This vocational instructional module on common terms used in the study of electricity is one of eight such modules designed to assist recently arrived Arab students, limited in English proficiency (LEP), in critical instructional areas in a comprehensive high school. Goal stated for this module is for the student enrolled in electronics courses to know how to use the most common terms in the study of electricity. Each module consists of these parts: title; program goal and performance objectives; a pronunciation key; a language page which offers the pronunciation, definition, and usage of key terms in English and in Arabic; a pretest; bilingual (English and Arabic) language (vocabulary and usage) activities; evaluation; pretest and activity answer sheets; and a list of supplementary materials and their location. For each of the three activities in this module the objective, a list of materials needed, procedure, and evaluation are provided in addition to the necessary activity sheets or pages. (YLB)
ABOUT THE PROJECT

The Fordson Arabic Bilingual Demonstration Project is designed to assist recently arrived Arab students, limited in English proficiency (LEP), to adapt to a large and comprehensive high school. The project consists of academic and vocational instructional modules, reading services to teachers and students, bilingual aide and resource services, computer and television modules, staff development activities, and home-community liaison.

ABOUT THE INSTRUCTIONAL MODULES

The modules were designed to assist LEP students in critical instructional areas throughout the school curriculum. These areas of focus were determined by a needs survey of the entire Fordson school community. Each module consists of seven parts: title, objectives, pretest, language (vocabulary and usage) activities, evaluation, and supplementary materials. Modules were translated, duplicated, and field tested.

ABOUT THE AUTHOR

Roger St. John did his undergraduate work at Northern Michigan University and his graduate training at the University of Michigan. Roger has taught Electronics at Fordson High School and Henry Ford Community College for 18 years. Rick Topolewski provided additional technical assistance in the construction of this module. The concepts developed in this instructional module are considered essential for beginning limited English proficiency students in Electronics.
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ELECTRICITY

Common Terms Used in the Study of Electricity

Developed By:
Roger L. St. John
and
Richard R. Topolewski
This bilingual module has been developed to assist limited English proficiency students to know how to use the most common terms in the study of electricity. This unit is designed for students enrolled in electronics courses.

GENERAL OBJECTIVE:

The student will:

know how to use the most common terms in the study of electricity.

SPECIFIC OBJECTIVES:

The student will:

1. know the meaning of the most common terms used in electricity in the first two weeks of class well enough to understand the lessons that will follow;

2. use the electrical terms correctly in verbal and written communication in the classroom within the first two weeks attaining a proficiency (as observed by the teacher) to allow them to succeed in further lessons;

3. correctly pronounce all the terms so they can be understood.
PRETEST

Match the letters A through D to the numbers 1 through 4.

1. voltage
2. current
3. resistance
4. power

A. the flow of electrons
B. voltage and current together
C. opposition
D. electrical pressure, potential difference

Match the letters E through H to the numbers 5 through 8.

5. ampere
6. volt
7. ohm
8. watt

E. unit of measure for voltage
F. unit of measure for current
G. unit of measure for resistance
H. unit of measure for power

Go on to next page.
### PRETEST (continued)

Match the letters I through L to the numbers 9 through 12.

<table>
<thead>
<tr>
<th>Number</th>
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<th>Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>electron</td>
<td>I</td>
</tr>
<tr>
<td>10</td>
<td>proton</td>
<td>J</td>
</tr>
<tr>
<td>11</td>
<td>atom</td>
<td>K</td>
</tr>
<tr>
<td>12</td>
<td>neutrons</td>
<td>L</td>
</tr>
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I. smallest particle of an element
J. negative particle
K. neutral particle
L. positive particle

Match the letters M through P to the numbers 13 through 16.

<table>
<thead>
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<th>Number</th>
<th>Word</th>
<th>Letter</th>
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</thead>
<tbody>
<tr>
<td>13</td>
<td>molecules</td>
<td>M</td>
</tr>
<tr>
<td>14</td>
<td>elements</td>
<td>N</td>
</tr>
<tr>
<td>15</td>
<td>static</td>
<td>O</td>
</tr>
<tr>
<td>16</td>
<td>coulomb</td>
<td>P</td>
</tr>
</tbody>
</table>

M. smallest particle of a material
N. basic substance of all material
O. not moving
P. a large number of electrons

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**Translation**: لا اسم الحروف من (ط) الي (ل) مع الأعداد من (9) الي (12).

I. أصغر جزيء من المادة
J. جزء سالب الشحنة
K. جزء محايد
L. جزء موجب الشحنة

M. أصغر جزيء من المادة
N. المادة الأساسية للجميع
O. لا يتحرك
P. عدد كبير من الكهرباوات
PRONUNCIATION KEY

/a/ as in Adam
/æ/ as in cake
/e/ as in let
/ɛ/ as in meet
/i/ as in sit
/i/ as in ice cream
/o/ as in hot
/ɔ/ as in Coke
/u/ as in Seven Up
/ʊ/ as in blue
/b/ as in boy
/c equals /s/ as in cents (10¢)
/k/ as in Cat
/d/ as in day
/f/ as in four
/g equals /g/ as in go
/dz/ as in page
/h/ as in he
/j equals /dz/ as in jail
/k/ as in kick
/l/ as in Cola

/m/ as in man
/n/ as in man
/p/ as in Dr. Pepper
/qu equals /kw/ as in quit
/r/ as in run
/s/ as in sun
/t/ as in ten
/v/ as in van
/w/ as in woman
/x/ as in extra
/y/ as in yet (sometimes /e/ as in many)
/z/ as in zebra
/sh/ as in shut
/ch/ as in church
/ng/ as in sing
/th/ (voiced) as in this
/th/ (unvoiced) as in thing
/ʊ/ as in food
/u/ as in good
1. voltage (vōl'tij)
   electric potential or potential difference expressed in volts

2. current (kər'ent)
   flow of electrons expressed in a rate of flow as amperes

3. resistance (re zīst'əns)
   the opposition offered by a substance to the movement of electrons

4. power (pō'ər)
   force or energy applied to work

5. ampere (am'per)
   the unit of measure for current

6. volt (vōlt)
   the unit of measure of voltage

7. ohm (ōm)
   the unit of measure of resistance

8. watt (wot)
   the unit of measure for electrical power

9. electron (e lek'tron)
   part of an atom with a negative charge that can be moved with little effort
10. **proton** (prō'ton)
   part of an atom with a positive charge that has weight and is hard to move

11. **atom** (at'um)
   the smallest particle of an element

12. **neutron** (nū'tron)
   part of an atom with no electrical charge

13. **molecule** (mol'e kuil)
   the smallest portion of an element or compound that still holds its identification

14. **element** (el'e ment)
   basic part of all material

15. **static** (stat'ik)
   stationary charge of electricity

16. **coulomb** (koo'lom)
   a large amount of electric charge or electrons

17. **ion** (ī' on)
   an atom that has an electric charge
Objective:
The student will identify and pronounce the terms used in the study of electricity so that the teacher understands what he is saying.

Directions:
From the language sheet go over the terms and their pronunciation until you can look at the term and say it fluently to the teacher.

If you have difficulty with some of these terms, get the specific language cards from the teacher. Go to the library and get the Bell and Howell Language Master machine. With the cards and the machine, practice saying each word after the machine pronounces the term. See the term on the card - say the word. Push repeat button down and the card will repeat the word. Get help from the librarian if needed.

Practice these terms until you can identify and pronounce all the terms so the teacher can understand you.
STUDENT ACTIVITY 2

Objective:
The student will put terms used in the study of electricity into sentences to the teacher's satisfaction.

DIRECTIONS:
Complete the following sentences correctly using these words:

1. electricity
2. voltage
3. current
4. power

A. Jihad said that __________ is a potential difference between two (2) points on a conducting wire.

B. Wael wanted six (6) amperes of __________ to flow in the circuit.

C. Detroit Edison is our electric __________ company.

D. __________ is the study of electric motion and power.
Self test: اختبار ذاتي

What are the terms that are described below?

__________:
flow of electrons expressed in a rate of flow as amperes.

__________:
force or energy applied to work.

__________:
electric potential or potential difference expressed in volts.

__________:
the opposition offered by a substance to the movement of electrons.

Refer to LANGUAGE PAGE if necessary.
STUDENT ACTIVITY 2 (continued)

DIRECTIONS:

Complete the following sentences correctly using these words:

1. ampere
2. volt
3. ohm
4. watt

A. Sam used 3 _________ of current to get his car radio to work.

B. A car radio used 12 _________ to operate according to Hisham.

C. Detroit Edison charges about 3 cents per thousand _________ of power.

D. There is 1,200 _________ of resistance in the circuit.
STUDENT ACTIVITY 2 (continued)

DIRECTIONS:
Complete the following sentences correctly using these words:

1. ampere
2. volt
3. ohm
4. watt

A. Sam used 3 _________ of current to get his car radio to work.

B. A car radio used 12 _________ to operate according to Hisham.

C. Detroit Edison charges about 3 cents per thousand _________ of power.

D. There is 1,200 _________ of resistance in the circuit.
DIRECTIONS:

Complete the following sentences correctly using these words:

1. electron
2. proton
3. atom
4. neutron

A. A small part of an atom that has no charge is called a ________.

B. Hissam likes the word ________ which is the positive part of the atom.

C. ________ has little weight and has a negative charge.

D. All matter is made up of ________ and they are the smallest particle of an element.
STUDENT ACTIVITY 2 (continued)

Self test:

Write the proper term for each of the following descriptions:

______________:
the smallest particle of an element.

______________:
part of an atom with a positive charge that has weight and is hard to move.

______________:
part of an atom with no electric charge.

______________:
part of an atom with a negative charge that can be moved with little effort.

Refer to LANGUAGE PAGE if necessary.
STUDENT ACTIVITY 2 (continued)

DIRECTIONS:
Complete the following sentences correctly using these words:

1. molecule
2. elements
3. static
4. coulomb

A. Harry combined two elements to form a ______________.

B. Sam learned in chemistry that all material can be broken into a limited number of ________.

C. Eric got a shock from ________ electricity after walking on a rug and then touching a metal chair.

D. Jim said that 6,280,000,000,000 is an awful large amount of electrons and should be called a ______________.
Self test:

What are the terms that are described below:

1. the smallest portion of an element or compound that still holds its identification.

2. stationary charges of electricity.

3. basic part of all material.

4. a large amount of electric charge or electrons.
Objective:
The student will improve his usage of terms used in the study of electricity by working them into common sentences.

DIRECTIONS:
Change the words around so that they form a sentence related to the study of electricity. Write the sentence in the space below the listed words.
STUDENT ACTIVITY 3 (continued)

1. unit of measure volt the is a for voltage

2. Jim's circuit current three(3) of is flowing in

3. circuit to allow too much resistance in the there was it to work

4. power for supplies Detroit Edison the electric this area

What were the terms related to electricity that were used in the above statements?

1. ______________________
2. ______________________
3. ______________________
4. ______________________
5. there was of the circuit one part 5 volts across

6. flowing had a circuit six amperes that John produced

7. the higher the meter resistance read in ohms the higher the meter will

8. for our electricity of usage we pay of watts by the thousands

What were the terms related to electricity that were used in the above statements?

5. 

6. 

7. 

8. 

What were the terms related to electricity that were used in the above statements?

5. 

6. 

7. 

8. 

- 0
- 6
- 7
- 8

- 18.1 + 1...
- 0.41.1 LA utS 1...14 jjaz 1...14 CU'?
- 411...
- 554.7, 1.11a.)1 
- 383x232 is, Z111 v I j LeAJI
- 111 trLut !
- 503x213 tri
- 513x213 trLut
- 525x168 0
- 525x143 1
- 523x94 1
- 523x94 1

ما هي العبارات التي تتعلق بالكهرباء التي استعملت في الفقرات أعلاه

- 0
- 6
- 7
- 8
9. gained a charge a atom that has is called an ion

10. one point to another and can be moved from has a negative charge an electron

11. a positive charge the proton atom part of an is called with

12. the neutron has no electric charge which of an atom is a part

What were the terms related to electricity that were used in the above statements?

9. 

10. 

11. 

12. 

ما هي المباريات المتعلقة بالكهرباء التي استعملت في الفقرات أعلاه؟

9. 

10. 

11. 

12. 
13. tiny particles all materials called molecules are made up of

14. identity retain their the smallest parts elements are of a material that can

15. shock from a you can get quite a static charge

16. to form a coulomb of electrons a large quantity it takes

What were the terms related to electricity that were used in the above statements?

13. __________________________
14. __________________________
15. __________________________
16. __________________________
**PRETEST -- ANSWER SHEET**

|------|------|------|------|------|------|------|------|------|-------|-------|-------|

**STUDENT ACTIVITY 2 -- ANSWER SHEET**

<table>
<thead>
<tr>
<th>Page 8</th>
<th>Page 10</th>
<th>Page 12</th>
<th>Page 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. voltage</td>
<td>A. amperes</td>
<td>A. neutron</td>
<td>A. molecule</td>
</tr>
<tr>
<td>B. current</td>
<td>B. volts</td>
<td>B. proton</td>
<td>B. elements</td>
</tr>
<tr>
<td>C. power</td>
<td>C. watts</td>
<td>C. electron</td>
<td>C. static</td>
</tr>
<tr>
<td>D. electricity</td>
<td>D. ohm</td>
<td>D. atoms</td>
<td>D. coulomb</td>
</tr>
</tbody>
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**Self Test:**

<table>
<thead>
<tr>
<th>Page 9</th>
<th>Page 11</th>
<th>Page 13</th>
<th>Page 15</th>
</tr>
</thead>
<tbody>
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<td>A. atom</td>
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<tr>
<td>C. voltage</td>
<td>C. volt</td>
<td>C. neutron</td>
<td>C. element</td>
</tr>
<tr>
<td>D. resistance</td>
<td>D. ampere</td>
<td>D. electron</td>
<td>D. coulomb</td>
</tr>
</tbody>
</table>
STUDENT ACTIVITY 3 -- ANSWER SHEET

1. The unit of measure for voltage is the volt.
2. Three (3) amperes of current is flowing in Jim's circuit.
3. There was too much resistance in the circuit to allow it to work.
4. Detroit Edison supplies the electric power in this area.

1. voltage    2. amperes    3. resistance    4. power

5. There was 5 volts across one part of the circuit.
7. The higher the resistance in the meter, the higher the meter will read.
8. We pay for the usage of our electricity by the thousands of watts.

5. volts    6. amperes    8. resistance    8. watts

9. An atom that has gained a charge is call an ion.
10. An electron can be moved from one point to another and has a negative charge.
11. The part of an atom with a positive charge is called a proton.
12. The part of an atom which has no electrical charge is the neutron.

9. ion    10. electron    11. proton    12. neutron

13. All materials are made up of tiny particles called molecules.
14. Elements are the smallest parts of a material that can retain their identity.
15. You can get quite a shock from a static charge.
16. It takes a large quantity of electrons to form a coulomb.

13. molecules    14. elements    15. static    16. coulomb
اختيار تعبيري - ورقة جواب

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<thead>
<tr>
<th>صفحة</th>
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<th>صفحة</th>
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<td>أ - أمبيرات</td>
<td>أ - بيد</td>
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<td>ج - واطات</td>
<td>ج - قدرة</td>
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<td>د - ذرات</td>
<td>د - أوم</td>
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