

## UNIT 1: ELECTRIC CIRCUITS

### LESSON 1: What is electricity?

#### Teaching Notes

This is only a suggestion on how to use these materials but it is totally free the way you want to use them.

Introducing some specific vocabulary at the beginning of the lesson could be a good idea.

- Activity 1 to introduce the topic with a powerpoint support: What is electricity. ppt: slides 3 & 4
- Powerpoint from slide 5 to slide 8. Activities from 2 to 4.
- Activity 5: the students guess what will happen. The solution is shown in slide 9.
- Slide 10 and after activity 6.
- Activity 7 is to check what they have learnt.
- Activity 8 with the support of slide 12.
- Slides 13 & 14
- Activity 9
- Activity 10

#### Assessment

- Participation in the discussion in a plenary about the results of the activities
- Completion of the worksheet

### LESSON 2: Introduction to electric circuits

#### Teaching Notes

- PowerPoint support: Electric Circuits ppt
- Activity 1 & 2 with the support of slide 2
- Slide 3: solution of activity 2
- Slide 4 & activity 3
- Activity 4
- Slide 5 as a support to experiments
- Doing the experiments: in order to do these experiments you should get hold of the materials of electricity that every experiment requires.
- The structure of every experiment is always more and less the same: a list of the materials required to do the experiment, a picture or an electrical diagram, questions to help write the conclusions and in some cases students draw an electric diagram.  
Pair Work is more suitable, but students will have to complete

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their individual worksheets as well.

They look at the picture and imagine how the components should be connected with each other according with the picture.

### Assessment

- Participation in the discussion in a plenary about the results of the activities
- o Participation in the discussion in a plenary about the results of the experiments.
- o Completion of the worksheet.

## LESSON 3: Electric Components

### Teaching notes

- PowerPoint support: Electric Components.ppt
- Activities 1 & 2
- Slide 3: solution of activity 2
- Slides 5 & 6
- Activity 3
- Activity 4
- Slide 8
- Crosswords

	<sup>1</sup> A		<sup>2</sup> c	o	n	t	r	o	l	l	e	R
<sup>3</sup> D	C		o									
		<sup>4</sup> i	n	s	u	l	a	t	o	r		
			v									
		<sup>5</sup> r	e	a	l							
			n						<sup>6</sup> g			
			t						e			
		<sup>7</sup> w	i	r	e				n			
			o						e			
	<sup>8</sup> c	o	n	d	u	c	t	o	r			
			a						a			
			l						t			
									o			
		<sup>9</sup> r	e	c	e	i	v	e	r			

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- slides from 9 to 13
- activities 6, 7 & 8.

### Assessment

- Participation in the discussion in a plenary about the results of the activities
- Completion of the worksheet

## LESSON 4: Experiments with electric components

### Teaching notes

- Speaking activity. The cards can be printed from the Filing Cards.doc file. You can show project this file while the students are playing because it can help them to identify the symbols and elements easily.  
The aim of the game is that they memorize the name and the symbol of the electric components and practise making questions.  
The teacher organises groups of three students: one of them will have to complete the column of the pictures, another one the column of the names and the last one the column of the symbols. They will need a big piece of paper because there are a lot of components.
- Doing the experiments: the procedure is the same as in lesson 2: Introduction to electric circuits

### Assessment

- Participation in the discussion in a plenary about the results of the experiments.
- Completion of the worksheet.
- Performance in the speaking activity.

### Final Assessment

As this is the end of Unit 1 I suggest that you do a final evaluation to revise the main content (Avaluation Unit 1.doc). It is not meant to be an exam but just revision exercises.

## UNIT 2: ELECTRICAL MAGNITUDES

### LESSON 5: Electrical Magnitudes

#### Teaching notes

- Activity 1: introduction revising unit 1
- Doing activity 2 with the support of slide 1 of the powerpoint Electrical Magnitudes.ppt. They must understand the function of electrical magnitudes through a comparison with cars (electrons) and roads (wires).
- Slides 3 & 4
- Activity 5
- Slide 5
- Activities 6 & 7

#### Assessment

- Participation in the discussion in a plenary about the results of the activities
- Completion of the worksheet

### LESSON 6: Instruments to measure

#### Teaching notes

- Speaking Activity: organise groups of three students. Every group must have the three different handouts (they are included one after the other in the handout). They must complete the missing information by asking and answering questions in English to the members of the group.. E.g: I have the handout that contains the information of Alessandro Volta. You don't have this information so you can ask me: *Where was he born?* The answer is: *in Como* then *When was he born?* and the answer: *18<sup>th</sup> February of 1745* and so on.
- Doing the experiments: the procedure is the same as in previous lessons.

#### Assessment

- Participation in the discussion in a plenary about the results of the experiments.

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- Completion of the worksheet.
- Performance in the speaking activity

### LESSON 7: Ohm's Law

#### Teaching notes

- Powerpoint Ohm's Law.ppt until slide 4
- Doing the example of Ohm's Law of the worksheet
- Activities 1-6
- Slide 5 as a support for activity 6. In this activity it is used the comparison of cars and a road to deduce the relationship between voltage, current and resistance.

#### Assessment

- Participation in the discussion in a plenary about the results of the activities
- Completion of the worksheet

### LESSON 8: Introduction of series and parallel circuits

#### Teaching Notes

- Speaking activity: the teacher writes the names of electric components, electrical magnitudes, electrical magnitudes' units and electrical measuring devices in small different pieces of paper. One of the students chooses one of them and the other students ask some questions in English to guess what is written on the paper. They start asking the first questions and after the second ones.
- Doing Experiments: it's very important to write down the results of every experiment because they're going to be very useful for lesson 9. They deduce the rules of series & parallel circuits from the experiments.
- If you don't have enough time to finish worksheet 8 you can divide the lessons 8 & 9 in two, that is, you can do the experiments about series circuit in lesson 8 and the activities that relate with the series circuits in lesson 9. The following day, in the workshop, you can do the part of the experiments that deals with parallel circuits and the next day, in the

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classroom, the part of activities related with parallel circuits.
<b>Assessment</b> <ul style="list-style-type: none"><li>- Participation in the discussion in a plenary about the results of the experiments.</li><li>- Completion of the worksheet.</li><li>- Performance in the speaking activity</li></ul>
<b>LESSON 9: Series &amp; Parallel circuits</b>
<b>Teaching Notes</b> <ul style="list-style-type: none"><li>- Do the activities of the introduction &amp; discuss &amp; correct in the plenary before doing the other ones. You need the results of the experiments of worksheet 8. If you didn't have enough time to finish worksheet 8 you can divide the lessons 8 &amp; 9 in two, I mean, first you can do the part of series circuits of the worksheet 8, in the workshop, and next day, in the theoretical lesson the part of series circuits of the worksheet 9. Finally, next day, in the workshop, the part of parallel circuits and next day the theoretical part of parallel circuits of the worksheet 9.</li><li>- Activities 1-5</li></ul>
<b>Assessment</b> <ul style="list-style-type: none"><li>- Participation in the discussion in a plenary about the results of the activities</li><li>- Completion of the worksheet</li></ul>
<b>Final Assessment</b> <p>As this is the end of Unit 1 I suggest that you do a final evaluation to revise the main content (Avaluation Unit 1.doc). It is not meant to be an exam but just revision exercises.</p>

### UNIT 3: DOMESTIC ELECTRICITY

#### LESSON 10: Joule's Effect, Short Circuits & Fuses

##### Teaching Notes

- Activity of introduction with support of slide 2 of the powerpoint Joule Effect. They must recognize the Joule effect in some electric devices they can use every day.
- Activity 1 & 2
- Slide 3
- Activity 3
- Slides 4 & 5
- Doing the experiments: the procedure is the same as in the other experiments.

##### Assessment

- Participation in the discussion in a plenary about the activities 1-3
- Participation in the discussion in a plenary about the results of the experiments
- Completion of the worksheet

#### LESSON 11

##### Teaching Notes

- Activity of introduction with support of slide 2 of the powerpoint Electrical Power.ppt. They must understand what electrical power is through a comparison of the engine of two motorbikes.
- Discuss & correct before doing the other activities
- Slides 3 & 4
- Activities 1-6

##### Assessment

- Participation in the discussion in a plenary about the results of the activities
- Completion of the worksheet

##### Final Assessment

As this is the end of Unit 1 I suggest that you do a final evaluation to

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revise the main content (Avaluation Unit 1.doc). It is not meant to be an exam but just revision exercises.

The solution of activity 1 of the avaluation (word puzzle)

P	Z	O	X	F	S	Z	G	I	N
C	Z	R	V	R	A	O	R	B	C
C	U	H	B	E	H	O	E	L	J
H	Y	Z	K	T	N	H	Y	U	E
E	Q	K	K	A	S	I	R	B	Q
F	E	P	C	E	L	X	D	G	U
J	H	X	Q	H	Q	L	R	C	O
S	X	V	A	O	X	L	I	R	N
N	M	J	K	H	B	G	A	Z	B
K	J	M	E	M	G	Q	H	O	E
Y	R	N	K	C	U	L	T	P	V
A	F	B	C	I	D	A	N	R	O

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