SUBJECT: Physics YEAR: 9 MTP TITLE: Forces 3 HALF TERM: 2 NO. OF LESSONS (approx): 7

Deliberate and specific retrieval of expected prior knowledge (be specific)

Retrieval should occur regularly throughout the learning journey:

- All substances are made up of atoms/molecules
- Substances can be in any state of matter (solid, liquid, gas)
- Solids, liquids and gases can have differing properties and have different amounts of energy.
- Forces can cause a push, pull or twist motion.

Academic transformation (be specific)

Your core curriculum must do all of the following:

- Atmospheric pressure, decreases with increase of height as weight of air above decreases with height.
- Pressure in liquids, increasing with depth; upthrust effects, floating and sinking.
- Pressure measured by ratio of force over area – acting normal to any surface.
- Moment as the turning effect of a force (force x perpendicular distance to pivot)

Personal transformation (2 or 3)

Deliberately inviting students and our community to enrich learning by sharing their experiences, history and first hand accounts. Explicitly choose application opportunities for learners to:

- Pressure changes in free-diving and deep-sea diving
  - Submarines
- Relevance of pressure differences in hurricane formation
- Pressure differences in movie scenes (planes or airlocks in space)
- Relevance of moments in real-life objects (wheelbarrows, spanners, door hinges, etc.)

Can I Learning Questions

- ***Can I calculate pressure?***
- ***Can I describe how pressure acts in liquids?***
- ***Can I describe how pressure acts in gases?***
- ***Can I apply pressure knowledge to explain the collapsing can experiment?***
- ***Can I calculate moments?***

Literacy

Key vocabulary
State, matter, solid, liquid, gas, pressure, force, atmosphere, upthrust, moment, perpendicular,
Disciplinary reading
Submarines and pressure comprehension
Classroom talk

Misconceptions (5 or 6 examples)

- ***Air has no weight and therefore no pressure***
- ***All air has the same pressure (and all liquids aswell)***
- ***The shape and/or volume of a container affects the amount of liquid pressure***

- ***Forces are what cause objects to rotate rather than moments***
- ***The size of the force is more important than the distance from the pivot in determining the size of the moment***