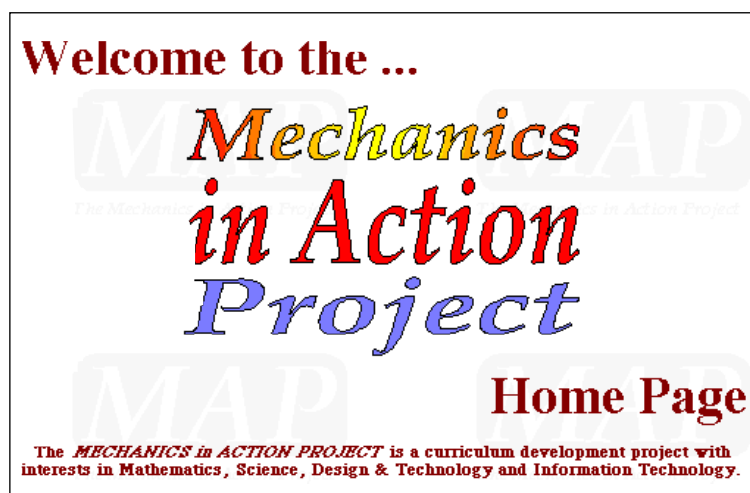


Mathematical Associations and Magazines

This section is primarily for teachers, giving links to a selection of the many professional associations connected to mathematics education, both in the UK and overseas. The use of email and Web sites has brought members from these associations in touch from all over the world, and the subject of mathematics is ideally suited to international networking. This is necessarily only a small sample; others can readily be found using a search engine.

UK

Association of Teachers of Mathematics	http://acorn.educ.nottingham.ac.uk//SchEd/pages/atm/ Conferences, news, publications, etc
Institute of Mathematics and its Applications	http://www.ima.org.uk/
Mathematical Association	http://members.aol.com/mathsassoc/MAhomepage.html Conferences, news, problem bureau, competitions, etc
Mathematics in Education and Industry (MEI)	http://members.aol.com/chairmei/ Curriculum development, INSET programme, resources



The **Mechanics in Action Project (MAP)** is based at Manchester University. The MAP home page offers details of their INSET training, publications, research, news, and links to mechanics related sites:

<http://www.man.ac.uk/CME/MAP/index.htm>

(Note: Watch out for the capitals.)

MicroMath	http://www.kcl.ac.uk/kis/schools/education/resources/MicroMath/home.html Home site of the only UK magazine dedicated to technology and school mathematics
Technology for Secondary and College Mathematics (TSM)	http://www.argonet.co.uk/oundlesch/tsm.html Programme of INSET from TSM activity, based at Oundle School

Australia

**Australian Association of
Mathematics Teachers**

<http://www.aamt.edu.au/>
With links to other Australian state associations

**Mathematical Association
of Victoria**

<http://www.srl.rmit.edu.au/mav/>
Home page of MAV in Australia

TAME

The principal aim of the Technology and Mathematics Education (TAME) Web Forum is to develop and support a network of Australian mathematics educators at primary and secondary schools in their attempts to incorporate technology assisted approaches to mathematics teaching and learning. This support will extend to providing the following services:

- TAME Projects & Events**
Information about any current or recent projects or upcoming events relevant to the TAME theme;
- TAME Research Papers**
Recent research papers by Australian educators relevant to the TAME theme;
* **Electronic version of proceedings** from the AAMT '97 conference!
- TAME Software Library & Support**
A library of shareware programs and curriculum materials useful for school mathematics, and an email-based support network for mathematics teachers using technology;
- TAME Links To Other Relevant Sites**
Links to other internet resources of value to mathematics educators in schools.

TAME is an initiative of the [Dept of Science & Mathematics Education](#), at the [University of Melbourne](#)

**The Technology and
Mathematics Education
(TAME) Web Forum** home page
from Melbourne.

Links and advice to teachers on
software and hardware and
teaching styles:

<http://www.edfac.unimelb.edu.au/DSME/TAME/>

USA

American Mathematical Society

<http://e-math.ams.org/>
Good starting point for mathematical resources

**International Society for Technology
in Education (ISTE)**

<http://www.iste.org/>

**Mathematical Association
of America**

<http://www.maa.org/welcome.html>
MAA Online service for collegiate mathematics teachers

**National Council of Teachers
of Mathematics**

<http://www.nctm.org/>

Other countries

ACTS Networks

<http://www.acts.tinet.ie/acts.html>
Leading to the Irish Mathematics Teachers' Association
home pages

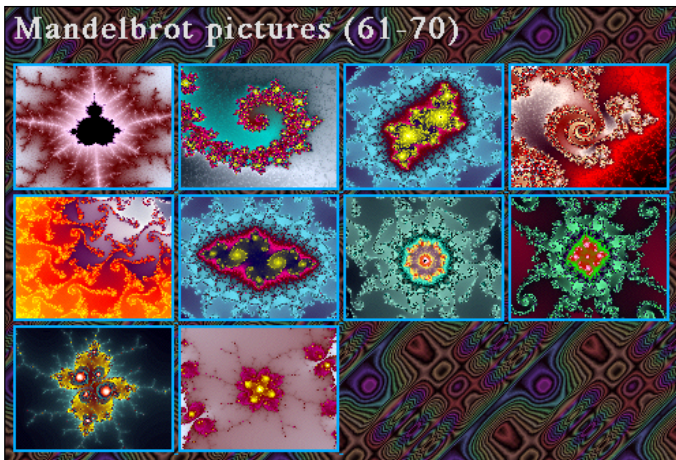
Canadian Mathematical Society

<http://camel.math.ca/CMS/>
Includes links to national competitions

CSC Mathematical Topics (Finland)

http://www.csc.fi/math_topics/General.html
Links to associations and resources in Finland

5 What are Fractals?



Fractal Pictures and Animations – a large site from Paris:

<http://www.cnam.fr/fractals.html>

with images to download, and links to other sites.

You are to use the resources of the Internet to investigate Fractals.

- 1 Who is Mandelbrot?
- 2 What does the word 'chaos' mean in this context?
- 3 What is Sierpinski's Triangle?
- 4 What is a 'Snowflake' pattern in this context?
- 5 What is the 'Butterfly' effect?
- 6 See if you can download some fractal patterns and design a poster to summarise your findings.

Some suggested Web sites to visit:

Chaos, Fractals and the Mandelbrot Set

<http://cq-pan.cqu.edu.au/schools/smad/hotlink2.html>

A definitive list of sites

Making a Fractal

<http://cml.rice.edu/~lanius/fractals/>

The Sierpinski Triangle, Koch Snowflake, etc

Math Art Gallery

http://www-math.sci.kun.nl/math/knopen/art_gallery.html

Interactive knots, singularities and 3D fractals

Sprott's Fractal Gallery

<http://sprott.physics.wisc.edu/fractals.htm>

Including Fractal of the Day, Strange Attractors, and MIDI fractal music in the background

The Fractal Microscope

http://www.ncsa.uiuc.edu/Edu/Fractal/Fractal_Home.html

A zooming approach

The Spanky Fractal Database

<http://spanky.triumf.ca/>

Great site of sites, with links to hundreds of fractal sources

Using mathematical symbols on the Web

The Internet is, by definition, machine independent, so it should be possible to view any pages on any computer anywhere in the world. When it started, HTML offered very little in the way of 'DTP' facilities, and Web pages all looked very dull, containing only characters from the standard ASCII keyboard set.

The PC Symbol font does allow certain mathematical characters to be inserted into documents, and the following are available by simply changing font and pressing the appropriate key (eg to get 'π' select the Symbol font and press p, or using Microsoft® Word you can now set up an ALT keyboard shortcut for this):

Keyboard press:	+	-	p	q	m	s
to get (Symbol font)	+	-	π	θ	μ	σ

There are other mathematical symbols available, but these are beyond the range of the normal keyboard characters. Referred to as 'off keyboard' characters they can be obtained by holding down the ALT key and entering a key code using the key-pad on the right-hand end of the keyboard (make sure NUM LOCK is on), or using a Characters utility directly.

Symbol font (PC)

163 ≤ 165 ∞ 177 ± 179 ≥ 180 x 181 ∞ 184 ÷ 185 ≠ 187 ≈ 214 √ 229 Σ

(Note: These codes are not the same using equivalent fonts on Acorn and Apple platforms.)

The £ sign is a special problem, but if your keyboard has been set to English it should be alright to use it from its normal position (eg SHIFT and 3). Otherwise it is Character 163 (in normal non-symbol fonts).

Later versions of HTML allow you to change font and thus include the mathematical characters in the Symbol font, which is present on all PCs. A new HTML standard is now under development which will allow mathematical notation. You can follow its progress on <http://www.w3.org/TR/WD-math/>

An example of HTML code: Here's how to generate Euler's formula and the Quadratic formula in one-line mathematical notation. First here are some of the syntax expressions that are used:

<code></code>	changes font to symbol
<code><sup></code>	changes to superscript
<code><i></code>	changes to italic
<code>&#163;</code>	prints character 163 (£)

The HTML code:

Euler's formula: The form `<i>a</i> + <i>b</i> i = r(cosq + i sinq)` and the use of `<i>z</i> = <i>r</i>e^{iq}`

`
` Quadratic formula: `x = (-b ± Ö (b²- 4ac) / (2a)`

The result on the Web page:

Euler's formula: The form $a + bi = r(\cos\theta + i \sin\theta)$ and the use of $z = r e^{i\theta}$
 Quadratic formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$