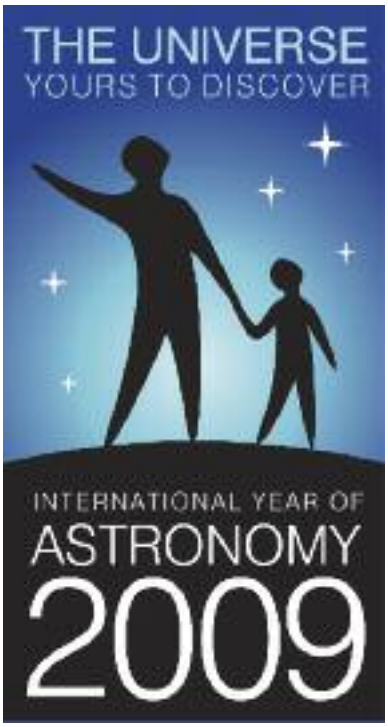

Education resources for the International Year of Astronomy

2009 is the International Year of Astronomy. To celebrate this, **Chris Starr** and **Richard Harwood** suggest some useful websites and other resources to inspire your astronomy teaching.

Space science plays an important role in our lives today, more so than most of us are aware. Communications networks, weather forecasts and climate studies, oceanography and many areas of environmental management depend on space technology.

To commemorate the 400th anniversary of Galileo's first discoveries at the telescope, the International Astronomical Union and UNESCO proclaimed 2009 to be the International Year of Astronomy (IYA). To mark this special year, a large range of activities have been organised worldwide, many of which have some application in the classroom. Below are a selection of resources that we have found useful in our teaching activities over the course of this year.

The official IYA website

Officially, the IYA activities are being co-ordinated through the national hubs of the countries involved (currently 142 of them), and focused through the IYA 2009 website: www.astronomy2009.org

Portal to the Universe

Another useful point of contact is the newly opened 'Portal to the Universe', created as one of IYA 2009's twelve cornerstone projects: www.portaltotheuniverse.org

Worldwide astronomy clubs and organisations

Whatever your level of interest or expertise, if you wish to get advice or participate, you can contact your IYA 2009 national node: a local astronomy club, planetarium or science museum. See: www.astronomy2009.org/organisation/nodes/national/list

A list of other astronomy organisations worldwide can be found on www.skyandtelescope.com/community/organizations or www.astronomyclubs.com

40th anniversary of the first manned Moon landings

This year is also the 40th anniversary of the first manned Moon landings. This could be an incentive for a class project on the history of manned spaceflight and the Apollo missions. Students can use the major space agencies' websites to follow current developments in space exploration. NASA's and ESA's online TV and video-casts give up-to-the-minute coverage of missions: www.nasa.gov and www.esa.int

Image courtesy of ESO / H H Heyer

Astronomical images

'From Earth to the Universe' is a collection of astronomical images representing the wide variety of astronomical objects. It is being exhibited in over 250 locations throughout the world in 2009 and 2010. Visit the website to find out when it might be coming to your area: www.fromearthtotheuniverse.org

The full collection of images with explanatory captions is also available online – see 'Tour the Images' in the website's section for visitors.

The European Space Agency (ESA) and the European Southern Observatory also offer useful multimedia collections, including image galleries and videos: www.esa.int and www.eso.org/gallery

Build your own telescope

Your students might enjoy the challenge of building their own telescopes, an exciting physics project using simple tubes and lenses, allowing them to learn about optics in the process. IYA 2009 can provide simple telescope kits through the 'Galileoscope' cornerstone project. See www.astronomy2009.org/globalprojects/cornerstones/galileoscope

Ready-made telescopes and other astronomical equipment can also be purchased online:

www.telescopehouse.com (in the UK)

www.galileo.cc (for all of Europe)

www.siriusobservatories.com (for observatory domes, including European outlets)

If you already have a telescope at your school, you might like to know that for a modest investment in a Stellacam video camera, you would be able to transmit live images from your telescope to a large TV screen - a great tool for explaining the night sky to a group of people. The Stellacam is available from www.astrovid.com

Resources of the European Space Agency

For a range of educational resources in English and other European languages for all school levels, offering teaching materials, competitions, kits, DVDs, online lessons, ideas for projects and more, visit ESA's Education and Human Spaceflight and Exploration websites:
www.esa.int/SPECIALS/Education
and
www.esa.int/esaHS/education.html

Aimed at children in primary and lower secondary school, the ESA Kids website includes information about space, as well as ESA's activities, quizzes, competitions, and more:
www.esa.int/esaKIDSen

Other useful websites and online resources

Astronet is a network for astronomy research in Europe. Teachers might find the 'Infrastructure Roadmap' useful as it includes strategies for education and public outreach. See:
www.astronet-eu.org

A variety of paper models of spacecraft for students to build can be

downloaded from the NASA website here:
http://solarsystem.nasa.gov/kids/papermodels.cfm

Further downloadable paper models of various spacecraft are offered by ESA. See:
www.esa.int/esaKIDSen/build.html
and http://sci.esa.int/science-e/www/object/index.cfm?fobjectid=35013

Spacecraftkits is a supplier of useful kits for project work and astronomy / space club activities:
www.spacecraftkits.com

The International Year of Astronomy brochure, version 4 is available for download from:
www.astronomy2009.org

Mickledore Publishing offers resources for junior- and middle-school astronomy courses. See:
www.mickledoreastronomy.co.uk

Selected useful books and films

Kerrod R, Sparrow G (2002) *The Way the Universe Works.* Dorling Kindersley, London, UK. ISBN: 9780751345759

Sagan C (1994) Pale Blue Dot: *A Vision of the Human Future in Space.* Random House, New York, USA. ISBN: 9780679438410

Sparrow G, Aldrin B (2007) *Spaceflight: The Complete Story from Sputnik to Shuttle – and Beyond*. Dorling Kindersley, London, UK. ISBN: 9781405318181

Thimmesh C (2006) *Team Moon – How 400,000 People landed Apollo 11 on the Moon*. Houghton Mifflin, Boston, USA. ISBN: 9780618507573

The Lives of Galileo: a Journey through the History of Astronomy – a cartoon book by Swiss illustrator Fiami – available in Dutch, English, Finnish, French, Italian, Portuguese and Thai, to be ordered from:
www.fiami.ch

Space for Kids is an interactive DVD in the space and science series produced in 2007 by Finley Holiday Film Corp. Order from:
http://finleyholiday.com

The Complete Cosmos is a multilingual (Dutch, English, French, German, Japanese, Spanish) set of two DVDs produced in 2000 by Beckmann Visual Publishing:
www.beckmanndirect.com

The Starry Messenger is an educational film drama produced by the University of Hertfordshire, celebrating the IYA. Designed with UK GCSE Physics & Astronomy courses in mind, the film plus explanatory textbook are distributed free of charge to teachers across Europe on request. If demand is high, there may be a reprint, or the film may be made available online via video streaming sites. The booklet, as well as further texts and images, can be downloaded from their website. See:
http://star.herts.ac.uk/starry-messenger

Chris Starr is Head of Space Science at Aiglon College, Switzerland, and Dr Richard Harwood is Deputy Principal at the same school.

Image courtesy of APIF / ESO