# *Magnetism and electrostatics*

# Planning ahead and equipment list

## Investigation 1 – What can magnets attract?

Equipment needed per group:

* [Magnet investigation worksheet](http://assist.asta.edu.au/sites/assist.asta.edu.au/files/Magnet%20investigation%20worksheet_yr4_Magnetism%20and%20electrostatics.docx)
* a magnet
* a dozen objects made of assorted materials e.g.
* plastics
* wood
* metals – aluminium foil, nails, pins, old keys, jar lids, cutlery, soft drink cans, paper clips, metal spoon, coins, pipe cleaner etc.
* any other materials suggested by students from the initial discussion.

Students should preferably work in groups of three.

## Investigation 2 – Exploring properties of magnets (Activity stations)

In this investigation, students rotate through six different exploratory activity stations in groups of 2 or 3. Depending on class size, there could be 2 groups of students (up to 6 students) working concurrently at any one station. Optimally, both groups will have access to their own set of equipment, including the instruction sheet.

### Activity station 1- Make a magnet

**Activity station 1a - Make a compass**

Equipment needed per group:

* instruction sheets, [Make a magnet](http://assist.asta.edu.au/sites/assist.asta.edu.au/files/Make%20a%20magnet%20worksheet_yr4_Magnetism%20and%20electrostatics.docx) and [Make a compass](http://assist.asta.edu.au/sites/assist.asta.edu.au/files/Make%20a%20compass%20worksheet_yr4_Magnetism%20and%20electrostatics.docx)
* a magnet
* paper clips
* a bowl of water
* a floating disc of cork, or similar material (base of a polystyrene cup or piece of polystyrene foam)
* a straightened paper clip

### Activity station 2 – Attraction and repulsion

Equipment needed per group:

* instruction sheet, [Attraction and repulsion – magnet cars](http://assist.asta.edu.au/sites/assist.asta.edu.au/files/Attraction%20and%20repulsion%20worksheet_yr4_Magnetism%20and%20electrostatics.docx)
* 2 bar magnets
* 2 plastic toy cars
* tape

### Activity station 3 – Levitating ring magnets

Equipment needed per group:

* instruction sheet, [Levitating ring magnets](http://assist.asta.edu.au/sites/assist.asta.edu.au/files/Levitating%20ring%20magets%20worksheet_yr4_Magnetism%20and%20electrostatics.docx)
* 3 or more ring magnets
* a pencil

### Activity station 4 – How strong is a magnet?

Equipment needed per group:

* instruction sheet, [How strong is a magnet?](http://assist.asta.edu.au/sites/assist.asta.edu.au/files/How%20strong%20is%20a%20magnet%20worksheet_yr4_Magnetism%20and%20electrostatics.docx)
* a balance scale
* weights
* tape
* 3 or more magnets
* counters (spacers)

### Activity station 5 - What can magnetic force pass through?

Equipment needed per group:

* instruction sheet, [What can magnetic force pass through?](http://assist.asta.edu.au/sites/assist.asta.edu.au/files/What%20can%20magnetic%20force%20pass%20through_yr4_Magnetism%20and%20electrostatics.docx)
* a magnet
* a piece of cardboard
* assorted other objects (e.g. paper, the desk, water)
* a paper clip

## Investigation 3 – Electrostatic force

Equipment needed per group:

* [Science investigation planner](http://assist.asta.edu.au/sites/assist.asta.edu.au/files/Science%20investigation%20planner_yr4_Magnetism%20and%20electrostatics.docx)
* small paper scraps
* plastic rods (e.g. pen or felt-tipped pen, plastic ruler) (1 per student)
* fabric, fur (clothing, carpet or hair could be used)