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The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. , the free encyclopedia that anyone can edit. 111,866 active editors 7,011,193 articles in English 1820 historical world map History is the systematic study of the past with its main focus on the human past. Historians analyse and interpret primary and secondary sources to construct narratives about what happened and explain why it happened. They engage in source criticism to assess the authenticity, content, and reliability of these sources. It is controversial whether the resulting historical narratives can be truly objective and whether history is a social science rather than a discipline of the humanities. Influential schools of thought include positivism, the Annales school, Marxism, and postmodernism. Some branches of history focus on specific time periods, such as ancient history, particular geographic regions, such as the history of Africa, or distinct themes, such as political, social, and economic history. History emerged as a field of inquiry in antiquity to replace myth-infused narratives, with influential early traditions originating in Greece, China, and later in the Islamic world. (Full article...) Recently featured: Ian Carmichael Russet sparrow Emmy Noether Archive By email More featured articles About Welsh presbytery meeting, 1940 ... that the term "middle judicatory", which many denominations use for their mid-tier organizations, originated in Presbyterian courts (example pictured) for church discipline? ... that texting someone a poop emoji in Japan is a way to wish them good luck? ... that American football player Dominic Vairo went from being forced off the freshman team at Notre Dame to becoming captain of the varsity team? ... that an anime programming block that originally aired on the American television channel TechTV was the inspiration for the co-founder of a Japanese animation studio? ... that ratline organizer Ivo Omrčanin once beat a suspected informant with an umbrella? ... that a leak from a natural-gas storage field led to the destruction of or damage to almost 30 buildings in Hutchinson, Kansas? ... that Lorenzo Pace performed a candlelit flute concerto at the outset of his dissertation defense? ... that Queen Afua inspired New York City mayor Eric Adams to become vegan? ... that the Fuck Tree has been described as a "physical embodiment of desire"? Archive Start a new article Nominate an article Phil Hanson In ice hockey, the Florida Panthers defeat the Edmonton Oilers to win the Stanley Cup Finals. In motorsport, Robert Kubica, Yifei Ye, and Phil Hanson (pictured) of AF Corse win the 24 Hours of Le Mans. In the US state of Minnesota, state representative Melissa Hortman is assassinated and state senator John Hoffman is injured. Former president of Nicaragua and first elected female president in the Americas Violeta Chamorro dies at the age of 95. Ongoing: Gaza war Russian invasion of Ukraine timeline Sudanese civil war timeline Recent deaths: Alfred Brendel Ali Shamkhani Hamilton Wanasinghe Afa Ah Loo Geoff Palmer Stella Chen Nominate an article June 19: Juneteenth in the United States (1865) Lou Gehrig baseball card 1785 – The proprietors of King's Chapel, Boston, voted to adopt James Freeman's Book of Common Prayer, thus establishing the first Unitarian church in the Americas. 1838 – The Maryland province of the Jesuits contracted to sell 272 slaves to buyers in Louisiana in one of the largest slave sales in American history. 1939 – American baseball player Lou Gehrig (pictured) was diagnosed with amyotrophic lateral sclerosis, now commonly known in the United States as "Lou Gehrig's disease". 2009 – War in Afghanistan: British forces began Operation Panther's Claw, in which more than 350 troops made an aerial assault on Taliban positions in southern Afghanistan. Étienne Geoffroy Saint-Hilaire (d. 1844)Sarah Rosetta Wakeman (d. 1864)Aage Bohr (b. 1922)Clayton Kirkpatrick (d. 2004) More anniversaries: June 18 June 19 June 20 Archive By email List of days of the year About Dred Scott (c. 1799 – 1858) was an enslaved African American who, along with his wife, Harriet Robinson Scott, unsuccessfully sued for the freedom of themselves and their two daughters, Eliza and Lizzie, in the 1857 legal case Dred Scott v. Sandford. The Scotts claimed that they should be granted freedom because Dred had lived for four years in Illinois and the Wisconsin Territory, where slavery was illegal, and laws in those jurisdictions said that slave holders gave up their rights to slaves if they stayed for an extended period. The Supreme Court of the United States ruled against Scott in a landmark decision that held the Constitution did not extend American citizenship to people of black African descent, and therefore they could not enjoy the rights and privileges that the Constitution conferred upon American citizens. The Dred Scott decision is widely considered the worst in the Supreme Court's history, being widely denounced for its overt racism, judicial activism, poor legal reasoning, and crucial role in the events that led to the American Civil War four years later. The ruling was later superseded by the passage of the Thirteenth Amendment to the United States Constitution, which abolished slavery, in 1865, followed by the Fourteenth Amendment, whose first section guaranteed birthright citizenship for "all persons born or naturalized in the United States and subject to the jurisdiction thereof", in 1868. This posthumous oil-on-canvas portrait of Scott was painted by Louis Schultze, after an 1857 photograph by John H. Fitzgibbon, and now hangs in the Missouri History Museum in St. Louis. Painting credit: Louis Schultze, after John H. Fitzgibbon Recently featured: Garni Temple Igor Stravinsky Sabella pavonina Archive More featured pictures Community portal – The central hub for editors, with resources, links, tasks, and announcements. Village pump – Forum for discussions about Wikipedia itself, including policies and technical issues. Site news – Sources of news about Wikipedia and the broader Wikimedia movement. Teahouse – Ask basic questions about using or editing Wikipedia. Help desk – Ask questions about using or editing Wikipedia. Reference desk – Ask research questions about encyclopedic topics. Content portals – A unique way to navigate the encyclopedia. Wikipedia is written by volunteer editors and hosted by the Wikimedia Foundation, a non-profit organization that also hosts a range of other volunteer projects: CommonsFree media repository MediaWikiWiki software development Meta-WikiWikimedia project coordination WikibooksFree textbooks and manuals WikidataFree knowledge base WikinewsFree-content news WikiquoteCollection of quotations WikisourceFree-content library WikispeciesDirectory of species WikiversityFree learning tools WikivoyageFree travel guide WiktionaryDictionary and thesaurus This Wikipedia is written in English. Many other Wikipedias are available; some of the largest are listed below. 1,000,000+ articles العربية Deutsch Español فارسی Français Italiano Nederlands 日本語 Polski Português Русский Svenska Українська Tiếng Việt 中文 250,000+ articles Bahasa Indonesia Bahasa Melayu Bân-lâm-gú Български Català Čeština Dansk Eesti Ελληνικά Esperanto Euskara עברית Հայերեն Magyar Norsk bokmål Română Simple English Slovenčina Srpski Srpskohrvatski Suomi Türkçe Oʻzbekcha 50,000+ articles Asturianu Azərbaycanca [illegible] Bosanski کوردی Frysk Gaeilge Galego Hrvatski ქართული Kurdî Latviešu Lietuvių [illegible] Македонски [illegible] Norsk nynorsk [illegible] Shqip Slovenščina [illegible] اردو Retrieved from " 2 This article is about the year 1865. For other uses, see 1865 (disambiguation). Calendar year Years Millennium 2nd millennium Centuries 18th century 19th century 20th century Decades 1840s 1850s 1860s 1870s 1880s Years 1862 1863 1864 1865 1866 1867 1868 vte 1865 by topic Humanities Animation Archaeology Architecture Art Literature Poetry Music By country Australia Belgium Brazil Canada China Denmark France Germany New Zealand Norway Portugal Russia South Africa Sweden United Kingdom United States Other topics Rail transport Science Sports Lists of leaders Sovereign states Sovereign state leaders Territorial governors Religious leaders Law Birth and death categories Births Deaths Establishments and disestablishments categories Establishments Disestablishments Works category Works vte 1865 in various calendarsGregorian calendar1865MDCCCLXVAb urbe condita2618Armenian calendar1314ԹՎ ՌՅԺԴAssyrian calendar6615Bahá'í calendar21–22Balinese saka calendar1786–1787Bengali calendar1271–1272Berber calendar2815British Regnal year28 Vict. 1 – 29 Vict. 1Buddhist calendar2409Burmese calendar1227Byzantine calendar7373–7374Chinese calendar甲子年 (Wood Rat)4562 or 4355 — to —乙丑年 (Wood Ox)4563 or 4356Coptic calendar1581–1582Discordian calendar3031Ethiopian calendar1857–1858Hebrew calendar5625–5626Hindu calendars - Vikram Samvat1921–1922 - Shaka Samvat1786–1787 - Kali Yuga4965–4966Holocene calendar11865Igbo calendar865–866Iranian calendar1243–1244Islamic calendar1281–1282Japanese calendarGenji 2 / Keiō 1(慶応元年)Javanese calendar1793–1794Julian calendarGregorian minus 12 daysKorean calendar4198Minguo calendar47 before ROC民前47年Nanakshahi calendar397Thai solar calendar2407–2408Tibetan calendar阳木鼠年(male Wood-Rat)1991 or 1610 or 838 — to —阴木牛年(female Wood-Ox)1992 or 1611 or 839 Wikimedia Commons has media related to 1865. 1865 (MDCCCLXV) was a common year starting on Sunday of the Gregorian calendar and a common year starting on Friday of the Julian calendar, the 1865th year of the Common Era (CE) and Anno Domini (AD) designations, the 865th year of the 2nd millennium, the 65th year of the 19th century, and the 6th year of the 1860s decade. As of the start of 1865, the Gregorian calendar was 12 days ahead of the Julian calendar, which remained in localized use until 1923. Calendar year January 15: Union captures Fort Fisher. January 4 – The New York Stock Exchange opens its first permanent headquarters at 10-12 Broad near Wall Street, in New York City. January 13 – American Civil War: Second Battle of Fort Fisher – Union forces launch a major amphibious assault against the last seaport held by the Confederates, Fort Fisher, North Carolina. January 15 – American Civil War: Union forces capture Fort Fisher. January 31 The Thirteenth Amendment to the United States Constitution (conditional prohibition of slavery and involuntary servitude) passes narrowly, in the House of Representatives. American Civil War: Confederate General Robert E. Lee becomes general-in-chief. February 3 – American Civil War: Hampton Roads Conference: Union and Confederate leaders discuss peace terms. February 6 – The municipal administration of Finland is established.[1] February 8 & March 8 – Gregor Mendel reads his paper on Experiments on Plant Hybridization at two meetings of the Natural History Society of Brünn in Moravia, subsequently taken to be the origin of the theory of Mendelian inheritance.[2] February 21 – John Deere receives a United States patent for ploughs. February 22 – Tennessee adopts a new constitution that abolishes slavery. February – American Civil War: Columbia, South Carolina burns, as Confederate forces flee from advancing Union forces. March 3 – The U.S. Congress authorizes formation of the Bureau of Refugees, Freedmen and Abandoned Lands. March 4 – Washington College and Jefferson College are merged to form Washington & Jefferson College in the United States.[3] March 13 – American Civil War: The Confederate States of America agrees to the use of African American troops. March 18 – American Civil War: The Congress of the Confederate States of America adjourns for the last time. March 19–21 – American Civil War : Battle of Bentonville: Union troops compel Confederate forces to retreat from Four Oaks, North Carolina. March 25 The Claywater Meteorite explodes just before reaching ground level in Vernon County, Wisconsin; fragments having a combined mass of 1.5 kg (3.3 lb) are recovered. American Civil War: In Virginia, Confederate forces capture Fort Stedman from the Union, although it is retaken the same day. Lee's army suffers heavy casualties: about 2,900, including 1,000 captured in the Union counterattack. Confederate positions are weakened. After the battle, Lee's defeat is only a matter of time. March – Hamm's Brewery opens in St. Paul, Minnesota. April 2: Jefferson Davis. April 9: Appomattox Court House. April 14: Lincoln shot. April 1 – American Civil War – Battle of Five Forks: In Petersburg, Virginia, Confederate General Robert E. Lee begins his final offensive. April 2 – American Civil War: Confederate President Jefferson Davis and most of his Cabinet flee the Confederate capital of Richmond, Virginia, which is taken by Union troops the next day. April 6 – German chemicals producer Badische Anilin- und Sodafabrik (BASF) is founded in Mannheim. April 9 – American Civil War: Confederate States Army General Robert E. Lee surrenders to Union Army General Ulysses S. Grant at Appomattox Court House, effectively ending the war. April 14 Assassination of Abraham Lincoln: President of the United States Abraham Lincoln is shot while attending an evening performance of the farce Our American Cousin at Ford's Theatre in Washington, D.C., by actor and Confederate sympathizer John Wilkes Booth. United States Secretary of State William H. Seward and his family are attacked in his home, by Lewis Powell. April 15 – President Lincoln dies early this morning from his gunshot wound, aged 56. Vice President Andrew Johnson becomes the 17th President of the United States upon Lincoln's death and is sworn in later that morning. April 18 – Confederate President Jefferson Davis and his entire cabinet arrive in Charlotte, North Carolina, with a contingent of 1,000 soldiers. April 21 – German chemicals producer BASF moves its headquarters and factories from Mannheim, to the Hemshof District of Ludwigshafen. April 26 American Civil War: Confederate General Joseph E. Johnston surrenders to Union Major General William Tecumseh Sherman, at Durham Station, North Carolina. Union cavalry corner John Wilkes Booth in a Virginia barn, and cavalryman Boston Corbett fatally shoots the assassin. April 27 The steamboat Sultana, carrying 2,300 passengers, explodes and sinks in the Mississippi River, killing 1,800, mostly Union survivors of the Andersonville Prison.April 27: Steamboat Sultana sinks. Governor of New York Reuben Fenton signs a bill formally creating Cornell University. May 1 – The Treaty of the Triple Alliance of Argentina, Brazil, and Uruguay against Paraguay is formally signed, following the outbreak of the Paraguayan War. May 4 – American Civil War: Lieutenant General Richard Taylor, commanding all Confederate forces in Alabama, Mississippi, and eastern Louisiana, surrenders his forces to Union General Edward Canby at Citronelle, Alabama, effectively ending all Confederate resistance east of the Mississippi River. May 5 – In the United States: In North Bend, Ohio (a suburb of Cincinnati), the first train robbery in the country takes place. Jefferson Davis meets with his Confederate Cabinet (14 officials) for the last time, in Washington, Georgia, and the Confederate Government is officially dissolved. May 10 – American Civil War: Jefferson Davis is captured by the Union Army near Irwinville, Georgia. May 12 – Electric equipment and mobile brand Nokia founded in Tampere, Finland. May 12–13 – American Civil War – Battle of Palmito Ranch: In far south Texas, more than a month after Confederate General Lee's surrender, the last land battle of the civil war with casualties, ends with a Confederate victory. May 17 The International Telegraph Union is founded. French missionary Father Armand David first observes Père David's deer in Peking, China.[4] May 23 – Grand Review of the Armies: Union Army troops parade down Pennsylvania Avenue (Washington, D.C.) to celebrate the end of the American Civil War. May 25 – Mobile magazine explosion: 300 are killed in Mobile, Alabama, when an ordnance depot explodes. May 28 – The Mimosa sets sail with emigrants from Wales for Patagonia.[5] May 29 – American Civil War: President of the United States Andrew Johnson issues a proclamation of general amnesty for most citizens of the former Confederacy. June 2 – American Civil War: Confederate forces west of the Mississippi River under General Edmund Kirby Smith surrender at Galveston, Texas, under terms negotiated on May 26, becoming the last to do so. June 10 – Richard Wagner's opera Tristan und Isolde debuts at the Munich Court Theatre. June 11 – Battle of the Riachuelo: The Brazilian Navy squadron defeats the Paraguayan Navy. July 2: Salvation Army June 19 – American Civil War: Union Major General Gordon Granger lands at Galveston, Texas, and informs the people of Texas of the Emancipation Proclamation (an event celebrated in modern times each year as Juneteenth). June 23 – American Civil War: At Fort Towson in Oklahoma Territory, Confederate General Stand Watie, a Cherokee Indian, surrenders the last significant Rebel army. June 25 – James Hudson Taylor founds the China Inland Mission at Brighton, England. June 26 – Jumbo, a young male African elephant, arrives at London Zoo and becomes a popular attraction. June–August – English polymath Francis Galton first describes eugenics.[6] July 4 – Lewis Carroll publishes his children's novel Alice's Adventures in Wonderland in England[7][8] (first trade editions in December). July 5 The U.S. Secret Service is founded. The first speed limit is introduced in Britain: 2 mph (3.2 km/h) in town and 4 mph (6.4 km/h) in the country. July 7 – Following Abraham Lincoln's assassination on April 14, the four conspirators condemned to death during the trial are hanged, including David Herold, George Atzerodt, Lewis Powell and Mary Surratt. Her son, John Surratt, escapes execution by fleeing to Canada, and ultimately to Egypt. July 14 – First ascent of the Matterhorn: The summit of the Matterhorn in the Alps is reached for the first time, by a party of 7 led by the Englishman Edward Whymper; 4 die in a fall during the descent. July 14: Matterhorn climbed. July 30: Steamer Brother Jonathan sinks. July 21 – Wild Bill Hickok – Davis Tutt shootout: In the market square of Springfield, Missouri, Wild Bill Hickok shoots "Little Dave" Davis Tutt dead over a poker debt, in what is regarded as the first true western fast draw showdown. July 23 – The SS Great Eastern departs on a voyage to lay a transatlantic telegraph cable.[7] July 26 – The New Zealand Parliament first meets in Wellington on a permanent basis, making it de facto the national capital.[9] July 27 Welsh settlers arrive in Argentina at Chubut Valley. Businessman Asa Packer establishes Lehigh University in Bethlehem, Pennsylvania. July 30 – The steamer Brother Jonathan sinks off the California coast, killing 225 passengers and crew. July 31 – The first narrow gauge mainline railway in the world opens at Grandchester, Australia. July – The Christian Mission, later renamed The Salvation Army, is founded in Whitechapel, London, by William and Catherine Booth. August 16 – The Dominican Republic regains independence from Spain. August 25 – The Shergotty meteorite Mars meteorite falls in Sherghati, Gaya, Bihar in India. September 19 – Union Business College (now Peirce College) is founded in Philadelphia. September 26 – Champ Ferguson becomes the first person (and one of only two) to be convicted of war crimes for actions taken during the American Civil War, found guilty by a U.S. Army tribunal on 23 charges, arising from the murder of 53 people. He is hanged on October 20, two days after the conviction of Henry Wirz for war crimes.[10] October 11 – Morant Bay rebellion: Paul Bogle leads hundreds of black men and women in a march in Jamaica; the rebellion is brutally suppressed by the British governor Edward John Eyre with 400 executed.[8] October 25 – Florida drafts its constitution in Tallahassee. October 26 The Standard Oil Company opens. The paddlewheel steamer SS Republic sinks off the Georgia coast, with a cargo of $400,000 in coins. November 6 – American Civil War: The CSS Shenandoah, last remnant of the Confederate States of America and its military, surrenders in Liverpool after fleeing westward from the Pacific. November 10 – Captain Henry Wirz, Confederate superintendent of Andersonville Prison (Camp Sumter) is hanged, becoming the second of two combatants, and only serving regular soldier, to be executed for war crimes committed during the American Civil War. November 11 – Duar War between Britain and Bhutan ends with the Treaty of Sinchula, in which Bhutan cedes control of its southern passes to Britain in return for an annual subsidy.[7] November 17 – Chincha Islands War: Action of 17 November 1865 – A Spanish gunboat is captured by the Chilean tugboat Independencia off Tomé, in the Bay of Concepción, Chile. November 26 – Chincha Islands War: Battle of Papudo – The Spanish ship Covadonga is captured by the Chileans and the Peruvians, north of Valparaíso, Chile. December 11 – The United States Congress creates the United States House Committee on Appropriations and the Committee on Banking and Commerce, reducing the tasks of the House Committee on Ways and Means. December 17 – Leopold II becomes King of the Belgians, following the death (on December 10) of his father, King Leopold I. December 18 – Secretary of State William H. Seward declares the Thirteenth Amendment to the United States Constitution ratified by three-quarters of the states, including those in secession. As of December 6, slavery is legally outlawed in the last two slave states of Kentucky and Delaware, and the remaining 45,000 slaves are freed. December 21 – The Kappa Alpha Order is founded at Washington College, Lexington, Virginia. December 24 – Jonathan Shank and Barry Ownby form the Ku Klux Klan in the American South, to resist Reconstruction and intimidate carpetbaggers and scalawags, as well as to repress the freedpeople. Francis Galton. A forest fire near Silverton, Oregon, destroys about one million acres (4,000 km2) of timber. The National Temperance Society and Publishing House is founded by James Black in the U.S. Nottingham Forest Football Club, an association football based in West Bridgford, Nottingham, England, is founded. January 5 – Julio Garavito Armero, Colombian astronomer (d. 1920) January 9 – Leo Ditrichstein, Austrian-born stage actor, playwright (d. 1928) January 19 – Valentin Serov, Russian portrait painter (d. 1911) January 20 – Yvette Guilbert, French cabaret singer, actress (d. 1944) January 27 – Nikolai Pokrovsky, Russian politician, last foreign minister of the Russian Empire (d. 1930) January 28 Lala Lajpat Rai ("The Lion of Punjab"), a leader of the Indian independence movement (d. 1928) Kaarlo Juho Ståhlberg, 1st President of Finland (d. 1952)[11] January 31 – Henri Desgrange, French cycling enthusiast, founder of the Tour de France (d. 1940) February 4 – Ernest Hanbury Hankin, English bacteriologist, naturalist (d. 1939) February 9 – Beatrice Stella Tanner, later Mrs. Patrick Campbell, English theatre actress, producer (d. 1940) February 12 Enrico Millo, Italian admiral and politician (d. 1930)[12] Kazimierz Tetmajer, Polish writer (d. 1940) February 17 – Ernst Troeltsch, German theologian (d. 1923). February 19 – Sven Hedin, Swedish scientist, explorer (d. 1952) February 21 – John Haden Badley, English author, educator (d. 1967) February 28 – Wilfred Grenfell, English medical missionary to Newfoundland and Labrador (d. 1940) Elma Danielsson March 1 – Elma Danielsson, Swedish socialist, journalist (d. 1936) March 10 – Tan Sitong, Chinese reformist leader (d. 1898) March 15 – Sui Sin Far, English-born writer (d. 1914) March 19 – William Morton Wheeler, American entomologist (d. 1937) March 30 – Heinrich Rubens, German physicist (d. 1922) April – Richard Rushall, British sea captain and businessman (d. 1953) April 1 – Richard Adolf Zsigmondy, Austrian-born chemist, Nobel Prize laureate (d. 1929) April 2 – Gyorche Petrov, Macedonian and Bulgarian revolutionary (d. 1921) April 6 – Victory Bateman, American stage and screen actress (d. 1926) April 9 Violet Nicolson, English poet (d. 1904) Erich Ludendorff, German general (d. 1937) Charles Proteus Steinmetz, German-American engineer, electrician (d. 1923) April 14 – Alfred Hoare Powell, English Arts and Crafts architect, and designer and painter of pottery (d. 1960) April 16 – Harry Chauvel, Australian Army general (d. 1945)[13] April 18 – Leónidas Plaza, 16th President of Ecuador (d. 1932) April 26 – Akseli Gallen-Kallela, Finnish artist (d. 1931)[14] April 28 Vital Brazil, Brazilian physician, immunologist (d. 1950) Charles W. Woodworth, American entomologist (d. 1940) Pieter Zeeman King George V of the United Kingdom May 2 – Clyde Fitch, American dramatist (d. 1909) May 3 – Martha M. Simpson, Australian educationalist ((d. 1948) May 23 – Epitácio Pessoa, 11th President of Brazil (d. 1942) May 25 John Mott, American YMCA leader, recipient of the Nobel Peace Prize (d. 1955) Pieter Zeeman, Dutch physicist, Nobel Prize laureate (d. 1943) May 26 – Robert W. Chambers, American artist (d. 1933) June 2 – George Lohmann, English cricketer (d. 1901) June 3 – George V of the United Kingdom (d. 1936) June 9 Albéric Magnard, French composer (d. 1914) Carl Nielsen, Danish composer (d. 1931) June 13 – W. B. Yeats, Irish writer, Nobel Prize laureate (d. 1939) June 19 Alfred Hugenberg, German businessman, politician (d. 1951) May Whitty, British stage and screen actress (d. 1948) June 21 – Otto Frank, German physiologist (d. 1944) June 26 – Bernard Berenson, American art historian (d. 1959) June 29 – Shigechiyo Izumi, Japanese supercentenarian (d. 1986) Philipp Scheidemann Julia Marlowe July 1 – Granville Ryrie, Australian Army general, politician, and diplomat (d. 1937)[15] July 13 – Gérard Encausse, French occultist (d. 1916) July 15 – Alfred Harmsworth, 1st Viscount Northcliffe, Irish-born British publisher; founder of the Daily Mail and Daily Mirror (d.1922) July 23 Max Heindel, Danish-born Christian occultist, astrologer, and mystic (d. 1919) Edward Terry Sanford, Associate Justice of the Supreme Court of the United States (d. 1930) July 26 – Philipp Scheidemann, 11th Chancellor of Germany (d. 1939) August 2 Irving Babbitt, American literary critic (d. 1933) John Radecki, Australian stained glass artist (d. 1955) August 10 – Alexander Glazunov, Russian composer (d. 1936) August 15 – Usui Mikao, Japanese founder of reiki (d. 1926) August 17 – Julia Marlowe, English-born American stage actress (d. 1950) August 20 – Bernard Tancred, South African cricketer (d. 1911) August 22 – Templar Saxe, British actor and singer (d. 1935) August 24 – King Ferdinand I of Romania (d. 1927) August 27 – James Henry Breasted, American Egyptologist (d. 1935) September 4 – Maria Karłowska, Polish Roman Catholic religious professed and blessed (d. 1935) September 11 – Rainis, Latvian poet, playwright (d. 1929) September 13 – William Birdwood, 1st Baron Birdwood, British field marshal (d. 1951) September 26 – Mary Russell, Duchess of Bedford, English aviator, ornithologist (d. 1937) Charles W. Clark Hovhannes Abelian Warren G. Harding Jean Sibelius Rudyard Kipling October 1 – Paul Dukas, French composer (d. 1935) October 9 – Arthur Hayes-Sadler, British admiral (d. 1952) October 10 – Rafael Merry del Val, Spanish Roman Catholic Cardinal and Secretary of the Congregation of the Holy Office (d. 1930) October 12 – Arthur Harden, English chemist, Nobel Prize laureate (d. 1940) October 15 – Charles W. Clark, American baritone (d. 1925) October 16 – Rudolph Lambart, 10th Earl of Cavan, British field marshal (d. 1946) October 17 – James Rudolph Garfield, U.S. politician (d. 1950) October 22 Charles James Briggs, British general (d. 1941) Raymond Hitchcock, American actor (d. 1929) October 23 – Hovhannes Abelian, Armenian actor (d. 1936) October 26 – Benjamin Guggenheim, American businessman (d. 1912) October 27 – Tinsley Lindley, English footballer (d. 1940) November 2 – Warren G. Harding, 29th President of the United States (d. 1923) November 11 – Edwin Thanhouser, American actor, businessman, and film producer, founder of the Thanhouser Company (d. 1956) December 8 Rüdiger von der Goltz, German general (d. 1946) Jean Sibelius, Finnish composer (d. 1957) December 12 – Edwyn Alexander-Sinclair, British admiral (d. 1945) December 16 – Olavo Bilac, Brazilian poet (d. 1918) December 19 – Minnie Maddern Fiske, American stage actress (d. 1932) December 20 – Elsie de Wolfe, American socialite, interior decorator (d. 1950) December 23 Anna Farquhar Bergengren, American author and editor (unknown year of death) James M. Canty, American educator, school administrator, and businessperson (d. 1964)[16] Albrecht, Duke of Württemberg, German field marshal (d. 1939) December 25 Evangeline Booth, 4th General of The Salvation Army (d. 1950) Fay Templeton, American musical comedy star (d. 1939) December 28 – Félix Vallotton, Swiss painter, printmaker (d. 1925) December 30 – Rudyard Kipling, Indian-born English writer, Nobel Prize laureate (d. 1936) Ernest Hogan, African-American dancer, musician, and comedian (d. 1909) Habibullah Qurayshi, Bengali Islamic scholar and educationist (d. 1943)[17] Abraham Lincoln John Wilkes Booth January 14 – Marie-Anne Libert, Belgian botanist (b. 1782) January 19 – Pierre-Joseph Proudhon, French philosopher, anarchist (b. 1809) January 28 – Felice Romani, Italian poet, librettist (b. 1788) February 6 – Isabella Beeton, British cook, household management expert (b. 1836)[18] March 1 – Anna Pavlovna of Russia, queen consort of the Netherlands (b. 1795) March 20 – Yamanami Keisuke, Japanese samurai (b. 1833) March 30 – Alexander Dukhnovich, Russian priest, writer and social activist (b. 1803 April 1 John Milton, Governor of Florida (b. 1807) Giuditta Pasta, Italian soprano (b. 1798) April 2 – A. P. Hill, American Confederate general (b. 1825) April 13 – Achille Valenciennes, French zoologist (b. 1794) April 15 – Abraham Lincoln, 16th President of the United States (b. 1809) April 18 – Léon Jean Marie Dufour, French medical doctor, naturalist (b. 1780) April 24 – Nicholas Alexandrovich, Tsarevich of Russia (b. 1843) April 26 – John Wilkes Booth, American actor, assassin of Abraham Lincoln (b. 1838) April 28 – Sir Samuel Cunard, Canadian businessman, founder of the Cunard Line (b. 1787) May 5 – Ben Hall, Australian bushranger (b. 1837) May 10 – William Armstrong, American lawyer, civil servant, politician, and businessperson (b. 1782)[19] Paul Bogle Henry John Temple Leopold I of Belgium July – Dimitris Plaputas, Greek military leader (b. 1786) July 6 – Princess Sophie of Sweden, Grand Duchess of Baden (b. 1801) July 7 – The Lincoln assassination conspirators (executed) Lewis Powell (b. 1844) David Herold (b. 1842) George Atzerodt (b. 1835) Mary Surratt (b. 1823) July 25 – James Barry, British military surgeon (b. 1795) August 4 – Percival Drayton, United States Navy officer (b. 1812) August 12 – William Jackson Hooker, English botanist (b. 1785) August 13 – Ignaz Semmelweis, Hungarian physician (b. 1818) August 16 – Sir Frederick Stovin, British army general (b. 1783) August 27 – Thomas Chandler Haliburton, Canadian author (b. 1796) August 29 – Robert Remak, German embryologist, physiologist and neurologist (b. 1815) September 2 – William Rowan Hamilton, Irish mathematician (b. 1805) September 10 – Maria Silfvan, Finnish actor (b. 1802) September 25 – Andrés de Santa Cruz, Peruvian military officer, seventh President of Peru and President of Bolivia (b. 1792) October 16 – Andrés Bello, Venezuelan poet, lawmaker, teacher, philosopher and sociologist (b. 1781) October 18 – Henry John Temple, 3rd Viscount Palmerston, Prime Minister of the United Kingdom (b. 1784) October 24 – Paul Bogle, Jamaican activist, Baptist deacon and leader of the Morant Bay rebellion. (executed) (b. 1820) November 10 – Henry Wirz, Swiss-born American Confederate military officer, prisoner-of-war camp commander (executed) (b. 1823) November 12 – Elizabeth Gaskell, British novelist, biographer (b. 1810) November 28 José Manuel Pareja, Spanish admiral (suicide) (b. 1813) William Machin Stairs, Canadian businessman, statesman (b. 1789) November 29 – Isaac A. Van Amburgh, American animal trainer (b. 1811) December 6 – Sebastián Iradier, Spanish composer (b. 1809) December 10 – King Leopold I of Belgium (b. 1790) December 14 – Johan Georg Forchhammer, Danish geologist (b. 1794) December 17 – Luigi Ciacchi, Italian cardinal (b. 1788) ^ "Kunnallinen itsehallinto 150 vuotta" [150 years of local self-government]. Nopolanews (in Finnish). February 6, 2015. Archived from the original on February 24, 2015. Retrieved February 6, 2024. ^ Moore, Randy (May 2001). "The "Rediscovery" of Mendel's Work" (PDF). Bioscene. 27. Archived from the original (PDF) on February 2, 2017. 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Millennia 2nd millennium Centuries 17th century 18th century 19th century Timelines 17th century 18th century 19th century State leaders 17th century 18th century 19th century Decades 1700s 1710s 1720s 1730s 1740s 1750s 1760s 1770s 1780s 1790s Categories: Births – Deaths Establishments – Disestablishments vte Political boundaries at the beginning of year 1700 Storming of the Bastille, 14 July 1789, an iconic event of the French Revolution. Development of the Watt steam engine in the late 18th century was an important element in the Industrial Revolution in Europe. The American Revolutionary War took place in the late 18th century. The 18th century lasted from 1 January 1701 (represented by the Roman numerals MDCCI) to 31 December 1800 (MDCCC). During the 18th century, elements of Enlightenment thinking culminated in the Atlantic Revolutions. Revolutions began to challenge the legitimacy of monarchical and aristocratic power structures. The Industrial Revolution began mid-century, leading to radical changes in human society and the environment. The European colonization of the Americas and other parts of the world intensified and associated mass migrations of people grew in size as part of the Age of Sail. During the century, slave trading expanded across the shores of the Atlantic Ocean, while declining in Russia[1] and China.[2] Western historians have occasionally defined the 18th century otherwise for the purposes of their work. For example, the "short" 18th century may be defined as 1715–1789, denoting the period of time between the death of Louis XIV of France and the start of the French Revolution, with an emphasis on directly interconnected events.[3][4] To historians who expand the century to include larger historical movements, the "long" 18th century[5] may run from the Glorious Revolution of 1688 to the Battle of Waterloo in 1815[6] or even later.[7] France was the sole world superpower from 1659, after it defeated Spain, until 1815, when it was defeated by Britain and its coalitions following the Napoleonic Wars. In Europe, philosophers ushered in the Age of Enlightenment. This period coincided with the French Revolution of 1789, and was later compromised by the excesses of the Reign of Terror. At first, many monarchies of Europe embraced Enlightenment ideals, but in the wake of the French Revolution they feared loss of power and formed broad coalitions to oppose the French Republic in the French Revolutionary Wars. Various conflicts throughout the century, including the War of the Spanish Succession and the Seven Years' War, saw Great Britain triumph over its rivals to become the preeminent power in Europe. However, Britain's attempts to exert its authority over the Thirteen Colonies became a catalyst for the American Revolution. The 18th century also marked the end of the Polish–Lithuanian Commonwealth as an independent state. Its semi-democratic government system was not robust enough to prevent partition by the neighboring states of Austria, Prussia, and Russia. In West Asia, Nader Shah led Persia in successful military campaigns. The Ottoman Empire experienced a period of peace, taking no part in European wars from 1740 to 1768. As a result, the empire was not exposed to Europe's military improvements during the Seven Years' War. The

Country Churchyard by Thomas Gray published 1751–1785: The French Encyclopédie 1755: A Dictionary of the English Language by Samuel Johnson 1758: Arithmetika Horvatzka by Mihalj Šilobod Bolšić 1759: Candide by Voltaire 1759: The Theory of Moral Sentiments by Adam Smith 1759–1767: Tristram Shandy by Laurence Sterne 1762: Emile: or, On Education by Jean-Jacques Rousseau 1762: The Social Contract, Or Principles of Political Right by Jean-Jacques Rousseau 1774: The Sorrows of Young Werther by Goethe first published 1776: Ugetsu Monogatari (Tales of Moonlight and Rain) by Ueda Akinari 1776: The Wealth of Nations, foundation of the modern theory of economy, was published by Adam Smith 1776–1789: The History of the Decline and Fall of the Roman Empire was published by Edward Gibbon 1779: Amazing Grace published by John Newton 1779–1782: Lives of the Most Eminent English Poets by Samuel Johnson 1781: Critique of Pure Reason by Immanuel Kant (publication of first edition) 1781: The Robbers by Friedrich Schiller first published 1782: Les Liaisons dangereuses by Pierre Choderlos de Laclos 1786: Poems, Chiefly in the Scottish Dialect by Robert Burns 1787–1788: The Federalist Papers by Alexander Hamilton, James Madison, and John Jay 1788: Critique of Practical Reason by Immanuel Kant 1789: Songs of Innocence by William Blake 1789: The Interesting Narrative of the Life of Olaudah Equiano by Olaudah Equiano 1790: Journey from St. Petersburg to Moscow by Alexander Radishchev 1790: Reflections on the Revolution in France by Edmund Burke 1791: Rights of Man by Thomas Paine 1792: A Vindication of the Rights of Woman by Mary Wollstonecraft 1794: Songs of Experience by William Blake 1798: Lyrical Ballads by William Wordsworth and Samuel Taylor Coleridge 1798: An Essay on the Principle of Population published by Thomas Malthus (mid–18th century): The Dream of the Red Chamber (authorship attributed to Cao Xueqin), one of the most famous Chinese novels 1711: Rinaldo, Handel's first opera for the London stage, premiered 1721: Brandenburg Concertos by J.S. Bach 1723: The Four Seasons, violin concertos by Antonio Vivaldi, composed 1724: St John Passion by J.S. Bach 1727: St Matthew Passion composed by J.S. Bach 1727: Zadok the Priest is composed by Handel for the coronation of George II of Great Britain. It has been performed at every subsequent British coronation. 1733: Hippolyte et Aricie, first opera by Jean-Philippe Rameau 1741: Goldberg Variations for harpsichord published by Bach 1742: Messiah, oratorio by Handel premiered in Dublin 1749: Mass in B minor by J.S. Bach assembled in current form 1751: The Art of Fugue by J.S. Bach 1762: Orfeo ed Euridice, first "reform opera" by Gluck, performed in Vienna 1786: The Marriage of Figaro, opera by Mozart 1787: Don Giovanni, opera by Mozart 1788: Jupiter Symphony (Symphony No. 41) composed by Mozart 1791: The Magic Flute, opera by Mozart 1791–1795: London symphonies by Haydn 1798: The Pathétique, piano sonata by Beethoven 1798: The Creation, oratorio by Haydn first performed ^ Volkov, Sergey. Concise History of Imperial Russia. ^ Rowe, William T. China's Last Empire. ^ Anderson, M. S. (1979). Historians and Eighteenth-Century Europe, 1715–1789. Oxford University Press. ISBN 978-0-19-822548-5. OCLC 185538307. ^ Ribeiro, Aileen (2002). Dress in Eighteenth-Century Europe 1715–1789 (revised ed.). Yale University Press. ISBN 978-0-300-09151-9. OCLC 186413657. ^ Baines, Paul (2004). The Long 18th Century. London: Arnold. ISBN 978-0-340-81372-0. ^ Marshall, P. J., ed. (2001). 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View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)List of decades, centuries, and millennia (links | edit) Goths (links | edit) Industrial espionage (links | edit) Romania (links | edit) 20th century (links | edit) 15th century (links | edit) 16th century (links | edit) 17th century (links | edit) 1870s (links | edit) 1624 (links | edit) 1626 (links | edit) 1642 (links | edit) 1661 (links | edit) 1756 (links | edit) 1791 (links | edit) 1608 (links | edit) 1818 (links | edit) 1743 (links | edit) 1826 (links | edit) 1828 (links | edit) 14th century (links | edit) 1860s (links | edit) 1788 (links | edit) 1st century (links | edit) 13th century (links | edit) 1787 (links | edit) 1863 (links | edit) 4th century (links | edit) 12th century (links | edit) 11th century (links | edit) 1859 (links | edit) 1900 (links | edit) 1848 (links | edit) 1866 (links | edit) 1896 (links | edit) 1895 (links | edit) 1861 (links | edit) 1648 (links | edit) 1623 (links | edit) 1662 (links | edit) 1640s (links | edit) 1770s (links | edit) 1780s (links | edit) 1789 (links | edit) 1782 (links | edit) 1840 (links | edit) 1840s (links | edit) 1883 (links | edit) 1800s (decade) (links | edit) 1801 (links | edit) View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500) Retrieved from " WhatLinksHere/18th_century" I'm going to find out why we make frying pans out of metal, and why the case around electrical plugs out of plastic, but not the other way round.It's because of the physical properties of the materials. Physical properties are the basic features of a material that affects how it behaves in different situations.Metal is a good conductor of heat, and has a high melting point, making it good to cook with.Whereas the plastic of the handle doesn't conduct heat so well, it's an insulator. And plastic has a lower melting point too.But plastic is a good electrical insulator, meaning we can touch the outside of electrical plugs and wires without getting an electric shock. The electric current can flow through the inner metal part of the wire to light the lamp. Metal is a good electrical conductor.Both the metal and the plastic can be easily shaped into long flexible wires - we say they're ductile.Whereas other materials, like the glass bulb of this lamp, are brittle. They're more easily broken.Sometimes, we choose the right material based on its chemical properties - which describe how reactive it is. Like the stainless steel metal in cutlery, which doesn't react with food and remains shiny after washing.Whereas normal steel will rust when exposed to air and water.And wood will react with oxygen if heated.It's important to pick the right material for a job based on its chemical and physical properties.I don't think a plastic frying pan would be very useful! To help you plan your year 8 science lesson on: Properties of elements, download all teaching resources for free and adapt to suit your pupils' needs.The starter quiz will activate and check your pupils' prior knowledge, with versions available both with and without answers in PDF format.We use learning cycles to break down learning into key concepts or ideas linked to the learning outcome. Each learning cycle features explanations with checks for understanding and practice tasks with feedback. All of this is found in our slide decks, ready for you to download and edit. The practice tasks are also available as printable worksheets and some lessons have additional materials with extra material you might need for teaching the lesson.The assessment exit quiz will test your pupils' understanding of the key learning points.Our video is a tool for planning, showing how other teachers might teach the lesson, offering helpful tips, modelled explanations and inspiration for your own delivery in the classroom. Plus, you can set it as homework or revision for pupils and keep their learning on track by sharing an online pupil version of this lesson.Explore more key stage 3 science lessons from the Atoms, elements and compounds unit, dive into the full secondary science curriculum, or learn more about lesson planning. This is part of Year 11 HSC Chemistry course under the topic of Properties of Matter. HSC Chemistry Syllabus Classify the elements based on their properties and position in the periodic table through their: Physical Properties of Metals, Semi-metals and Non-metals Explained This video explains the similarities and differences in physical properties amongst the different elements in the Periodic Table. This topic assumes knowledge of the Bohr model of the atom. Physical vs Chemical Properties Physical properties are characteristics of matter that can be observed or measured without changing the substance's composition or identity. For example, melting and boiling points of a substance are temperatures at which a substance changes between states of matter. When a substance melts, it transitions from its solid state to liquid state without altering its chemical composition. Chemical properties describe how an element behaves in a chemical reaction, including: Reactivity Electronegativity Ionisation Energy This is discussed separately here. Both physical and chemical properties depend on the chemical structure of an element or compound. The chemical structure of an element depends on its position on the periodic table. Understanding the Periodic Table The periodic table is structured in rows called periods and columns known as groups or families. Elements are arranged in order of increasing atomic number (the number of protons in the nucleus) from left to right and top to bottom. This arrangement is not arbitrary; it reflects patterns in the elements' properties, which recur periodically. Groups/Families: Elements in the same group share similar chemical properties due to having the same number of valence electrons. This is discussed in greater detail in chemical properties of elements. Periods: Moving across a period, properties transition from metallic to nonmetallic. The number of valence electrons increases from left to right, influencing the type of ions the elements tend to form. Metals, Non-metals, and Metalloids Metals are located on the left (exception of hydrogen) and in the centre of the periodic table. The structure of pure metals consists of the same atoms arranged in layers and a continuous network called metallic lattice. The electrons of these atoms are delocalised instead of fixed in an atom's orbit. Metalloids (semi-metals) are situated along the zig-zag line separating metals and nonmetals, metalloids exhibit properties intermediate between those of metals and nonmetals and include elements like silicon, germanium and arsenic. Atoms of semi-metal elements are held together by covalent bonds to form a continuous network, similar to covalent network structures of non-metal elements. Non-metals are found on the right side of the periodic table. The structure of non-metals varies between covalent molecular and covalent lattice network. This is discussed in detail separately here. The physical properties of non-metal elements vary greatly depending on the specific chemical structure it occupies. Melting and Boiling Points Melting point is the temperature at which a solid becomes a liquid, and the boiling point is the temperature at which a liquid turns into a gas. Metals Metals are mostly solids at room temperature. Metals have variable melting points. For example, Tungsten (W), has one of the highest melting points (3400 ºC) whereas Mercury (Hg), has one of the lowest melting points for metals at –38 ºC). Mercury is actually a liquid at room temperature. Non-metals Most non-metals are gases at room temperature and pressure. However, the melting and boiling points of non-metals vary widely. Non-metals with covalent molecular structures are held together by weaker intermolecular forces and therefore have relatively low melting and boiling points. Hydrogen exists as diatomic hydrogen molecules which have very weak intermolecular forces. The melting point of hydrogen molecules is –260 ºC. In contrast, non-metal elements with covalent network structures are held together by stronger covalent bonds, and therefore have relatively high melting and boiling points. Carbon, in its diamond form, has an extremely high melting point due to the strong covalent bonds in its crystal lattice. Semi-metals The melting and boiling points of metalloids tend to be lower than most metals but higher than those of most non-metals in covalent molecular structures, reflecting their intermediate bonding characteristics. Semi-metals tend to have consistently high melting and boiling points. The melting point of Germanium is 938 ºC. Appearance (Lustre and Dullness) The appearance of an element, particularly its lustre or dullness, is a noticeable physical property that contributes to its identification and applications. Metals are characterised by their shiny appearance, known as metallic lustre. This lustre is due to the ability of the free electrons within the metal to absorb and re-emit light, resulting in a surface that reflects light, producing the characteristic shine. While most metals are lustrous, they can become dull when oxidised or corroded, losing their shiny appearance due to surface reactions with oxygen or other chemicals in the environment. Non-metals generally lack metallic lustre and instead have a dull appearance. Their surfaces do not reflect light in the same way metals do, making them appear matte or even transparent in the case of gases. Metalloids can have a varied appearance, with some exhibiting a more metallic lustre and others being more dull. Silicon (Si), for example, has a metallic lustre, though less pronounced than true metals. Germanium is another example of metalloid that can be mistaken for a metal due to its lustrous appearance. Density Density is defined as mass per unit volume and is a key identifier of how compact the matter is within a substance. $$\text{Density} = \frac{m}{V}$$ Density is heavily influenced by temperature, pressure as well as the allotropic form of the element. The former two affect the state of matter of an element. Solids have higher density than liquids which in turn have higher density than gases. Metals have variable densities but collectively tend to have higher densities than semi-metals and non-metals. For example, Tungsten (W) has a very high density of 19.3 g/cm3 whereas aluminium has a lower density of 2.6 g/cm3. Non-metals have variable densities. Non-metals in covalent molecular structures have lower densities, whereas those in network structures have higher densities. For example, Hydrogen gas has a very lower density of 0.09 g/cm3 whereas diamond (allotrope of carbon) has much higher density of 3.5 g/cm3. Semi-metals tend to have consistently densities in between the high end of metals and majority of non-metals. For example, germanium's density is 5.2 g/cm3. Electrical Conductivity Electrical conductivity refers to an element's ability to conduct electricity (movement of charges). The main type of charges that can move freely in an electrical conductor are electrons. Therefore, electrical conductivity is a measure of how easily electrons can move through a substance. This is also a physical property as movement of electrons does not alter the chemical composition of the substance. Metals are known for their excellent electrical conductivity. The metallic structure contains a sea of delocalised electrons surrounding metal atoms. These electrons are mobile and account for metals' relatively high electrical conductivity. Most non-metals are poor conductors because their electrons are more tightly bound and not free to move. Graphite, a form of carbon, is a notable exception due to its unique structure that allows electrons to move freely within layers. Metalloids have variable conductivity, which can often be enhanced by adding impurities in a process known as doping. Silicon (Si), for example, is a semiconductor widely used in electronic devices. Thermal Conductivity Thermal conductivity is a physical property that measures a material's ability to conduct heat. Heat refers to the transfer of energy from a region of high temperature to a region of low temperature. Thermal conductivity indicates how quickly heat can pass through a material when there is a temperature difference between its two ends. Energy is transferred is the form of either vibration of atoms or movement of charges. Generally, elements that are good electrical conductors are also good conductors of heat because mobile electrons can facilitate transfer of energy (heat). However, the converse is not true, not all good thermal conductors are good electrical conductors. Diamond, a non-metal, is an excellent thermal conductor but is a poor conductor of electricity. Metals typically exhibit high thermal conductivity, meaning they can transfer heat efficiently. This is due to the presence of free electrons within their structure, which can move freely and transfer heat rapidly across the material. Most non-metals have low thermal conductivity. They lack the free electrons that in metals facilitate the transfer of heat. Instead, heat transfer in non-metals occurs through slower processes such as lattice vibrations. Again, graphite is a notable exception to this as its mobile electrons make it a relatively good thermal conductor. Metalloids generally have thermal conductivity values that are between those of metals and nonmetals. Their semi-metallic bonding allows some degree of heat transfer through free electrons or lattice vibrations, but not as efficiently as in metals. Common metalloids used in electronics, such as silicon (Si) and germanium (Ge), have moderate thermal conductivity. This property is essential in semiconductors, where managing heat is crucial to maintain performance and reliability. Tensile Strength Tensile strength refers to the maximum amount of tensile (stretching) stress that a material can withstand before failure, such as breaking or significant deformation. Metals Metals generally possess high tensile strength, attributable to the strong network between positive metal atoms and surrounding negative electrons. When layers of metal atoms slide past each other due to an external tensile stress, the attraction between atoms and electrons is maintained, hence the metal is able to withstand the stress without deformation & fracture. This property makes metals ideal for construction materials, cables, and tools. Steel, an alloy of iron (Fe), is renowned for its exceptional tensile strength and is widely used in construction and manufacturing. While some metals with extremely high tensile strengths e.g. Tungsten, they are not used as commonly due to their relatively low strength to mass ratio. Titanium (Ti) has the highest strength to mass ratio, and is used in a wide range of applications in aerospace engineering, medicine, jewellery and sports equipment. Semi-metals Metalloids have variable tensile strengths that are generally lower than those of metals but can be higher than some nonmetals. Their structure and bonding characteristics give them a balance of properties, but they are not typically used in applications where high tensile strength is a critical requirement. Non-metals Non-metals, particularly in their solid forms, are very brittle and have lower tensile strength compared to metals. They are more likely to shatter or break when subjected to stress because of the directional nature of covalent bonds, which are strong but can lead to brittle structures if the atoms are not arranged in a network solid, like diamond, which is an exception with high tensile strength due to its strong covalent bonding in a three-dimensional lattice. Hardness Hardness is a measure of how resistant a material is to deformation, scratching, or indentation. It is determined by the strength of the bonds between atoms and the overall structure of the material. Hardness can be classified into different types: Mohs hardness: Measures scratch resistance on a scale from 1 (talc) to 10 (diamond). Note that this is an ordinal scale, meaning the assigned values do not depict the absolute difference in hardness between materials. Brinell and Vickers hardness: Used for metals, measuring indentation resistance under a specific load. The hardness of elements varies significantly based on their chemical structures and bonding types. Metals have variable hardness. For example, Tungsten has a hardness on Mohs scale of 7.5, whereas Lithium has a hardness of 0.6. Semi-metals have consistently high hardness. The Mohs hardness of silicon and germanium are 7 and 6 respectively. Non-metals have variable hardness. Notably, diamond has a very high hardness of 10 on Mohs scale. This is attributed to the strong covalent bonds in the lattice structure of diamond. In contrast, the Mohs hardness of sulfur solids, which occupies a covalent molecular structure, is 2. Malleability and Ductility Malleability is the ability of a material to deform without breaking while under compression. For instance, a malleable metal can be worked with a hammer and beaten into thin sheets. Ductility is the property of a material that indicates how easily it will plastically deform (but not break) under tensile (pulling or stretching) stress. A ductile material can be easily drawn into shapes such as wires without fracturing. Metals Most metals are both ductile and malleable. This is because the structure of most metals (repeating atoms layered on top of each other) allows for relatively easy sliding movement between them without breaking the attraction between the metallic atoms and surrounding electrons. Most metals deform well, whether being stretched (exhibiting ductility) or being compressed (which is malleability). Generally if a metal is ductile, it is also malleable (at the same temperature). However, lead is an example of a metal that is malleable (deforms under compressive stress), but not ductile (easily fractures under tensile stress). Semi-metals Metalloids are less malleable and ductile than metals. They are more likely to break or shatter when subjected to stress, similar to nonmetals. Non-metals Non-metals are generally brittle in their solid forms and lack the malleability and ductility of metals. When force is applied, covalent bonds between atoms are more likely to break, leading to fracture. Solubility Solubility of elements depends on their chemical structure as well as the nature of solvent tested i.e. whether it is polar (water) or non-polar (oil). Polar solutes dissolve in polar solvents; non-polar solutes dissolve in non-polar solvents. In general: Metals and semi-metals are insoluble in both polar and non-polar solvents Covalent network substances are insoluble in both polar and non-polar solvents The solubility of covalent molecules varies depending on the polarity of the molecule. Non-metals which form covalent molecules tend to be non-polar which means they have limited solubility in polar solvents like water, but dissolve better in non-polar solvents like oil. RETURN TO MODULE 1: PROPERTIES AND STRUCTURE OF MATTER Science >> Chemistry for Kids The Periodic Table is a way of listing the elements. Elements are listed in the table by the structure of their atoms. This includes how many protons they have as well as how many electrons they have in their outer shell. From left to right and top to bottom, the elements are listed in the order of their atomic number, which is the number of protons in each atom. Periodic Table of Elements Click for larger view Why is it called the Periodic Table? It is called "periodic" because elements are lined up in cycles or periods. From left to right elements are lined up in rows based on their atomic number (the number of protons in their nucleus). Some columns are skipped in order for elements with the same number of valence electrons to line up on the same columns. When they are lined up this way, elements in the columns have similar properties. Each horizontal row in the table is a period. There are seven (or eight) total periods. The first one is short and only has two elements, hydrogen and helium. The sixth period has 32 elements. In each period the left most element has 1 electron in its outer shell and the right most element has a full shell. Groups Groups are the columns of the periodic table. There are 18 columns or groups and different groups have different properties. One example of a group is the noble or inert gases. These elements all line up in the eighteenth or last column of the periodic table. They all have a full outer shell of electrons, making them very stable (they tend not to react with other elements). Another example is the alkali metals which all align on the left-most column. They are all very similar in that they have only 1 electron in their outer shell and are very reactive. You can see all the groups in the table below. This lining-up and grouping of similar elements helps chemists when working with elements. They can understand and predict how an element might react or behave in a certain situation. Element Abbreviations Each element has its own name and abbreviation in the periodic table. Some of the abbreviations are easy to remember, like H for hydrogen. Some are a bit harder like Fe for iron or Au for gold. For gold the "Au" comes from the Latin word for gold "aurum". Who invented it? The periodic table was proposed by Russian chemist Dmitri Mendeleev in 1869. Using the table, Mendeleev was able to accurately predict the properties of many elements before they were actually discovered. Fun facts about the Periodic Table Carbon is unique in that it is known to form up to 10 million different compounds. Carbon is important to the existence of life. Francium is the rarest element on earth. There are probably no more than a few ounces of it on earth at any given time. The only letter not in the periodic table is the letter J. The country Argentina is named after the element silver (symbol Ag) which is argentum in Latin. Although there is helium on Earth, it was first discovered by observing the sun. Activities Take a ten question quiz on this page. Listen to a reading of this page: Your browser does not support the audio element. Full Periodic Table Periodic Table with detailed information (click for larger view) More on the elements and the Periodic Table Elements More Chemistry Subjects Science >> Chemistry for Kids The periodic table groups elements by similar properties, like metals, nonmetals, and semimetals.Alkali metals have one electron in their outer shell and are very reactive.Noble gases have complete outer shells, making them very stable and unreactive. One reason the periodic table of elements is so useful is that it arranges elements according to their similar properties. This is what is meant by periodicity or periodic table trends. There are multiple ways of grouping the elements, but they are commonly divided into metals, semimetals (metalloids), and nonmetals. You'll find more specific groups, like transition metals, rare earths, alkali metals, alkaline earth, halogens, and noble gases. Click on an element to read about the chemical and physical properties of the group to which that element belongs. Less dense than other metalsOne loosely bound valence electronHighly reactive, with reactivity increasing moving down the groupThe largest atomic radius of elements in their periodLow ionization energyLow electronegativity Two electrons in the valence shellReadily form divalent cationsLow electron affinityLow electronegativity Lanthanides (rare earth) and actinides are also transition metals. The basic metals are similar to transition metals but tend to be softer and hint at nonmetallic properties. In their pure state, all these elements tend to have a shiny, metallic appearance. While there are radioisotopes of other elements, all actinides are radioactive. Very hard, usually shiny, ductile, and malleableHigh melting and boiling pointsHigh thermal and electrical conductivityForm cations (positive oxidation states)Tend to exhibit more than one oxidation stateLow ionization energy Electronegativity and ionization energy intermediate between that of metals and nonmetals May possess a metallic luster Variable density, hardness, conductivity, and other properties Often make good semiconductors Reactivity depends on the nature of other elements in the reaction Halogens and noble gases are nonmetals, although they have their groups, too. High ionization energy High electronegativity Poor electrical and thermal conductors Form brittle solids Little if any metallic luster Readily gain electrons The halogens exhibit different physical properties from each other but do share chemical properties. Extremely high electronegativityVery reactiveSeven valence electrons, so elements from this group typically exhibit a -1 oxidation state The noble gases have complete valence electron shells, so they act differently. Unlike other groups, noble gases are unreactive and have very low electronegativity or electron affinity. Click on the element symbol in the table for further information. 1IA1A 18VIIIA8A 1 H 1.008 2IIA2A 13IIIA3A 14IVA4A 15VA5A 16VIA6A 17VIIA7A 2 He 4.003 3 Li 6.941 4 Be 9.012 5 B 10.81 6 C 12.01 7 N 14.01 8 O 16.00 9 F 19.00 10 Ne 20.18 11 Na 22.99 12 Mg 24.31 3IIIB3B 4IVB4B 5VB5B 6VIB6B 7VIIB7B 8←← 9VIII8 10→→ 11IB1B 12IIB2B 13 Al 26.98 14 Si 28.09 15 P 30.97 16 S 32.07 17 Cl 35.45 18 Ar 39.95 19 K 39.10 20 Ca 40.08 21 Sc 44.96 22 Ti 47.88 23 V 50.94 24 Cr 52.00 25 Mn 54.94 26 Fe 55.85 27 Co 58.47 28 Ni 58.69 29 Cu 63.55 30 Zn 65.39 31 Ga 69.72 32 Ge 72.59 33 As 74.92 34 Se 78.96 35 Br 79.90 36 Kr 83.80 37 Rb 85.47 38 Sr 87.62 39 Y 88.91 40 Zr 91.22 41 Nb 92.91 42 Mo 95.94 43 Tc (98) 44 Ru 101.1 45 Rh 102.9 46 Pd 106.4 47 Ag 107.9 48 Cd 112.4 49 In 114.8 50 Sn 118.7 51 Sb 121.8 52 Te 127.6 53 I 126.9 54 Xe 131.3 55 Cs 132.9 56 Ba 137.3 * 72 Hf 178.5 73 Ta 180.9 74 W 183.9 75 Re 186.2 76 Os 190.2 77 Ir 190.2 78 Pt 195.1 79 Au 197.0 80 Hg 200.5 81 Tl 204.4 82 Pb 207.2 83 Bi 209.0 84 Po (210) 85 At (210) 86 Rn (222) 87 Fr (223) 88 Ra (226) ** 104 Rf (257) 105 Db (260) 106 Sg (263) 107Bh(265) 108(265) 109 Mt (266) 110 Ds (271) 111 Rg (272) 112 Cn (277) 113 Uut -- 114 Fl (296) 115Uup-- 116 Lv (298) 117 Uus -- 118 Uuo -- *LanthanideSeries 57 La 138.9 58 Ce 140.1 59Pr140.9 60 Nd 144.2 61 Pm (147) 62150.4 63 Eu 152.0 64 Gd 157.3 65 Tb 158.9 66Dy162.5 67 Ho 164.9 68 Er 167.3 69 Tm 168.9 70 Yb 173.0 71Lu175.0 **ActinideSeries 89Ac(227) 90 Th 232.0 91 Pa (231) 92 U (238) 93 Np (237) 94 Pu (242) 95Am(243) 96 Cm (247) 97 Bk (247) 98 Cf (249) 99Es(254) 100 Fm (253) 101Md(256) 102 No (254) 103 Lr (257) See the latest as temperatures warm up for many of usGet the support your kids need for their GCSEs