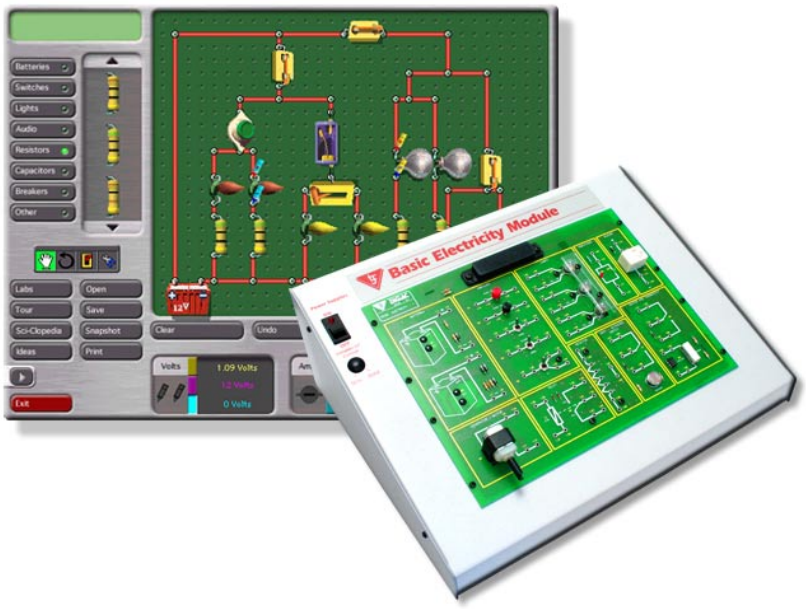
Basic Electricity (Engineering Unit)



This is one of a series of instructional curriculum units designed specifically to operate within a lockstep environment where all students carry out assignments simultaneously within the same topic area. It can be run independently, or as an ideal addition to our ScanTEK Technology Program.

This unit makes use of hardware supplied with the ScanTEK technology module. It includes 10 lessons of on-screen curriculum materials in an html format. These can be delivered via a LAN using our Class*Act* classroom management system or via the Internet using our Class*Campus* management system.

The curriculum includes continuous assessment, assessment tests and a workbook journal to create a portfolio of work during the lessons. Typical activities include hands-on investigations, problem-solving, and group projects.

Each lesson contains between one and two hours of study. A lesson typically begins with a PowerPoint presentation that provides students with background information required to complete the rest of the lesson. If used with our Class*Act* SRS system, questions integrated into the PowerPoint can be tracked as each student responds on their handheld keypad.

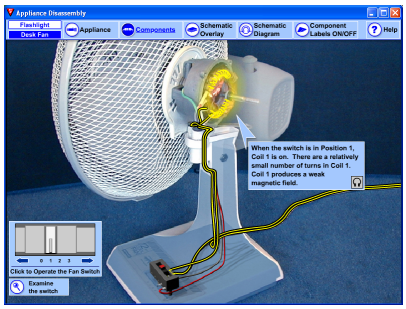
Demonstration activities are carried out by the instructor using purpose built hardware. Students carry out hands-on activities using a software simulation of the hardware. The students also have an opportunity to verify their solutions using the hardware.

Where appropriate, research activities that include the use of multimedia explorers are also incorporated.

This instructional unit uses a software simulation of electric circuits. This enables a whole class to carry out activities in the same topic areas at the same time. The simulator allows the student to construct, operate and evaluate electric circuits. A variety of electrical components are provided in the simulator. These components are:

- Batteries
- Switches
- Lamps
- Motor
- Buzzers
- Resistors
- Capacitors
- Circuit Breakers

Other software allows the student to disassemble a flashlight and a desk fan, to see the inner workings. The student also discovers different methods of electricity production, and how transformers operate.



Topic areas include:

- Electric Current
- Voltage
- Resistance
- Relationship between Voltage, Current and Resistance
- Switches
- Safety and Protection Devices
- Magnetism
- Motors
- Generators and Transformers

Activities include:

- Observe current flow around circuits.
- Identify the components that make up a flashlight.
- Explore how a multimeter is used to measure voltage, current and resistance.
- Evaluate the function of a car lighting system.
- Identify how the strength of an electromagnet can be changed.
- Identify the purpose of a fuse.
- Identify how the speed of an electric motor can be controlled in a circuit.
- Identify methods of electrical power production.
- Explore the use of transformers.

Each lesson is designed to meet a number of performance objectives. These include academic, technical and occupational objectives. The lessons are written in such a way as to enable a student to attain the performance objectives, with continuous assessment activity questions and assessment test questions linked to these in order to provide a measure of true competency.

The performance objectives are used by the ClassAct or ClassCampus management systems to generate a comprehensive portfolio of student reports.

The items supplied with this instructional unit include:

- On-screen Student Curriculum CD
- Instructor's Guide

Additional items required:

- ST140/40 Basic Electricity
- Computer

Module Facts

Order as:
ST140/LS/10 Basic Electricity (Engineering)

	No.	Average time
Lessons	10	100 mins
	Total	17 hours

Class*Act*, Class*Act* SRS & Class*Campus* enabled

LJ Technical Systems
Web site: www.ljgroup.com

Ref No. P6767-A