# The Logical Interface

## The Educational Technology Experts

Supporting Science Educators since 1988

Brands
TLI
Pasco
Fourier
Milwaukee
Ohaus
Adam
Sumdog
Yenka
Absorb
Newbyte
Sunflower
and more

Software and DVDs. Ideal for use with Interactive Whiteboards

Environmental meters (pH, DO2 etc)
Power Supplies
Signal Generators
Electronic Balances

**Summer/Autumn 2014**

# Biology Multimedia

## SUNFLOWER: MULTIMEDIA LIBRARY FOR SCIENCE: BIOLOGY

The Multimedia Library is a suite of thirteen multimedia programs for secondary biology with a wealth of resources including examples, activities, worksheets and teacher's notes in PDF format. It includes nine titles and two tools-Data Analyzer and Resource Builder. For complete details and preview downloads visit our web site at www.logint.com.au.

### Cells
A collection of micrographs of cells linked to diagrams.
- Enhance microscope practical work
- Show the main features and relative sizes of animal and plant cells
- Demonstrate how specialized cells are adapted to their functions

### Enzymes
Simulates enzyme-catalysed reactions.
- Show the lock and key theory of enzyme action
- Demonstrate how enzymes denature
- Compare simulated results to real experiments.
- Examine the effect of concentration, pH and temperature on the rate of an enzyme catalysed reaction.

### Circulation
This software uses animations and micrographs to examine
- The structure of the heart and its function
- The transport function of the circulatory system and blood composition
- Gas exchange in alveoli and diffusion in body tissues
- The structure of arteries, veins and capillaries.

### DNA
- Explain how DNA is found in the nucleus of cells
- Explore the structure of DNA
- Explain how transcription happens and compare RNA with DNA
- Demonstrate protein synthesis during translation
- Show the mechanism for DNA replication Investigate genetic engineering
- Explore DNA fingerprinting

Also available Osmosis Photosynthesis, Plants, Digestion and Predator-Prey.
**All 9 titles available for $1,599.00 (Ex GST) save $192.00**
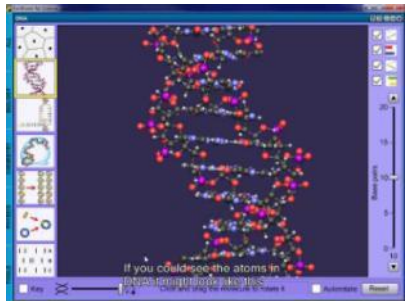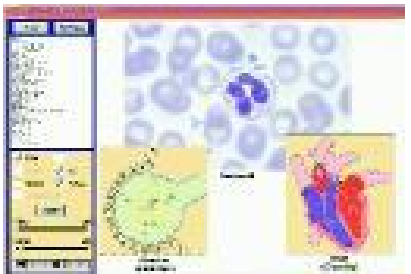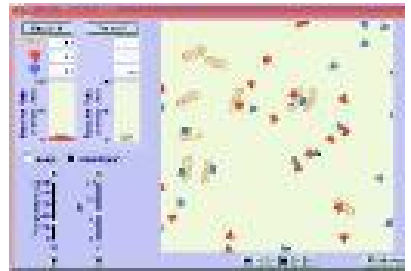
# Arid Adaptation-Plants

Students must use their problem solving skills to construct a plant which can survive and reproduce in the selected climate. Success is easy under temperate conditions, however under the most extreme arid conditions only those which use special adaptations can hope to survive.

### Features:
- 30 game levels ranging from temperate to an extreme arid climate.
- 12 arid adaptations to aid survival.
- Description of each adaptation for easy learning.
- Adaptations which help survival include: Small leaves, Succulent leaves, Thick cuticle, Leaf hairs, Rollable leaves, Stem photosynthesis, Stem water storage, Spines, Sunken stomates, Stomata hairs, C4 and CAM photosynthesis.
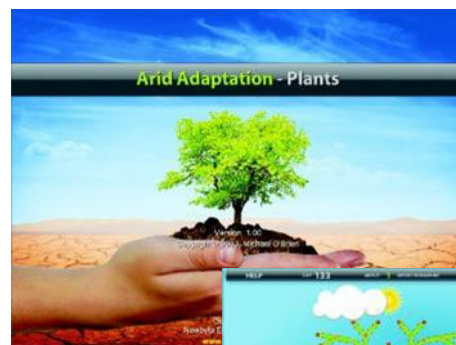
# Biology Multimedia

## Drosophila Genetics Lab *Version 6*

**Save months of breeding with this powerful NEW software!**

In this simulation students count, categorise and record each fly, making this a realistic science experience. Superb graphics enhance the unlimited generations and flies.

**7 types of inheritance:**

Single Gene
Double Gene
Sex-linked Gene
 Incomplete Sex-Linked Dominance

Linked Gene
Dominant Mutations
Lethal Gene

- Teacher options include control of the number of flies
- **Black-line masters** make lesson preparation easy.
- Reporting on student accuracy makes monitoring simple.
- Linked Gene
- Dominant Mutations
- Lethal Gene
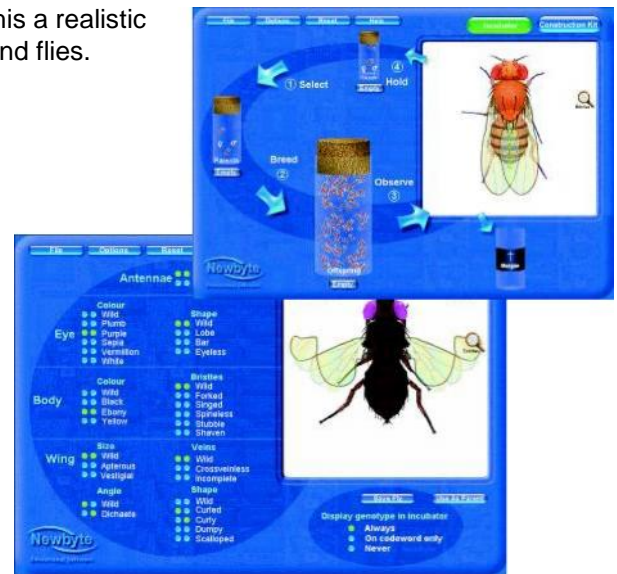
## Food Webs - Ponds

**Construct hundreds of food chains and webs using up to 45 organisms and then model the populations.**

Incorporate digital photography and data logging. Use your own species pictures in the software. Students can replace existing pictures with those they have taken during their own pond study and even enter their own species into the environment. Integrate physical data collected about your pond by altering the physical parameters of the environment. The modelling software then works with your own ponds physical data and species.

- Personalise the software by having your school pond as the title, or background.
- Change the web easily during modelling to allow for the introduction of species and a changing ecosystem.
- Control levels of Sewage Pollution, Phosphate, Nitrate, Turbidity and Thermal Pollution.
- Various graph types including biomass pyramid.
- Data can be saved as text or printed out for later analysis.
- Food Webs and modelling data can be easily saved.
- Model your food webs for up to 2 years.
- Web site support with additional species, pond environments and much more.

## Evolution: Genetic Diversity

Highly visual and interactive, this software will captivate your students as each scenario unfolds. While graph and data displays are available, its visualisation of the genetic variation will keep their interest.

- Control sea level.
- Cause various disasters.
- Populate islands with single beetles or groups.

**Encourage your students to discover, through experimentation, how population numbers and allele frequency are affected by:**

- Isolation.
- Migration.
- Disasters.
- Founder effect.
- Small populations.
- Population bottlenecks.
- Hardy-Weinberg principles
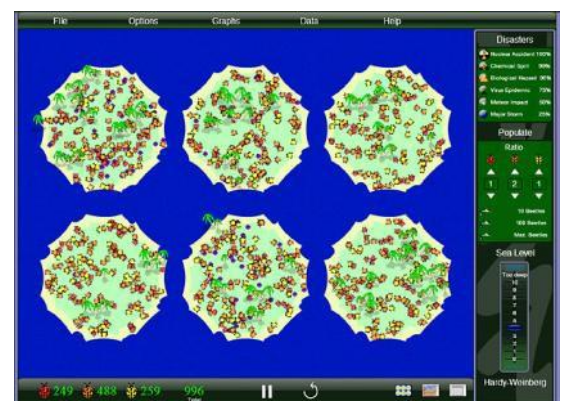
# Biology Multimedia

## Food Webs: Australian Woodlands (Version 4)

**Site Licence $328.90**

This outstanding software allows your students to investigate the food chains and webs of one of our most common community types.

- Construct hundreds of food chains and webs using the 30 organisms available.
- Discover the relationships between organisms
- Investigate the influence of introduced species such as the rabbit, fox and cat.
- Change the web easily during modelling to introduce new species, or ecosystems.
- Up to 30 species can be modelled over 25 years.
- Control rainfall, droughts and bushfires.
- Introduce farming into the ecosystem.
- Save data as text files for later analysis in speadsheets etc

## Pea Plant Genetics (Version 6)

This GENETIC BREEDING SIMULATION enables your students to collect and analyse raw data from experiments which take only a few minutes instead of months. NEW Features include:

**Site Licence $328.90**

- Use labelled jars to record each plant type, or simply drop the plant into the morgue and record.
- 6 genotype display modes including TpTp, TT or +t.
- Teacher blocking of genotype dominant gene display.
- Unlimited generations.
- Unlimited plants in each generation.
- Hold selected plants, then use them as the next parents.

Inheritance investigated includes:
- Single, Double and Triple Gene
- Co and Incomplete Dominance

108 reproducible pages contain 24 experiments to guide students through 5 types of inheritance.

## Natural Selection Series

**Site Licence $137.50 per Title**

**All three only $341.00**

### Peppered Moths
This simulation directly involves the student in the predation process by allowing them to prey on moths under different pollution conditions. Your students will gain a first-hand understanding of why a population of coloured moths can be replaced by one dominated by dark colours as a result of a change in the physical environment. Graph and data tracks population variations.

### Frogs
This simulation directly involves the student in the predation process by allowing them to prey on frogs of different colour and poison characteristics.Excellent for advanced studies in natural selection, this program explores the selective advantage of brightly coloured poisonous frogs. Mimicry as a survival strategy can also be studied. Population trends are observed and analysed over 20 generations.

### Beetles
Examine the effects of predation on subgroups within a population and the effect of population size on the viability of such subgroups. Great for dealing with ecological concepts which relate to population size, diversity and evolution. Students can alter the initial beetle population and relative predation rates of the three beetle colours over 15 generations.
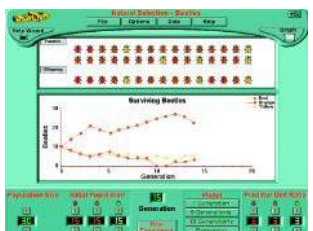
# Biology Multimedia

## eDNA

eDNA is a digital tool for the simulation of genetic engineering exercises. eDNA makes it possible for you to carry out as many DNA-exercises as you want, with as many students as you like.

eDNA is designed to simulate real-life research with an intuitive interface that makes it easy to get started. Manuals are included with the eDNA software describing the theoretical background of exercises in detail. In eDNA you can carry out several different exercises, with many different genomes and enzymes. The software includes an electrophoresis apparatus, a PCR-apparatus and dishes for bacterial culturing. eDNA is non-linear, which means that genomes and enzymes may be combined in any chosen order.

- **Restriction Analysis**
- **DNA Fingerprinting** using RFLP and PCR
- **Paternity Analysis** using RFLP and PCR
- **Phylogenetic Trees** using RFLP and PCR
- **Genomic Library**
- **Sequencing and Translation**

Topics covered include:

- DNA, DNA Fingerprinting, Electrophoresis
- Paternity Analysis, Phylogenetic Trees
- Construction of DNA Map and Genomic Library
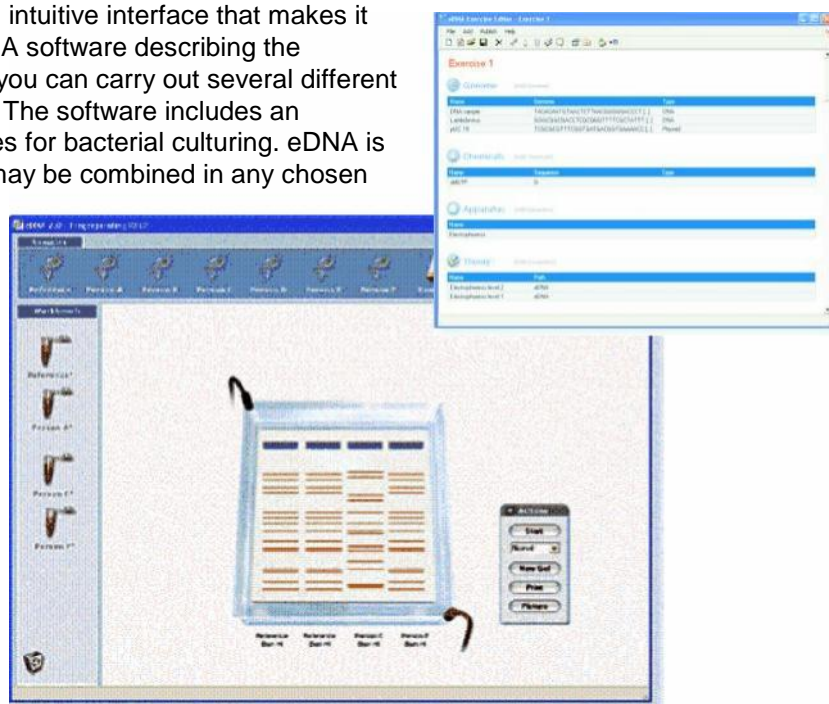
## Rocky Shore Ecology

Your students will be able to study the physical, chemical and biological factors influencing the ocean rock platform communuties of N.S.W. and Victoria or any other state if you wish to build your own transects. This software is also excellent as a comparision study to allow your students to contrast the rock platform with another environment. This software features **an extensive manual of blackline master** which includes:

- Classroom studies
- Computer simulation studies
- Extensive organism profiles
- Blank data sheets for your own field trip

Study sheets include:

- ♦ Zonation
- ♦ Adaptations
- ♦ The Environment
- ♦ Transect Studies
- ♦ Transect Profile
- ♦ Comparison Studies

## Organic Chemistry  Contact us for pricing.

Organic Chemistry is a modular resource with a menu driven structure that makes it ideal for any chemistry syllabus. Topics covered include

- ♦ carboxylic acids
- ♦ alkanes and alkenes
- ♦ amides and amines
- ♦ DNA and amino acids
- ♦ halogenoalkanes
- ♦ hydrocarbons
- ♦ arenes  and isomerism

- ♦ bonding - hybridisation
- ♦ nitriles
- ♦ carbohydrates
- ♦ polymers
- ♦ new GCSE - KS4
- ♦ proteins
- ♦ carbonyl compounds
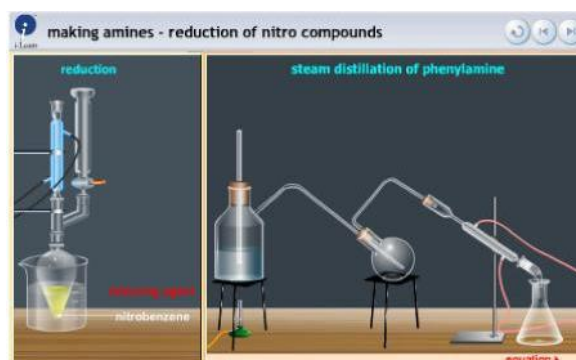
# Chemistry Multimedia

## Yenka Chemistry

Yenka is the successor to Crocodile Clips and is one of the most popular software titles used in schools around the world.

Yenka Chemistry is a highly interactive virtual lab, which lets you model chemistry experiments safely and easily. Simulate experiments however you wish. Model reactions using over 100 different chemicals. Powerful graph tools let you follow your experiments' progress.

- Inorganic and physical chemistry - model experiments using a wide range of chemicals, equipment and glassware, graphing data as your simulations run.
- Electrochemistry - investigate electrolysis, electroplating and cells, choosing from a range of metal or carbon electrodes, and 28 different electrolytes.

**Absorb Chemistry** is an interactive online course for secondary schools, It is divided into units, so you can follow the course all the way through, or use the units individually. Each unit provides a compelling narrative supported by interactive animations, unique simulations, videos of key experiments, and exercises to ensure concepts have been understood.

Visit our website, www.logint.com.au, and follow the links to sample Yenka and Absorb. Contact us for pricing.
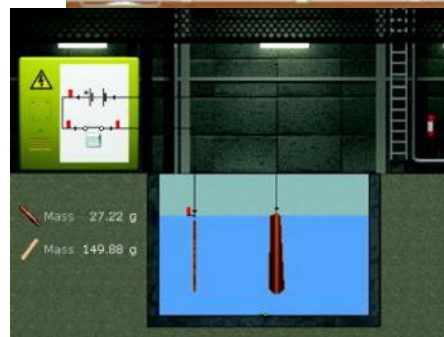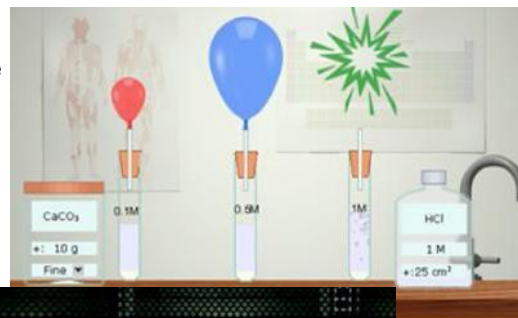
## Sulphuric Acid Production

**Site Licence $328.90**

Investigate the production of sulphuric acid with this interactive simulator which includes a molecular view of the catalyst surface and a detailed tutorial section.

In the model your students can examine:
- The path of the gases.
- Reactions involved in the process.
- The contact process and the effect of different catalysts.
- Effect of gas concentrations, pressure and temperature.

The catalyst section allows students to investigate the molecular interactions while still controlling the processes.

The tutorial section develops a greater understanding of the various phases in the production of this important chemical. Topics s covered include:
- Historical aspects.
- $SO_2$ production.
- The Contact Process.
- Absorption, storage and transport.

## Acid/Base Titrations (Version 4)

**Site Licence $328.90**

Your students can carry out titrations in minutes - with no broken glassware or spilt solutions.

### Features
- 100 Unknown solution strengths, allowing teachers to set assignments.
- Student Quiz Options which allow your students to test themselves.
- Save data as text for later analysis.
- Save the last 6 titrations for instant recall.
- Print graphs and data for the last 6 titrations.

### Indicators available:
Methyl Orange, Methyl Red, Litmus, Bromothymol Blue, Phenolphthalein, Hypothetical IDEAL Indicator

# Chemistry Multimedia

## Haber Process

This simulation helps simplify the concepts involved in the Haber Process and the production of ammonia. It is ideal for teachers and students of all levels.

Includes Experiment Workshests to study.

**Site Licence $328.90**

### Features
- Data can be printed and exported for later use.
- Investigate ammonia equilibrium in a closed system, with and without catalysts.
- Full control over temperature, pressure, catalyst, gas concentrations and their units.
- Extensive graph options allow the students to observe up to 12 different variables.
- Energy, maintenance and raw material costs can also be altered to help economically oriented investigations.
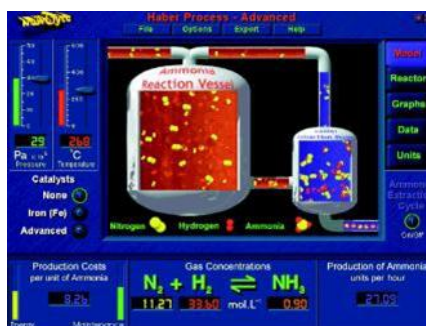
## Enzyme Lab Version 6

Enzyme Lab encourages the use of scientific method, experimental design and discovery learning. The effects of pH, temperature, enzyme concentration and substrate concentration variation are easily demonstrated. Enzymes studied include Pepsin, Trypsin, Catalase, Amylases, Hydrolases and Lypases

**Site Licence $438.90**

This package also features an extensive manual of blackline masters which include studies such as:

- Enzymes as Catalysts
- Enzyme Structure, Enzyme Action
- Factors Affecting Enzyme Action
- Practical Uses for Enzymes
- Enzyme Nomenclature

## Electrochemical cells

Introductory and advanced electrochemical experiments can be conducted with this software using integrated experiment notes. **Control your electrode, salt, salt concentration and temperature at the touch of a button. Simple yet powerful screen layout** lets you select thousands of cell variations.

**Site Licence $328.90**

- Display half-cell & overall equations
- Electron flow
- Voltage
- Anion and Cation movement
- Anode and Cathode
- Oxidation and Reduction site
- E° for each half-cell
- E for each half-cell
- Electrode decay/deposits

**Unknown electrodes** enable your students to investigate the relative activity of unknown metals and even determine their E° values. **Export or Print** data files and experiments.**Print cell layout** or entire screen.**Create your own custom experiments** which will appear within the program.

## Gas Equilibrium Version 2

Equilibrium experiments at your fingertips! Using NO$_2$ and HI equilibrium reactions your students will easily investigate the physical and chemical factors which influence gas equilibrium. This versatile simulation allows experimental conditions to be controlled, including

**Site Licence $328.90**

- Gas Concentrations either by moles$^{-1}$L or number of moles.
- Volume, Pressure, Temperature.
- Add an inert gas **with or without changing the volume.**
- Introduce a CATALYST.

## SUNFLOWER: MULTIMEDIA LIBRARY FOR SCIENCE : CHEMISTRY

**Site Licence $218.90 per Title**

The Multimedia Library is a suite of eleven multimedia programs for secondary chemistry with a wealth of resources including examples, activities, worksheets and teacher's notes in PDF format. It includes nine titles and two tools-Data Analyzer and Resource Builder. For complete details and preview downloads visit our web site at www.logint.com.au.

### Atoms and Ions
Using animation this software models the atom to
- Examines nuclear structure and determine atomic and mass numbers.
- Demonstrates how electrons are arranged in atoms with shell diagrams.
- Demonstrates how ions have stable electron arrangementss.

### Bonding
Uses a "sketchpad" to assist construction of bonding diagrams.
- Iillustrates covalent and ionic bonding.
- Explains why elements only combine with certain other elements and in set ratios.
- Explores the bonding of complex molecules

### Diffusion
Using animation this software illustrates diffusion of liquids and gases.
- Demonstrates how the particle model of gases and liquids explains diffusion.
- Demonstrates evaporation of liquids in vacuum and gas.
- Demonstrates the relationship between rate of diffusion and temperature.

### Rates of Reaction
This software uses collision theory to model rates of reaction.
- Shows how particles must collide in order to react.
- Investigates activation energy and the rate of reaction
- Illustrates the relationship between energy of collisionsrates of reaction
- Create virtual investigations without using chemicals

### Dissolving
An interactive program that uses simulation and animation to
- demonstrate how substances dissolve.
- illustrate relative solubility of common substances.
- examine the factors effecting solubility.

### Elements, Compounds and Mixtures
- Explain that different elements are made up of different atoms.
- Show that atoms rearrange in chemical reactions.
- Show how compounds are made of atoms combined in a fixed ratio.
- Demonstrate the differences between pure substances and mixtures.
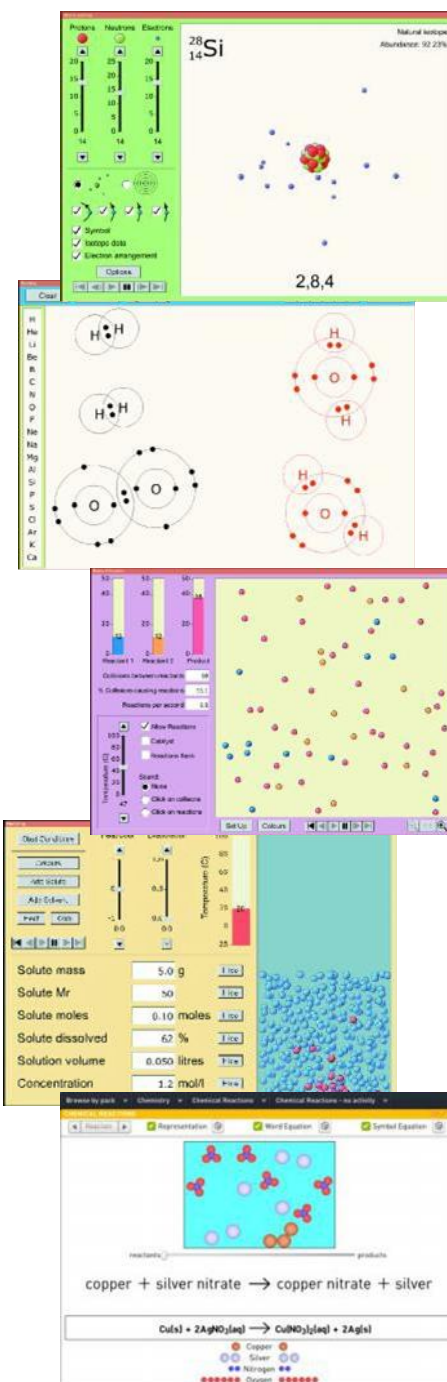
Also available , 3D Periodic Table, Solids Liquids and Gases, Chemical Reactions
**All 9 titles available for $1,599.00 (Ex GST) save $192.00**

# Physics Multimedia

## Krucible: Virtual Physics Laboratory

Many physics concepts can be difficult to explain and even harder to demonstrate practically. But by using real-time simulation, Krucible's virtual laboratories bring physics to life.

With Krucible students can construct their own virtual experiments, take measurements and plot results, or they can explore 300 prepared activities and challenges - all in real time.

Krucible's four virtual laboratories create a perfect environment for learning and investigation. Graphically rich simulations instantly engage students of all ages.

Students can:
- plot experiment simulation data with a dynamic graph plotter
- use a notepad to record observations
- save and share experimental outcomes
- complete over 150 activities applying knowledge to more than 150 real life challenges.

- Demonstrates difficult physical concepts clearly.
- Encourages students to question and explore.
- Teaches experimental method and observational skills.
- Ideal for whole class or individual learning.
- Allows pupils to apply theory to real life challenges.
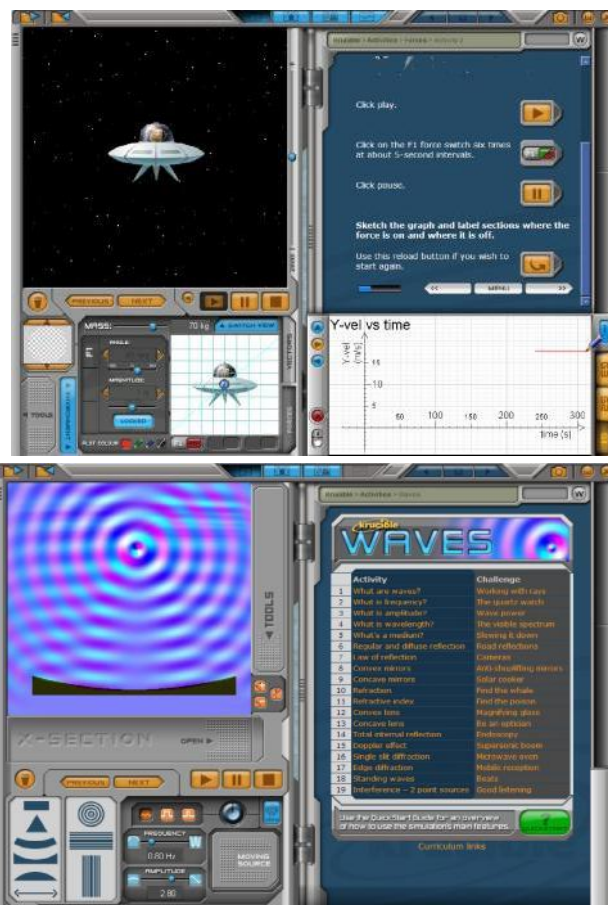
## TLI Motion: Video Analysis Software

View digitised video clips of real world physical events on your computer screen for frame by frame motion analysis. Collect Position-Time data on screen, then use the software's powerful analysis features to study velocity, acceleration, force, energy, momentum. After collecting a video the following quantities may be graphically analysed.

| | | |
|---|---|---|
| • **Position** | • **Velocity** | • **Acceleration** |
| • **Force** | • **Momentum** | • **Energy** |
| • **Angular Position** | • **Angular Velocity** | • **Angular Acceleration** |
| • **Angular Momentum** | • **Torque** | |

All new easy to use interface. Bonus World in Motion software on CD. Analyse motion of one, or two objects. Use the software to analyse and produce a range of graphs demonstrating

- Position vs Time and Velocity vs Time
- KE and GPE
- Conservation of Momentum during collisions
- Projectile Motion

*" A brilliant concept that allows analysis of otherwise impossible situations."* Roger Kennett, Physics Teacher, The Kings School.
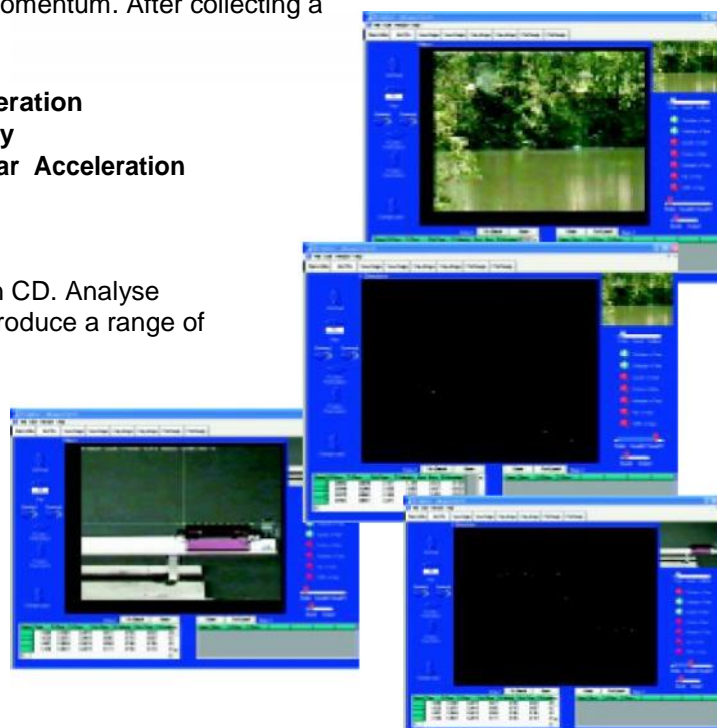
**Download evaluation version from our website**

# Physics Multimedia

## Interactive Physics™

Interactive Physics makes it easy to integrate modeling and simulation into your physics curriculum. Create models by drawing onscreen with a powerful and easy-to-use graphic interface. Measure attributes of your objects like velocity, acceleration, momentum, and energy. You can also display these measurements as numbers, graphs, or animated vector displays. Widely adopted by many textbook publishers and with more than half a dozen awards and thousands of educational users, Interactive Physics is the standard in physics modeling and simulation solutions.

- Create objects by drawing circles, blocks, and polygons
- Measure velocity, acceleration, force, energy, etc.
- Create ropes, springs, dampers, pulleys, slots, actuators, and motors
- Simulate contact, collisions, and friction
- Vary air resistance, gravity, or material properties
- View results as numbers, graphs, and animated vectors
- Hear and measure sound volumes, sound frequencies, and Doppler effects

Interactive Physics is ideal for the new Australian national curriculum

| | | | |
|---|---|---|---|
| **Single User $375** | | **10 User** | **$1,499** |
| **20 User** | **$2,253** | **30 User** | **$3,006** |

Go to http://www.logint.com.au/featured.html to watch a video overview of Interactive Physics
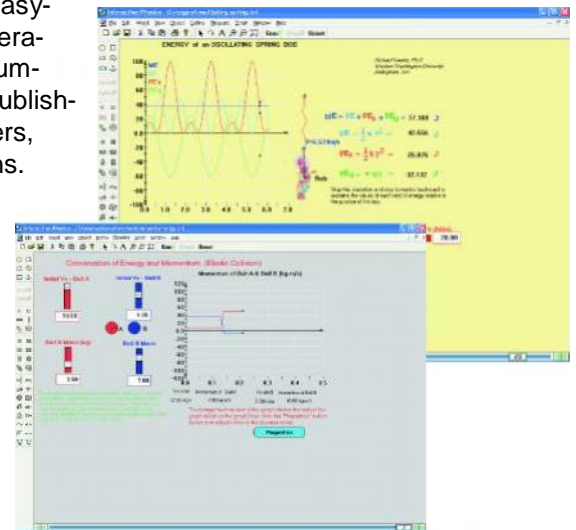
## SUN FLOWER: MULTI MEDIA LIBRARY FOR SCIENCE : PHYSICS

The Multimedia Library is a suite of eleven multimedia programs for secondary physics with a wealth of resources including examples, activities, worksheets and teacher's notes in PDF format. It includes nine titles and two tools-Data Analyzer and Resource Builder. For complete details and preview downloads visit our web site at www.logint.com.au.

**Colour:** Colour gives you a virtual stage with which to explore the affects of coloured lights on coloured surfaces.

### Force and Motion:

Forces and Motion gives you 3D simulations of eight classic physics experiments including linear motion, Newton's Laws of Motion, Conservation of Momentum and Energy.

### Motors and Generators:

Construct a 3D model of a motor or generator and explores how a wire with a current moves in a magnetic field, AC and DC Commutators.

### Nuclear Physics:

Nuclear Physics is a collection of simulations covering Rutherford's Scattering experiment, Radioactive decay, Fission and fusion reactions.

### Simple Circuits:

Use virtual components to construct series and parallel circuits.

### Sound:

Demonstrates sound wave propagation a medium.

### Waves:

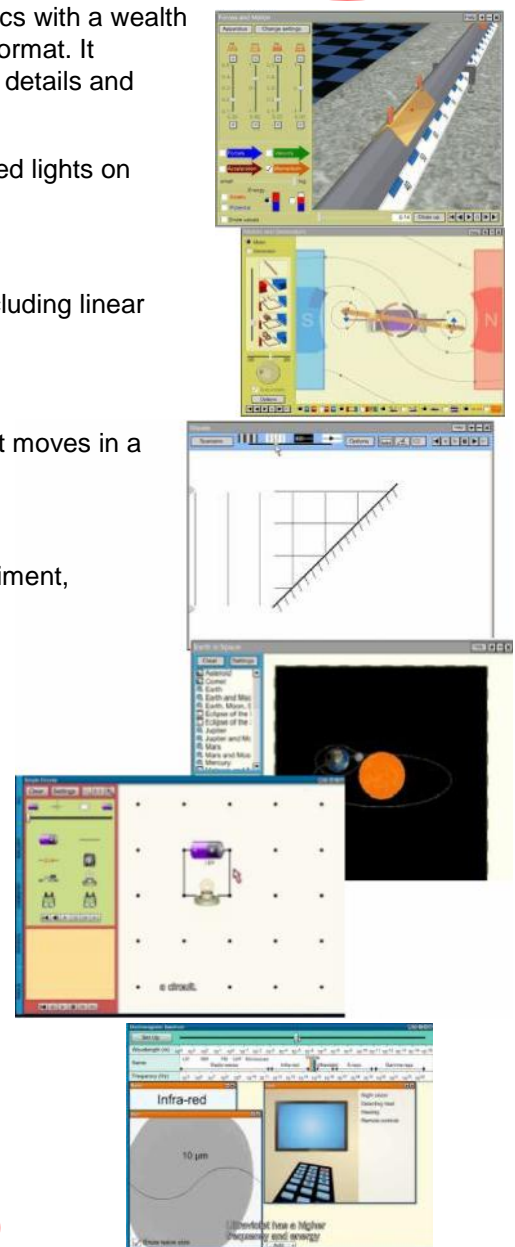Demonstrates Reflection, Refraction, Diffraction and Interference.

### Earth in Space:

Explores the solar system, eclipses, tides, phases of the moon, stellar evolution and more.

### Electromagnetic Spectrum:

Describes sources and applications of the spectrum

**All 9 titles and tools available for $1,599.00 (Ex GST) save $192.00**

## Physics Demonstrations (DVDs)

### Physics Demonstratons in Mechanics

A six part video program which presents a full range of physical demonstrations in mechanics. The series contains a comprehensive collection of video demonstrations, including Newton's Laws, circular motion, projectile motion, conservation of momentum and energy and angular momentum.

**$125 per DVD.  Complete set of 6 DVD $714.00**

### Physics Demonstratons in Light

A two part series presenting a wide range of demonstrations in light including refraction and total internal reflection, resonance and standing waves, Rayleigh scattering, diffraction, double and single slit interference, laser theory and holography.

**$125  per  DVD. Complete set of 2 DVDs $248.00**

### Physics of Space Flight
### (Ideal for NSW Stage 6 Space Topic)

A three part series which presents physics principles as they apply to space flight and space related events. Spectacular NASA footage and computer animation is used throughout.
Part 1: Acceleration Machines: Launching a Space Vehicle
Part II: Physics in Space: Orbital Motion and Re-Entry
Part III: Gravity: Newton's Law of Universal Gravity, "slingshot effect" etc

**$125  per  DVD. Complete set of 3 DVDs $357.00**

**Also available**
**Physics Demonstratons in Electricity and Magnetism (3 DVD set) $357.00**
**Physics Demonstratons in Sound and Waves (3 DVD set)  $357.00**
**Physics Demonstratons in Heat (3 DVD set) $357.00**

## *FOCUS PHYSICS SOFTWARE*

Interactive models, animated sequences and simulated experiments are integrated with reference sections where theory is explained and relevant formulae are derived.

### Focus on Fields

Features 16 interactive topics for senior physics including Alpha Particle Scattering , Motors and Generators, Magnetic Field plotting, Electromagnetic Induction, Force on a Current Carrying conductor, Mass Spectrometer, Millikan's Oil Drop Experiment, Motion in a Uniform Gravitational Field, Planetary orbits Thompson's experiment for e/m

### Focus on Waves

Features 16 interactive topics covering the study of fields at the senior physics level including Absorption of Gamma Rays, Diffraction Grating, Electromagnetic waves, Hydrogen Emission Spectra, Diffraction, Polarization, Transverse and Longitudinal waves, Measurement of the Speed of Sound , Standing waves, Superposition of waves, Young's Double Slit Experiment.

**Site Licence  $218.90 per Title**

### Essential Science 9-14

Essential Science 9-14 features a wealth of interactive topics and simulated experiments to help students improve their investigative skills. Each topic area is accompanied by on-screen instructions, questions and prompts. A fully editable test sections and a teachers help file with complete with sample results for experiments is also included. Focus on Essential Science 9-14 is suitable for use with junior secondary students in years8 to 11. Topics include:

**The Earth in Space**
**Motion and Forces**
**Light and Sound**
**Energy, Heat and Temperature**

**Magnets and Electromagnets**
**Solids, Liquids and Gases**
**Electricity**

**Site Licence $218.90**
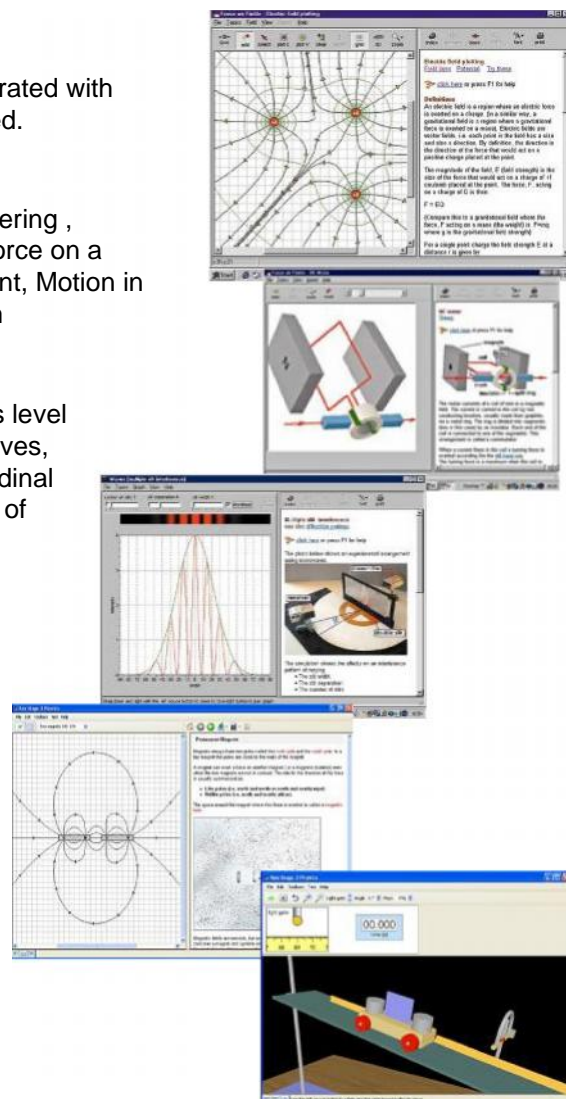
# Physics Multimedia

## Exploration of Physics  Simulation Library Volumes I and 2

**A comprehensive library of physics simulations in two volumes.**
Volume 1 includes 64 interactive simulations covering – mechanics, waves, heat, fluids, electricity & magnetism, and optics The program uses a simulated lab approach allowing students to perform in-depth investigations.

Volume 2 includes 100 computer simulations encompassing a full-range of physical science topics. This software program utilizes a conceptual approach to teach physical science principles. The simulations are categorized into three learning levels: 1) introductory, 2) intermediate, and 3) advanced; addressing the needs of physics in junior and senior high school.

| | | | |
|---|---|---|---|
| **Single User** | $324.00 | **Lab-10 License** $634.00 | |
| **Lab-30 License** | $928.00 | **Unlimited Site Licence** $1,255.00 | |
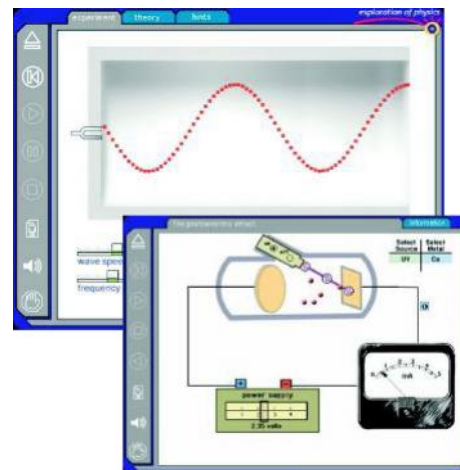
## Electrostatics 3D and Magnetism 3D

Electrostatics 3D is an interactive software program that allows students to study electrostatics in a visually spectacular fashion! Electrostatics 3D utilizes colorful two-dimensional and three-dimensional graphics to display electric potential and electric field lines for various types of charged objects.
Similar to *Electrostatics 3D*, *Magnetism 3D* is an interactive software program that allows students to study magnetic fields using a variety of stunning visualization methods. *Magnetism 3D* utilizes colorful two-dimensional and three-dimensional graphics to display magnetic field lines for current-carrying straight wires, current-carrying wire loops, solenoids, and permanent magnets.

**Individual Title**

| | |
|---|---|
| **Single User** | $231.00 |
| **Lab-10 License** | $417.00 |
| **Lab-30 License** | $619.00 |
| **Unlimited Site Licence** | $928.00 |

**Both Titles**

| | |
|---|---|
| **Single User** | $380.00 |
| **Lab-10 License** | $712.00 |
| **Lab-30 License** | $1,068.00 |
| **Unlimited Site Licence** | $1,557.00 |
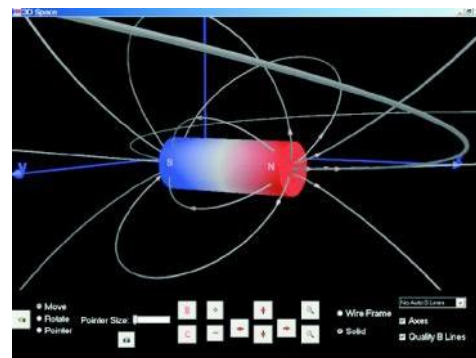
## Virtual Astronomy Laboratory:  Computer-Based Labs for Introductory Astronomy

*Virtual Astronomy Laboratory* puts some of astronomy's most useful instruments into the hands of students - precise telescope controls to measure angular size; a photometer to measure light intensity; and a spectrograph to measure Doppler-shifted spectral lines. Time-lapse and time-exposure photographic observing methods are also simulated.

**Astronomy Lab Topics:**
- Latitude, Axial Tilt, and Length of Day
- Celestial Coordinates
- Angular Size
- Measuring Planet Size
- Kepler's Laws
- Lunar Motion
- Planetary Motion
- Measurement of Saturn's Rings

- Stellar Occultation
- Circumpolar Stars
- Stellar Parallax
- Proper Motion of Stars
- Radial Motion of Stars

| | |
|---|---|
| **Single User** | $324.00 |
| **Lab-10 License** | $634.00 |
| **Lab-30 License** | $928.00 |
| **Unlimited Site Licence** | $1,255.00 |
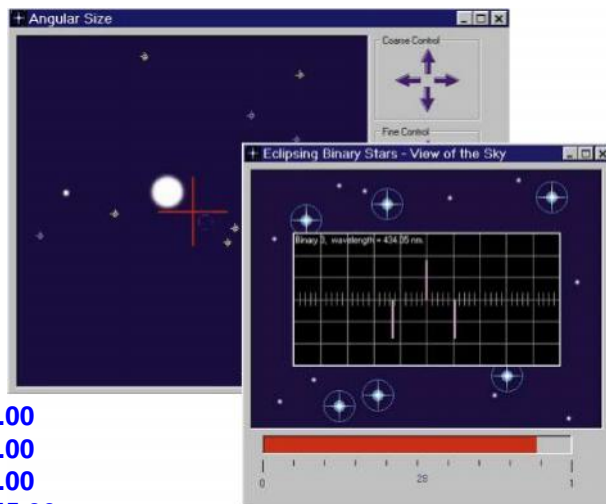
## Radioactivity Series

**DISTANCE** Experiment with the three types of radiation in both vacuum and air! Examine the relationship between radiation levels and distance from various radioactive sources.

**ALPHA SCATTERING**  Simulate the work of Rutherford and more. Investigate the relationship between metal thickness, particle energy, target atomic number and alpha particle back scatter.

**PENETRATION** Experiment with alpha, beta and gamma radiation and a selection of target materials! Examine the effect of putting different barriers between various radioactivity sources.
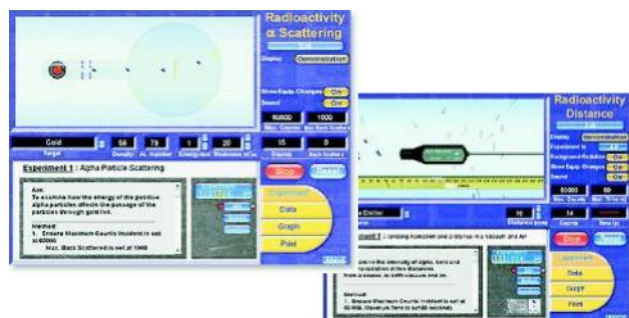
**Site Licence  $129.00 per Title**
**All three only $375.00 including site licence**

# TLI WaveLab - Dual Channel Oscilloscope and Signal Generator

## TLI Computer Wave Gen: Computer based Dual Channel Signal Generator

### Ideal for use with Interactive Whiteboards

Turn your computer into a powerful Wave Laboratory. Create sine, square and triangle waves. Demonstrate beats, interference and other wave properties with our Computer Wave Lab - the perfect companion to our range of data loggers.

### How it Works

By developing software that uses your computer's internal oscillator and multimedia capabilities to drive our interface, we have created a powerful Computer Wave Lab that replaces traditional signal generators at a fraction the cost. As each channel (speaker) is controlled individually we can create two sources of waves from the one oscillator ensuring the frequencies do not 'wander'. These "sources" can then be output to the computer's speakers, or through the Wave Lab interface to your oscilloscope, or data logger.
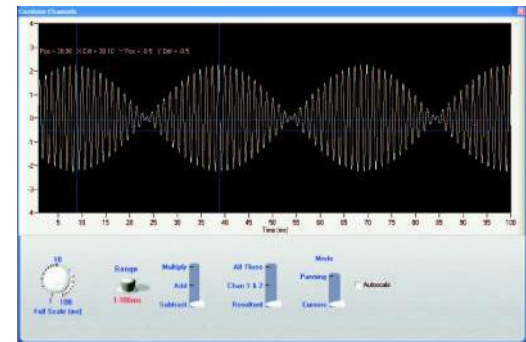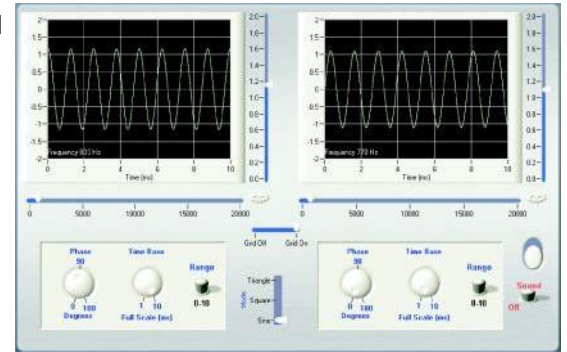
### Features

- Generates waves of variable frequency to 20 kHz.
- Dual channel output to your data logger, or oscilloscope.
- Control phase diffiference between the two wave sources.
- Simply play through your computer speakers.
- Use the software on its own, or with the Computer Wave Lab interface.
- Oscilloscope mode converts the TLI WaveGen into a dual channel CRO for measurement of amplitude, period and phase diffrerence.
- Use the oscilloscope mode to Add, subtract and multiply waves.

## TLI CRO Computer Dual Channel Oscilloscope

### (Release 2 includes Voltage calibration)

TLI CRO turns your PC into a dual channel oscilloscope. Using your PC's sound card you can view input from a microphone, or optional interface. TLI CRO provides a traditional oscilloscope view with gain, offset, timebase, and trigger controls.

Now with our new oscilloscope probe to connect to other sources besides sound, such as AC voltage and current sources.

### Features

- 16-bit acquisition
- 44 kHz sampling rate
- Optional oscilloscope probe for use with AC voltage sources etc
- Ideal for schools and other educational organisations.

### Pricing

| | |
|---|---|
| TLI WaveGen (Site) | $332.00 (Ex GST) |
| TLI CRO (Site) | $250.00 (Ex GST) |
| TLI WaveLab System | $490.00 (Ex GST) |
| (TLI CRO and TLI WaveGen Site) | |
| TLI WaveGen (Single User) | $75.00 (Ex GST) |
| TLI CRO (Single User) | $75.00 (Ex GST) |
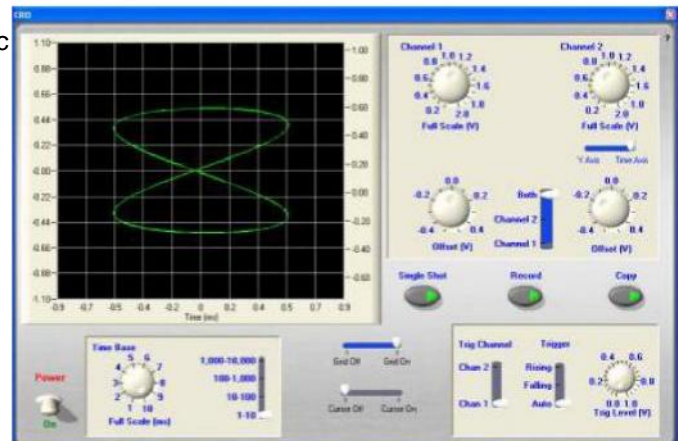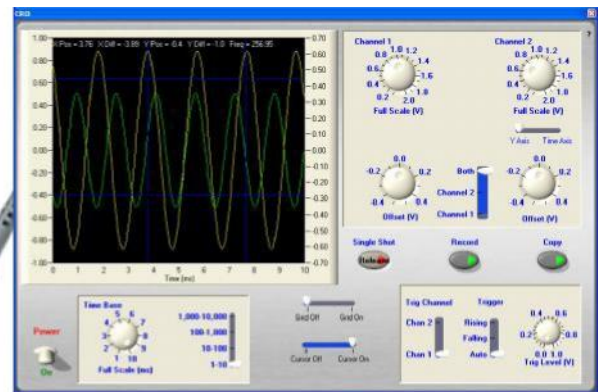
**Site Price includes unlimited school site licence and WaveGen Interface.**
**Download trial version from our website.**

**Developed in Australia by**
**The Logical Interface**

# Physics Multimedia and Electronics

## Yenka and Absorb Physics

**Yenka Physics** is the successor to Crocodile Clips and is one of the most popular software titles used in schools around the world.

Yenka Physics is a highly interactive virtual lab, which lets you model chemistry experiments safely and easily. Simulate experiments however you wish: design circuits and optical systems, investigate wave propagation or accelerate masses. Powerful graphing tools let you follow your experiments' progress.

- Light and Sound - Experiment with sound, water and light waves,
- Force and Motion - Investigate projectiles, gravity and motion.
- Electricity and Magnetism - Simulate power generation and transmission, and electrical circuits.

**Absorb Physics** is an interactive online course for secondary schools, covering physics and advanced physics. The unique simulations, interactive animations, and videos, are linked by an involving narrative, providing the basis for an interactive learning experience.

Visit our website, www.logint.com.au, and follow the links to sample Yenka and Absorb. Contact us for pricing.
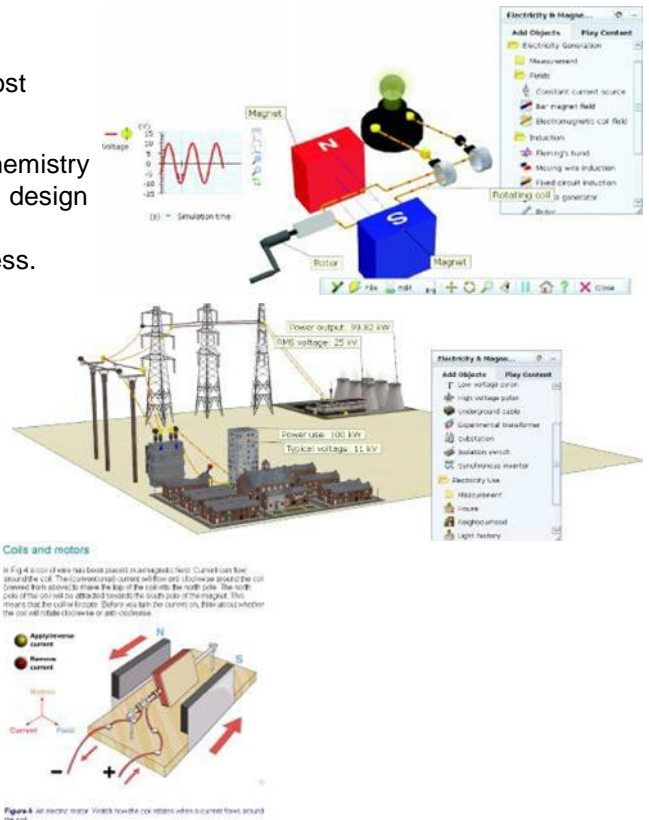
## Hodson INDUCTION KIT

The **'Hodson INDUCTION KIT'** provides a comprehensive set of equipment for investigating Magnetic Induction, Transformers and AC/DC Motors.

Students can

- assemble their own transformers, motors and generators and
- connect them to our TLI Wave Lab to control input amplitude and frequency, and our data loggers, or oscilloscopes to view the output.
- construct and investigate Induction Motors.
- investigate AC theory and resonance.
- measure the holding strength of an electromagnet and compare the holding strength between an AC and a DC magnet
- make a vibrator or a buzzer etc.                    **$165.00**

## Power Supplies from IEC - Australian Made

### Low Voltage  MiniPack AC/DC
A compact power supply with AC/DC output voltages of 2,4,6,8,10,12 V.
DC rectified and unfiltered. Current  DC 5 A max. AC 6 A max.
AC and DC can be used concurrently. Ideal for classroom use.      **$115.50**

### High Voltage Supply
Input Voltage 220V-240V
Output 0-500V DC, 0-300V /AC 50 mA max. Inbuilt Voltmeter      **$510.00**

### Extra High Voltage Supply
Input Voltage 220V-240V
Output 0-5000V DC, 3 mA max.Inbuilt Voltmeter                **$605.00**

## Photo-Electric Effect

Uses a high sensitivity gas filled photo tube as a detector. Includes calibrated light filters of known wavelength and compact 12V light source. Ideal for investigating the Photo-electric Effect and              determining Planck's Constant.      **$561.00**

**For more information on our range of electronics for physics go to www.logint.com.au/html/products.html and follow the link to our electronics.**

# Electronic Balances

## Adam Balances from $69.00 (Ex GST)

Adam Balances provide a range of precision and pricing that make them ideal for educational applications. The Dune series provide economical entry level balances, while the Core series is an excellent choice for simple operation, economy and higher resolution. The Highland series are lightweight, rugged, precision, portable balances suitable for a wide range of applications.

### Features of the Highland Series include

- 15 weighing units. Zero Tracking. Backlit LCD display.
- Capacity tracker. ShockProtect™ overload three-point protection.
- Can be stacked for storage (120mm pan size only).
- Removable draught shield (120mm pan size only).
- Stainless steel pan. Non-slip adjustable levelling feet.
- Below balance weighing with hanger.
- Battery power (6 x AA Batteries) and AC Adapter.
- Dual tare keys.
- Simple 4 button operation.
- Internal or External calibration

Visit our website www.logint.com.au for our complete catalogue, pricing and available discounts for Adam balances.

## Ohaus Balances from $288.00 (Ex GST)

The Ohaus® Scout *Pro* offers superior performance in a portable balance. This top selling, affordable, portable balance offers more choices and more performance than ever before. **Capacity:** 200 g to 6000 g and **Resolution:** 0.01 g to 1 g.

Ohaus Adventurer *Pro* balances are ideal for general laboratory, industrial and educational applications requiring multiple weighing units. These balances are the economical way to weigh with precision. **Capacity:** 65 to 260 g **Resolution:** 0.1 mg.

Pioneer analytical balances are designed for basic routine weighing in a variety of laboratory, industrial and education applications. With the right combination of performance and features, Pioneer balances offer uncomplicated performance for all your basic weighing needs. **Capacity:** 65 g to 210 g **Resolution:** 0.1 mg

Contact us for our special Ohaus pricing.

## Hi Resolution AHT Series Balances $390.00 (Ex GST)

The AHT Micro Weighing Scale is highly accurate. Large high contrast blue backlight LCD display. Function Modes include Counting, Weighing and Percentage. AHT can also connect to a PC or Printer.

### Features of the AHT Series include

- High Accuracy with two options 600 x 0.01g, or 3000 x 0.05g.
- Built-in Rechargeable Battery
- Total of thirteen selectable units available (g,ct,lb,oz,dr,GN,ozt,dwt,MM,tl.J,ti.T,tl.
- Counting, Weighing, Percentage
- Auto Blue Backlight
- Stainless steel pan. Non-slip adjustable levelling feet.
- RS-232 Serial Interface to connect to PC, or printer
- Includes Windshield.

**Contact us for pricing and ranges of our electronic balances or goto www.logint.com.au/ html/products.html and follow the links to our online catalogue.**

In keeping with our commitment to providing robust, reliable products for science education TLI is proud to introduce our new range of environmental portable sensors and bench top meters for measuring temperature, pH, DO$_2$ , salinity and TDS. Please visit our website www.logint.com.au and go to Products -> Electonic-> Environmental for the full product range and pricing.

## Milwaukee Meters: pH, Conductivity, TDS and Salinity $80.00 (Ex GST)

Milwaukee's economical testers are easy-to-use and low cost instruments designed to reliably measure pH, EC or TDS. Measuring electrical conductivity (EC) is the best way determining salinity or dissolved solids (TDS) in water. Milwaukee provides you with a range of pocket testers that will allow you to measure from very low to very high conductivity solutions. All have automatic temperature compensation. The following models are available

- ♦ **pH 600** Range 0.0 to 14.0 pH. Resolution: 0.1 pH. Accuracy: ±0.1 pH
- ♦ **CD 600** Conductivity/TDS Range 0 to 1,990 ppm. Resolution:10 ppm.  Accuracy: ±2% Full Scale
- ♦ **CD 601** Conductivity/TDS Range 0 to 1,990 µS/cm. Resolution:10 10 µS/cm  Accuracy: ±2% Full Scale
- ♦ **CD 610** Conductivity/TDS Range 0 to 10,000 ppm. Resolution:100 ppm.  Accuracy: ±2% Full Scale
- ♦ **CD 611** Conductivity/TDS Range 0 to  20,000 µS/cm. Resolution:100 µS/cm.  Accuracy: ±2% Full Scale
- ♦ **CD 97** Conductivity/TDS Range 0 to 1,000 ppm. Resolution:1 ppm.  Accuracy: ±10 ppm

## Martini Instruments: pH, Conductivity, TDS and Salinity from $99.00 (Ex GST)

These waterproof instruments have automatic calibration and automatic temperature compensation. The IP67 Waterproof casing and double junction (for pH) replaceable electrode make them suitable also for heavy duty applications.The modular design allows easy electrode and battery replacement and the large dual-level LCD displays pH and temperature. All are supplied complete with calibration solution, batteries, instruction manual and screwdriver (if needed) for calibration. The following models are available

- ♦ **pH55** Range 0.0 to 16.0 pH. Resolution: 0.1 pH. Accuracy: ±0.1 pH. Temp:-5C to 60C
- ♦ **pH56** Range 0.00 to 16.00 pH. Resolution: 0.01 pH. Accuracy: ±0.01 pH. Temp:-5C to 60C
- ♦ **pH58** pH/ORP/Temp Range -2.00 to 16.00 pH,  ±1000 mV, Accuracy of ±0.01 pH,1 mV. Temp:-5C to 60C
- ♦ **EC59** EC/TDS/Temp Range: 0 - 3999 µS/cm, 0-2000 ppm, Accuracy: ±2% Full Scale. Temp: -5C to 60C
- ♦ **EC60** EC/TDS/Temp Range: 0 - 20 mS/cm, 0-10 ppt, Accuracy: ±2% Full Scale. Temp: -5C to 60C

## PAT Series: pH, Conductivity/Salinity, Temperature and mV   (from $210).

These industrial strength, advanced hand held meters provide the perfect solution for field and laboratory measurement. They are ideal for people who want reliable, accurate and easy to use sensors. The large LCD display provides pH, or Conductivity, and Temperature Simultaneously. The following models are available

- ♦ 7011 pH/mV/Temperature
- ♦ 7021 Conductivity/TDS/Temperature
- ♦ 7200 pH/mV/Conductivity/TDS/Temperature

### Features include

- Waterproof housing rated to IP 67 and automatic temperature compensation.
- Memory storeage for up to 20 readings with minimum and maximum recall.
- Backlight screen with low battery and consumption indicator and auto power off after 10 minute

## MW Series: pH, Conductivity/Salinity, Temperature, DO $_2$ and Light (from  $160).

The MW series are waterproof instruments featuring large screen, dual displays and automatic calibration and temperature compensation. The modular design allows easy electrode and battery replacement. A range of models are available for most environmental applications.

The MW600 is a dissolved Oxygen meter with a range 0.0 - 19.9 ppm, 0.1 ppm resolution 1.5% full scale accuracy. It is supplied with a polargraphic DO probe, 3 m cable, and spare membranes, MA9071 oxygen electrolytic solution and 9V battery. For more information on this meter and the full MW series of meters visit our website and OnLine catalogue.

The Logical Interface is not just another importer of educatonal equipment. We design and make our own equipment and continue to expand our locally produced products. We understand teachers needs. The manager, Phil Jones, has taught physics, IT and science in Europe and in Australia. He has been a lecturer in the DipEd program at Sydney Institute of Education (Sydney University). He has a BSc(HONS), MSc(HONS), DipEd. Phil is the author of many of the software titles sold through TLI and regularly presents workshops for teachers around Australia

The Logical Interface 96 Fowler Rd ILLAWONG NSW Australia 2234
Web: www.logint.com.au Email:info@logint.com.au  Phone 02 9541 0367 Fax 02 9541  0535
A.B.N.  26 090 610 969