

DOWN
GROUND
REPORT
GFTN
NOON
8,7,6 / Commencing...
5 / countdown, engines on...
1 / and may god's love...
10 / Ground Control...
4,3,2 / Check ignition...
9 / to Major Tom...
Liftoff / be with you...
VILLAGE

ASTRONOMY **HEAVY**

EXTRABOLD BLUEMOONS

BOLD CALLIRRHOE

SEMIBOLD DIFFRACTIVE

VILLAGE EURYMEDON **MEDIUM**

REGULAR FERENTINUM

BOOK GEODESICAL

LIGHT HONEYCOMB

THIN ILLUMINATION

Cosmology is derived from the Greek KOSMOS: world and -LOGIA: study of, is the study of the origin, evolution, and eventual fate of the universe. Physical cosmology is the scientific study of the universe's origin, its **large-scale** structures and dynamics, and its ultimate fate, as well as the scientific laws that govern these areas. The **universe** is generally understood to have begun with the Big Bang, followed almost instantaneously by cosmic inflation; an **expansion** of space from which the universe is thought to have emerged nearly 14 billion years ago. Cosmology studies and maps the origin and features of the Universe. **Metaphysical** cosmology has also been described as the placing of man in the universe in relationship to all other **entities**. This idea is exemplified by Marcus Aurelius's observation that a man's place in that relationship: "He who does not know what the world is does not know where he is, and he who does not know for what purpose the world exists, does not know who he is, nor what the world is." Physical cosmology is the branch of physics and **astrophysics** that deals with the study of the physical origins and evolution of the Universe. It also includes the study of the nature of the Universe on a large scale. In its **earliest** form, it was what is now known as *celestial mechanics*, the study of the heavens. Greek philosophers Aristarchus of Samos, Aristotle, and Ptolemy proposed different cosmological **theories**. The geocentric Ptolemaic **system** was the prevailing theory until the 16th century when Nicolaus Copernicus, and subsequently Johannes Kepler and Galileo Galilei, **proposed** a heliocentric system. This is one of the most famous examples of epistemological rupture in physical cosmology. When Isaac Newton published the *Principia Mathematica* in 1687, he finally figured out how the heavens moved. Newton provided a **physical** mechanism for Kepler's laws and his law of universal **gravitation** allowed the anomalies in previous systems, caused by gravitational interaction between the planets, to be resolved. A fundamental difference between Newton's cosmology and those preceding it was the Copernican **principle**—that the bodies on earth obey the same physical laws as all the celestial bodies. This was a crucial philosophical advance in physical cosmology.

VILLAGE

JETSTREAMS HEAVY
ITALIC

KALLICHORE EXTRABOLD
ITALIC

LATITUDINAL BOLD
ITALIC

MOSCARDINI SEMI BOLD
ITALIC

NOVENSIDES MEDIUM
ITALIC

OBSERVABLE REGULAR
ITALIC

PORPHYRION BOOK
ITALIC

QUADRATURE LIGHT
ITALIC

RETROGRADE THIN
ITALIC

Heavy
60pt

APOSTOLOS

Extrabold
60pt

BOUSOUKIA

Bold
60pt

COLLEGIUM

Semibold
60pt

DULCIMORE

Medium
60pt

EQUILIBRIST

Regular
60pt

FEORAGIUM

Book
60pt

GLADSTONE

Light
60pt

HYPNOTIZER

Thin
60pt

IMPLACITARE

VILLAGE

Heavy Italic
60pt

JOURNEYED

Extrabold
Italic
60pt

KYMOGRAM

Bold Italic
60pt

LIGATURING

Semibold
Italic
60pt

MONICKERS

Medium
Italic
60pt

NEGOCIANT

Regular Italic
60pt

OVERGLAZE

Book Italic
60pt

PHYTOGENY

Light Italic
60pt

QUINTUPLET

Thin Italic
60pt

RESERVEDLY

VILLAGE

Heavy
60pt

subminiature

Extrabold
60pt

timbrophilies

Bold
60pt

usufructuary

Semibold
60pt

vulcanologist

Medium
60pt

wagonbooms

Regular
60pt

xenodochium

Book
60pt

yachtswomen

Light
60pt

zinckifications

Thin
60pt

aeromechanic

VILLAGE

Heavy Italic
60pt

bouillabaisse

Extrabold
Italic
60pt

contentation

Bold Italic
60pt

decompound

Semibold
Italic
60pt

editorializing

Medium
Italic
60pt

ferramentum

Regular Italic
60pt

gatecrashers

Book Italic
60pt

humanisation

Light Italic
60pt

imperceptibly

Thin Italic
60pt

jugendgruppe

VILLAGE

Heavy
60pt

KEYBOARDIST

Extrabold
60pt

LOGOGRAPHY

Bold
60pt

MEMBERSHIPS

Semibold
60pt

NEUROLOGIST

VILLAGE

Medium
60pt

OVERBROWSE

Regular
60pt

PROGRESSION

Book
60pt

QUIRKINESSES

Light
60pt

RECALIBRATED

Thin
60pt

SANCTIONABLE

Heavy Italic
60pt

TRIFOLIOLATE

Extrabold
Italic
60pt

UNQUIETNESS

Bold Italic
60pt

VIDEOPHONIC

Semibold
Italic
60pt

WHIZPOPPING

VILLAGE

Medium
Italic
60pt

XENOGENOUS

Regular Italic
60pt

YARNWINDLED

Book Italic
60pt

ZYGOPLURAL

Light Italic
60pt

AMBUSCADING

Thin Italic
60pt

BENEF ACTIONS

Heavy
30pt

AUSPICIOUS
bioindustries

Extrabold
30pt

CASSOULET
decipherable

Bold
30pt

EPILOGIZED
forisfamiliar

Semibold
30pt

GAUGEABLY
hexaemerons

Medium
30pt

INTERMIXED
journeyworks

Regular
30pt

KVETCHIEST
lampooneries

Book
30pt

MARSHLAND
noncharacter

Light
30pt

OUTRIGHTLY
preportioning

Thin
30pt

QUITTANCES
reaggregation

Heavy Italic
30pt

SQUELCHER
theotechnies

Extrabold
Italic
30pt

UTOPIANIZE
voluntaryism

Bold Italic
30pt

WERGILDUS
xanthopterin

Semibold
Italic
30pt

YACKITYYAK
zygomorphic

Medium
Italic
30pt

ABIOGENIST
bookmarking

Regular
Italic
30pt

COLLOQUIA
derivationists

Book Italic
30pt

ENDOLITHIC
ferramentum

Light Italic
30pt

GADABOUTS
hydrothermal

Thin Italic
30pt

INKHOLDERS
jurisprudential

VILLAGE

HEAVY & HEAVY ITALIC

10pt **THE COSMOS IS THE UNIVERSE** regarded as a complex and orderly system; the opposite of chaos. The philosopher Pythagoras used the term cosmos for the order of the universe, but the term was not part of modern language until the 19th century geographer and polymath, Alexander von Humboldt, resurrected the use of the word from the ancient Greek assigned it to his multi-volume treatise, *Kosmos*, which influenced modern and somewhat holistic perception of the universe as one interacting entity. Cosmology is the study of the cosmos in several of the above meanings, depending on context. All cosmologies have in common an attempt to understand the implicit order within the whole of being. Cosmology is the study of the cosmos in several of the above meanings, depending on context. All cosmologies have in common an attempt to understand the implicit order within the whole of being. In this way, most religions and philosophical systems have a cosmology.

EXTRABOLD & EXTRABOLD ITALIC

10pt **COSMOLOGY IS A BRANCH OF METAPHYSICS** that deals with the nature of the universe, a theory or doctrine describing the natural order of the universe. The basic definition of Cosmology is the science of the origin and development of the universe. In modern astronomy the Big Bang theory is the dominant postulation. In physical cosmology, the term cosmos is often used in a technical way, referring to a particular spacetime continuum within the multiverse. Our particular galaxy is generally capitalized as the Cosmos. According to Charles Peter Mason in the *Sir William Smith Dictionary of Greek and Roman Biography and Mythology*, dating from 1870, Pythagoreans described the universe. "It appears, in fact, from this, as well as from the extant fragments, that the first book (from *Philolaus*) of the work contained a general account of the origin and arrangement of the universe. The second book appears to have been an exposition of the nature of numbers."

BOLD & BOLD ITALIC

10pt **A GALAXY** is a gravitationally bound system of stars, stellar remnants, interstellar gas, dust, and dark matter. The word galaxy is derived from the Greek *galaxias*, literally "milky" a reference to the Milky Way. Galaxies range in size from dwarfs with just a few hundred million stars to giants with one hundred trillion stars, each orbiting its galaxy's center of mass. Galaxies are categorized according to their visual morphologies as elliptical, spiral, or irregular. Many galaxies are thought to have black holes at their active centers. *The Milky Way's* central black hole, known as *Sagittarius A**, has a mass four million times greater than the Sun. As of March 2016, GN-z11 is the oldest and most distant observed galaxy with a comoving distance of 32 billion light-years from Earth, and observed as it existed just 400 million years after the Big Bang. Recent estimates of the number of galaxies in the observable universe range from 200 billion (2×10^{11}) to 2 trillion (2×10^{12}) or more.

SEMIBOLD, SEMIBOLD ITALIC & HEAVY

10pt **RECENT ESTIMATES** of the number of galaxies in the observable universe range from 200 billion to 2 trillion or more, containing more stars than all the grains of sand on planet Earth. Most of the galaxies are 1,000 to 100,000 parsecs in diameter and separated by distances on the order of millions of parsecs. The space between galaxies is filled with a tenuous gas having an average density of less than one atom per cubic meter. The majority of galaxies are gravitationally organized into groups, clusters, and **superclusters**. At the largest scale, these associations are generally arranged into sheets and filaments surrounded by immense voids. The largest structure of galaxies yet recognised is a cluster of superclusters that has been named *Laniakea*. The Laniakea Supercluster encompasses approximately 100,000 galaxies stretched out over 160 megaparsecs (520 million light-years).

MEDIUM, MEDIUM ITALIC & BOLD

10pt THE ORIGIN OF THE WORD galaxy derives from the Greek term for the Milky Way, *galaxias*, or *kyklos galaktikos*, meaning milky circle, due to its appearance as a “milky” band of light in the sky. In Greek mythology, Zeus places his son born by a mortal woman, the infant Hercules, on Hera’s breast while she is asleep so that the baby will drink her divine milk and will thus become immortal. Hera wakes up while breastfeeding and then realizes she is nursing an unknown baby: she pushes the baby away, some of her milk spills, and it produces the faint band of light known as the **Milky Way**. In the astronomical literature, the capitalized word “Galaxy” is often used to refer to our galaxy—the Milky Way—to distinguish it from the other galaxies in our universe. Certain astronomical objects known as spiral nebulae such as M31 would later be recognized as conglomerations of stars when the true distance to these objects began to be discovered, and they would be deemed island universes.

REGULAR, REGULAR ITALIC & BOLD

10pt THE GREEK PHILOSOPHER Democritus proposed that the bright band on the night sky known as the Milky Way might consist of distant stars. Aristotle, however, believed the Milky Way to be caused by “the ignition of the fiery exhalation of some stars that were large, numerous and close together” and that the “ignition takes place in the upper part of the atmosphere, in the region of the World that is continuous with the heavenly motions.” The Neoplatonist philosopher Olympiodorus the Younger was critical of this view, arguing that if the Milky Way is **sublunary** (*situated between Earth and the Moon*) it should appear different at different times and places on Earth, and that it should have parallax, which it does not. In his view, the Milky Way is celestial. According to Mohani Mohamed, the Arabian astronomer Alhazen (965–1037) made the first attempt at observing and measuring the Milky Way’s parallax, and he thus determined that because the Milky Way had no parallax, it must be remote from the Earth.

BOOK, BOOK ITALIC & SEMIBOLD

10pt ACCORDING TO Mohani Mohamed, the Arabian astronomer Alhazen made the first attempt at observing and measuring the Milky Way’s parallax, and he thus “determined that because the Milky Way had no parallax, it must be remote from the Earth, not belonging to the atmosphere.” The Persian astronomer al-Bīrūnī proposed the Milky Way galaxy to be “a collection of countless fragments of the nature of nebulous stars.” The Andalusian astronomer Ibn Bājjah proposed that the Milky Way is made up of many stars that almost touch one another and appear to be a continuous image due to the effect of **refraction** from sublunary material, citing his observation of the conjunction of Jupiter and Mars as evidence of this occurring when two objects are near. In the 14th century, the Syrian-born Ibn Qayyim proposed the Milky Way galaxy to be “a myriad of tiny stars packed together in the sphere of the fixed stars.” Actual proof of the Milky Way consisting of many stars came in 1610.

LIGHT, LIGHT ITALIC & SEMIBOLD

10pt ACTUAL PROOF OF THE MILKY WAY consisting of many stars came in 1610 when the Italian astronomer Galileo Galilei used a telescope to study the Milky Way and discovered that it is composed of a huge number of faint stars. In 1750 the English astronomer Thomas Wright, in his original theory or new hypothesis of the Universe, speculated that the galaxy might be a rotating body of a huge number of stars held together by **gravitational forces**, akin to the Solar System but on a much larger scale. The resulting disk of stars can be seen as a band on the sky from our perspective inside the disk. In a treatise in 1755, Immanuel Kant elaborated on Wright’s idea about the structure of the Milky Way. The first project to describe the shape of the Milky Way was undertaken by William Herschel 1785 by *counting the number of stars* in different regions of the sky. He produced a diagram of the galaxy with the Solar System close to the center.

BOLD, BOLD ITALIC & HEAVY

8.5pt The first project to describe the shape of the Milky Way and the position of the Sun was undertaken by William Herschel in 1785 by counting the number of stars in different regions of the sky. He produced a diagram of the shape of the galaxy with the Solar System close to the center. Using a refined approach, Kapteyn in 1920 arrived at the picture of a small ellipsoid galaxy with the Sun close to the center. A different method by Harlow Shapley based on the *cataloguing of globular clusters* led to a radically different picture: a flat disk with diameter approximately 70 kiloparsecs and the Sun far from the center. Both analyses failed to take into account the absorption of light by interstellar dust present in the galactic plane, but after Robert Julius Trumpler quantified this effect in

1930 by studying open clusters, the present picture of our **host galaxy**, the Milky Way, emerged. A few galaxies outside the Milky Way are visible in the night sky to the unaided eye. In the 10th century, the Persian astronomer Al-Sufi made the earliest recorded identification of the Andromeda Galaxy, describing it as a “small cloud”. In 964, Al-Sufi identified the Large Magellanic Cloud in his *Book of Fixed Stars*; it was not seen by Europeans until Magellan’s voyage in the 16th century. The Andromeda Galaxy was independently noted by Simon Marius in 1612. In 1750, Thomas Wright speculated that the Milky Way is a flattened disk of stars, and that some of the nebulae visible in the night sky might be separate Milky Ways. In 1755, Immanuel Kant used the term “*island Universe*”.

SEMIBOLD, SEMIBOLD ITALIC & HEAVY

8.5pt In 1755, Immanuel Kant used the term “island Universe” to describe these distant nebulae. Toward the end of the 18th century, Charles Messier compiled a catalog containing the 109 brightest celestial objects having nebulous appearance. Subsequently, William Herschel assembled a catalog of 5,000 nebulae. In 1845, Lord Rosse constructed a new telescope and was able to distinguish between elliptical and spiral nebulae. He also managed to make out individual point sources in some of these nebulae, lending credence to Kant’s earlier conjecture. In 1912, Vesto Slipher made **spectrographic** studies of the brightest spiral nebulae to determine their composition. Slipher discovered that the spiral nebulae have high Doppler shifts, indicating that they are moving at a rate exceeding the velocity

of the stars he had measured. He found that the majority of these nebulae are moving away from us. In 1917, Heber Curtis observed nova S Andromedae within the “Great Andromeda Nebula” (as the *Andromeda Galaxy*, Messier object M31, was then known). Searching the photographic record, he found 11 more novae. Curtis noticed that these novae were, on average, 10 magnitudes fainter than those that occurred within our galaxy. As a result, he was able to come up with a distance estimate of 150,000 parsecs. He became a proponent of the so-called “island universes” hypothesis, which holds that spiral nebulae are actually independent galaxies. In 1920 a debate took place between Harlow Shapley and Heber Curtis concerning the nature of the Milky Way, spiral nebulae.

MEDIUM, MEDIUM ITALIC & EXTRABOLD

8.5pt In 1920 a debate took place between Harlow Shapley and Heber Curtis (*the Great Debate*), concerning the nature of the Milky Way, spiral nebulae, and the dimensions of the Universe. To support his claim that the Great Andromeda Nebula is an external galaxy, Curtis noted the appearance of dark lanes resembling the dust clouds in the Milky Way, as well as the significant Doppler shift. In 1922, the Estonian astronomer Ernst Öpik gave a distance **determination** that supported the theory that the Andromeda Nebula is indeed a distant extra-galactic object. Using the new 100 inch Mt. Wilson telescope, Edwin Hubble was able to resolve the outer parts of some spiral nebulae as collections of individual stars and identified some Cepheid variables thus allowing him to estimate the distance to the

nebulae: they were far too distant to be part of the Milky Way. In 1936 Hubble produced a classification of galactic morphology that is used to this day. In 1944, Hendrik van de Hulst predicted that microwave radiation with wavelength of 21 cm would be detectable from interstellar atomic hydrogen gas; and in 1951 it was observed. This radiation is not affected by dust absorption, and so its Doppler shift can be used to map the motion of the gas in our galaxy. These observations led to the hypothesis of a rotating bar structure in the center of our galaxy. With improved radio telescopes, hydrogen gas could also be traced in other galaxies. In 1944, Hendrik van de Hulst predicted that microwave radiation with wavelength of 21 cm would be detectable from interstellar atomic hydrogen.

REGULAR, REGULAR ITALIC & SEMIBOLD

8.5pt The first project to describe the shape of the Milky Way and the position of the Sun was undertaken by William Herschel in 1785 by counting the number of stars in different regions of the sky. He produced a diagram of the shape of the galaxy with the Solar System close to the center. Using a refined approach, Kapteyn in 1920 arrived at the picture of a small **ellipsoid galaxy** with the Sun close to the center. A different method by Harlow Shapley based on the cataloguing of globular clusters led to a radically different picture: a flat disk with diameter approximately 70 kiloparsecs and the Sun far from the center. Both analyses failed to take into account the absorption of light by interstellar dust present in the galactic plane, but after Robert Julius Trumpler quantified this effect in 1930 by studying open

clusters, the present picture of our host galaxy, the Milky Way, emerged. A few galaxies outside the Milky Way are visible in the night sky to the unaided eye. In the 10th century, the Persian astronomer Al-Sufi made the earliest recorded identification of the Andromeda Galaxy describing it as a “*small cloud*”. Beginning in the 1990s, the Hubble Space Telescope yielded improved observations. Among other things, Hubble data helped establish that the missing dark matter in our galaxy cannot solely consist of inherently faint and small stars. The Hubble Deep Field, an extremely long exposure of a relatively empty part of the sky, provided evidence that there are about 125 billion galaxies in the observable universe. Improved technology in detecting the spectra invisible to humans.

BOOK, BOOK ITALIC & SEMIBOLD

8.5pt Galaxies come in three main types: *ellipticals*, *spirals*, and *irregulars*. A slightly more extensive description of galaxy types based on their appearance is given by the Hubble sequence. Since the Hubble sequence is entirely based upon visual morphological type (shape), it may miss certain important characteristics of galaxies such as star formation rate in starburst galaxies and activity in the cores of **active galaxies**. The Hubble classification system rates elliptical galaxies on the basis of their ellipticity, ranging from E0, being nearly spherical, up to E7, which is highly elongated. These galaxies have an ellipsoidal profile, giving them an elliptical appearance regardless of the viewing angle. Their appearance shows little structure and they typically have relatively little interstellar matter. Consequently, these galaxies

also have a low portion of open clusters and a reduced rate of new star formation. Instead they are dominated by generally older, more evolved stars that are orbiting the common center of gravity in random directions. The stars contain low abundances of heavy elements because star formation ceases after the initial burst. In this sense they have some similarity to the much smaller globular clusters. The largest galaxies are giant ellipticals. Many elliptical galaxies are believed to form due to the interaction of galaxies, resulting in a collision and merger. They can grow to enormous sizes (*compared to spiral galaxies, for example*), and giant elliptical galaxies are often found near the core of large galaxy clusters. The majority of starburst galaxies are mid-range, or close encounter.

VILLAGE

64pt

Milky Way

32pt

This galaxy contains our Solar System. The term *milky* is derived from the appearance from Earth of the galaxy.

VILLAGE

24pt

THE MILKY WAY IS A BAND OF LIGHT VISIBLE IN THE NIGHT SKY FORMED BY STARS THAT CANNOT BE INDIVIDUALLY DISTINGUISHED BY THE NAKED EYE.

18pt

From Earth, the Milky Way appears as a band because its disk-shaped structure is viewed from within. Galileo Galilei first resolved the band of light into individual stars with his telescope in 1610. Until the early 1920s, most astronomers thought that the Milky Way contained all the stars in the Universe. Edwin Hubble observed that the Milky Way is *one of many* galaxies.

64pt

Laniakea

32pt

Superclusters are among the universe's largest single structures with boundaries that are difficult to define, *especially* from the inside.

VILLAGE

24pt

THE NAME LANIAKEA MEANS IMMENSE HEAVEN IN HAWAIIAN, FROM LANI, MEANING HEAVEN, AND AKEA, MEANING SPACIOUS, IMMEASURABLE.

18pt

The new method used to analyse galaxy movements to distinguish peculiar motion from cosmic expansion is Wiener filtering, which works for well-defined positional information, allowing analysis out to about 300×10^6 , showing flow patterns. With that limitation, *Laniakea* is shown to be heading in the direction of the Shapley Supercluster.

16pt **Superclusters are among universe's largest structures and have boundaries that are difficult to define, especially from the inside. Within a given supercluster, most galaxy motions will be directed inward, toward the center of mass. In the case of Laniakea, this gravitational focal point is called the *Great Attractor*, and influences the motions of the Local Group of galaxies, where the Milky Way galaxy resides, and all others throughout the supercluster.**

14pt **A supercluster is a large group of smaller galaxy clusters, or galaxy groups, which is among the largest-known structures of the cosmos. The Milky Way is part of the Local Group galaxy cluster (*that contains more than 54 galaxies*), which in turn is part of the Laniakea Supercluster. This supercluster spans over 500 million light-years, while the Local Group spans over 10 million light-years.**

12pt **CERTAIN ASTRONOMICAL OBJECTS KNOWN AS SPIRAL NEBULAE, SUCH AS M31, WOULD BE RECOGNIZED AS CONGLOMERATIONS OF STARS WHEN THE TRUE DISTANCE TO THESE OBJECTS BEGAN TO BE DISCOVERED, AND THEY WOULD BE DEEMED *ISLAND UNIVERSES*. HOWEVER, THE WORD UNIVERSE WAS LATER UNDERSTOOD TO DEFINE THE ENTIRETY OF EXISTENCE, SO THIS PHRASE FELL INTO DISUSE AND THE OBJECTS INSTEAD BECAME KNOWN AS GALAXIES.**

9pt **Galaxies are grouped into clusters instead of being dispersed randomly. Clusters of galaxies, in turn, are grouped together to form superclusters. Typically, superclusters contain dozens of individual clusters throughout an area of space about 150 million light-years across. Unlike clusters, most superclusters are not bound together by gravity. The component clusters are generally shifting away from each other due to the Hubble flow. The Milky Way galaxy falls within the Local Group which is a poor and irregular cluster of galaxies. Poor clusters may contain only a few dozen galaxies, as compared to rich clusters with hundreds or even thousands. The Local Group is in the Local Supercluster (*also known as the Virgo Supercluster*), which has a diameter of 100 million light years. The Local Supercluster contains a total of about 1015 times the mass of the Sun. The biggest cluster in the observable universe is called the Great Attractor. Its gravity is so strong that the Local Supercluster, including the Milky Way, is moving in a direction towards it at a rate of several hundred kilometers per second. Speeds at this cosmic scale are measured relative to the Hubble.**

64pt

Neutron Star

32pt

This is the collapsed core of a large star, which before collapse, had a total size of somewhere between 10 and 29 solar masses.

VILLAGE

24pt

NEUTRON STARS TYPICALLY HAVE A RADIUS ON THE ORDER OF 10 KILOMETRES (6.2 MI). THEY CAN HAVE MASSES OF NEARLY TWICE THAT OF THE SUN.

18pt

Neutron stars are the product of the supernova explosion of a massive star, combined with its gravitational collapse. This compresses the core past the white dwarf star density to that of atomic nuclei. Once formed, neutron stars no longer *actively generate heat*, and cool over time; but, they may still evolve further through collision or accretion.

16pt **Most of the basic models for these objects imply that neutron stars are composed almost entirely of neutrons. Neutron stars are supported against further collapse by neutron degeneracy pressure, a phenomenon has been described by the *Pauli exclusion principle*, just as white dwarfs are supported against collapse by the phenomenon of electron degeneracy pressure. If the remnant star has a mass greater than about 3 solar masses, it continues collapsing to form a black hole.**

14pt **As the neutron star's core collapses, its rotation rate increases as a result of conservation of angular momentum, hence newly formed neutron stars rotate at up to several hundred times per second. Some neutron stars emit beams of electromagnetic radiation that make them detectable as pulsars. Indeed, the *discovery of pulsars* by Jocelyn Bell Burnell in 1967 was the first observational suggestion that neutron stars exist.**

12pt **THE RADIATION FROM PULSARS IS UNDERSTOOD TO BE PRIMARILY EMITTED FROM REGIONS NEAR THEIR MAGNETIC POLES. IF THE MAGNETIC POLES DO NOT COINCIDE WITH THE ROTATIONAL AXIS OF THE NEUTRON STAR, THE EMISSION BEAM WILL SWEEP THE SKY, WHEN SEEN FROM A DISTANCE IF THE OBSERVER IS SOMEWHERE IN THE PATH OF THE BEAM, IT WILL APPEAR AS PULSES OF RADIATION COMING FROM A FIXED POINT IN SPACE—THIS IS THE SO-CALLED LIGHTHOUSE EFFECT.**

9pt **There are thought to be around 100 million neutron stars in the Milky Way, a figure obtained by estimating the number of stars that have undergone *supernova explosions*. However, most are old and cold, and neutron stars can only be easily detected in certain instances, such as if they are a pulsar or part of a binary system. Slow-rotating and non-accreting neutron stars are almost undetectable; however, since the Hubble Space Telescope detection of RX J185635-3754, a few nearby neutron stars that appear to emit only thermal radiation have been detected. Soft gamma repeater are conjectured to be a type of neutron star with very strong magnetic fields, known as magnetars or alternatively, neutron stars with fossil disks around them. Neutron stars in binary systems can undergo accretion which typically makes the system bright in X-rays while the material falling onto the neutron star can form hotspots that rotate in and out of view in identified X-ray pulsar systems. Additionally, such accretion can recycle old pulsars and potentially cause them to gain mass and spin-up to very fast rotation rates, forming the so called millisecond pulsars.**

64pt

Isaac Newton

32pt

Newton was an English mathematician, astronomer, theologian, *physicist*, and one of the most important scientists of all time.

VILLAGE

24pt

SIR ISAAC NEWTON'S BOOK FROM 1687, *PHILOSOPHIAE NATURALIS PRINCIPIA MATHEMATICA*, LAID THE FOUNDATIONS OF CLASSICAL MECHANICS.

18pt

Newton's writings formulated the laws of motion and *universal gravitation* that dominated our view of the physical universe for the following three centuries. Newton's theoretical prediction that the Earth is shaped as an oblate spheroid was vindicated by the geodetic measurements of Maupertuis, La Condamine, and others, leading his ideas to supercede those of Descartes.

16pt **Newton also built the first practical reflecting telescope and developed a sophisticated theory of colour based on the observation that a prism decomposes white light into the colours of the visible spectrum. Newton's work on light was collected in his highly influential book *Opticks*, published in 1704. He also formulated an empirical law of cooling, made the first theoretical calculation of the speed of sound, and introduced the notion of a Newtonian fluid.**

14pt **As a mathematician, Newton contributed to the study of power series, generalised the binomial theorem to non-integer exponents, developed a method for *approximating the roots* of a function, and classified most of the cubic plane curves. He shares credit with Gottfried Wilhelm Leibniz for developing the infinitesimal calculus. Sir Isaac Newton was a fellow of Trinity College and a professor at the University of Cambridge.**

12pt **HE WAS A DEVOUT BUT UNORTHODOX CHRISTIAN, WHO PRIVATELY REJECTED THE DOCTRINE OF THE TRINITY AND WHO, UNUSUALLY FOR A MEMBER OF THE CAMBRIDGE FACULTY OF THE DAY, REFUSED TO TAKE HOLY ORDERS IN THE CHURCH OF ENGLAND. BEYOND HIS WORK ON MATHEMATICAL SCIENCES, NEWTON DEDICATED MUCH OF HIS TIME TO THE STUDY OF ALCHEMY & BIBLICAL CHRONOLOGY, BUT MOST OF HIS WORK IN THOSE AREAS REMAINED UNPUBLISHED UNTIL LONG AFTER HIS DEATH.**

9pt **Isaac Newton was born on Christmas Day, 25 December 1642, an hour or two after midnight at Woolsthorpe Manor in Woolsthorpe-by-Colsterworth, a hamlet in the county of Lincolnshire. His father, also named Isaac Newton, had died three months before. Born prematurely, Newton was a small child; his mother Hannah Ayscough reportedly said that he could have *fit inside a quart mug*. When Newton was three, his mother remarried and went to live with her new husband, the Reverend Barnabas Smith, leaving her son in the care of his maternal grandmother, Margery Ayscough. The young Isaac disliked his stepfather and maintained some enmity towards his mother for marrying him, as revealed by this entry in a list of sins committed up to the age of 19: "Threatening my father and mother Smith to burn them and the house over them." Newton's mother had three children from her second marriage. From the age of about twelve until he was seventeen, Newton was educated at The King's School, Grantham, which taught Latin and Greek and probably imparted a significant foundation of mathematics. He was removed from school, and by October 1659, he was to be found at**

64pt

Solar System

32pt

This is the gravitationally bound system comprising the Sun and the *objects* that orbit it, either directly or indirectly.

VILLAGE

24pt

OUR KNOWN SOLAR SYSTEM FORMED 4.6 BILLION YEARS AGO FOLLOWING THE GRAVITATIONAL COLLAPSE OF AN INTERSTELLAR MOLECULAR CLOUD.

18pt

The vast majority of the solar system's mass is in the Sun, with the majority of the remaining mass contained in Jupiter. The four smaller inner planets, Mercury, Venus, Earth and Mars, are terrestrial planets, being *primarily composed* of rock and metal. The four outer planets are giant planets, being substantially more massive than the terrestrials.

16pt The two largest planets in our solar system, Jupiter and Saturn, are gas giants, being composed primarily of hydrogen and helium; the two outermost planets, Uranus and Neptune, are ice giants, being composed mostly of substances with relatively high melting points compared with hydrogen and helium, called volatiles, such as water, ammonia and methane. *All eight planets* have almost perfectly circular orbits that lie within a nearly flat disc called the ecliptic.

14pt The Solar System also contains smaller objects. The asteroid belt, which lies between the orbits of Mars and Jupiter, mostly contains objects composed, like the *terrestrial planets*, of rock and metal. Beyond Neptune's orbit lie the Kuiper belt and scattered disc, which are populations of trans-Neptunian objects composed mostly of ices, and beyond them a newly discovered population of sednoids.

12pt WITHIN THESE POPULATIONS ARE SEVERAL DOZEN TO POSSIBLY TENS OF THOUSANDS OF OBJECTS LARGE ENOUGH THAT THEY HAVE BEEN ROUNDED BY THEIR OWN GRAVITY. SUCH OBJECTS ARE CATEGORIZED AS DWARF PLANETS. IDENTIFIED DWARF PLANETS INCLUDE THE ASTEROID CERES AND THE TRANS-NEPTUNIAN OBJECTS PLUTO AND ERIS. IN ADDITION TO THESE TWO REGIONS, VARIOUS OTHER SMALL-BODY POPULATIONS, INCLUDING COMETS, CENTAURS AND INTERPLANETARY DUST CLOUDS.

9pt For most of history, humanity did not recognize or understand the concept of the Solar System. Most people up to the Late Middle Ages-Renaissance believed Earth to be stationary at the centre of the universe and categorically different from the divine or ethereal objects that moved through the sky. Although the Greek philosopher Aristarchus of Samos had speculated on a heliocentric reordering of the cosmos, Nicolaus Copernicus was the first to develop a mathematically predictive heliocentric system. In the 17th century, Galileo Galilei, Johannes Kepler, and Isaac Newton developed an understanding of physics that led to the gradual acceptance of the idea that Earth moves around the Sun and that the planets are governed by the same physical laws that governed Earth. The invention of the telescope led to the discovery of further planets and moons. Improvements in the telescope and the use of unmanned spacecraft have enabled the investigation of geological phenomena, such as *mountains, craters, seasonal meteorological phenomena*, such as clouds, dust storms and ice caps on the other planets. The principal component of the Solar System is the Sun.

64pt

Constellations

32pt

A constellation is a group of stars that are considered to form imaginary outlines or meaningful *patterns* on the celestial sphere.

VILLAGE

24pt

THE CONSTELLATIONS TYPICALLY REPRESENT ANIMALS, MYSTICAL CREATURES, MYTHOLOGIC GODS, OR MANUFACTURED DEVICES HELPFUL TO HUMANS.

18pt

Origins for the earliest constellations likely date back to prehistory, whose now unknown creators collectively used them to related important stories of either their beliefs, experiences, creation or mythology. As such, different cultures and regions often adopted their own set of *constellation* outlines, some of which persisted into the early 20th Century.

16pt The Western-traditional constellations are the forty-eight Greek classical patterns, as stated in both Aratus's work *Phenomena* or Ptolemy's *Almagest*—though their existence probably predates these constellation names by several centuries. Newer constellations in the far southern sky were added much later during the 15th to mid-18th century, when European explorers began travelling to the southern hemisphere. Twelve important constellations are assigned to the zodiac.

14pt In 1928, the International Astronomical Union (IAU) ratified and recognized 88 modern constellations with contiguous boundaries defined by right ascension and declination. Therefore, any given point in a *celestial coordinate system* lies in one of the modern constellations. Some naming systems give the constellation where a given celestial object is found along with a designation in order to convey an approximate idea of its location in the sky.

12pt THE WORD CONSTELLATION SEEMS TO COME FROM THE LATE LATIN CŌNSTELLĀTIŌ, WHICH CAN BE TRANSLATED AS "SET OF STARS". THE WORD CAME INTO USE IN ENGLISH DURING THE 14TH CENTURY. THE TERM CONSTELLATION MAY ALSO REFER TO THE STARS WITHIN OR ACROSS THE BOUNDARIES OF CONSTELLATIONS. NOTABLE GROUPINGS OF STARS THAT DO NOT CONFORM TO THE MODERN CONSTELLATIONS ARE USUALLY CALLED ASTERISMS: THE PLEIADES, THE HYADES, FALSE CROSS, OR VENUS' MIRROR IN ORION.

9pt The Babylonians were the first to recognize that astronomical phenomena are periodic and apply mathematics to their predictions. The oldest Babylonian star catalogues of stars and constellations date back to the beginning in the Middle Bronze Age, most notably the Three Stars Each texts are an expanded and revised version based on more accurate observation from around 1000 BC. However, the numerous Sumerian names in these catalogues suggest that they built on older, but otherwise untested, Sumerian traditions of the Early Bronze Age. The classical Zodiac is a product of a revision of the Old Babylonian system in later Neo-Babylonian astronomy 6th century BC. Knowledge of the Neo-Babylonian zodiac is also reflected in the Hebrew Bible. E. W. Bullinger interpreted the creatures appearing in the books of Ezekiel as the middle signs of the four quarters of the Zodiac, with the Lion as Leo, the Bull as Taurus, the Man representing Aries and the Eagle standing in for Scorpio. The biblical *Book of Job* also makes reference to a number of constellations, including: Ayish, meaning bier, chesil: fool, and chimah: heap, rendered as "Arieturus, Orion and Pleiades".

64pt

Intergalactic

32pt

Outer space is the expanse that exists between celestial bodies, including Earth. It is a hard vacuum containing a low density of *particles*.

VILLAGE

24pt

THE CONSTELLATIONS TYPICALLY REPRESENT ANIMALS, MYSTICAL CREATURES, MYTHOLOGIC GODS, OR MANUFACTURED DEVICES HELPFUL TO HUMANS.

18pt

The plasma between galaxies accounts for about half of the baryonic matter in the universe; it has a number density of less than one hydrogen atom per cubic metre and a temperature of millions of kelvins; *local concentrations* of this plasma have condensed into stars and galaxies. Studies indicate that 90% of the mass in most galaxies appears in an unknown form called dark matter.

16pt There is no definite altitude above the Earth's surface where outer space begins. However, the Kármán line, at an altitude of 100 km above sea level, is conventionally used as the start of outer space in space treaties as well as for aerospace records keeping. The framework for international space law was established by the Outer Space Treaty, which entered into force on 10 October 1967. This treaty precludes any *claims of sovereignty* and permits all states to freely explore outer space.

14pt Humans began the physical exploration of space during the 20th century with the advent of high-altitude balloon flights, followed by manned rocket launches. Earth orbit was first achieved by Yuri Gagarin of the Soviet Union in 1961, and unmanned spacecraft have since reached all of the known planets in the Solar System. Due to the high cost of getting into space, *manned spaceflight* has been limited to low Earth orbit and the Moon.

12pt OUTER SPACE REPRESENTS A CHALLENGING ENVIRONMENT FOR HUMAN EXPLORATION BECAUSE OF THE DUAL HAZARDS OF VACUUM AND RADIATION. MICROGRAVITY ALSO HAS A NEGATIVE EFFECT ON HUMAN PHYSIOLOGY THAT CAUSES BOTH MUSCLE ATROPHY AND BONE LOSS. IN ADDITION TO THESE HEALTH AND ENVIRONMENTAL ISSUES, THE ECONOMIC COST OF PUTTING OBJECTS, INCLUDING HUMANS, INTO SPACE IS VERY HIGH. IN 350 BCE, GREEK PHILOSOPHER ARISTOTLE SUGGESTED THAT NATURE ABHORS A VACUUM.

9pt The Italian scientist Galileo Galilei knew that air had mass and so was subject to gravity. In 1640, he demonstrated that an established force resisted the formation of a vacuum. However, it would remain for his pupil Evangelista Torricelli to create an apparatus that would produce a partial vacuum in 1643. This experiment resulted in the first mercury barometer and created a scientific sensation in Europe. The French mathematician Blaise Pascal reasoned that if the column of mercury was supported by air, then the column ought to be shorter at higher altitude where the air pressure is lower. In 1648, his brother-in-law, Florin Périer, repeated the experiment on the Puy de Dôme mountain in central France and found that the column was shorter by three inches. This *decrease in pressure* was further demonstrated by carrying a half-full balloon up a mountain and watching it gradually expand, then contract upon descent. In 1650, German scientist Otto von Guericke constructed the first vacuum pump: a device that would further refute the principle of *horror vacui*. He correctly noted that the atmosphere of the Earth surrounds the planet like a shell, with the density gradually declining with altitude.

64pt

Supercluster

32pt

A supercluster is made of a large group of smaller galaxy *clusters* or galaxy groups, which are among the largest known structures.

VILLAGE

24pt

GALAXIES ARE GROUPED INTO CLUSTERS RATHER THAN BEING DISPERSED RANDOMLY. CLUSTERS OF GALAXIES ARE GROUPED TO FORM LARGER SUPERCLUSTERS.

18pt

Typically, superclusters contain dozens of individual clusters throughout an area of space about 150 million light-years across. Unlike clusters, most super clusters are not bound together by gravity. The component clusters are generally shifting away from each other due to the Hubble flow. *The Milky Way* galaxy falls within the Local Group, which is a poor and irregular cluster of galaxies.

64pt

Leonid Shower

32pt

This meteor shower gets its name from the location of its radiant in the constellation Leo: the *meteors* appear to radiate from that point.

VILLAGE

24pt

EARTH MOVES THROUGH A STREAM OF METEOROID PARTICLES LEFT FROM THE PASSAGE OF A COMET AS ITS FROZEN GASES EVAPORATE UNDER THE HEAT OF THE SUN.

18pt

These trails of meteoroids cause meteor showers when Earth encounters them. Old trails are spatially not dense and compose the meteor shower with *a few meteors per minute*. In the case of the Leonids, that tends to peak around November 18, but some are spread through several days on either side and the specific peak changes every year. Young trails are spatially very dense.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

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Ligatures

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Discretionary Ligatures

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Punctuation & Symbols

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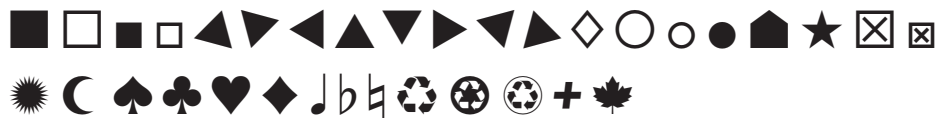
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Symbols

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Arrows

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Graphic Symbols



Currency

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Pre-built Fractions

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$$\frac{1}{16} \quad \frac{5}{16} \quad \frac{7}{16} \quad \frac{9}{16} \quad \frac{11}{16} \quad \frac{13}{16} \quad \frac{15}{16}$$

CASE-SENSITIVE GLYPHS

Activate with an All Caps text setting or via the glyph palette

Off «Hola, ¿cómo estás?»

On «HOLA, ¿CÓMO ESTÁS?»

SMALL CAPITALS

Access via OpenType or the glyph table

Off The System of the World

On THE SYSTEM OF THE WORLD

LIGATURES: fi fl fi

Access via OpenType or the glyph table

Off the first flower of spring

On the first flower of spring

DISCRETIONARY LIGATURES: ? & á

Access via OpenType or the glyph table

Off Are you serious?!

On Are you serious?

SCHOOLBOOK LOWERCASE a

Access via Stylistic Set 02 or the glyph table

Off apple & apricot candy

On apple & apricot candy

SCHOOLBOOK LOWERCASE y

Access via Stylistic Set 03 or the glyph table

Off young yappy yorkies

On young yappy yorkies

REVERSE QUOTES

Access via Stylistic Set 04 or the glyph table

Off “quote unquote”

On “quote unquote”

S- AND T-COMMA DIACRITICS

Access via Stylistic Set 05 or the glyph table

Off deșertul prezidențiale

On deșertul prezidențiale

S- AND T-CEDILLA DIACRITICS

Access via Stylistic Set 06 or the glyph table

Off ofițial vizitin başladılar

On ofițial vizitin başladılar

Nº SYMBOL

Access via the glyph table

Off 123 West 45th Street, No6

On 123 West 45th Street, Nº6

TABULAR LINING NUMERALS

These are the default numerals

Default

£3,456.78 growth in 2018

PROPORTIONAL LINING NUMERALS

Access via OpenType or the glyph table

Off £3,456.78 growth in 2018

On £3,456.78 growth in 2018

PRE-BUILT & ARBITRARY FRACTIONS

Access via OpenType or the glyph table

Off 21/2 cups + 7/9 teaspoon

On 2½ cups + ⅞ teaspoon

NUMERATORS & DENOMINATORS

Activate via OpenType or the glyph table

Off 1/2 + 3/4 + 5/6

On ½ + ¾ + ⅚

SUPERIORS

Activate via OpenType or the glyph table

Off 8€50 per litre

On 8€⁵⁰ per litre

INFERIORS

Activate via OpenType or the glyph table

Off Elements: CO₂ H₂O

On Elements: CO₂ H₂O

Cesky
9pt

VŠEOBECNOU DEKLARACI LIDSKÝCH PRÁV JAKOŽTO SPOLEČNÝ cíl pro všechny národy a všechny státy za tím účelem, aby se každý jednotlivec a každý orgán společnosti, máje tuto deklaraci stále namysli, snažil vyučováním a výchovou rozšířit úctu k těmto právům a svobodám azajistit postupnými opatřeními vnitrostátními i mezinárodními jejich všeobecné a účinné uznávání a zachovávání jak mezi lidem členských států samých, tak i mezi lidem území, jež jsou pod jejich **pravomocí**. Všichni lidé rodí se svobodní a sobě rovní co do důstojnosti a práv. Jsou nadáni rozumem a svědomím a mají spolu jednat v duchu bratrství. *Každý má všechna práva a všechny svobody, stanovené touto deklarací, bez jakéhokoli rozlišování zejména podle rasy, barvy, pohlaví, jazyka, náboženství, politického nebo jiného smýšlení, národnostního nebo sociálního původu, majetku, rodu nebo jiného postavení.* Žádný rozdíl nebude dále činěn z důvodu politického, právního nebo mezinárodního postavení ze země nebo území, k nimž určitá osoba přísluší.

Dansk
9pt

PLENARFORSAMLINGEN DERFOR NU DENNE DERFOR NU DENNE verdenserklæring om menneskerettighederne som et fælles mål for alle folk og alle nationer med det formål, at ethvert menneske og ethvert samfundsorgan stedse med denne erklæring for øje skal stræbe efter gennem undervisning og opdragelse at fremme respekt for disse rettigheder og friheder og gennem fremadskridende nationale og internationale foranstaltninger at sikre, at de anerkendes og overholdes overalt og effektivt, både blandt befolkningerne i medlemsstaterne og blandt befolkningerne i de områder, der befinder sig under deres styre. *Alle mennesker er født frie og lige i værdighed og rettigheder.* De er udstyret med fornuft og samvittighed, og de bør handle mod hverandre i en **broderskabets** ånd. Enhver har krav på alle de rettigheder og friheder, som nævnes i denne erklæring, uden forskelsbehandling af nogen art, f. eks. på grund af race, farve, køn, sprog, religion, politisk eller anden anskuelse, national eller social oprindelse, formueforhold.

Deutsch
9pt

VERKÜNDET DIE GENERALVERSAMMLUNG DIESE ALLGEMEINE Erklärung der Menschenrechte als das von allen Völkern und Nationen zu erreichende gemeinsame Ideal, damit jeder einzelne und alle Organe der Gesellschaft sich diese Erklärung stets gegenwärtig halten und sich bemühen, durch Unterrichts- und Erziehung die Achtung vor diesen Rechten und Freiheiten zu fördern und durch fortschreitende nationale und internationale Maßnahmen ihre allgemeine und **tatsächliche** Anerkennung und Einhaltung durch die Bevölkerung der Mitgliedstaaten selbst wie auch durch die Bevölkerung der ihrer Hoheitsgewalt unterstehenden Gebiete zu gewährleisten. Alle Menschen sind frei und gleich an Würde und Rechten geboren. *Sie sind mit Vernunft und Gewissen begabt und sollen einander im Geist der Brüderlichkeit.* Jeder hat Anspruch auf die in dieser Erklärung verkündeten Rechte und Freiheiten ohne irgendeinen Unterschied, etwa nach Rasse, Hautfarbe, Geschlecht, Sprache, Religion, politischer oder sonstiger Überzeugung.

Español
9pt

VŠEOBECNOU DEKLARACI LIDSKÝCH PRÁV JAKOŽTO SPOLEČNÝ cíl pro všechny národy a všechny státy za tím účelem, aby se každý jednotlivec a každý orgán společnosti, máje tuto deklaraci stále namysli, snažil vyučováním a výchovou rozšířit úctu k těmto právům a svobodám azajistit postupnými opatřeními vnitrostátními i mezinárodními jejich všeobecné a účinné uznávání a zachovávání jak mezi lidem členských států samých, tak i mezi lidem území, jež jsou pod jejich **pravomocí**. Všichni lidé rodí se svobodní a sobě rovní co do důstojnosti a práv. Jsou nadáni rozumem a svědomím a mají spolu jednat v duchu bratrství. *Každý má všechna práva a všechny svobody, stanovené touto deklarací, bez jakéhokoli rozlišování zejména podle rasy, barvy, pohlaví, jazyka, náboženství, politického nebo jiného smýšlení, národnostního nebo sociálního původu, majetku, rodu nebo jiného postavení.* Žádný rozdíl nebude dále činěn z důvodu politického, právního nebo mezinárodního postavení ze země nebo území, k nimž určitá osoba přísluší.

Finnish
9pt

YLEISKOKOUS ANTAA TÄMÄN IHMISOIKEUKSIEN YLEISMAAILMALLISEN julistuksen kaikkien kansojen ja kaikkien kansakuntien tavoiteltavaksi yhteiseksi ohjeeksi, jotta kukin yksilö ja kukin yhteiskuntaelin pyrkisi, pitäen alati mielessään tämän julistuksen, valistamalla ja opettamalla edistämään näiden oikeuksien ja vapauksien kunnioittamista sekä turvaamaan jatkuvin kansallisin ja kansainvälisin toimenpitein niiden yleisen ja tehokkaan tunnustamisen ja noudattamisen sekä itse **jäsenvaltioiden** kansojen että niiden oikeuspiirissä olevien alueiden kansojen keskuudessa. *Kaikki ihmiset syntyvät vapaina ja tasavertaisina arvoltaan ja oikeuksiltaan.* Heille on annettu järki ja omatunto, ja heidän on toimittava toisiaan kohtaan veljeyden hengessä. Jokainen on oikeutettu kaikkiin tässä julistuksessa esitettyihin oikeuksiin ja vapauksiin ilman minkäänlaista rotuun, väriin, sukupuoleen, kieleen, uskontoon, poliittiseen tai muuhun mielipiteeseen, kansalliseen tai yhteiskunnalliseen alkuperään, omaisuuteen, syntyperään tai muuhun tekijään perustuvaa erotusta.

Français
9pt

L'ASSEMBLÉE GÉNÉRALE PROCLAME LA PRÉSENTE DÉCLARATION universelle des droits de l'homme comme l'idéal commun à atteindre par tous les peuples et toutes les nations afin que tous les individus et tous les organes de la société, ayant cette Déclaration constamment à l'esprit, s'efforcent, par l'enseignement et l'éducation, de développer le respect de ces droits et libertés et d'en assurer, par des mesures progressives d'ordre national et international, la reconnaissance et l'application universelles et effectives, tant parmi les populations des Etats Membres eux-même que parmi celles des territoires placés sous leur juridiction. Tous les êtres humains naissent libres et égaux en dignité et en droits. Ils sont doués de raison et de **conscience** et doivent agir les uns envers les autres dans un esprit de fraternité. *De plus, il ne sera fait aucune distinction fondée sur le statut politique, juridique ou international du pays ou du territoire dont une personne est ressortissante, que ce pays ou territoire soit indépendant, sous tutelle, non autonome ou soumis.*

Íslenska
9pt

FYRIR ÞVÍ HEFUR ALLSHERJARÞING SAMEINUÐU ÞJÓÐANNA fallizt á mannréttindayfirlýsingu þá, sem hér með er birt öllum þjóðum og ríkjum til fyrirmyndar. Skulu einstaklingar og yfirvöld jafnan hafa yfirlýsingu þessa í huga og kappkosta með fræðslu og uppeldi að efla virðingu fyrir réttindum þeim og frjálstræði, sem hér er að stefnt. Ber og hverjum einum að stuðla þeim framförum, innan ríkis og ríkjanna í milli, er að markmiðum yfirlýsingarinnar stefna, tryggja almenna og virka viðurkenningu á grundvallaratriðum hennar og sjá um, að þau verði í heiðri höfð, bæði meðal þjóða aðildarríkjanna sjálfra og meðal þjóða á landsvæðum þeim, er hlita **lögsögu aðildarríkja**. Hver maður er borinn frjáls og jafn öðrum að virðingu og réttindum. Menn eru gæddir vitsmunum og samvizku, og ber þeim að breyta bróðurlega hverjum við. *Hver maður skal eiga kröfu á réttindum þeim og því frjálsræði, sem fólgin eru í yfirlýsingu þessari, og skal þar engan greinarmun gera vegna kynþáttar, litarháttar, kynferðis, tungu, trúar, stjórnálaskoðana eða annarra skoðana.*

Polski
9pt

PRZETO ZGROMADZENIE OGÓLNE OGŁASZA UROCZYŚCIE niniejszą Powszechną Deklarację Praw Człowieka jako wspólny najwyższy cel wszystkich ludów i wszystkich narodów, aby wszyscy ludzie i wszystkie organy społeczeństwa mając stale w pamięci niniejszą Deklarację — dążyły w drodze nauczania i wychowywania do rozwijania poszanowania tych praw i wolności i aby zapewniły za pomocą **postępowych** środków o zasięgu krajowym i międzynarodowym powszechne i skuteczne uznanie i stosowanie tej Deklaracji zarówno wśród narodów Państw Członkowskich, jak i wśród narodów zamieszkujących podległe ich władzy. Wszyscy ludzie rodzą się wolni i równi pod względem swej godności i swych praw. Są oni obdarzeni rozumem i sumieniem i powinni postępować wobec innych w duchu braterstwa. Każdy człowiek posiada wszystkie prawa i wolności zawarte w niniejszej Deklaracji bez względu na jakiekolwiek różnice rasy, koloru, płci, języka, wyznania, poglądów politycznych i innych, narodowości, pochodzenia społecznego, majątku.

Nyorsk
9pt

DÅ DET Å GODKJENNE DET NATURLEGE MENNESKEVERDET med like og umissande rettar for alle menn eske på jorda er grunnlaget for fridom, rettferd og fred i verda, og då hån og vørdslyse mot men neskerettane har ført til barbariske handlingar som har skaka samvitet til menneskeretta, er framvo ksteren i den verda der menneska skal ha talefridom og **trusfridom** og vere løyste frå otte og naud, kunngjord som det høgste målet for kvart menneske, og då det er nødvendig at menneskerettane blir verna om av lover slik at menneska ikkje blir tvinga til å finne den siste utvegen i å gjere opprør mot tyranni og trælekår, og då det er nødvendig å arbeide for betre tilhøve mellom nasjonane, og då folka i *Dei Sameinte Nasjonane har stadfest trua si i denne pakta, på grunnleggjande mennesk erettar*, på menneskeverd og på same rett for mann og kvinne, og har vedteke å arbeide for sosial e framsteg og betre levevilkår i større fridom, og då medlemsstatane har bunde seg til å fremje all menn vørndnad for pakta og halde seg etter menneskerettane og den.

Portuguese
9pt

TODOS OS SERES HUMANOS PODEM INVOCAR OS DIREITOS e as liberdades proclamados na presente Declaração, sem distinção alguma, nomeadamente de raça, de cor, de sexo, de língua, de religião, de opinião política ou outra, de origem nacional ou social, de fortuna, de nascimento ou de qualqu uer outra situação. Além disso, não será feita nenhuma distinção fundada no estatuto político, jurí dico ou internacional do país ou do território da **naturalidade da pessoa**, seja esse país ou territóri o independente, sob tutela, autônomo ou sujeito a alguma limitação de soberania. Todo indivíduo t em direito à vida, à liberdade e à segurança pessoal. *Ninguém será mantido em escravidão ou e m servidão; a escravidão e o trato dos escravos, sob todas as formas, são proibidos.* Ninguém ser á submetido a tortura nem a penas ou tratamentos cruéis, desumanos ou degradantes. Todos os indivíduos têm direito ao reconhecimento, em todos os lugares, da sua personalidade jurídica. To dos são iguais perante a lei e, sem distinção, têm direito a igual proteção da lei.

Svenska
9pt

GENERALFÖRSAMLINGEN DENNA ALLMÄNNA FÖRKLARING OM DE MÄNSKLIGA rättigheterna såsom en ge mensam riktlinje för alla folk och alla nationer, på det att varje individ och varje samhällsor gan må med denna förklaring i åtanke ständigt sträva efter att genom undervisning och uppfostran beford ra respekten för dessa fri- och rättigheter samt genom framstegsfrämjande inhemska och internati onella åtgärder säkerställa deras allmänna och verksamma erkännande och tillämpning såväl bland folken i medlemsstaterna som bland folken i områden under deras överhöghet. Alla människor äro födda fria och lika i värde och **rättigheter**. De äro utrustade med förnuft och samvete och böra ha ndla gentemot varandra i en anda av broderskap. *Envar är berättigad till alla de fri- och rättighet er, som uttalas i denna förklaring, utan åtskillnad av något slag, såsom ras, hudfärg, kön, språk, r eligion, politisk eller annan uppfattning, nationellt eller socialt ursprung, egendom, börd eller stäl lning i övrigt.*

Türkçe
9pt

İNSANLIK TOPLULUĞUNUN BÜTÜN FERTLERIYLE UZUVLARININ bu beyannameyi daima gözönünde tutara k öğretim ve eğitim yoluyla bu haklar ve hürriyetlere saygıyı geliştirmeye, gittikçe artan milli ve mille tlerarası tedbirlerle gerek bizzat üye devletler ahalisi gerekse bu devletlerin idaresi altındaki ülkeler ahalisi arasında bu hakların dünyaca fiilen tanınmasını ve tatbik edilmesini sağlamaya gayret etmeler ri amacıyla bütün halklar ve milletler için ulaşılabacak ortak ideal olarak işbu İnsan Hakları Evrensel Bey annamesini ilan eder. Bütün insanlar hür, haysiyet ve haklar **bakımından** eşit doğarlar. *Akıl ve vicdan a sahiptirler ve birbirlerine karşı kardeşlik zihniyeti ile hareket etmelidirler. Herkes, ırk, renk, cinsiy et, dil, din, siyasi veya diğer herhangi bir akide, milli veya içtimai menşe, servet, doğuş veya herhan gi diğer bir fark gözetilmeksizin işbu Beyannamede ilan olunan tekmil haklardan ve bütün hürriyetle rden istifade edebilir. Bundan başka, bağımsız memleket uyruğu olsun, vesayet altında bulunan gay ri muhtar veya sair bir egemenlik kayıtlamasına tabi ülke uyruğu olsun.*

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Cosmica is Chester Jenkins' first new publication in 5 years. During that time, he has been working with members of Village to prepare their types for release, and has produced several bespoke types for clients, many of which can be seen on his portfolio site: www.bspk.xyz.

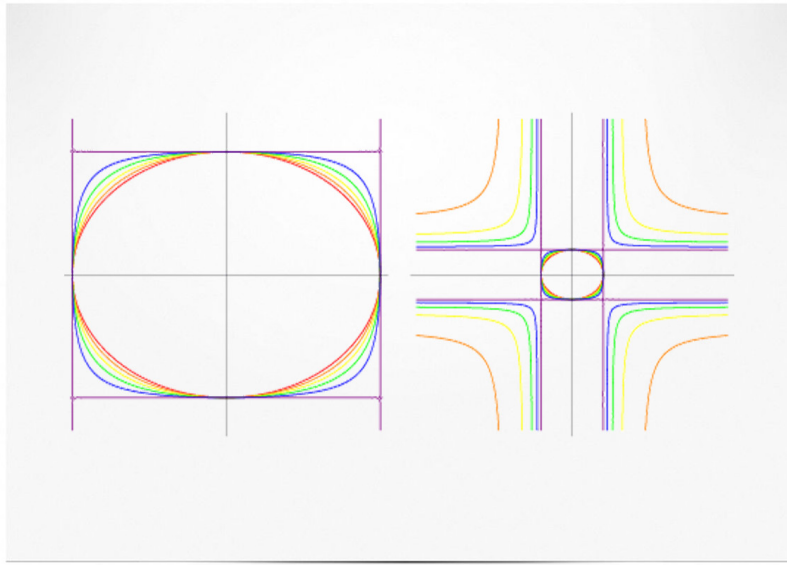
Cosmica started life in mid-2014 as an exploration into taking the Galaxie skeleton (already fleshed out as Polaris, Cassiopeia, and Copernicus) and applying its rules of construction to a geometric sans.

"In recent years I had been called on by a few clients to develop geometric sans types, including a proprietary revival of Futura for Maharam, and a collaboration with Magnus Røkenberg on the types for the Norwegian Airports authority, Avinor, and felt that it was time to bring the compass back home and apply it to my own work."

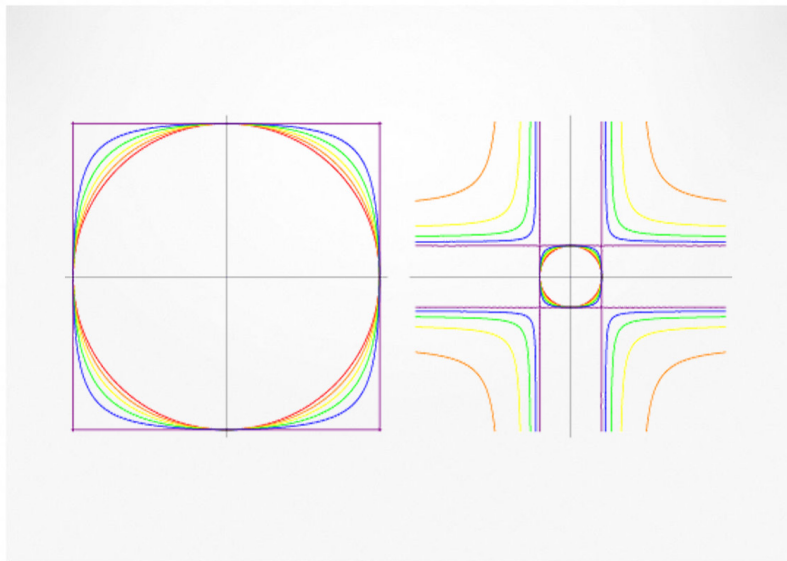
"My earlier designs, notably Apex and Polaris, were often labeled as 'superellipse' designs. This was a term I was not familiar with until it was thrown in my direction. According to Wolfram MathWorld.com "A superellipse is a curve with the following Cartesian equation...."

$$\left| \frac{x}{a} \right|^r + \left| \frac{y}{b} \right|^r = 1$$

page 2 of 5 “Because the curves of Apex and Polaris do not perfectly reflect the above equation, they are in fact “rectellipses”, meaning that their curves are defined by unequal vertical and horizontal dimensions.”



“Imperfect, in a word, and definitely not to be confused with ‘squircles’...”



“Cosmica abandons the rectellipse, tiptoes around the squircle, and adheres closely to the rules of geometric constuction. But not too closely, unsurprisingly.”

page 3 of 5 “As is often the case with my published designs, the work on Cosmica was done in fits and starts over a period of years, when time was available and inspiration struck. Polaris V3.5 was released in mid-2013, while I was in the throes of the Korskript project for Michael Kors—a chaining contextual alternate lookup behemoth which was in development for nearly the better part of a year. Also at this time, I was concentrating very heavily on making the Cooper Hewitt typeface for the Smithsonian with Eddie Opara and team at Pentagram.”

“Once those projects were delivered, in mid-2104, I did some initial exploratory work on turning Polaris into something else..”



UPPERCASE—TOP ROW: POLARIS / BOTTOM ROW: COSMICA



LOWERCASE—TOP ROW: POLARIS / BOTTOM ROW: COSMICA

page 4 of 5 “Some other long- and short-term projects came up towards the end of the year, and I couldn’t return to Cosmica until right at the end of 2015, when a quick blast resulted in many other over-arching details coming into focus. This is also when I decided on the name.”



A FEW MORE STEPS ALONG THE PROGRESSION FROM POLARIS TO COSMICA

“2016 saw another pair of large projects, most notably the revival of Frederic Goudy’s “lost” Sherman type for Syracuse University with Michael Bierut and his team at Pentagram. Another custom type project has taken up most of 2017, and while it has been delivered, the client has not launched it yet. (When they do, I will update this page.)”

“Once the large bulk of that project was released in the autumn of 2017, I put my head down and got to work on finally finishing Cosmica: Curves tightened up in C G & S; stem-to-bowl joins went smooth; G & t grew tails; a & e lost width...”

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A FEW MORE STEPS ALONG THE PROGRESSION FROM POLARIS TO COSMICA

“My type designs tend to originate from my sketchbook rather than historical sources; I usually don’t reference existing designs, and when I do, I rely upon my memories rather than outlines of existing fonts. In the case of Cosmica, the design was created for its own sake, not as a client commission but as a way to revisit my own catalogue and extend the range of what I had already explored and made.”

VILLAGE

SUPPORTED LANGUAGES

ISO 8859-1 Latin1	Afrikaans, Albanian, Basque, Breton, Catalan, Danish, English (<i>UK & US</i>), Faroese, Galician, German, Icelandic, Irish (<i>new orthography</i>), Italian, Kurdish (<i>The Kurdish Unified Alphabet</i>), Latin (<i>basic classical orthography</i>), Leonese, Luxembourgish (<i>basic classical orthography</i>), Norwegian (<i>Bokmål & Nynorsk</i>), Occitan, Portuguese (<i>Portuguese & Brazilian</i>), Rhaeto-Romanic, Scottish Gaelic, Spanish, Swahili, Swedish, Walloon
ISO 8859-2 Latin2	Bosnian, Croatian, Czech, German, Hungarian, Polish, Romanian, Serbian (<i>when in the Latin script</i>), Slovak, Slovene, Upper Sorbian & Lower Sorbian
ISO 8859-3 Latin3	Esperanto, Maltese, Turkish
ISO 8859-4 Latin4	Estonian, Latvian, Lithuanian, Greenlandic, Sami
ISO 8859-9 Latin5	Turkish
ISO 8859-10 Latin6	Nordic languages

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