

TOPIC 2.10:	Air (Learning outcomes by syllabus reference: OC21, OC22, OC23)
HOW MANY LESSONS?	2 – 3 lessons

KEYWORDS / TERMS TO BE TAUGHT			
Nitrogen	Oxygen	Carbon dioxide	Mixture
Cobalt chloride	Limewater	Magnesium	

KEY CONCEPTS IN THE LESSON (OBJECTIVES)		
<i>What students must know or be able to do</i>	<i>What students should know or be able to do</i>	<i>What students could know or be able to do</i>
To be able to identify air as a mixture and oxygen as a component To be able to recall the tests for water vapour and carbon dioxide and show that these are present in air	To describe how to show the percentage of oxygen in air and what happens when a wooden splint or magnesium is burned in air	To be able to list the percentages of the gases in air

SEQUENCE OF LESSON
<p>1. Introduce air. Allow students to relate personal experiences of air. Seek level of prior knowledge of class. This could be facilitated by using the <i>Air</i> PowerPoint and encouraging student input.</p> <p>2. Carry out experiments in groups. Discussion of key vocabulary, results and conclusions. Students record results and write up experiment as they are doing the practical work.</p> <p>3. Review – whole class discussion. Possibility of using <i>Air Quiz</i> PowerPoint to facilitate student understanding</p> <p>4. Further class work/ homework – see <i>Air Worksheet</i></p>

1. DIFFERENTIATE BY CONTENT (In what ways can I vary the content of what I am teaching?)

<i>(A) Complexity of content: (concrete, symbolic, abstract)</i>		
<i>Concrete</i>	<i>Symbolic</i>	<i>Abstract</i>
Real materials associated with the study of air (e.g. syringe, tubing, lime water, cobalt chloride paper etc.)	Pie chart of the composition of air Diagrams of apparatus	Air is a mixture - how the composition of air varies etc.
<i>(B) Variety of resources</i>		
As listed above. Also potential use of the Internet and/or school or community library for further exploration of material related to air		
<i>(C) Variety of learning environments</i>		
Classroom, school laboratory, computer room		

2. DIFFERENTIATE BY PROCESS (How will I teach the lesson?)
<p>Sequence of lesson as laid out above</p> <ul style="list-style-type: none"> ➤ Introduction – using concrete or symbolic material or a general class discussion ➤ Teacher may demonstrate use of apparatus to the class, emphasising safety. For resources, guidance and support related to facilitating student experiments and investigations, see www.juniorscience.ie ➤ Divide class into groups. Assist students, as required, to plan, carry out and write up experiments on their own and enable students to extend their thinking and language use. ➤ Possible use of <i>Air Quiz</i> PowerPoint to facilitate discussion

3. DIFFERENTIATE BY OUTCOME / PRODUCT (How will the student demonstrate understanding?)
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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.
- Whole class review work completed at end of class
- Homework: *Air Worksheet* if not used for class work. Specify time to be allocated to this work at home.

FINALLY - ANY OTHER POSSIBILITIES FOR THIS LESSON?

- Use of air in everyday life
- Posters showing the composition of air and the tests for carbon dioxide and water vapour
- Other written activities, e.g. a graphic organiser revising the lesson
- Extension exercise: How would our planet be different without air?
- Internet search for material on air
Suggested Internet links include www.juniorscience.ie,
www.bbc.co.uk/schools, www.scoilnet.ie, www.skool.ie and
<http://classroom.jc-schools.net/sci-units/atmosphere.htm>
- For advice on enhancing curricular access through the use of mobile ICT, see www.laptopsinitiative.ie