

Galaxy Images

A selection of images which can be displayed as part of the activity, e.g. printed & laminated for the table, or stuck up on the wall.

All images can be used free of charge for educational and informational use.

Credits & Descriptions (titles correspond to file-name)

Milky Way

Source: Science Photo Library, R800/0032

Credit: ALLAN MORTON/DENNIS MILON/SCIENCE PHOTO LIBRARY

Photograph of our own Galaxy, the Milky Way, taken summer from Mount Graham, Arizona, USA. The photo is taken looking towards the centre of the Galaxy, 30,000 light years away. A number of bright star clusters can be seen as well as some dark, obscuring lanes of gas and dust. The constellation of Scorpius can be seen on the right of the image, while Sagittarius is just below and left of the brightest part of the Milky Way. The original black-and-white photo has been given an artificial blue tint.

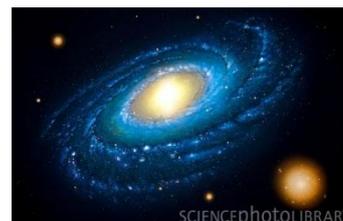


Milky Way from the outside

Source: Science Photo Library, R800/0224

Credit: MARK GARLICK/SCIENCE PHOTO LIBRARY

Computer artwork of the Milky Way galaxy, which contains our solar system, with globular star clusters around the outside (orange). The Milky Way is a spiral galaxy. It has a central bulge (yellow) of old stars that has a bar (white) of older, redder stars passing through it. Around this nucleus, 10,000 to 16,000 light years away, is a bright 'molecular ring' (blue) of young hot stars and star forming regions. The spiral arms extend outwards from this ring. The globular star clusters are huge balls of hundreds of thousands of very old, densely packed stars that surround the galaxy in a so-called halo. There are about 160 known globulars orbiting the Milky Way.



Spiral galaxy NGC 1232

Source: Science Photo Library, C007/4270

Credit: EUROPEAN SOUTHERN OBSERVATORY/SCIENCE PHOTO LIBRARY

Composite image of the spiral galaxy NGC 1232 based on three separate exposures in ultra-violet, blue and red light. The central areas contain older stars of reddish colour, while the spiral arms are populated by young blue stars and many star-forming regions. A distorted companion galaxy can be seen on the left side.

NGC 1232 is located 20-degrees south of the celestial equator, in the constellation Eridanus (The River), about 100 million light-years away. Image obtained by the FORS (Focal Reducer and low dispersion Spectrograph) instrument on ESO's (European Southern Observatory) Very Large Telescope (VLT), on 21st September 1998.



Elliptical galaxy M59

Source: Science Photo Library, R820/0469

Credit: NOAO/AURA/NSF/SCIENCE PHOTO LIBRARY

Elliptical galaxy M59, a member of the Virgo cluster of galaxies. It is one of the larger elliptical galaxies in that cluster, although it is quite flattened: It is about 60 million light years away and almost 90,000 light years across.



Irregular galaxy NGC 55

Source: Science Photo Library, C007/4737

Credit: EUROPEAN SOUTHERN OBSERVATORY/SCIENCE PHOTO LIBRARY

This Irregular-shaped galaxy measures 70,000 light years across. Its bright nucleus is situated towards one side of the galaxy (the right as seen here) rather than being central. It is located around 7.5 million light years from Earth in the constellation Sculptor. Image taken using the Wide Field Imager (WFI) instrument at the 2.2-metre MPG/ESO telescope at the La Silla Observatory, Chile.



4 types of galaxy

Source: Science Photo Library, R820/0309

Credit: DAVID A. HARDY/SCIENCE PHOTO LIBRARY

Artwork showing four of the more common types of galaxy. From top to bottom, these are: elliptical; lenticular; spiral and irregular. Elliptical galaxies are common, and contain mainly old stars. They also have relatively less gas and dust than the other types. Lenticular galaxies are disc-shaped, and lack a well-differentiated nucleus. Spiral galaxies, like our own Milky Way, tend to have a nucleus of older stars, and hot gas, dust and young stars making up the spiral arms. Irregular galaxies tend to be small, and are commonly found as companions of larger galaxies, as the Magellanic Clouds are to the Milky Way.

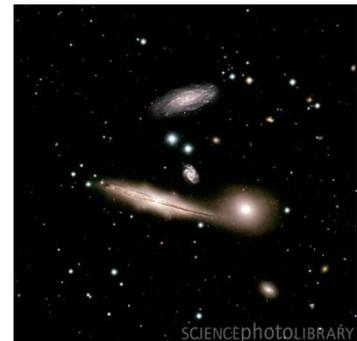


Group of galaxies

Source: Science Photo Library, R900/0078

Credit: NOAO/AURA/NSF/SCIENCE PHOTO LIBRARY

Gemini Multi-Object Spectrograph (GMOS) image of the Hickson Compact Group 87 (HCG 87). The galaxies seen are: edge-on spiral HCG 87a (lower left), the bright elliptical galaxy HCG 87b (lower right), the spiral HCG 87c (upper centre) and the smaller spiral HCG 87d (centre). HCG 87d is more distant than the other galaxies and is not thought to be part of the group. The other galaxies are linked by mutual gravitational attraction, which has distorted their shapes. The cluster lies about 400 million light years from Earth in the constellation Capricornus.



Galaxies group

Source: Science Photo Library, R820/0496

Credit: ROBERT GENDLER/SCIENCE PHOTO LIBRARY

Galaxies (NGC 5985, left, NGC 5982, centre, and NGC 5981, right), optical image. This group of galaxies is located in the constellation Draco. NGC 5985 and NGC 5981 are both spiral galaxies, at distances from the Earth of 120 million light years and 104 million light years respectively. The central galaxy, NGC 5982, is an elliptical galaxy, lying around 134 million light years away.



Hubble Ultra Deep Field

Source: NASA

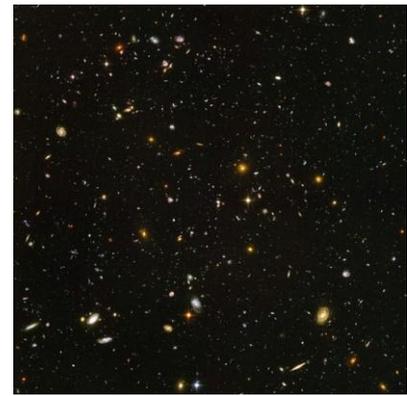
Credit: NASA/ESA/S. Beckwith (STScI) and The HUDF Team

This image taken by the Hubble Space Telescope in 2004 represents the deepest portrait of the visible universe ever achieved by humankind. The snapshot reveals the first galaxies to emerge shortly after the big bang. The image contains an estimated 10,000 galaxies. From Earth the patch of sky in which the galaxies reside (in the constellation Fornax), is just one-tenth the diameter of the full Moon (about the size of a grain of sand held at arms length) and is largely empty as seen with the naked eye.

This is a "deep" core sample of the universe, cutting across billions of light-years. The snapshot includes galaxies of various ages, sizes, shapes, and colours.

The smallest, reddest galaxies, about 100, may be among the most distant known, existing when the universe was just 800 million years old. The nearest galaxies -- the larger, brighter, well-defined spirals and ellipticals -- thrived 1 billion years ago, when the cosmos was 13 billion years old.

In vibrant contrast to the rich harvest of classic spiral and elliptical galaxies, there is a zoo of oddball galaxies littering the field. Some look like toothpicks; others like links on a bracelet. A few appear to be interacting. These oddball galaxies chronicle a period when the universe was younger and more chaotic. Order and structure were just beginning to emerge.



The Andromeda galaxy

Source: Science Photo Library, R850/0060

Credit: CELESTIAL IMAGE PICTURE CO./SCIENCE PHOTO LIBRARY

True-colour optical image from the Palomar Observatory Sky Survey of the Great Andromeda Galaxy (M31; NGC 224). It is 2.2 million light years from Earth in the constellation Andromeda. At 200 light years across it is the largest galaxy in the 'local group', a cluster of about 25 galaxies that includes our own, the Milky Way. Like the Milky Way, Andromeda is a spiral galaxy with a dense central bulge packed with millions of stars. Here, two small companion galaxies are also seen: the irregular galaxy NGC 205 (at right) and the elliptical galaxy NGC 221 (star-like object just below Andromeda's centre).



Inside the Andromeda Galaxy

Source: Science Photo Library, C010/9736

Credit: EUROPEAN SPACE AGENCY/HERSCHEL/PACS/SPIRE/J.FRITZ, U.GENT/XMM-NEWTON/EPIC/W. PIETSCH, MPE/SCIENCE PHOTO LIBRARY

Andromeda, the nearest large galaxy to our own, is located 2.5 million light years away in the constellation of the same name. This composite image was obtained in 2010. The infrared data (orange) is from the Herschel Space Observatory (HSO) space telescope and shows dust lanes heated by young stars, while the X-ray data (blue) is from the XMM-Newton X-ray Observatory space telescope and shows neutron stars and black holes.



Pinwheel galaxy M33

Source: Science Photo Library, C007/8425

Credit: JPL-CALTECH/NASA/SCIENCE PHOTO LIBRARY

Ultraviolet image of the Pinwheel galaxy (M33),. This spiral galaxy, also known as the Triangulum galaxy, is a member of the Local Group of galaxies, which also includes Andromeda and our galaxy the Milky Way. It has a diameter of around 50-60,000 light years, around half that of the Milky Way. Its spiral arms contain mainly hot young blue stars, while its central nucleus is home to older, yellower stars, and more obscuring dust. The galaxy lies around 2.4 million light years from Earth in the constellation Triangulum. Image taken by the Galaxy Evolution Explorer (GALEX) space telescope.



Sombrero Galaxy

Source: Science Photo Library, C001/5190

Credit: NASA/SCIENCE PHOTO LIBRARY

The Sombrero, also known as M104, is one of the largest galaxies in the nearby Virgo cluster, about 28 million light years from Earth. This Great Observatories view of the famous Sombrero galaxy was made using NASA's Chandra X-ray Observatory, Hubble Space Telescope and Spitzer Space Telescope.

The Chandra X-ray image (in blue) shows hot gas in the galaxy and point sources that are a mixture of objects within the Sombrero as well as quasars in the background. The Chandra observations show that diffuse X-ray emission extends over 60,000 light years from the centre of the Sombrero. (The galaxy itself spans 50,000 light years across.) Scientists think this extended X-ray glow may be the result of a wind from the galaxy, primarily being driven by supernovas that have exploded within its bulge and disk. The Hubble optical image (green) shows a bulge of starlight partially blocked by a rim of dust, as this spiral galaxy is being observed edge on. That same rim of dust appears bright in Spitzer's infrared image, which also reveals that Sombrero's central bulge of stars.



Whirlpool galaxy M51

Source: Science Photo Library, R854/0065

Credit: NRAO/AUI/NSF/SCIENCE PHOTO LIBRARY

This spiral galaxy is one of the brightest galaxies in the sky. The smaller galaxy, seen as a bright region at the end of one of the arms (upper centre), is NGC 5195. It is thought to have collided with the Whirlpool galaxy around 500 million years ago and is now bound by its gravitational pull. This interaction is probably responsible for the Whirlpool's classic spiral structure. These galaxies lie about 23 million light years from Earth, in the constellation Canes Venatici. Combined optical and radio image produced using data from the Digitized Sky Survey (DSS) and the Very Large Array (VLA) telescope.



Fornax A galaxy

Source: Science Photo Library, R830/0213

Credit: NRAO/AUI/NSF/SCIENCE PHOTO LIBRARY

Combined optical (white) and radio (orange) image of the galaxy Fornax A (NGC 1316, centre). The smaller galaxy NGC 1317 is above it. These galaxies are members of the Fornax cluster, a gravitationally linked group of 18 galaxies which lies around 70 million light years from Earth in the constellation Fornax. Fornax A is a powerful source of radio waves (orange). These radio emissions are powered by a massive black hole at the galaxy's centre. Image produced using radio data from the Very Large Array (VLA) telescope.

