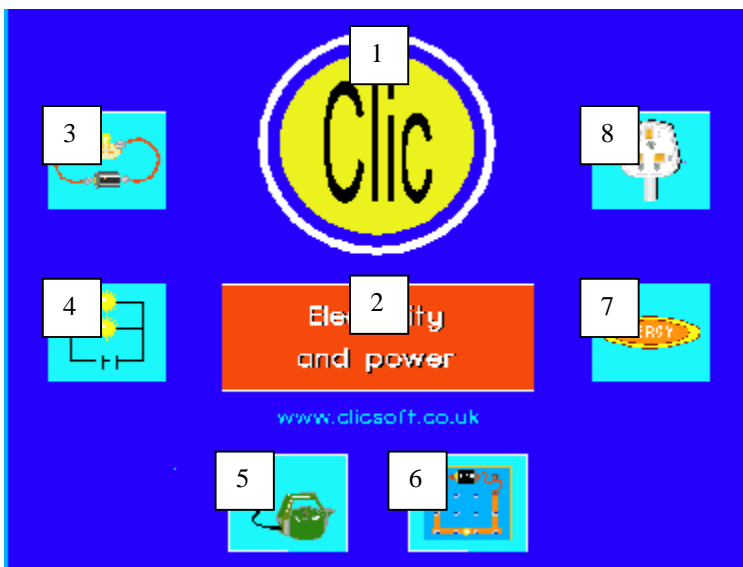


ELECTRICITY AND POWER:

This pack consists of a collection of 37 screens giving a range of Activities on electricity and power, including representing circuits as drawings and diagrams, constructing simple circuits, the role of switches and the main ways of producing electricity.

Although this pack supports most of the requirements for KS2 Electricity and power (see 'The pack and the curriculum' below), it should be used in conjunction with other elements and lead to practical work and / or further research using IT wherever possible.

THE OPENING SCREEN:



The opening screen provides a choice of buttons. The buttons link to the main topic areas, which may be opened in any order.

1. Click on this button for an activity on safety with electricity
2. Click on this button for information about the buttons used on the screens.
3. Click on this button for an activity on circuit drawings.
4. Click on this button for an activity on circuit diagrams.
5. Click on this button for an activity on switches.
6. Click on this button for an activity on circuit boards.
7. Click on this button for an activity on energy (linking to types of power stations).
8. Click on this button for an activity on plugs.

CONTENTS:

Children should be encouraged to click the mouse on the various buttons and on text and graphics with speech support.

1. Electricity is dangerous - completing a poster.
2. A simple circuit - labelling the circuit.
3. Breaking a simple circuit - sentence building.
4. Making a simple circuit - copying a circuit drawing.
5. More circuit drawings - more practice in making circuit drawings.
6. Circuit diagrams - completing a key.
7. Circuit drawings and diagrams - making the correct drawing.
8. Matching circuit drawings and diagrams 1 - finding the right diagrams.
9. Matching circuit drawings and diagrams 2 - finding the right drawings.
10. Varying the brightness of bulbs - choosing the right bulbs.
11. Circuits in series and parallel - describing the differences.
12. Bright or very bright? - putting bulbs in the right places.
13. Lit or unlit - putting bulbs in the right places..
14. Very bright, bright or dim - putting bulbs in the right places.
15. Parallel or series - lit or unlit - putting bulbs in the right places.
16. Controlling electrical devices - making a fact sheet.
17. Circuits with switches - putting bulbs in the right places.
18. Circuits with two way switches - an information screen.
19. Circuit boards - making a fact sheet.
20. Circuit boards - listing ways of breaking circuits.
21. Circuit boards - listing ways of varying the brightness of bulbs.
22. Circuit boards - creating circuits from circuit diagrams.
23. Creating an electrical current - free writing or sentence construction.
24. Parts of a plug – labelling a plug.
25. Sources of energy - a sub-menu screen for the section on power.
26. Producing electricity - fact finding and free writing.
27. Energy from fossil fuels - fact finding and free writing.
- 27a. Combined cycle gas and steam - fact finding and free writing.
28. Geothermal energy - fact finding and free writing.
29. Nuclear energy - fact finding and free writing.
30. Hydroelectricity - fact finding and free writing.
31. Pump storage hydroelectricity - fact finding and free writing.
32. Pump storage hydroelectricity - completing the diagram.
33. Solar energy - fact finding and free writing.
34. Tidal energy - fact finding and free writing.
35. Wind energy - fact finding and free writing.
36. Bio-energy - fact finding and free writing.
37. Sources of energy - advantages and disadvantages of the power sources.

THE SCREENS:

The screens provide a variety of activities including dragging, labelling, sorting and investigative activities. Many may lead to related classroom activities e.g. 'hands on' practical work.

The screens are deliberately basic and uncluttered where appropriate with hidden popups / panels providing additional information, graphics and support.

All the screens have word or picture panels or both which are accessed via buttons. They also have task, answer and research panels, the latter being an additional feature for the KS2 titles.

Children may add to the screens by using the word banks and resource (picture) panels. They may follow the instructions provided on clicking the task button or modify the screens according to their needs. They may check the answer using the answer button and use the arrows to move back and forth between screens.

Software speech is used in the Textease format. Click on the text, speech icons or hot spots where appropriate to hear it spoken.

MY WORLD AND TEXTEASE FORMATS:

This pack requires My World for Windows, My World 3 or Textease to run. Both formats are provided on the CD leaving the choice to the teacher.

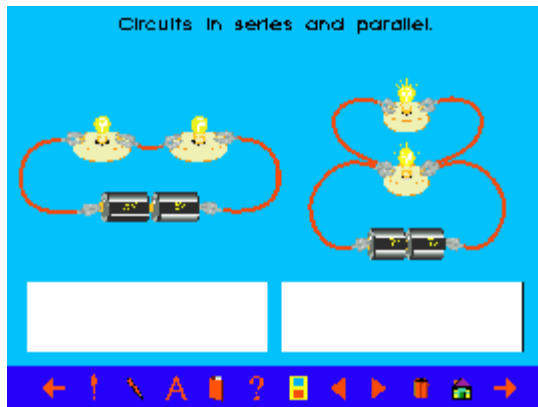
The My World format of the software self installs - the Textease format must be copied onto the hard disk manually. The My World installer installs the Welsh font Ysgol 2. - Textease users should install 'Ysgol 2' by double clicking on the fonts folder and following the instructions on the screen.

My World and Textease screens do not self correct. Some teachers may see this as a disadvantage. The advantages however is that children are given an opportunity to make their own minds up or discuss their ideas with others. Their outcome may be printed allowing My World and Textease screens to be used for assessment where appropriate.

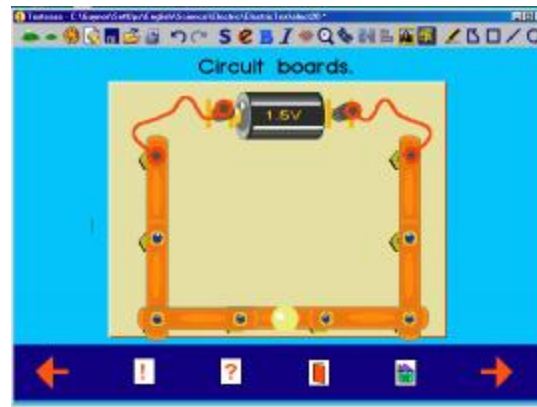
THE BUTTONS ON THE SCREENS:

The buttons on the My World and Textease formats of two different screens are shown overleaf.

The buttons are listed from left to right. See the Textease handbook for the functions of the buttons on the top bar of the Textease format screens.



1	2	3	4	5	6	7	8	9	10	11	12
MY WORLD FORMAT											



1	2	6	5	11	12
TEXTEASE FORMAT					

1. The back button - click on this to go to the previous screen.
2. The task button - click on this for a suggested task.
3. The text button - click on this to create new text.
4. The word button - click on this for a word list or for beginnings and endings of sentences.
5. The research button – click on this for further information.
6. The help button - click on this and on the hot spots within the help panel for support.
7. The resource button - click on this for some useful pictures.
8. The scaling down button - click text or graphics on this to reduce their size.
9. The scaling up button - click text or graphics on this to increase their size
10. The bin - click text or graphics on this to delete them.
11. The home button- click on this to return to the opening screen.
12. The forward button - click on this to advance to the next screen.

THE PACK AND THE CURRICULUM: The pack supports many of the National Curriculum requirements for Key Stage 2 relating to Electricity and some aspects of the KS3 syllabus to enable gifted and talented pupils to make further progress.

KEY STAGE 2 – SC4 Physical processes – Electricity:

Simple circuits:

1a) to construct circuits incorporating a battery or power supply and a range of switches to make electrical devices work.

1b) how changing the number or type of components makes bulbs brighter or dimmer.

1c) how to represent series circuits by drawing and conventional symbols, and how to construct series circuits on the basis of drawings and diagrams using conventional symbols.

KEY STAGE 3 - SC4 Physical processes – Electricity:**Electricity and magnetism:**

1a) how to design and construct series and parallel circuits.

THE GRAPHICS:

The graphics used are simple purpose made vector drawings for three reasons:

- a) most are basic enough for children to copy them on paper where appropriate.
- b) they support the program without being a distraction in themselves.
- c) they require less memory than more sophisticated graphics / illustrations.

INCLUSION:

The screens are deliberately basic and uncluttered with hidden popups / panels providing additional information, graphics and support. Teachers / pupils are able to customize and save the screens if required.

Generally speaking, there is little visible text other than the headings on the screens. This reduces the amount of initial explanation / signing required on introducing a new topic to pupils with hearing problems.

Visually impaired pupils may resize moveable text or graphics using the maximize / minimize buttons in the My World format or by selecting then dragging one of the corners' in the Textease format.

The Textease format of the software has software speech support on all the text panels to help children who find the written word difficult. Text on the screens may be selected and heard if necessary using the 'lips' icon on the toolbar.

The research panels may be shortened and scrolled to reduce the amount of text visible at any time to help children who find a large block of text daunting.

ABILITY RANGE / DIFFERENTIATION:

The screens have been designed for use by children of different abilities. Buttons allow them to seek help or further information, so the older / more able pupils may work independently.

Many of the screens have text frames. The provision of text buttons, word banks, support panels and research books provide the requirements for **differentiation by outcome**. The text button (pencil in the My World version or the 'I band' in the Textease version) allow teachers / pupils to write their own text. The research books provide a source of information for those pupils who can cope with free writing. The beginnings and endings of sentences or labels provided in the word banks are for those who cannot cope with free writing.

Children may drag labels and other information to the screens or write their own text. They may use their imagination and customise existing screens or use the self-design screens (see 'Teacher Control' below).

SUPPORT: The help button opens a support panel, which may be shared by several screens within the same topic area. The support may be in diagram or text form and clicking on hot spots within the help panel may open text windows or further help panels.

NEW SCREENS:

Each topic area has one or more 'New screens' (often blank), which are accessed by clicking on the 'new screen' button within the relevant 'task panel'. These new screens are particularly useful when used with related screens having fixed graphics / text and share the same buttons as the latter.

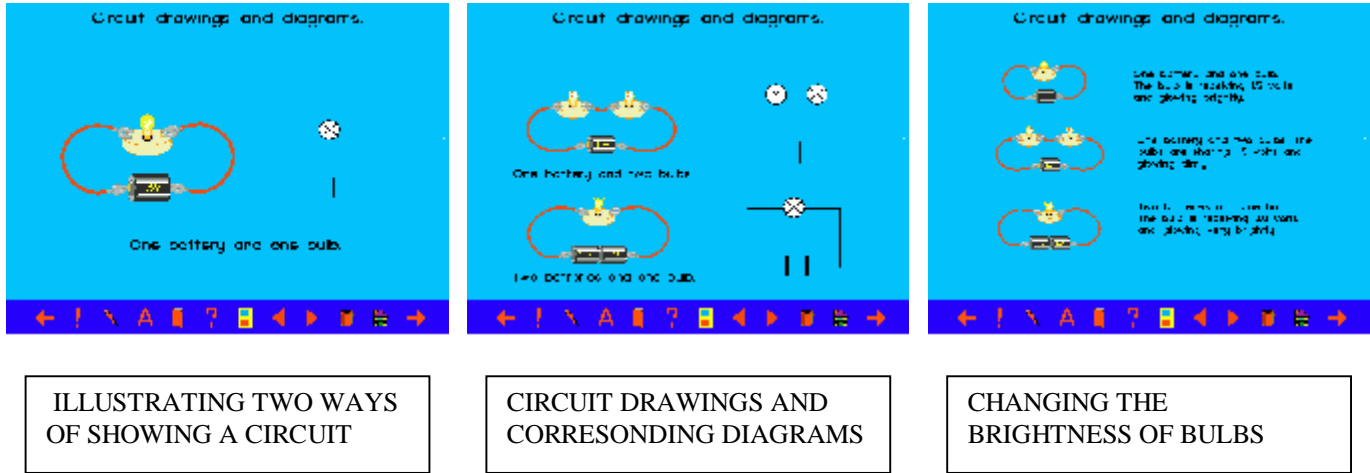
Some of the new screens in this pack are listed under 'Teacher control' below together with some suggestions on their use

TEACHER CONTROL:

At first sight, the screens may not appear to have a great deal of teacher control. However, any moveable object on a screen, be it text or graphic may be deleted or enlarged, and new text may be added. The customized screen may be renamed and saved for future use.

The 'self-design option provided by the new screens allows teachers to adapt screens for pupils with special needs (see overleaf), to carry out group activities or to extend topic areas further. The new screens may be customised then saved for use as labelling exercises for assessment.

The example below shows three variations of the ‘Separating materials New Screen’ and serves to illustrate the point that the degree of teacher control is only limited by the imagination of the teacher.



Other New Screen topics in this pack include:

- a) Electricity is dangerous – this could be used to promote and record the results of a discussion on safety with electricity prior to a practical session on electricity.
- b) Plugs – this screen could be used to make an illustrated fact sheet about various devices that have plugs and their use in the home.
- c) Screens in the energy section – the normal screens in the energy section are for information purpose only, but have associated new screens for pursuing topic areas further, for example, environmental issues.

INTERACTIVE WHITEBOARDS:

The screens in this pack have been redesigned for more efficient use with Interactive Whiteboards and are ideal for individual or group work and whole class teaching.

FORMATS:

The pack includes the screens in MY WORLD format and TEXTEASE format plus the Welsh font 'YSGOL 2'.

The MY WORLD format requires My World for Windows or My World 3.
The TEXTEASE format requires Textease.

INSTALLATION:

The My World format self installs. Textease users must copy the ElectricTex folder to the hard drive, then create a shortcut on the desktop to the opening file – 1Elect.

FONTS:

The Welsh font Ysgol 2 has been used on the screens by kind permission of the 'Micro-electronics in Education Unit for Wales' (MEU). www.meu.cymru.co.uk

The My World installer should install 'Ysgol 2. Textease users should click on the exe. file within the Fonts folder and follow the instructions to install 'Ysgol 2.

TECHNICAL SUPPORT:

Please contact Clic if you have any problems with the content of this program. Consult the My World help files for problems in running My World. Consult the Textease manual / help files for problems in running Textease.

PRICE AND LICENCE:

Prices and licences are subject to change without warning. Please check the details on our web site before ordering.

RELATED PRODUCTS:

Materials and their properties is part of the 10 pack **Clic Science Series**.

Other titles in the series are

KS1 Life processes and living things.

KS1 Physical processes.

KS1 Homes and houses (materials and scientific enquiry).

KS2 Green plants as organisms.

KS2 Humans as organisms.

KS2 Living things in their environment.

KS2 Forces and motion.

KS2 Light, sound & the Earth and beyond.

KS2 Electricity and power.

These packs are available individually or as two collections:

KS1 Starting science.

KS2 More science

FURTHER INFORMATION:

Screens and graphics by GAYNOR PERRY.

CLIC, BWTHYN Y GLYN, NANT Y GARTH, Y FELINHELI, GWYNEDD. LL56 4QB

Tel: 01248 671093 Fax: 01248 679295 email: info@clisoft.co.uk

SOURCE OF INFORMATION GAYNOR PERRY. (from over 30 years teaching Secondary School Science in most of its subject areas and Biology to A level, including 20 years as a Biology A level Examiner).

Original version 1999

New version 2002 - 2003

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