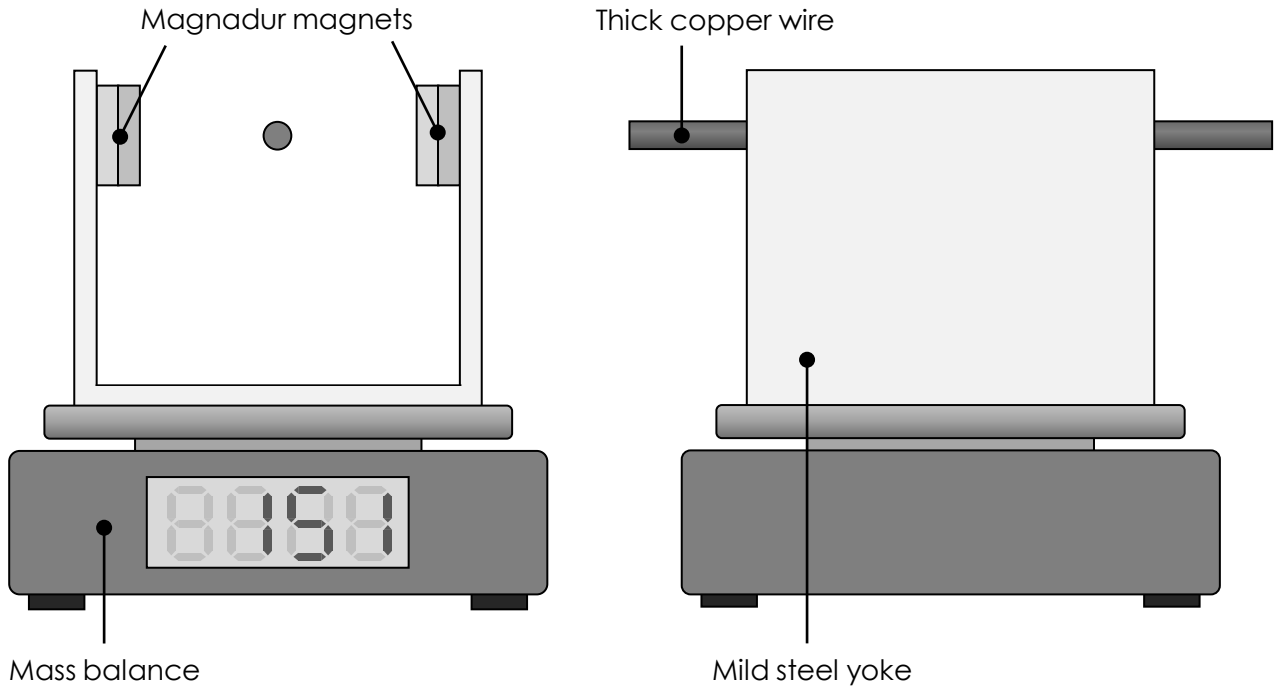


1. The force exerted by a straight wire in a permanent magnetic field was investigated as the current through the wire was varied.

The wire was firmly clamped in position above a mass balance, as shown below.



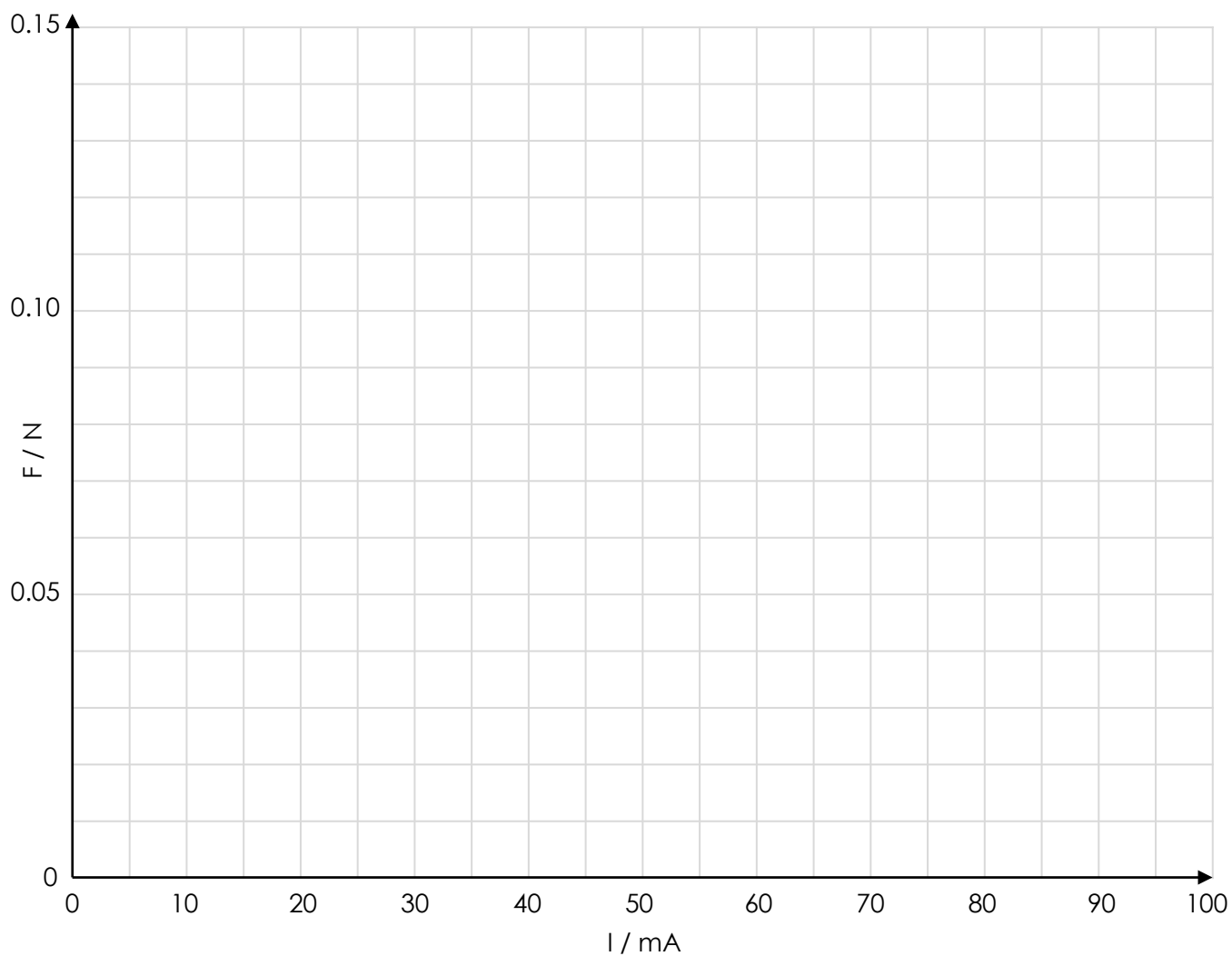
- a. Describe the **difference** between a Magnadur magnet and a conventional bar magnet

The following data was recorded:

Current / mA	0	17	34	50	72	89	98
Reading on mass balance / g	151	149	146	145	141	138	137
Magnitude of force / N	0						

- b. Explain why the reading on the mass balance **decreased** as the current increased

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- c. **Complete** the table and **plot** suitable data on the graph above
- d. Suggest **three** other **factors** (that could be investigated in the lab) that affect the size of the force exerted by the wire

1. **Complete** this table:

	x	log x (2 d.p.)	log x (3 d.p.)
a.	3.24		
b.	3.25		
c.	3.26		

2. Sketch the construction of a simple **step-up transformer**. Label the primary and secondary coils, and the magnetically soft iron core. 

3. Define:

a. **Gravitational potential energy**

b. **Gravitational potential**