



Digital Resource Library

User Guide

Lesson Access

After clicking the icon for the required Digital Resource Library from the start menu, you will be taken to the following screen.

The screenshot shows the 'Digital Resource Library' interface. On the left, under 'Student access', there is a button with a multimeter icon and the text '450-00: Electronic Circuits'. A callout box points to this button with the text: 'Students can access the learning content by simply clicking this button.' On the right, under 'Teacher access', there is a text prompt: 'Your teacher access code can be found on the back of your CD/DVD case'. Below this is a form with two input fields separated by a hyphen, followed by a 'Go >' button. A callout box points to the 'Go >' button with the text: 'Teachers can access additional information such as answer guides by entering the teacher access code here. The code is located on the CD/DVD case.'

After selecting to continue as a student or by entering your teacher code, you will see a screen like this:

The screenshot shows the 'Digital Resource Library' interface after login. It displays a welcome message: 'Welcome to the Digital Resource Library. Click on the course that you wish to load:'. Below this is a yellow button with a multimeter icon, labeled '450-00: Electronic Circuits' and 'Licensed from December 9, 2014 for 10 students.' At the bottom left, there is a red 'X' icon and the text 'Exit the library resources'. A callout box points to the yellow course button with the text: 'Select a course.'

After selecting a course, you will see a screen similar to this:

Digital Resource Library
450-00: Electronic Circuits

Lessons

- Lamp Circuit
- Polarity Tester
- LED Lamp Circuit
- Automatic Light Circuit
- Building on Breadboard
- Improved Automatic Light Circuit
- Freezer Temperature Warning Circuit
- Intruder Alarm
- Building on Stripboard
- Flashing Doorbell Circuit
- Building Circuits on Printed Circuit Boards
- Lift Door Controller
- AC to DC Converter
- Baby Alarm
- Road Crossing Controller
- Electronic Problem Solving

Search

i

Task List

Practical tasks may be integrated into the **Lessons** menu, or may be found here.

Click the *i* symbol for additional help.

Key words from the topics or lessons can be searched for here.

All lessons can be expanded or collapsed using these buttons...

...or expand an individual topic by clicking it.

Lesson Layout

Once a topic has been selected, it expands into a series of individual lessons as shown.

Digital Resource Library
450-00: Electronic Circuits

Lessons

Search

Lamp Circuit

- Basic Electrical Quantities in Circuits
- Measurement in Circuits
- Simple Lamp Circuit
- The Lamp Circuit
- Polarity Tester
- LED Lamp Circuit
- Automatic Light Circuit
- Building on Breadboard
- Improved Automatic Light Circuit
- Freezer Temperature Warning Circuit
- Intruder Alarm
- Building on Stripboard
- Flashing Doorbell Circuit
- Building Circuits on Printed Circuit Boards
- Elevator Door Controller
- AC to DC Converter
- Baby Alarm
- Road Crossing Controller
- Electronic Problem Solving

Symbol Key:

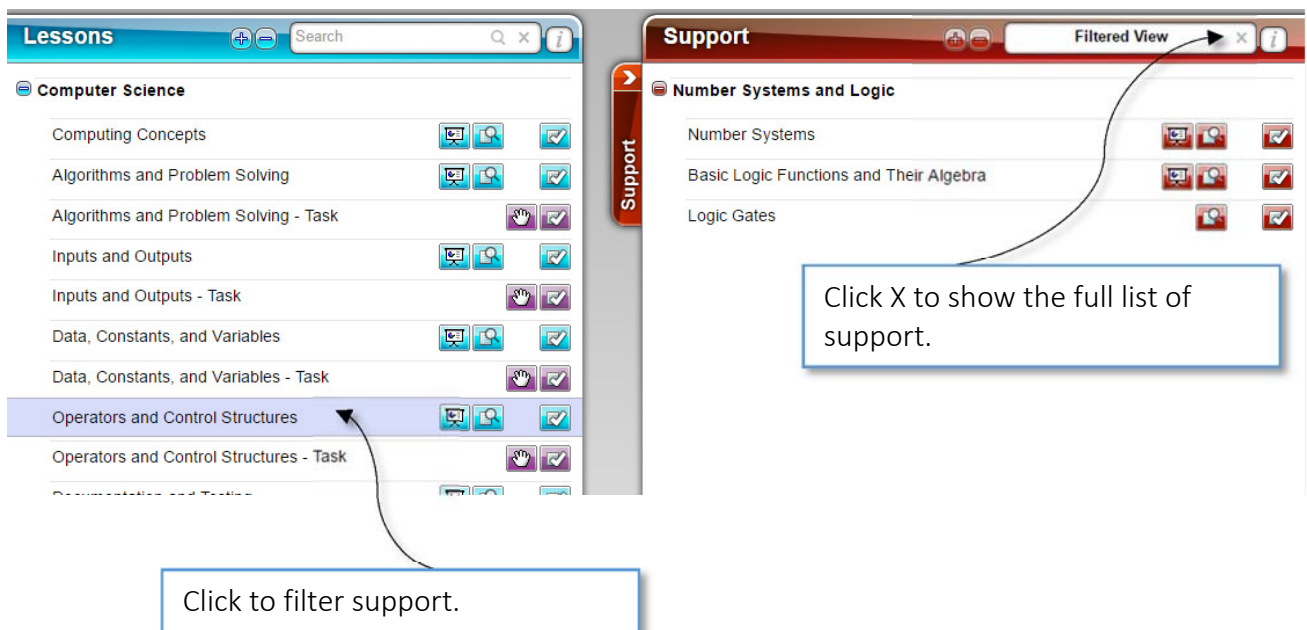
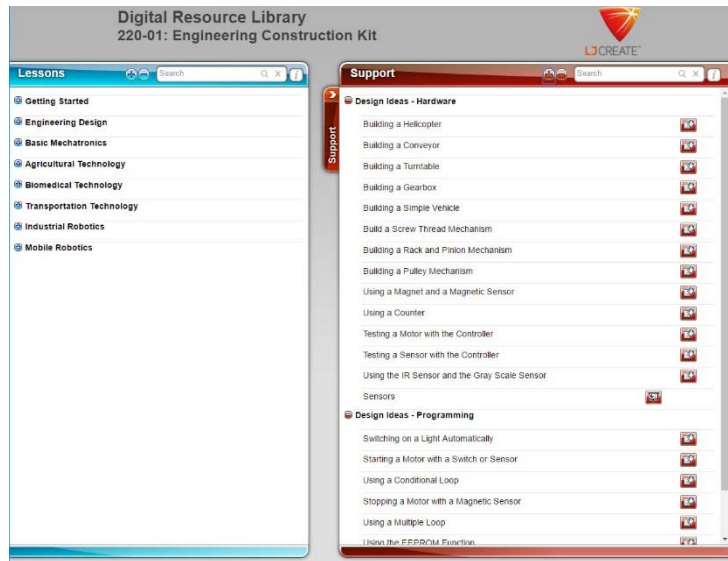
- Presentations
- Investigations
- Assessments
- Practical task
- Assessment of task

Topic.

Individual lessons that make up a topic.

Support Tab

Additional content to support the main lessons are accessible from the red support tab.

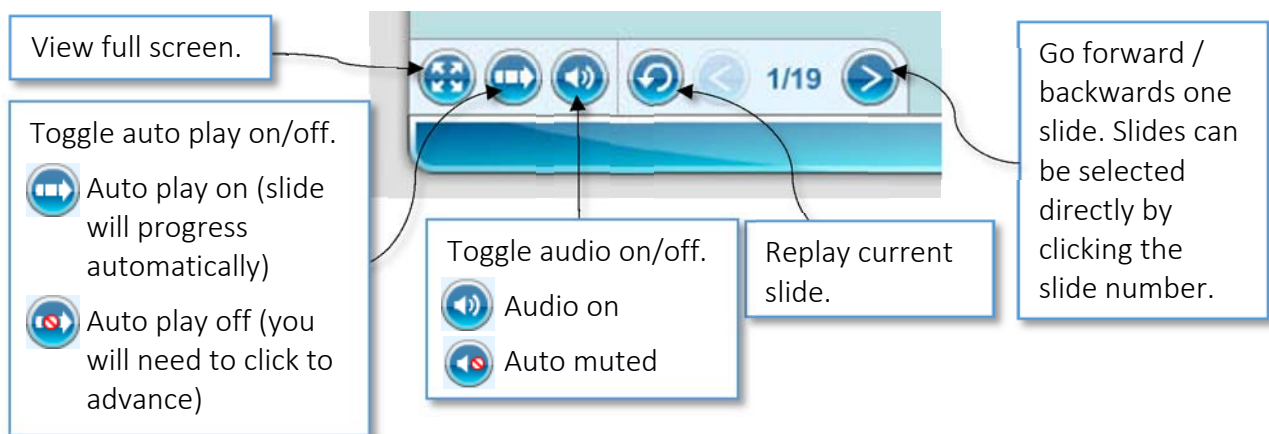


Presentations

Once selected, the presentation will open up in the browser window.



Presentation Controls:



A progress bar is shown in the bottom right of the screen. In this example, the bar is indicating that the current slide has had one of three parts shown. You can click anywhere within the main presentation window to progress to the next part of the slide.



Click the X at the top of the screen to close the presentation.



Investigations and Practical Tasks

This is a typical investigation layout. Practical tasks follow the same layout.

Simple Lamp Circuit

Investigation – Building and Testing a Simulated Lamp Circuit

An electrical circuit can be created using a battery, a switch, a lamp, and connecting wires.

You are going to build and operate a simple electrical circuit using simulation software.

You will also use a virtual multimeter to take voltage and current measurements around the circuit.

[Virtual Electrical Circuits Trainer](#)

Method

- Use the Virtual Electrical Circuit Trainer to construct the circuit shown in the diagram.

- Connect the battery and operate the circuit to see how it works.
 - Under what conditions will the lamp light?
- Take voltage and current measurements to complete these tables.

Measurement Position	Voltage in Volts
Across the battery	
Across the switch (switch open)	
Across the switch (switch closed)	
Across the lamp (lamp on)	
Across the lamp (lamp off)	

Measurement Position	Current in Amps
Between the battery and the switch	
Between the switch and the lamp	
Between the lamp and the battery	

- With the battery disconnected, measure the resistance of the lamp.
 - What is the resistance of the lamp?
- Measure the continuity of the switch in each position. Complete the table with the readings.

Switch Position	Continuity Reading
Off	
On	

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Close investigation.

Use the printer icon to print the investigation. You can print a blank copy for students to fill in as a worksheet or students can fill in their answers on screen and print them out.

Click to have an audio description of the investigation.

Some investigations use interactive applications or reference sheets. These can be loaded using the hyperlinks.

Students can fill in their answers on screen.

Assessments

Assessments are automatically marked by the software. Students can only submit one attempt for each question. The first two questions from a typical assessment are shown below.

Simple Lamp Circuit

Only your first answer will be accepted.
A running [score](#) is kept at the bottom of the page.

Enter your name to identify your printout

1

In this diagram, which position shows the correct technique for measuring voltage?

✓

☐ Position A

☐ Position B

☐ Position C

☒ Position D

Answer Guide

Position D shows the correct technique for measuring voltage.

2

Which of the following is essential for a circuit to operate?

✗

☐ A power supply of exactly 6 V

☐ A complete circuit between the positive and negative of a power supply

☐ The inclusion of a lamp in the circuit

☒ No resistance within the circuit

Answer Guide

To operate, a circuit must be complete, and connect to the positive negative ends of a power supply.

Use the printer icon to print the assessment. You can print a blank copy for students to fill in as a worksheet or students can fill in their answers on screen and print them out.

Enter student name here to be able to identify their printout.

Correctly answered question.

Click here to answer the question.

Incorrectly answered question.

Once completed, the student's score will be shown at the end of the assessment.

You have scored **3/5 = 60%** (Good)

☐ Short Report

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Clicking the short report box gives a summary of the student's attempt of the assessment. This can be printed for their records.

Simple Lamp Circuit

Name

Score 3/5 = 60% (Good)

Date 12/10/2016

1

In this diagram, which position shows the correct technique for measuring voltage?

✓

2

Which of the following is essential for a circuit to operate?

✗

3

What will happen in this circuit when the switch is closed?

✗

4

If too much current flows around the circuit, which component is most likely to burn out?

✓

5

What is the purpose of having a fuse in a circuit?

✓

☒ Short Report

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Answer Guides

When accessing the content using the teacher access code, it is possible to see the correct assessment answers, or the answer guide for investigation and practical questions.

Simple Lamp Circuit

Only your first answer will be accepted.
A running [score](#) is kept at the bottom of the page.

[Show Answers](#)

4. With the battery disconnected, measure the resistance of the lamp.
b) What is the resistance of the lamp?

[Show Answer Guide](#)

5. Measure the continuity of the switch in each position. Complete the table with the readings.

Switch Position	Continuity Reading
Off	
On	

[Show Answer Guide](#)

Answer guide links,
only available with the
teacher access code!