

<b>TOPIC 2.18:</b>	<b>Light</b> (Learning outcomes by syllabus reference: OP33, OP34, OP35)
<b>HOW MANY LESSONS?</b>	2 – 3 lessons

<b>KEYWORDS / TERMS TO BE TAUGHT</b>			
Luminous	Non-luminous	Reflection	Shadow
Light Energy	Solar cells	Crooke's Radiometer	Periscope

<b>KEY CONCEPTS IN THE LESSON (OBJECTIVES)</b>		
<i>What students <b>must</b> know or be able to do</i>	<i>What students <b>should</b> know or be able to do</i>	<i>What students <b>could</b> know or be able to do</i>
To be able to identify light as a form of energy To be able to carry out simple experiments with light	To explain how shadows are formed To explain how non-luminous objects are seen	To find out more about light To relate light energy to photosynthesis in living things

<b>SEQUENCE OF LESSON</b>
<ol style="list-style-type: none"> <li>1. Allow students to relate personal experiences of light. This could be facilitated by using the <i>Light Introduction</i> PowerPoint and encouraging student input during the presentation.</li> <li>2. Carry out experiments in groups to show how light travels. Discussion of key vocabulary, results and conclusions</li> <li>3. Students record results and write up experiment.</li> <li>4. Review – whole class discussion/dissemination of ideas.</li> <li>5. Further class work – see <i>Light Worksheet</i>. Devise extension activities as required.</li> </ol>

<b>1. DIFFERENTIATE BY CONTENT (In what ways can I vary the content of what I am teaching?)</b>		
<i>(A) Complexity of content: (concrete, symbolic, abstract)</i>		
Concrete	Symbolic	Abstract

Real materials associated with light, e.g. bulbs, Crooke's radiometer, solar powered calculators, solar cells, etc. Students' experiences of light and shadow	Newspaper articles/ personal experiences relating to light Illustrations, images of light and experimental equipment	Appreciation of the significance of light to all living things
<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 light and the importance of light		
<i>(C) Variety of learning environments</i>		
Classroom, school laboratory, computer room library in school (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. Assist students, as required, to plan, carry out the experiment, record results and draw conclusions as appropriate. Enable students to extend their thinking and language use. For resources, guidance and support related to facilitating student experiments and investigations, see [www.juniorscience.ie](http://www.juniorscience.ie)

## **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.
- Whole class review work completed at end of class.
- Homework: *Light Worksheet* if not used for class work. Specify time to be allocated to this work at home.

#### **FINALLY - ANY OTHER POSSIBILITIES FOR THIS LESSON?**

- Saving energy posters related to light
- Dramatisation, e.g. possible use of role play to emphasise the importance of light to living things
- Intra-curricular links: Biology (photosynthesis)
- Internet search for material on light
- Suggested Internet links include [www.juniorscience.ie](http://www.juniorscience.ie), [www.bbc.co.uk/schools](http://www.bbc.co.uk/schools), [www.scoilnet.ie](http://www.scoilnet.ie), [www.skool.ie](http://www.skool.ie) and <http://classroom.jc-schools.net/sci-units/energy.htm>
- For advice on enhancing curricular access through the use of mobile ICT, see [www.laptopsinitiative.ie](http://www.laptopsinitiative.ie)