

TMS Science Launchpad - Year 2023/2024

Year 3 - Physics: Forces & Magnets

Substantive knowledge:

Objects move differently on different surfaces. They are affected by forces.



Some forces need contact between 2 objects, but magnetic forces can act at a distance



Magnet forces are affected by magnet strength, object mass, distance from object and object material.



We use different types of magnets for different functions in our everyday life.

Magnets have 2 poles - **north pole** and **south pole**.

Magnets exert **attractive** and **repulsive** forces on each other.

Like poles **repel** each other (N-N or S-S) and **opposites attract** (N+S or S+N)



Magnets exert attractive forces on some materials.

Magnetic materials are always made of **metal**, but not all metals are magnetic.

Iron is magnetic, steel is magnetic because it has iron in it.



Vocabulary:

force, push, pull, surface, magnet, magnetic, magnetic field, attract, repel, compass, twist, contact force, non-contact force, magnetic force, strength, magnetic material, metal, iron, steel, north pole, south pole. *NB - friction can be referred to but the children do not need to know this term yet as it will be taught in year 5.*

Disciplinary knowledge

Comparative test



Identify and classify



Comparative tests



Pattern seeking



Observation over time



How does the surface of a ramp affect a toy car? (gather results)

Which materials are magnetic? (interpret results)

Which magnet is strongest? (make a prediction)

Do magnetic materials always conduct electricity? (plan an enquiry)

If we magnetise a pin, how long does it stay magnetised for? (evaluate enquiry)

Research



How have our ideas about forces changed over time?
How does a compass work?