TOPIC 2.15:	Pressure (Learning outcomes by syllabus reference: OP10, OP11)
HOW MANY LESSONS?	2 – 3 lessons

KEYWORDS / TERMS TO BE TAUGHT			
Force	Pressure	Area	Pascal (Pa)
Fire extinguisher	Barometer	Atmospheric Pressure	

KEY CONCEPTS IN THE LESSON (OBJECTIVES)		
*What students **must** know or be able to do*	*What students **should** know or be able to do*	*What students **could** know or be able to do*
To be able to give examples of pressure from everyday experience To be able to use the basic formula to calculate pressure To be able to carry out a simple experiment to investigate the relationship between pressure and depth	To recall that Pascal is the unit of pressure To rearrange the formula to correctly calculate force, area or pressure	To find out more about pressure To be able to solve a variety of problems related to pressure, force and area.

SEQUENCE OF LESSON
1. Introduce the concept of pressure. Seek level of prior knowledge of

class. Allow students to relate personal experiences of pressure, e.g. tyre pressure. This could be facilitated by using the *Pressure Introduction* PowerPoint and encouraging student input during the presentation.

2. Carry out basic sums to calculate pressure. Carry out a simple experiment (using plastic bottles) in groups to show the effects of depth in liquids on pressure. Discussion of key vocabulary, results and conclusions.

3. Review – whole class discussion/dissemination of ideas/extra information. Possibility of using *Pressure Quiz* PowerPoint to facilitate student understanding.

4. Further class work/homework – see *Pressure Worksheet*. Devise extension activities as required.

1. DIFFERENTIATE BY CONTENT (In what ways can I vary the content of what I am teaching?)		
(A) Complexity of content: (concrete, symbolic, abstract)		
Concrete	*Symbolic*	*Abstract*
Real materials associated with pressure, e.g. thumb tacks, football boot, high-heeled shoe, flat shoe etc.	Units: Pascal (Pa) Newspaper articles/ personal experiences relating to pressure, images of dams, scuba divers, submarines	Rearranging the formula to calculate force or area. Appreciation of the significance of pressure in our daily lives, e.g. fire extinguishers
(B) Variety of resources		
As listed above. Also potential use of the Internet and/or school library.		
(C) Variety of learning environments		
Classroom, school laboratory, computer room/library (as indicated above)		

2. DIFFERENTIATE BY PROCESS (How will I teach the lesson?)

Sequence of lesson as laid out above

- Introduction – using concrete or symbolic material or a general class discussion
- Divide class into groups to carry out simple calculations.
- Divide class into groups to carry out the experiment. Students may take notes or draw diagrams of any observations made. For resources, guidance and support related to facilitating student experiments and investigations, see **www.juniorscience.ie**
- Possible use of *Pressure Quiz* PowerPoint to facilitate discussion.

3. DIFFERENTIATE BY OUTCOME / PRODUCT

(How will the student demonstrate understanding?)

See *Worksheets*, *Classroom Activities* and *Experiments* sections of this resource pack.

- Students may use a template from the *Experiments* section to assist them with the write-up of their observations.
- Students could be given the opportunity to record their observations on tape.
- Students could create a poster showing images of pressure with some basic calculations, e.g. high-heeled shoe etc.
- Some students may come up with different ideas for measuring pressure in liquids.
- Whole class review work completed at end of class
- Homework: *Pressure Worksheet* if not used for class work. Specify time to be allocated to this work at home.

FINALLY - ANY OTHER POSSIBILITIES FOR THIS LESSON?
• DVD/Video of pressure in action, e.g. volcano erupting, a dam bursting • Other written activities, e.g. an extended piece of writing entitled 'Everyday uses of pressure' • Cross-curricular links: Geography • Internet search for material on pressure • Suggested Internet links include **www.juniorscience.ie**, www.bbc.co.uk/schools, **www.scoilnet.ie**, **www.skoool.ie** and **http://classroom.jc-schools.net/sci-units/force.htm** • For advice on enhancing curricular access through the use of mobile ICT, see **www.laptopsinitiative.ie**