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118 elements are known and named at this time. This element list includes the names, symbols, and atomic numbers of all 118 chemical elements, arranged in or elements. This list is available for download as a CSV text file and as a PDF file. The PDF file is optimized for printing. NUMBERSYMBOLELEMENT1HHydrogen2HeHelium3LiLithium4BeBeryllium5BBoron6CCarbon7NNitrogen8OOxygen9FFluorine10NeNeon11NaSodiu element list is a quick-reference tool for students, educators, and science enthusiasts. Here are a few practical ways to use it:Study Aid: Use the list for memoriz youre learning the periodic table or preparing classroom materials, this list keeps essential element information at your fingertips. Right now, there are no blank is approved. This name describes the atomic number of the element, followed by the -ium suffix. For example, element 120 has the temporary name of unbinilium.	m12MgMagnesium13AlAluminum14SiSilicon15PPhosphorus16SSulfur17ClChlorin ing element names, symbols, and atomic numbers for chemistry class, exams, or conspaces in the periodic table up to element 118. The present table has 7 periods. H	e18ArArgon19KPotassium20CaCalcium21ScScandium22TiTitanium23VVanadium24Crt ompetitions.Worksheet or Quiz Resource: Print the list as a handout or for creating flasl owever, scientists are working on synthesizing even heavier elements. Once a new elem	Chromium25MnManganese26FeIron27CoCobalt28NiNickel29CuCopper30ZnZinc31Gathcards and classroom activities.Project Reference: Include it in science fair posters, labutent is synthesized, the IUPAC reviews the research before approving new name and sy	Gallium32GeGermanium33AsArsenic34SeSelenium35BrBromine36KrKrypf notebooks, or educational displays.Periodic Table Companion: Pair it with mbol. The discoverer suggests a new name and symbol, but the IUPAC has	con37RbRubidium38SrStrontium39YYttrium40ZrZirconium41NbNiobium4 a printable periodic table for a complete atomic reference set.Whether the final word. The systematic element name is in use until a new name
and defines the element. Ordering elements by atomic number reveals repeating chemical properties the basis of the periodic table. Each element has a unique of timeline of experimentation, the newest element is tennessine. Not yet. Scientists are working toward synthesis of element 119 and beyond. Ball, P. (2004). The EpointUnknownBlockdDensity (g cm3)UnknownAtomic number105Relative atomic mass[268] State at 20CSolidKey isotopes268DbElectron configuration[Rn]5514d are no such practical applications of this metal apart from the research areas. The metal has not also proved any harmful effects on health and the environment search decayed through the process of spontaneous fission. The other isotopes are synthetic in nature and have mass numbers ranging from 256 to 270. Themetal is pro Quiz to begin! Select the correct answer and click on the Finish buttonCheck your score and answers at the end of the quiz Visit BYJUS for all Chemistry related cast[2]Mass number[227]Actinium in the periodic tableHydrogenHeliumLithiumBerylliumBoronCarbonNitrogenOxygenFluorineNeonSodiumMagnesiumAluminiumSiliconPhosphorusSulfurChlorineArgonPotassiu (element)ThalliumLeadBismuthPoloniumAstatineRadonFranciumRadiumActiniumThoriumProtactiniumUraniumNeptuniumPutoniumAmericiumCuriumBerkelium	lements: A Very Short Introduction. Oxford University Press. ISBN 978-0-19-28405 6d37s2CAS number53850-35-4ChemSpider IDChemSpider is a free chemical struc- since it tends to decompose within a short period. The metal behaves as a solid at te duced in small amounts artificially. The bombardment of it can make many isotope queries and study materials 0 out of 0 arewrong 0 out of 0 are correct 0 out of 0 a mCalciumScandiumTitaniumVanadiumChromiumManganeseIronCobaltNickelCopp	1958.Emsley, J. (2003). Natures Building Blocks: An AZ Guide to the Elements. Oxford Uture database. Dubnium is a chemical element discovered by Albert Ghiorso in the year emperatures of 200 c. I tooccurs as a synthetic element in nature, and it is artificially properties of it with the Heavy Ion Linear Accelerator. The group number of dubnium is 5. The element of the Unattempted View Quiz Answers and Analysis Science, Tech, Math All Science, Tech per Zinc Gallium Germanium Arsenic Selenium Bromine Krypton Rubidium Strontium Yttrium.	niversity Press. ISBN 978-0-19-850340-8.IUPAC (1997). Chemical element. Compendiu 1970. It has an atomic number of 105 with symbol Db, and it belongs to the 7th period duced by the bombardment of the californium-249 with the nuclei nitrogen-1.Dubnium extron configuration of dubnium is [Rn] 5f14 6d3 7s2. The atomic mass of the dubnium of MathHumanities All Humanities All Humanities All Languages Resources All Resources Act Zirconium Niobium Molybdenum Technetium Ruthenium Rhodium Palladium Silver Cadmiu:	m of Chemical Terminology (2nd ed.) (the Gold Book). doi:10.1351/goldboc of the 5th group of the periodic table. Since Dubnium is not produced in his is a highly radioactive element with only one single stable isotope dubnium element is 268 g/mol. The atomic number of dubnium is 105. Put your under inium,00AcActiniumPronunciation/ktnim/ (ak-TIN-ee-m)AppearancesilverymIndiumTinAntimonyTelluriumIodineXenonCaesiumBariumLanthanumCer	ok.C01022Related Posts Group5Melting pointUnknownPeriod7Boiling the amounts and it does not exist even on the earths crust. Hence there 1-268 which has a half-life measuring about only 32 hours and gets restanding of this concept to test by answering a few MCQs. Click Start white, glowing with an eerie blue light, [1] sometimes with a golden iumPraseodymiumNeodymiumPromethiumSamariumEuropiumGadolinium
18, 9, 2Physical propertiesPhase atSTPsolidMelting point1500K (1227C, 2240F) (estimated)[2]Boiling point3500300K (3200300C, 5800500F) (extrapolated)[2]D centered cubic (fcc)Thermal conductivity12W/(mK) CAS Number7440-34-8 HistoryDiscovery and first isolationFriedrich Oskar Giesel (1902)NamedbyAndr-Louis group. It is so radioactive that it glows in the dark. Even a small amount of actinium is dangerous to people. Actinium was discovered in 1899 by Andr-Louis Debi coating of actinium oxide that stops the actinium from oxidizing [6]Actinium that is found in nature is made up of two radionuclides 227Ac and 228Ac. Thirty-six of thorium.[9]225Ac is now being studied for use in cancer treatments. 227Ac is studied for use as an active element of radioisotope thermoelectric generators. Transactinide Elements. p. 18. doi:10.1007/1-4020-3598-5 2. ISBN978-1-4020-3555-5. Kondev, F. G.; Wang, M.; Huang, W. J.; Naimi, S.; Audi, G. (2021). "The NU Stone, Bob D. (1955). "Preparation of Actinium Metal 2". Journal of the American Chemical Society. 77 (1): 237240. doi:10.1021/ja01606a085. ISSN0002-7863. SBibcode:1952ARNPS1.245K. doi:10.1146/annurev.ns.01.120152.001333. ISSN0066-4243. Archived from the original on 2020-07-30. Retrieved 2020-10-15. Hz (2016). "Active actinium". Nature Chemistry. 8 (11): 1084. Bibcode:2016NatCh8.1084D. doi:10.1038/nchem.2653. ISSN1755-4330. PMID27768109. S2CID540	s Debierne (1899)Isotopes of actiniumveMain isotopes[3]Decayabundancehalf-life (terne, a French chemist. In 1899, Debierne described the substance as similar to it radionuclides of actinium have been found. The most stable is 227Ac which has a l 225Ac is used in medicine to make 213Bi in a reusable generator. It can be used in JBASE2020 evaluation of nuclear properties" (PDF). Chinese Physics C. 45 (3): 03 Solid state physics: advances in research and applications. Volume 16. Seitz, Frede agemann, French (1950). "The Isolation of Actinium 1". Journal of the American Ch	t1/2)modeproduct225Actrace9.919d221Fr14C211Bi226Acsynth29.37h226Th226Ra222 tanium[4] and (in 1900) as similar to thorium.[5]Actinium is a soft, silvery-white, radioa nalf-life of 21.772 years. The shortest-lived known isotope of actinium is 21Ac which ha radiation therapy.[10][11][12] Wall, Greg (8 September 2003). "C&EN: It's Elemental: 1001. doi:10.1088/1674-1137/abddae. Debierne, Andr-Louis (1899). "Sur un nouvelle ma rick, 1911-2008., Turnbull, David, 1915-2007. New York: Academic Press. 1964. ISBN9 emical Society. 72 (2): 768771. doi:10.1021/ja01158a033. ISSN0002-7863. CRC handb	Fr227Actrace21.772y227Th223FrCategory: Actiniumviewtalkedit referencesActinium ctive metal.[6][7] Its estimated shear modulus is similar to that of lead. Because its stres as a half-life of 69 nanoseconds. Actinium is only found in trace amounts in uranium ore: The Periodic Table - Actinium". C&EN: It's Elemental: The Periodic Table. Chemical an stire radio-active". Comptes rendus (in French). 129: 593595. Debierne, Andr-Louis (1978-0-08-086480-8. OCLC646775097. {cite book}: ISBN / Date incompatibility (help)(book of chemistry and physics. Lide, David R., 1928- (86th ed., 2005-2006ed.). Boca Rate	is chemical element 89 on the periodic table. Its symbol is Ac. Actinium's non radioactivity, actinium glows in the dark with a pale blue light.[8]Actin s. For example, one tonne of uranium ore contains about 0.2 milligrams of d Engineering News. Retrieved 2 June 2011. 2.0 2.1 2.2 Kirby, Harold W.; 001901). "Sur un nouvelle matire radio-actif l'actinium". Comptes rendus (251 maint: others (link) Katz, J J; Manning, W M (1952). "Chemistry of the n: CRC Press. 2005. ISBNO-8493-0486-5. OCLC61108810.{ (cite book)}:	mass is 227 g/mol. Actinium is a silver radioactive, solid metal in actinide ium reacts quickly with oxygen and moisture in air formining a white 227Ac. Thorium ores contain about 5 nanograms of 228Ac per one tonne Morss, Lester R. (2006). "Actinium". The Chemistry of the Actinide and in French). 130: 906908. 6.0 6.1 Stites, Joseph G.; Salutsky, Murrell L.; Actinide Elements". Annual Review of Nuclear Science. 1 (1): 245262. 351 maint: others (link) Deblonde, Gauthier JP.; Abergel, Rebecca J.
citations to reliable sources. Unsourced material may be challenged and removed. Find sources: "Chemical element" news newspapers books scholar JSTOR (July elementsBy periodic table structureGroups (118)1 (alkali metals)2 (alkaline earth metals)3456789101112131415 (pnictogens)16 (chalcogens)17 (halogens)18 (n metalsMain-group elementsRare-earth elementsTransuranium elementsMajor, minor and trans- actinidesElementsList of chemical elementsby abundance (in hu resistivityElectronaffinity/configurationElectronegativityHardnessHeatcapacity/offusion/ofvaporizationIonization energyMelting pointOxidation stateSpeed of so numbers of neutrons in their nuclei, known as isotopes of the element. Two or more atoms can combine to form molecules. Some elements form molecules of ato transformed into atoms of a different element in nuclear reactions, which change an atom's atomic number. Historically, the term "chemical element" meant a su can mean a chemical substance consisting of a single kind of atom (a free element), or it can mean that kind of atom as a component of various chemical substant they have not gained much acceptance in English chemical literature, whereas in some other languages their equivalent is widely used. For example, French dis	2025) (Learn how and when to remove this message) The chemical elements ordere to the gases) Periods (17,)12345678+Blocks (s, p, d, f,) Atomic orbitals Aufbau p man body) by atomic properties by isotope stability by symbol Properties of elements und Thermal conductivity/expansion coefficient Vapor pressure Category Chemistry Poms of said element only: e.g. atoms of hydrogen (H) form diatomic molecules (H2) betance that cannot be broken down into constituent substances by chemical reactives. For example, water (H2O) consists of the elements hydrogen (H) and oxygen tinguishes lment chimique (kind of atoms) and corps simple (chemical substance or	ed in the periodic tablePart of a series on thePeriodic tablePeriodic table forms18-colum rincipleBy metallic classificationMetalsalkalialkaline earthtransitionpost-transitionlanth Relative atomic massCrystal structureElectron affinityconfigurationElectronegativity (A prtalvteA chemical element is a chemical substance whose atoms all have the same num Chemical compounds are substances made of atoms of different elements; they can ha cions, and for most practical purposes this definition still has validity. There was some c (O) even though it does not contain the chemical substances (di)hydrogen (H2) and (di) onsisting of one kind of atom); Russian distinguishes and .Almost all baryonic matter in	in 32-column Alternative and extended forms Periodic table history D. Mendeleev 1871 table an ideactinide Metalloid stividing metals and nonmetals Nonmetals nonmetal halogen nob allen, Pauling) Goldschmidt classification Nutrition Valence Data pages for elements Abund ber of protons. The number of protons is called the atomic number of that element. For we molecular or non-molecular structure. Mixtures are materials containing different clontroversy in the 1920s over whether isotopes deserved to be recognised as separate exygen (O2), as H2O molecules are different from H2 and O2 molecules. For the meaning the universe is composed of elements (among rare exceptions are neutron stars). Where	el 1869 predictions Discovery of elements Naming and etymology for people for le gas By other characteristics Coinage metals Platinum-group metals Precion lance Atomic radius Boiling point Critical point Density Elasticity Electrical example, oxygen has an atomic number of 8: each oxygen atom has 8 professional substances; that means (in case of molecular substances) that they lements if they could be separated by chemical means. [1] The term "(cheming "chemical substance consisting of a single kind of atom", the terms "eleit different elements undergo chemical reactions, atoms are rearranged into the substance consisting of the single kind of atom".	r placescontroversies(in East Asia)Systematic element namesSets of as metalsRefractory metalsHeavy metalsLight metalsNative metalsNoble cons in its nucleus. Atoms of the same element can have different contain different types of molecules. Atoms of one element can be ical) element" is used in two different but closely related meanings:[2] it mentary substance" and "simple substance" have been suggested, but to new compounds held together by chemical bonds. Only a few elements,
such as silver and gold, are found uncombined as relatively pure native element minerals. Nearly all other naturally occurring elements occur in the Earth as cor copper and gold (though the modern concept of an element was not yet understood). Attempts to classify materials such as these resulted in the concepts of clas chemical properties. The periodic table summarizes various properties of the elements, allowing chemists to derive relationships between them and to make prevelements are available industrially in varying amounts. The discovery and synthesis of further new elements is an ongoing area of scientific study. The lightest elematurally produced in nucleogenic reactions, or in cosmogenic processes, such as cosmic ray spallation. New atoms are also naturally produced on Earth as radio stable are those for which no radioactive decay has yet been observed. Elements with atomic numbers 83 through 94 are unstable enough that radioactive decay universe, bismuth-209 has the longest known alpha decay half-life of any nuclide, and is almost always considered on par with the 80 stable elements. [7][8] The reported in October 2006, and the synthesis of element 117 (tennessine) was reported in April 2010. [11][12] Of these 118 elements, 94 occur naturally on Earth detected directly on Earth as primordial nuclides present from the formation of the Solar System, or as naturally occurring fission or transmutation products of the solar System, or as naturally occurring fission or transmutation products of the solar System, or as naturally occurring fission or transmutation products of the solar System, or as naturally occurring fission or transmutation products of the solar System, or as naturally occurring fission or transmutation products of the solar System, or as naturally occurring fission or transmutation products of the solar System, or as naturally occurring fission or transmutation products of the solar System, or as naturally occurring fission or transmutation products of the solar System of the solar System	sical elements, alchemy, and similar theories throughout history. Much of the mod dictions about elements not yet discovered, and potential new compounds. By Novements are hydrogen and helium, both created by Big Bang nucleosynthesis in the ogenic daughter isotopes of ongoing radioactive decay processes such as alpha der of all isotopes can be detected. Some of these elements, notably bismuth (atomic heaviest elements (those beyond plutonium, element 94) are radioactive, with half. Six of these occur in extreme trace amounts: technetium, atomic number 43; proprint and thorium. The remaining 24 heavier elements, not found today either or	ern understanding of elements developed from the work of Dmitri Mendeleev, a Russia: mber 2016, the International Union of Pure and Applied Chemistry (IUPAC) recognized first 20 minutes of the universe[3] in a ratio of around 3:1 by mass (or 12:1 by number ray, beta decay, spontaneous fission, cluster decay, and other rarer modes of decay. It number 83), thorium (atomic number 90), and uranium (atomic number 92), have one of lives so short that they are not found in nature and must be synthesized. There are now methium, number 61; astatine, number 85; francium, number 87; neptunium, number 91 h Earth or in astronomical spectra, have been produced artificially: all are radioactive, to	n chemist who published the first recognizable periodic table in 1869. This table organi a total of 118 elements. The first 94 occur naturally on Earth, and the remaining 24 ar of atoms),[4][5] along with tiny traces of the next two elements, lithium and beryllium. The 94 naturally occurring elements, those with atomic numbers 1 through 82 each have more isotopes with half-lives long enough to survive as remnants of the explosive stel 118 known elements. "Known" here means observed well enough, even from just a few 3; and plutonium, number 94. These 94 elements have been detected in the universe at with short half-lives; if any of these elements were present when the Earth formed, they	zes the elements by increasing atomic number into rows ("periods") in whi e synthetic elements produced in nuclear reactions. Save for unstable radi Almost all other elements found in nature were made by various natural me e at least one stable isotope (except for technetium, element 43 and prome lar nucleosynthesis that produced the heavy metals before the Solar System decay products, to have been differentiated from other elements.[9][10] M large, in the spectra of stars and also supernovae, where short-lived radio are certain to have completely decayed, and if present in novae, are in qu	ch the columns ("groups") share recurring ("periodic") physical and oactive elements (radioelements) which decay quickly, nearly all ethods of nucleosynthesis.[6] On Earth, small amounts of new atoms are thium, element 61, which have no stable isotopes). Isotopes considered in formed. At 21019 years, over 109 times the estimated age of the flost recently, the synthesis of element 118 (since named oganesson) was active elements are newly being made. The first 94 elements have been antities too small to have been noted. Technetium was the first
purportedly non-naturally occurring element synthesized, in 1937, though traces of technetium have since been found in nature (and also the element may have a list of nuclides, sorted by length of half-life for those that are unstable. One of the most convenient, and certainly the most traditional presentation of the eleme [16] Carbon atoms may have different numbers of neutrons; atoms of the same element having different numbers of neutrons are known as isotopes of the eleme kinetic isotope effect is significant). Thus, all carbon isotopes have nearly identical chemical properties because they all have six electrons, even though they may example, there are three main isotopes of carbon. All carbon atoms have 6 protons, but they can have either 6, 7, or 8 neutrons. Since the mass numbers of these massenough to cause chemical effects), the isotopes of a given element are chemically nearly indistinguishable. All elements have radioactive isotopes (radioisotof found in nature have been characterized after being artificially produced. Certain elements have no stable isotopes and are composed only of radioisotopes: spec for a single element is 10 (for tin, element 50). Main articles: Atomic mass and Relative atomic mass number of an element, A, is the number of nucleon mass number simply counts the total number of neutrons and is thus an integer, the atomic mass of a particular isotope (or "nuclide") of the element	ents, is in the form of the periodic table, which groups together elements with simi ent.[17]The number of protons in the nucleus also determines its electric charge, we have 6 to 8 neutrons. That is why atomic number, rather than mass number or e are 12, 13 and 14 respectively, said three isotopes are known as carbon-12, carbopes); most of these radioisotopes do not occur naturally. Radioisotopes typically diffically the elements without any stable isotopes are technetium (atomic number 4 s (protons and neutrons) in the atomic nucleus. Different isotopes of a given eleme	lar chemical properties (and usually also similar electronic structures). Main article: Atci- rhich in turn determines the number of electrons of the atom in its non-ionized state. The romic weight, is considered the identifying characteristic of an element. The symbol for a ron-13, and carbon-14 (12C, 13C, and 14C). Natural carbon is a mixture of 12C (about 98 recay into other elements via alpha decay, beta decay, or inverse beta decay; some isoto 3), promethium (atomic number 61), and all observed elements with atomic number gra nt are distinguished by their mass number, which is written as a superscript on the left	whic numberThe atomic number of an element is equal to the number of protons in each electrons are placed into atomic orbitals that determine the atom's chemical properti atomic number is Z.Main articles: Isotope, Stable isotope ratio, and List of nuclidesIsoto 3.9%), 13C (about 1.1%) and about 1 atom per trillion of 14C.Most (54 of 94) naturally pes of the heaviest elements also undergo spontaneous fission. Isotopes that are not ra- eater than 82.Of the 80 elements with at least one stable isotope, 26 have only one stab- hand side of the chemical symbol (e.g., 238U). The mass number is always an integer a	n atom, and defines the element.[15] For example, all carbon atoms contain es. The number of neutrons in a nucleus usually has very little effect on an opes are atoms of the same element (that is, with the same number of protection of the same element that is, with the same number of protection of the same element shape is stable isotope. Except for the isotopicative, are termed "stable" isotopes. All known stable isotopes occur nat le isotope. The mean number of stable isotopes for the 80 stable elements and has units of "nucleons". Thus, magnesium-24 (24 is the mass number) is	16 protons in their atomic nucleus; so the atomic number of carbon is 6. element's chemical properties; except for hydrogen (for which the ins in their nucleus), but having different numbers of neutrons. Thus, for pes of hydrogen (which differ greatly from each other in relative nurally (see primordial nuclide). The many radioisotopes that are not is 3.1 stable isotopes per element. The largest number of stable isotopes an atom with 24 nucleons (12 protons and 12 neutrons). Whereas the
proton and neutron is not exactly 1Da; since the electrons contribute a lesser share to the atomic mass as neutron number exceeds proton number; and because defined as 1/12 of the mass of a free neutral carbon-12 atom in the ground state. The standard atomic weight (commonly called "atomic weight") of an element is chlorine-37. Whenever a relative atomic mass value differs by more than ~1% from a whole number, it is due to this averaging effect, as significant amounts of n copper wire is 99.99% chemically pure if 99.99% of its atoms are copper, with 29 protons each. However it is not isotopically pure since natural copper consists chemical structures (spatial arrangements of atoms), known as allotropes, which differ in their properties. For example, carbon can be found as diamond, which ability of an element to exist in one of many structural forms is known as 'allotropy'. The reference state of an element is defined by convention, usually as the the defined to have an enthalpy of formation of zero in its reference state. Several kinds of descriptive categorisations can be applied broadly to the elements, include electricity, nonmetals, which do not, and a small group, the metalloids, having intermediate properties and often behaving as semiconductors. A more refined cla	of the nuclear binding energy and electron binding energy. For example, the atom the average of the atomic masses of all the chemical element's isotopes as found i more than one isotope are naturally present in a sample of that element. Chemists a of two stable isotopes, 69% 63Cu and 31% 65Cu, with different numbers of neutro has a tetrahedral structure around each carbon atom; graphite, which has layers of ermodynamically most stable allotrope and physical state at a pressure of 1 bar and ling consideration of their general physical and chemical properties, their states of ssification is often shown in coloured presentations of the periodic table. This systematical properties are the states of the periodic table.	ic mass of chlorine-35 to five significant digits is 34.969Da and that of chlorine-37 is 36 in a particular environment, weighted by isotopic abundance, relative to the atomic mas not nuclear scientists have different definitions of a pure element. In chemistry, a pure on its (See Isotopes of copper.) However, pure gold would be both chemically and isotopic of carbon atoms with a hexagonal structure stacked on top of each other; graphene, whild a given temperature (typically 298.15K). However, for phosphorus, the reference statematter under familiar conditions, their melting and boiling points, their densities, their mestricts the terms "metal" and "nonmetal" to only certain of the more broadly define	.966Da. However, the relative atomic mass of each isotope is quite close to its mass nu s unit. This number may be a fraction that is not close to a whole number. For example element means a substance whose atoms all (or in practice almost all) have the same at ally pure, since ordinary gold consists only of one isotope, 197Au.Main article: Allotrop ch is a single layer of graphite that is very strong; fullerenes, which have nearly spheric is white phosphorus even though it is not the most stable allotrope, and the reference crystal structures as solids, and their origins. Several terms are commonly used to charded metals and nonmetals, adding additional terms for certain sets of the more broadly v	mber (always within 1%). The only isotope whose atomic mass is exactly a the relative atomic mass of chlorine is 35.453u, which differs greatly fron omic number, or number of protons. Nuclear scientists, however, define a yatoms of chemically pure elements may bond to each other chemically in cal shapes; and carbon nanotubes, which are tubes with a hexagonal struct state for carbon is graphite, because the structure of graphite is more sta racterise the general physical and chemical properties of the chemical eler iewed metals and nonmetals. The version of this classification used in the	natural number is 12C, which has a mass of 12Da; because the dalton is a whole number as it is an average of about 76% chlorine-35 and 24% pure element as one that consists of only one isotope.[18]For example, a more than one way, allowing the pure element to exist in multiple cure (even these may differ from each other in electrical properties). The ble than that of the other allotropes. In thermochemistry, an element is nents. A first distinction is between metals, which readily conduct periodic tables presented here includes: actinides, alkali metals, alkaline
earth metals, halogens, lanthanides, transition metals, post-transition metals, metalloids, reactive nonmetals, and noble gases. In this system, the alkali metals, a used basic distinction among the elements is their state of matter (phase), whether solid, liquid, or gas, at standard temperature and pressure (STP). Most eleme characterizing the various elements. While known for most elements, either or both of these measurements is still undetermined for some of the radioactive eleme centimetre (g/cm3). Since several elements are gases at commonly encountered temperatures, their densities are usually stated for their gaseous forms; when lidiamond) have densities of 1.82.1, 2.267, and 3.515g/cm3, respectively. Main article: Crystal structureThe elements studied to date as solid samples have eight kethe first 94 considered naturally occurring, while those with atomic numbers beyond 94 have only been produced artificially via human-made nuclear reactions. Common decay products of thorium and uranium. The remaining six transient elements (technetium, promethium, astatine, francium, neptunium, and plutonium) be slightly radioactive with very long half-lives:[19] for example, the half-lives predicted for the observationally stable lead isotopes range from 1035 to 10189 very for example, at over 1.91019 years, over a billion times longer than the estimated age of the universe, bismuth-209 has the longest known alpha decay half-lifee.	ents are solids at STP, while several are gases. Only bromine and mercury are liquinents available in only tiny quantities. Since helium remains a liquid even at absoluquefied or solidified, the gaseous elements have densities similar to those of the ot tinds of crystal structures: cubic, body-centered cubic, face-centered cubic, hexago of the 94 naturally occurring elements, 83 are considered primordial and either states of cocur only rarely, as products of rare decay modes or nuclear reaction processes ares. Elements with atomic numbers 43, 61, and 83 through 94 are unstable enoug of any isotope.[7][8] The last 24 elements (those beyond plutonium, element 94) un	d at 0 degrees Celsius (32 degrees Fahrenheit) and 1 atmosphere pressure; caesium an ite zero at atmospheric pressure, it has only a boiling point, and not a melting point, in her elements. When an element has allotropes with different densities, one representati nal, monoclinic, orthorhombic, rhombohedral, and tetragonal. For some of the synthetic able or weakly radioactive. The longest-lived isotopes of the remaining 11 elements have involving uranium or other heavy elements. Elements with atomic numbers 1 through 8: h that their radioactive decay can be detected. Three of these elements, bismuth (eleme dergo radioactive decay with short half-lives and cannot be produced as daughters of le	d gallium are solid at that temperature, but melt at 28.4C (83.2F) and 29.8C (85.6F), reconventional presentations. Main article: Densities of the elements (data page) The dens we allotrope is typically selected in summary presentations, while densities for each allocally produced transuranic elements, available samples have been too small to determine half lives too short for them to have been present at the beginning of the Solar System 2, except 43 (technetium) and 61 (promethium), each have at least one isotope for whice the total solar system (90), and uranium (92) have one or more isotopes with half-lives long enger-lived elements, and thus are not known to occur in nature at all. Main article: Peri	espectively. Melting and boiling points, typically expressed in degrees Celsi ity at selected standard temperature and pressure (STP) is often used in clotrope can be stated where more detail is provided. For example, the three he crystal structures. Main article: Abundance of elements in Earth's crustCo, and are therefore "transient elements". Of these 11 transient elements, if h no radioactive decay has been observed. Observationally stable isotopes nough to survive as remnants of the explosive stellar nucleosynthesis that odic tablevtePeriodic tableGroup123456789101112131415161718Hydrog.	us at a pressure of one atmosphere, are commonly used in naracterizing the elements. Density is often expressed in grams per cubic familiar allotropes of carbon (amorphous carbon, graphite, and hemical elements may also be categorised by their origin on Earth, with ive (polonium, radon, radium, actinium, and protactinium) are relatively of some elements (such as tungsten and lead), however, are predicted to produced the heavy elements before the formation of the Solar System. en &alkali metalsAlkaline earth
metalsTrielsPnictogensChalcogensHalogensNoblegasesPeriod1Hydrogen1H1.0080Helium2He4.00262Lithium3Li6.94Beryllium4Be9.0122Boron5B10.81C From decay SyntheticBorder shows natural occurrence of the element Standard atomic weight Ar, std(E)[20]Ca:40.078 Abridged value (uncertainty omitted here elements as of 2021.Though earlier precursors to this presentation exist, its invention is generally credited to Russian chemist Dmitri Mendeleev in 1869, who in the many different forms of chemical behavior. The table has also found wide application in physics, geology, biology, materials science, engineering, agriculture sequenced by atomic number, conventionally from lowest to highest (as in a periodic table), sets of elements are sometimes specified by such notation as "throug with their atomic numbers. Main article: Naming of chemical elementsThe naming of various substances now known as elements precedes the atomic theory of n the element names either for convenience, linguistic niceties, or nationalism. For example, German speakers use "Wasserstoff" (water stuff) for "hydrogen", "Sat both ancient and more recently recognised are decided by the International Union of Pure and Applied Chemistry (IUPAC), which has decided on a sort of intern However, elements that are practical to sell in bulk in many countries often still have locally used national names, and countries whose national language does n	e)[21]Po:[209] mass number of the most stable isotope s-blockf-blockd-blockp-block tended the table to illustrate recurring trends in the properties of the elements. R, medicine, nutrition, environmental health, and astronomy. Its principles are espegh", "beyond", or "from through", as in "through iron", "beyond uranium", or "from atter, as names were given locally by various cultures to various minerals, metals, uerstoff" (acid stuff) for "oxygen", and "Stickstoff" (smothering stuff) for "nitrogen" lational English language, drawing on traditional English names even when an element of the properties of the study of t	The properties of the elements are often summarized using the periodic table, which p ne layout of the table has been refined and extended over time as new elements have be cially important in chemical engineering. The various chemical elements are formally id or lanthanum through lutetium". The terms "light" and "heavy" are sometimes also used compounds, alloys, mixtures, and other materials, though at the time it was not known ; English and some other languages use "sodium" for "natrium", and "potassium" for "ka nent's chemical symbol is based on a Latin or other traditional word, for example adopt	owerfully and elegantly organizes the elements by increasing atomic number into rows sen discovered and new theoretical models have been developed to explain chemical be lentified by their unique atomic numbers, their accepted names, and their chemical syn I informally to indicate relative atomic numbers (not densities), as in "lighter than carb which chemicals were elements and which compounds. As they were identified as elen alium"; and the French, Italians, Greeks, Portuguese and Poles prefer "azote/azot/azoto ing "gold" rather than "aurum" as the name for the 79th element (Au). IUPAC prefers the	("periods") in which the columns ("groups") share recurring ("periodic") pl havior. Use of the periodic table is now ubiquitious in chemistry, providing a holos. The known elements have atomic numbers from 1 to 118, convention on" or "heavier than lead", though the atomic masses of the elements (thei- nents, the existing names for anciently known elements (e.g., gold, mercur- " (from roots meaning "no life") for "nitrogen". For purposes of internationa he British spellings "aluminium" and "caesium" over the U.S. spellings "alum	nysical and chemical properties. The table contains 118 confirmed an extremely useful framework to classify, systematize and compare all ally presented as Arabic numerals. Since the elements can be uniquely ratomic weights or atomic masses) do not always increase monotonically y, iron) were kept in most countries. National differences emerged over 1 communication and trade, the official names of the chemical elements minum" and "cesium", and the U.S. "sulfur" over British "sulphur".
californium and Es for einsteinium), are always capitalised (see below). In the second half of the 20th century, physics laboratories became able to produce element time. (See element naming controversy). Precursors of such controversies involved the nationalistic namings of elements in the late 19th century. For example, It not currently used, and other symbols that may look like chemical symbols, see Chemical symbol. Before chemistry became a science, alchemists designed arcand In this system, chemical symbols are not mere abbreviationsthough each consists of letters of the Latin alphabet. They are intended as universal symbols for peoused by Berzelius have the same roots as the modern English name. For example, hydrogen has the symbol "H" from Neo-Latin hydrogenium, which has the sam plumbum) for lead, "Cu" (Latin cuprum) for copper, and "Sb" (Latin stibium) for antimony. The three other mismatches between Neo-Latin (as used by Berzelius) discovered after 1814 were also assigned unique chemical symbols, based on the name of the element. The use of Latin as the universal language of science was German, but its symbol is always "Ca"). Other languages sometimes modify element name spellings: Spanish iterbio (ytterbium), Italian afnio (hafnium), Swedish	ents with half-lives too short for an appreciable amount of them to exist at any time attetium was named after Paris, France. The Germans were reluctant to relinquish i e symbols for both metals and common compounds. These were however used as a ple of all languages and alphabets. Since Latin was the common language of science Greek roots as English hydrogen. However, in eleven cases Latin (as used by Bei) and English names are "Na" (Neo-Latin haltrium) for sodium, "K" (Neo-Latin kaliu if adding, but chemical names of newly discovered elements came to be borrowed from the moskovium (moscovium); but those modifications do not affect chemical symbols:	e. These are also named by IUPAC, which generally adopts the name chosen by the disconaming rights to the French, often calling it cassiopeium. Similarly, the British discover bibreviations in diagrams or procedures; there was no concept of atoms combining to foce at Berzelius' time, his symbols were abbreviations based on the Latin names of element reclains) and English names of elements have different roots. Eight of them are the sever m) for potassium, and "W" (Neo-Latin wolframium) for tungsten. These mismatches can om language to language with little or no modification. Symbols of elements discovered Yh, Hf, Mc.Chemical symbols are understood internationally when element names migh	overer. This practice can lead to the controversial question of which research group act er of niobium originally named it columbium, in reference to the New World. It was use ym molecules. With his advances in the atomic theory of matter, John Dalton devised his ints (they may be Classical Latin names of elements known since antiquity or Neo-Latin metals of antiquity and a metalloid also known since antiquity: "Fe" (Latin ferrum) for he from different suggestings of naming the elements in the Modern era. Initially Berze after 1814 match their names in English, French (ignoring the acute accent on), and of the require translation. There have been some differences in the past. For example, Gerr	cually discovered an element, a question that delayed the naming of element dextensively as such by American publications before the international st is sown simpler symbols, based on circles, to depict molecules. The current scoinages for later elements). The symbols are not followed by a period (ful iron, "Hg" (Latin hydrargyrum) for mercury, "Sn" (Latin stannum) for tin, lius had suggested "So" and "Po" for sodium and potassium, but he change German (though German often allows alternate spellings with k or z instead nans in the past have used "J" (for the name Jod) for iodine, but now use "I"	ats with atomic number of 104 and higher for a considerable amount of andardisation (in 1950). For lists of current chemical symbols, symbols yystem of chemical notation was invented by Jns Jacob Berzelius in 1814. Il stop) as with abbreviations. In most cases, Latin names of elements as "Au" (Latin aurum) for gold, "Ag" (Latin argentum) for silver, "Pb" (Latin d the symbols to "Na" and "K" later in the same year. Elements a lof c: e.g., the name of calcium may be spelled Calcium or Kalzium in and Iod. The first letter of a chemical symbol is always capitalised, and
the subsequent letters, if any, are always lowercase; see the preceding examples. There are also symbols in chemical equations for groups of elements, for examp general chemical symbol, though it is also the symbol of yttrium. "Z" is also often used as a general variable group. "E" is used in organic chemistry to denote an group of rare gases has now been renamed noble gases and "Rg" now refers to roentgenium. Isotopes of an element are distinguished by mass number (total pro' 2H (deuterium), and T for 3H (tritium). This convention is easier to use in chemical equations, replacing the need to write out the mass number each time. Thus, matter, with the remainder of the matter (85%) being dark matter. The nature of dark matter is unknown, but it is not composed of atoms of elements because it nucleosynthesis happened only once; the other processes are ongoing. Nuclear fusion inside stars produces elements through stellar nucleosynthesis, including nitrogen, and oxygen. In the early phases of the Big Bang, nucleosynthesis of hydrogen resulted in the production of hydrogen-1 (protium, 1H) and helium-4 (4He ~75% 1H, 25% 4He, and 0.01% deuterium, with only tiny traces of lithium, beryllium, and perhaps boron. [23] Subsequent enrichment of galactic halos occurred Supernovae are needed to produce "heavy" elements (those beyond iron and nickel) rapidly by neutron buildup, in the r-process. Certain large stars slowly produce "heavy" elements (those beyond iron and nickel) rapidly by neutron buildup, in the r-process.	electron-withdrawing group or an electrophile; similarly "Nu" denotes a nucleoph tons and neutrons), with this number combined with the element's symbol. IUPAC the formula for heavy water may be written D2O instead of 2H2O.Main article: Nt contains no protons, neutrons, or electrons. The remaining non-matter part of the all elements from carbon to iron in atomic number. Elements higher in atomic num by, as well as a smaller amount of deuterium (2H) and tiny amounts (on the order of due to stellar nucleosynthesis and supernova nucleosynthesis.[24] However, the	ile. "L" is used to represent a general ligand in inorganic and organometallic chemistry. prefers that isotope symbols be written in superscript notation when practical, for exan acleosynthesisEstimated distribution of dark matter and dark energy in the universe. Or mass of the universe is composed of the even less well understood dark energy. The 94 ther than iron, including heavy elements like uranium and plutonium, are produced by verification of the produced of the superscript of the produced lement abundance in intergalactic space can still closely resemble primordial condition	"M" is often used in place of a general metal.At least two other, two-letter generic chein ple 12C and 235U. However, other notations, such as carbon-12 and uranium-235, or other in the fraction of the mass and energy labeled "atoms" is composed of elements. Only a naturally occurring elements were produced by at least four classes of astrophysical prarious forms of explosive nucleosynthesis in supernovae and neutron star mergers. The ed in the Big Bang, since it has been observed in some very old stars, while carbon has s, unless it has been enriched by some means. Periodic table showing the cosmogenic o	mical symbols are also in informal use, "Ln" for any lanthanide and "An" for 2-12 and U-235, are also used. As a special case, the three naturally occurribout 4% of the total mass of the universe is made of atoms or ions, and thu ocess. Most of the hydrogen, helium and a very small quantity of lithium we light elements lithium, beryllium and boron are produced mostly through not. [22] No elements heavier than boron were produced in the Big Bang. A rigin of each element in the Big Bang, or in large or small stars. Small star	r any actinide. "Rg" was formerly used for any rare gas element, but the ng isotopes of hydrogen are often specified as H for 1H (protium), D for s represented by elements. This fraction is about 15% of the total ere produced in the first few minutes of the Big Bang. This Big Bang cosmic ray spallation (fragmentation induced by cosmic rays) of carbon, as a result, the primordial abundance of atoms (or ions) consisted of a can produce certain elements up to sulfur, by the alpha process.
and others produced as decay products of long-lived primordial nuclides.[25] For example, trace (but detectable) amounts of carbon-14 (14C) are continually property any sample of containing these metals. Three other radioactive elements, technetium, promethium, and neptunium, occur only incidentally in natural materials, log scale) shows the abundance of elements in our Solar System. The table shows the 12 most common elements in our galaxy (estimated spectroscopically), as a universe, however, scientists expect that these galaxies evolved elements in similar abundance. The abundance of elements in the Solar System is in keeping with cosmic rays). Beginning with carbon, elements are produced in stars by buildup from alpha particles (helium nuclei), resulting in an alternatingly larger abundan are made in energy-absorbing processes in large stars, and their abundance in the universe (and on Earth) generally decreases with their atomic number. The ab heating in the early formation of the Solar System. Oxygen, the most abundant Earth element by mass, is retained on Earth by combination with silicon. Alumini Earth's core. The composition of the human body, by contrast, more closely follows the composition of seawatersave that the human body has additional stores of hemoglobin in vertebrates' red blood cells. Abundances of the chemical elements in the Solar System. Hydrogen and helium are most common, from the Big Banch.	produced as individual atoms by nuclear fission of the nuclei of various heavy elem measured in parts per million by mass. [26] Nearby galaxies that have evolved alone their origin from nucleosynthesis in the Big Bang and a number of progenitor sup- nce of elements with even atomic numbers (these are also more stable). In general nundance of the chemical elements on Earth varies from air to crust to ocean, and of um at 8% by mass is more common in the Earth's crust than in the universe and so f carbon and nitrogen necessary to form the proteins and nucleic acids, together w	ents or in other rare nuclear processes. Besides the 94 naturally occurring elements, seg g similar lines have a corresponding enrichment of elements heavier than hydrogen and sernova stars. Very abundant hydrogen and helium are products of the Big Bang, but the such elements up to iron are made in large stars in the process of becoming supernova n various types of life. The abundance of elements in Earth's crust differs from that in the lar system, but the composition of the far more bulky mantle, which has magnesium and the phosphorus in the nucleic acids and energy transfer molecule adenosine triphosphat	weral artificial elements have been produced by nuclear physics technology. By 2016, the helium. The more distant galaxies are being viewed as they appeared in the past, so the enext three elements are rare since they had little time to form in the Big Bang and ares. Iron-56 is particularly common, since it is the most stable nuclide that can easily be he Solar System (as seen in the Sun and massive planets like Jupiter) mainly in selective di ron in place of aluminium (which occurs there only at 2% of mass) more closely mirror the (ATP) that occurs in the cells of all living organisms. Certain kinds of organisms requ	nese experiments had produced all elements up to atomic number 118.Mai leir abundances of elements appear closer to the primordial mixture. As ple e not made in stars (they are, however, produced in small quantities by the made from alpha particles (being a product of decay of radioactive nickel- e loss of the very lightest elements (hydrogen and helium) and also volatile ors the elemental composition of the solar system, save for the noted loss o tire particular additional elements, for example the magnesium in chloroph	n article: Abundance of the chemical elementsThe following graph (note vysical laws and processes appear common throughout the visible breakup of heavier elements in interstellar dust, as a result of impact by 66, ultimately made from 14 helium nuclei). Elements heavier than iron neon, carbon (as hydrocarbons), nitrogen and sulfur, as a result of solar f volatile elements to space, and loss of iron which has migrated to the yll in green plants, the calcium in mollusc shells, or the iron in the
because it represents the minimum energy nuclide that can be made by fusion of helium in supernovae. Elements in our galaxyParts per millionby massHydrogen [29]vteHHeLiBeBCNOFNeNaMgalSiPSClarkCaScTiVCrMnFeCoNicuZnGaGaSaSeBrKrRbSrYZrNbMoTcRuRhPdAgCdlnSnSbTeIXecSBa*LuHfTaWReOSIPPtAuH definition of an essential nutrient as being indispensable and irreplaceable is not completely applicable due to their extreme chemical similarity. The stable early chemical definitions, and atomic definitions. Main article: Classical element Hellenistic philosophyAncient philosophy posited a set of classical elements to explai elements introduced a century earlier by Empedocles were composed of small polyhedral forms: tetrahedron (fire), octahedron (air), icosahedron (water), and current that page may contain suggestions. (March 2024)Robert Boyle, cl.740Title page of The Sceptical Chymist, published in 1661 in 1661, in The Sceptical Chymist and the principles (sulfur, mercury, and salt), indirectly against the "Aristotelian" elements (earth, water, air, and fire), for Boyle felt that the argument imploy'd against it, may, by a little variation, be made at least as strongly against the less plausible, Aristotelian Doctrine,[34]Then Boyle stated his view in for consisted, was actually divided into little Particles,[36] The Generation and wasting of Bodies and the Chymical Resolutions of mixt Bodies, and Ope	1739,000Helium240,000Oxygen10,400Carbon4,600Neon1,340Iron1,090Nitrogen90 gTIPbBiPoAtRnFrRa**LrRfDbSgBhHsMtDsRgCnNhFlMcLvTsOg**LaCePrNdPmSnJ lanthanides LaNd are known to stimulate the growth of various lanthanide-using nobserved patterns in nature. These elements originally referred to earth, water, the (earth).[31][32]Aristotle, c.350 BCE, also used the term stoicheia and added a sist, Robert Boyle proposed his theory of corpuscularism which favoured the analysts against the former were at least as valid against the latter. Much of what I am to ir propositions. In the first and second, he suggests that matter consists of particle	50Silicon650Magnesium580Sulfur440Potassium210Nickel100Essential elements[27][21cuGdThDyHoErTmYb**AcThPaUNpPuAmCmBkcfEsFmMdNoLegend:The six basic orga organisms, and SmGd show lesser effects for some such organisms. The later elements air and fire rather than the chemical elements of modern science. The term 'elements' (sfifth element, aether, which formed the heavens. Aristotle defined an element as: Elements of matter as constituted of irreducible units of matter (atoms); and, choosing to side valeliver may be indifferently apply'd to the four Peripatetick Elements, and the three s, but that these particles may be difficult to separate. Boyle used the concept of "corp	nic elementsQuantity elementsEssential trace elementsEssentiality or function in mamin the lanthanide series do not appear to have such effects.[30]The concept of an "elemetoicheia) was first used by Greek philosopher Plato around 360BCE in his dialogue Timptone of those bodies into which other bodies can decompose, and that itself is not cap with neither Aristotle's view of the four elements nor Paracelsus' view of three fundame Chymical Principles the Chymical Hypothesis seeming to be much more countenanc's iscless" or "atomes", [35] as he also called them to explain how a limited number of eleme	mals debatedNo evidence for biological action in mammals, but essential o ent" as an indivisible substance has developed through three major histori aeus, which includes a discussion of the composition of inorganic and orga able of being divided into other.[33]This article may need to be rewritten t ntal elements, left open the question of the number of elements. Boyle arg d by Experience then the other, it will be expedient to insist chiefly upon this tould combine into a vast number of compounds. Propos. I At the firm	r beneficial in some organismsIn the case of the lanthanides, the cal phases: Classical definitions (such as those of the ancient Greeks), nic bodies and is a speculative treatise on chemistry. Plato believed the o comply with Wikipedia's quality standards, as section. You can help, used against a pre-determined number of elementsdirectly against nee disproving of that; especially since most of the Arguments that are st Production of mixt Bodies, the Universal Matter whereof they
Corpuscles, whereof each Element consists, a peculiar size and shape such Corpuscles may be mingled in such various Proportions, and connected so ma rathertogether with wine[42]"perfectly mixt bodies". Quicksilver with Aqua fortis will be brought into a white Powder with Sulphur it will compose a bloo name them Elements Principles as not being compounded of any more primary Bodies: and Elements, in regard that all mix'd Bodies are compounded of the enumerated the elements then recognised by chemists. Watts' list of elements included two of Paracelsus' principles (sulfur and salt) and two classical elements fifth sort of Body, distinct from all these: But, since experimental Philosophy have been better understood, this Doctrine has been abundantly refuted. The Chy contained 33 elements, including light and caloric.[46][47] By 1818, Jns Jacob Berzelius had determined atomic weights for 45 of the 49 then-accepted elements fair accuracy by available analytical techniques.Henry MoseleyThe 1913 discovery by English physicist Henry Moseley that the nuclear charge is the physical based view due to varying properties of isotopes and allotropes within the same element. Currently, IUPAC defines an element to exist if it has isotopes with all	any wayes, that an almost incredible number of Concretes may be compos'd of dred Cinaber. And yet out of all these exotick Compounds, we may recover the eme.[44]Even though Boyle is primarily regarded as the first modern chemist, The 's (earth and water) as well as "spirit". Watts did, however, note a lack of consensus whists make Spirit, Salt, Sulphur, Water and Earth to be their five Elements, because. Dmitri Mendeleev had 63 elements in his 1869 periodic table. Dmitri Mendeleev, is is for the atomic number, further refined when the nature of protons and neutron fetime longer than the 1014 seconds it takes the nucleus to form an electronic clouds.	them.[39]Boyle explained that gold reacts with aqua regia, and mercury with nitric act very same running Mercury.[43] Propos. III From most of such mixt Bodies theis Sceptical Chymist still contains old ideas about the elements, alien to a contemporary viamong chemists.[45]Elements are such Substances as cannot be resolved, or reduced, is ethey can reduce all terrestrial Things to these five tho' they are not all agreed. Mer. 1897From Boyle until the early 20th century, an element was defined as a pure substan is became appreciated, eventually led to the current definition of an element based on a d.[48]By 1914, eighty-seven elements were known, all naturally occurring (see Discove.	d, sulfuric acid, and sulfur to produce various "compounds", and that they could be rece may by the Help of the Fire, be actually obtain'd a determinate number (whether Thiewpoint. Sulfur, for example, is not only the familiar yellow non-metal but also an inflainto two or more Substances of different Kinds Followers of Aristotle made Fire, Air, ideleev's 1869 periodic table: An experiment on a system of elements. Based on their at ce that cannot be decomposed into any simpler substance and cannot be transformed in tomic number (number of protons). The use of atomic numbers, rather than atomic weiry of chemical elements). The remaining naturally occurring elements were discovered	overed from those compounds, just as would be expected of elements. Yet, ree, Four or Five, or fewer or more) of Substances The Chymists are won mmable "spirit". [42]Portrait of Isaac Watts by John Shury, c. 1830In 1724, i Earth and Water to be the four Elements, of which all earthly Things were tomic weights and chemical similarities. The first modern list of elements we to other elements by chemical processes. Elements at the time were gene ghts, to distinguish elements has greater predictive value (since these num or isolated in subsequent decades, and various additional elements have a	Boyle did not consider gold, [40] mercury, [41] or lead [40] elements, but to call the Ingredients of mixt Bodies, Principles, as the Aristotelians in his book Logick, the English minister and logician Isaac Watts compounded; and they suppos'd the Heavens to be a Quintessence, or as given in Antoine Lavoisier's 1789 Elements of Chemistry, which rally distinguished by their atomic weights, a property measurable with thers are integers) and also resolves some ambiguities in the chemistry-iso been produced synthetically, with much of that work pioneered by
Glenn T. Seaborg. In 1955, element 101 was discovered and named mendelevium in honor of D. I. Mendeleev, the first to arrange the elements periodically. For a isolated before 1750. Most of the remaining naturally occurring elements were identified and characterised by 1900, including: Such now-familiar industrial mate uranium, thorium, and radium Elements isolated or produced since 1900 include: The three remaining undiscovered stable elements: hafnium, lutetium, and rhen (astatine, francium, actinium, and protactinium), and All synthetic transuranic elements, beginning with americium and curium The first transuranium element (e suggested for it.[49] The name and symbol were officially endorsed by IUPAC on 19 February 2010.[50] The heaviest element that is believed to have been synth of chemical elements The following sortable table shows the 118 known elements. Atomic number, Element, and Symbol all serve independently as unique identified elements TSym. Element Nameorigin [55] [56] Group Period Block Atomic weight [a] (Da) Density [b] [c] (g/cm3) Meltingpoint [d] (K) Boilingpoint [e] (K) Specific heatcapacity [block 9.01221.85156027421.8251.572.8primordial solid 5B Boron [p] 132p-block 10.812.34234942001.0262.0410 primordial solid 6C Carbon [q] 142p-block 12.0112.267 block 12.090.9968370.8711561.2280.9323600 primordial Solid 12 Mg Magnesium [w] 23s-block 24.3051.73892313631.0231.3123300 primordial solid 13 Ald Numinium [c] (C)	erials as aluminium, silicon, nickel, chromium, magnesium, and tungstenReactive m iumPlutonium, which was first produced synthetically in 1940 by Glenn T. Seabove lement with an atomic number greater than 92) discovered was neptunium in 194(nesised to date is element 118, oganesson, on 9 October 2006, by the Flerov Laboriers. Element names are those accepted by IUPAC. Block indicates the periodic tabl f[I](J/g K)Electronegativity[g]Abundancein Earth'scrust[h](mg/kg)Origin[i]Phase[j]1 7-400043000.7092.55200primordialsolid7NNitrogen[r]152p-block14.0070.001250	netals such as lithium, sodium, potassium, and calciumThe halogens fluorine, chlorine, h, but is now also known from a few long-persisting natural occurrencesThe three incide. Since 1999, the IUPAC/IUPAP Joint Working Party has considered claims for the discontory of Nuclear Reactions in Dubna, Russia.[10][51] Tennessine, element 117 was the leblock for each element: red = s-block, yellow = p-block, blue = d-block, green = f-blor Hydrogen[k]11s-block1.00800.0000898814.0120.2814.3042.201400primordialgas2Hei063.1577.361.043.0419primordialgas8OOxygen[s]162p-block15.9990.00142954.3690.	promine, and iodineGases such as hydrogen, oxygen, nitrogen, helium, argon, and neon- intally occurring natural elements (neptunium, promethium, and technetium), which we interpreted by the street of the second s	Most of the rare-earth elements, including cerium, lanthanum, gadolinium, pre all first produced synthetically but later discovered in trace amounts in PAC as being discovered. The discovery of element 112 was acknowledged at the IUPAC officially recognised the names for the four newest elements is here show the currently accepted numbering; for older numberings, see is-block6.940.534453.6915603.5820.9820primordialsolid4BeBeryllium[0]2 8243.98585primordialgas10NeNeon[u]182p-block20.1800.000900224.562	and neodymiumThe more common radioactive elements, including geological samplesFour scarce decay products of uranium or thorium in 2009, and the name copernicium and the chemical symbol Cn were with atomic numbers 113, 115, 117, and 118.[53][54]Main article: List Group (periodic table).vteList of chemical
block35.450.0032171.6239.110.4793.16145primordialgas18ArArgon[ac]183p-block39.950.00178483.8087.300.523.5primordialgas19KPotassium[ad]14s-block31 block51.9967.15218029440.4491.66102primordialsolid25MnManganese[aj]74d-block54.9387.21151923340.4791.55950primordialsolid26FeIron[ak]84d-block55.block69.7235.91302.914626730.3711.8119primordialsolid32GeGermanium[aq]144p-block72.6305.323121.4031060.322.011.5primordialsolid338Arsenic[ar]1 block85.4681.532312.469610.3630.8290primordialsolid338SrStrontium[ax]25s-block87.622.64105016550.3010.95370primordialsolid39Yttrium[ay]35d-block180.10712.45260744230.2382.20.001primordialsolid45RhRhodium[be]95d-block10.29112.41223739680.2432.280.001primordialsolid46PdPalladium[bf]105 block118.717.265505.0828750.2281.962.3primordialsolid51ShAntimony[bk]155p-block121.766.697903.7818600.2072.050.2primordialsolid52TeTellurium[bf]f-block groups6f-block140.126.770106837160.1921.1266.5primordialsolid59PrP.block151.965.244109918020.1821.22primordialsolid64GGadolinium[bx]f-block groups6f-block157.257.90158535460.2361.26.2primordialsolid65TbTerbium[by]block168.939.32181822230.161.250.52primordialsolid70YbYtterbium[cd]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid31ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid71ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid71ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid71ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid71ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid71ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid71ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid71ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid71ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid701ULutetium[c]f-block groups6f-block173.056.90109714690.1551.13.2primordialsolid71ULutetium[c]f-block groups	54p-block74.9225.7271090[as]8870.3292.181.8primordialsolid34SeSelenium[at]14.9064.472179936090.2981.2233primordialsolid40ZrZirconium[az]45d-block91.2246.block91.2246.block91.2254.block91.22546.block91.2256.block91.2256.block91.275.block127.606.24722.6612610.2022.10.001primordialsolid53IIodine[bm]175p-block127.606.24722.6612610.2022.10.001primordialsolid53IIodine[bm]175p-blraseodymium[bs]f-block197.0925.block140.916.77120837930.1931.139.2primordialsolid66DyDyspr	54p-block78.9714.814539580.3212.550.05primordialsolid35BrBromine[au]174p-block7.66.52212846820.2781.33165primordialsolid41NbNiobium[ba]55d-block92.9068.572756.5d-block107.8710.491234.9324350.2351.930.075primordialsolid48CdCadmium[bh]125lock126.904.933386.85457.40.2142.660.45primordialsolid54XeXenon[bn]185p-block13alsolid60NdNeodymium[bt]F-block groups6f-block144.247.01129733470.191.1441.5prinosium[bt]F-block groups6f-block144.247.01129733470.191.1441.5prinosium[bt]F-block groups6f-block146.2508.540168028400.171.225.2primordialsolid67Ho	9.9043.1028265.8332.00.4742.962.4primordialliquid36KrKrypton[av]184p-block83.798 50170.2651.620primordialsolid42MoMolybdenum[bb]65d-block95.9510.28289649120 id-block112.418.65594.2210400.2321.690.159primordialsolid49InIndium[bi]135p-block 1.290.005894161.4165.030.1582.603105primordialgas55CsCaesium[bb]16s-block132. mordialsolid61PmPromethium[bu]f-block groups6f-block[145]7.26131532731.1321019f Holmium[ca]f-block groups6f-block164.938.79173429930.1651.231.3primordialsolid68	0.003749115.79119.930.2483.001104primordialgas37RbRubidium[aw]15: 2.5212.161.2primordialsolid43TcTechnetium[bc]75d-block[97]11243045381 3.114.827.31429.7523450.2331.780.25primordialsolid50SnTin[bj]145p- 911.93301.599440.2420.793primordialsolid56BaBarium[bp]26s-block137.3 3.5000000000000000000000000000000000000	s. .9~3109from decaysolid44RuRuthenium[bd]85d- 333.51100021700.2040.89425primordialsolid57LaLanthanum[bq]f-block 0670.1971.177.05primordialsolid63EuEuropium[bw]f-block groups6f- mordialsolid69TmThulium[cc]f-block groups6f-
block190.2322.59330652850.132.20.002primordialsolid77lrIridium[ck]96d-block192.2222.56271947010.1312.200.001primordialsolid78PtPlatinum[cl]106d-block[206]40+114primordialsolid83BiBismuth[cq]156p-block208.989.78544.718370.1222.00.009primordialsolid84PoPolonium[cr]166p-block[209][a]9.19652712352.0210 block[227]10132334710.121.15.51010from decayoslid90fhThorium[cx]f-block groups7f-block232.0411.7211550610.131.39.6primordialsolid91PaProtactinium[block[243]12144928801.13syntheticsolid90fhCmCurium[dd]f-block groups7f-block[247]13.51161333831.28syntheticsolid97BkBerkelium[de]f-block groups7f-block[247]13.51161333831.28syntheticsolid97BkBerkelium[de]f-block groups7f-block[247]13.59ntheticunknown phase103LrLawrencium[dk]37d-block[266](14.4)(19001).3syntheticunknown [2728]syntheticunknown phase110DsDarmstadtium[dr]107d-block[281](2627)syntheticunknown phase111RgRoentgenium[ds]117d-block[282](2224)syntheticun(1100)syntheticunknown phase117TsTennessine[dy]177p-block[294](7.17.3)(700)(883)syntheticunknown phase1180gOganesson[dz]187p-block[294](7)(32515)(elements in Earth's crust^ Primordial (=Earth's origin), from decay, or synthetic^ Phase at Standard state (25C [77F], 100kPa)^ Greek roots hydro-+-gen, 'wa fluo' to flow'^ Greek non 'new'^ Coined by Humphry Davy who first isolated it, from English soda (specifically caustic soda), via Italian from Arabic ud 'headach'	10from decaysolid85AtAstatine[cs]176p-block[210](8.918.95)5756102.231020from [cy]f-block groups7f-block231.0415.37184143001.51.4106from decaysolid92UUrik[247]14.78125929001.3syntheticsolid98CfCalifornium[df]f-block groups7f-block[2wn phase104RfRutherfordium[dl]47d-block[267](17)(2400)(5800)syntheticunknow nknown phase112CnCopernicium[dt]127d-block[285](14.0)(28311)(34010)[b]synth 45010)[syntheticunknown phase^ a b Standard atomic weight or Ar(E)'1.0080': abiter-forming'^ Greek hlios 'sun'^ Melting point: helium does not solidify at a pressi	i decayunknown phase86RnRadon[ct]186p-block[222]0.00973202211.30.0942.241013fiuim[cz]f-block groups7f-block238.0319.11405.344040.1161.382.7primordialsolid93Np [251]15.11173(1743)[b]1.3syntheticsolid99EsEinsteinium[dg]f-block groups7f-block[252 n phase105DbDubnium[dm]57d-block[268](21.6)syntheticunknown phase106SgSeabor eticunknown phase113NhNihonium[du]137p-block[286](16)(700)(1400)syntheticunkno ridged value, uncertainty ignored here'[97]', [] notation: mass number of most stable iscure of 1 atmosphere. Helium can only solidify at pressures above 25 atm. 6 Greek lthos	rom decaygas87FrFrancium[cu]17s-block[223](2.48)281890>0.79[58]~11018from dec Neptunium[da]f-block groups7f-block[237]20.4591742731.3631012from decaysolid94P [8.841133(1269)1.3syntheticsolid100FmFermium[dh]f-block groups7f-block[257](9.7)[] gium[dn]67d-block[267](2324)syntheticunknown phase107BhBohrium[do]77d-block[27 yn phase114FlFlerovium[dv]147p-block[289](11.40.3)(28450)[b]syntheticunknown phase tope^ a b c d e Values in () brackets are predictions^ Density (sources)^ Melting poin stone'^ Beryl, mineral (ultimately after Belur, Karnataka, India?)[57]^ Borax, mineral	ayunknown phase88RaRadium[cv]27s-block[226]5.597320100.0940.99107 uPlutonium[db]f-block groups7f-block[244]19.85912.535011.2831011from ol(1125)[59](1800)[60]1.3syntheticunknown phase101MdMendelevium[di] ol(2627)syntheticunknown phase108HsHassium[dp]87d-block[271](2729) use115McMoscovium[dw]157p-block[290](13.5)(700)(1400)syntheticunkno t in kelvin(K) (sources)^ Boiling point in kelvin(K) (sources)^ Heat capacit (from Arabic: bawraq, Middle Persian: *brag)^ Latin carbo 'coal'^ Greek n	from decaysolid89AcActinium[cw]f-block groups7f- decaysolid95AmAmericium[dc]f-block groups7f- f-block groups7f-block[258](10.3)(1100)1.3syntheticunknown syntheticunknown phase109MtMeitnerium[dq]97d-block[278] wn phase116LvLivermorium[dx]167p-block[293](12.9)(700) y (sources)^ Electronegativity by Pauling (source)^ Abundance of tron + -gen, 'niter-forming'^ Greek oxy- + -gen, 'acid-forming'^ Latin
for Norse goddess Freyja^ Greek chrma 'colour'^ Corrupted from magnesia negra; see magnesium^ English, from Proto-Celtic *sarnom 'iron', from a root mean from a West Asian wanderword ultimately from Old Persian: *zarniya-ka, lit.'golden'^ Arsenic sublimes at 1 atmosphere pressure.^ Greek seln 'moon'^ Greek be Greek kekhnts 'artificial' ^ Neo-Latin Ruthenia 'Russia' ^ Greek rhodeis 'rose-coloured', from rhoto 'rose'- Pallas, asteroid, then considered a planet' English, fi imid 'antimony' ^ Latin tellus 'ground, earth'^ French iode, from Greek ioeids 'violet'^ Greek xnon, neuter of xnos 'strange, foreign'^ Latin caesius 'sky-blue'^ (it was found; see yttrium, erbium, ytterbium^ Greek dysprsitos 'hard to get'^ Neo-Latin Holmia 'Stockholm'^ Ytterby, where it was found; see yttrium, terbium, 'little silver', from plata 'silver'^ English, from same Proto-Indo-European root as 'yellow'^ ^ Mercury, Roman god of commerce, communication, and luck, known discoverer Marguerite Perey^ Coined in French by discoverer Marie Curie, from Latin radius 'ray'^ Greek akts 'ray'^ Thor, the Norse god of thunder^ English of California, where it was first synthesized in the GSI labs^ Wilhelm Rntoen. German physicist^ Enrico Fermi, Italian physicist^ Dmitri Mendeleev, Russian chemist who where it was first synthesized in the GSI labs^ Wilhelm Rntoen. German physicist^ Docernicus. Polish astronomer^ laoanese Nihon 'laoan', where it was first synthesized in the GSI labs^ Wilhelm Rntoen. German physicist^ Docernicus. Polish astronomer^ laoanese Nihon 'laoan', where it was first synthesized in the GSI labs^ Wilhelm Rntoen. German physicist^ Docernicus. Polish astronomer^ laoanese Nihon 'laoan', where it was first synthesized in the GSI labs^ Wilhelm Rntoen. German physicist^ Docernicus. Polish astronomer^ laoanese Nihon 'laoanese Nihon '	ning 'blood' ^ German Kobold, 'goblin' ^ Nickel, a mischievous sprite in German mi rmos 'stench' ^ Greek krypts 'hidden' ^ Latin rubidus 'deep red' ^ Strontian, a villaç rom Proto-Germanic ^ Neo-Latin cadmia 'calamine', from King Cadmus, mythic fou Greek bars 'heavy' ^ Greek lanthnein 'to lie hidden' ^ Ceres (dwarf planet), then cou ytterbium ^ Thule, the ancient name for an unclear northern location ^ Ytterby, who for his speed and mobility ^ Greek thalls 'green shoot / twig' ^ English, from Proto prefix proto- (from Greek prtos 'first, before') + actinium; protactinium decays into proposed the periodic table ^ Alfred Nobel, Swedish chemist and engineer ^ Ernes	ner mythology^ English, from Latin cuprum, after Cyprus^ Most likely German Zinke, je in Scotland, where it was found^ Ytterby, Sweden, where it was found; see terbium, under of Thebes^ Latin indicum 'indigo', the blue color named after India and observed issidered a planet^ Greek prsios ddymos 'green twin'^ Greek nos ddymos 'new twin'^ Piere it was found; see yttrium, terbium, erbium^ Latin Lutetia 'Paris'^ Neo-Latin Hafni-Celtic *loudom, from a root meaning 'flow' ^ German Wismut, via Latin and Arabic froi actinium.^ Uranus, the seventh planet^ Neptune, the eighth planet^ Pluto, dwarf plan takence, American physicist Frnest Rutherford, chemist and physicist from New 2	prong, tooth', but some suggest Persian sang 'stone'^ Latin Gallia 'France'^ Latin Generbium, ytterbium^ Zircon, mineral, from Persian zargun 'gold-hued'^ Niobe, daughtei in its spectral lines ^ English, from Proto-Germanic ^ Latin antimonium, of unclear ori rometheus, a Titan^ Samarskite, a mineral named after V. Samarsky-Bykhovets, Russis a 'Copenhagen' (from Danish havn, harbor)^ King Tantalus, father of Niobe in Greek m m Greek psimthion 'white lead'^ Latin Polonia 'Poland', home country of discoverer Manet, then considered a planet^ Americas, where the element was first synthesized, by a lealand^ Dubna, Russia, where it was discovered in JINR^ Glenn Seaborg, American c'	mania 'Germany' ^ Middle English, from Middle French arsenic, from Gree of king Tantalus in Greek myth; see tantalum ^ Greek molbdaina 'piece of gin: folk etymologies suggest Greek ant 'against' + mnos 'alone', or Old Fr an mine official ^ Europe ^ Gadolinite, a mineral named after Johan Gadolityth; see niobium ^ Swedish tung sten 'heavy stone' ^ Latin Rhenus 'Rhine' rie Curie ^ Greek statos 'unstable'; it has no stable isotopes ^ Radium emanalogy with its homolog europium ^ Pierre and Marie Curie, physicists and lemist ^ Niels Bohr, Danish physicist ^ Neo-Latin Hassia 'Hesse', a state in	k arsenikn 'yellow arsenic' (influenced by arseniks 'masculine, virile'), lead', from mlybdos 'lead', due to confusion with lead ore galena (PbS)^ench anti-moine 'monk's bane', but could be from or related to Arabic I, Finnish chemist, physicist and mineralogist^ Ytterby, Sweden, where Greek osm 'smell'^ Iris, Greek goddess of rainbow^ Spanish platina nation, originally the name of 222Rn^ France, home country of chemists^ Berkeley, California, where it was first synthesized^ Germany^ Lise Meitner, Austrian physicist^ Darmstadt, Germany,
databaseDiscovery of chemical elementsElement collectingFictional elementGoldschmidt classificationIsland of stabilityList of nuclidesList of the elements' dens doi:10.1351/goldbook.C01022.^ See the timeline on p.10 in Oganessian, Yu. Ts.; Utyonkov, V.; Lobanov, Yu.; Abdullin, F.; Polyakov, A.; Sagaidak, R.; Shirokovsk on 21 September 2013.^ astro.soton.ac.uk (3 January 2001). "Formation of the light elements". University of Southampton. Archived from the original on 21 September 2013.^ astro.soton.ac.uk (3 January 2001). "Formation of the light elements". University of Southampton. Archived from the original on 21 September 2012. Retrieved 19 October 2013. "Experimental detection of alpha-particles from the radioactive decay of natural bismuth and 118 Are Discovered". Physics News Update (797). American Institute of Physics. Archived from the original on 1 January 2012. Retrieved 19 October 2006.^ Porter, C. E.; Ramayya, A. V.; Riley, F. D.; Roberto, J. B.; Ryabinin, M. A.; Rykaczewski, K. P.; Sagaidak, R. N.; Shaughnessy, D. A.; Shirokovsky, I. V.; Stoyer, M. United States Environmental Protection Agency Radiation Protection. Archived from the original on 1 September 2015. Retrieved 26 February 2013.^ Chaisson, Carbon". Los Alamos National Laboratory. Archived from the original on 25 January 2021. Retrieved 17 February 2013.^ Katsuya Yamada. "Atomic mass, isotope	sitiesMineral (nutrient)Periodic systems of small moleculesPrices of chemical eleme, J.; Tsyganov, Yu. (2006). "Evidence for Dark Matter" (PDF). Physical Review C.; ottember 2013.^ "How Stars Make Energy and New Elements" (PDF). Foothill Colled.". Nature. 422 (6934): 876878. Bibcode:2003Natur.422876D. doi:10.1038/nature. Glanz, J. (6 April 2010). "Scientists Discover Heavy New Element". The New York A.; Subbotin, V. G.; Sudowe, R.; Sukhov, A. M.; Tsyganov, Yu. S.; etal. (April 2010). Eric J. "Origins of Heavy Elements". Cosmic Evolution - From Big Bang to Humanles, and mass number "(PDF). Los Angeles Pierce College. Archived from the origin	entsSystematic element nameTable of nuclidesRoles of chemical elements Helge Krag (4 (4): 044602. Bibcode:2006PhRvC74d46020. doi:10.1103/PhysRevC.74.044602. Arclived (PDF) from the original on 11 August 2020. Retrieved 1 01541. PMID12712201. S2CID4415582. Sanderson, K. (17 October 2006). "Heaviest times. Archived from the original on 19 June 2017. Retrieved 15 February 2017. Oga "Synthesis of a New Element with Atomic Number Z=117". Physical Review Letters, 1 (kind. HarvardSmithsonian Center for Astrophysics. Archived from the original on 25 Sejal (PDF) on 11 January 2014. "Pure element". European Nuclear Society. Archived fro	h (2000). Conceptual Changes in Chemistry: The Notion of a Chemical Element, ca. 190 (ived (PDF) from the original on 13 February 2021. Retrieved 8 October 2007. "The U7 February 2013." a b Dum, B. (23 April 2003). "Bismuth breaks half-life record for alp element made again". News@nature. doi:10.1038/news061016-4. S2CID121148847. Arn nessian, Yu. Ts.; Abdullin, F. Sh.; Bailey, P. D.; Benker, D. E.; Bennett, M. E.; Dmitriev, D4 (14). Physical Review Journals: 142502. Bibcode:2010PhRvL.104n2502O. doi:10.110 ptember 2020. Retrieved 26 February 2013." "Atomic Number and Mass Numbers" in the original on 13 June 2017. Retrieved 13 August 2013." Audi, G.; Kondev, F. G.; W	00-1925^ Chemistry (IUPAC), The International Union of Pure and Applied niverse Adventure Hydrogen and Helium". Lawrence Berkeley National Laha decay". Physicsworld.com. Bristol, England: Institute of Physics. Archivchived from the original on 16 May 2020. Retrieved 8 March 2007. ^a b S S. N.; Ezold, J. G.; Hamilton, J. H.; Henderson, R. A.; Itkis, M. G.; Lobanov, 3/PhysRevLett.104.142502. PMID20481935. ^ This article incorporates textleed.org. Archived from the original on 12 February 2014. Retrieved 17 Fe ang, M.; Huang, W. J.; Naimi, S. (2017). "The NUBASE2016 evaluation of 1	. "IUPAC chemical element (C01022)". goldbook.iupac.org. boratory U.S. Department of Energy. 2005. Archived from the original ed from the original on 13 December 2017. Retrieved 14 July 2015. ^ a b hewe, P.; Stein, B.; Castelvecchi, D. (16 October 2006). "Elements 116 Yu. V.; Mezentsev, A. N.; Moody, K. J.; Nelson, S. L.; Polyakov, A. N.; tf from this source, which is in the public domain: "Technetium-99". bruary 2013. ^ periodic.lanl.gov. "Periodic Table of Elements: LANL nuclear properties" (PDF). Chinese Physics C. 41 (3): 030001.
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be said to have discovered the planet Neptune on paper, Mendeleev could be said to have discovered germanium on paper. He called this new element eka-silico of hindsight, we know that Mendeleev's periodic table was underpinned by false reasoning. Mendeleev believed, incorrectly, that chemical properties were deter ThalliumGroupBoronMelting point304 CPeriod6Boiling point1473 CBlock13Density (g cm3)11.71 g.cm3 at 20CAtomic number81Relative atomic mass204.383 g. exposed to air it may discolour. There are around eighty-one electrons present in the atom of thallium with an electronic configuration of [Xe]4f145d106s26p1.Th melts easily. Thallium salts that are soluble are generally toxic. They are merely tasteless. It oxidises at +3 and +1 oxidation states, forming ionic salts. There are poisonous. Like lead, thallium is also a soft and low-melting element. Freshly cut thallium has a metallic lustre that dulls to bluish-grey upon exposure to air. Thal your score and answers at the end of the quiz Visit BYJUS for all Chemistry related queries and study materials 0 out of 0 arewrong 0 out of 0 are correct 0 out of license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. SI	on, after observing a gap in the periodic table between silicon and tin: Similarly, M rmined by atomic weight. Of course, this was perfectly reasonable when we consid .mol -1State at 20CSolidKey isotopes205TlElectron configuration[Xe]4f145d106s26 his element can be generated artificially. It can be obtained by smelting lead and zi several thallium compounds wherein thallium(III) resembles the aluminium (III) collium does not dissolve in water. It is a soft and silvery-white metal that tarnishes et of 0 are Unattempted View Quiz Answers and Analysis Share copy and redistribute hareAlike If you remix, transform, or build upon the material, you must distribute y	endeleev discovered gallium (eka-aluminum) and scandium (eka-boron) on paper, becauer scientific knowledge in 1869. In 1869 the electron itself had not been discovered - the Sp1CAS number7440-28-0ChemSpider ID4514293ChemSpider is a free chemical struction. It is generally obtained as a by-product in the production of sulphuric acid. Uses of mpounds. Certain Facts About ThalliumIt was named after the Greek word thallus whicasily. Thallium dissolves only slowly in sulphuric acid, H2SO4, or hydrochloric acid, HCl, the material in any medium or format for any purpose, even commercially. Adapt remix our contributions under the same license as the original. No additional restrictions You	use he predicted their existence and their properties before their actual discoveries. Per at didn't happen for another 27 years. In fact, it took all of 44 years for the correct explure database What is Thallium?Thallium with an atomic number of 81 is found in the per ThalliumIn ancient times it was used as a rat poison and as an ant killer. Thallium comp the means twig. Thallium is suspected to be carcinogenic. Hence direct contact should be because the poisonous thallium(I) salts produced are not very soluble. Put your unders t, transform, and build upon the material for any purpose, even commercially. The licen may not apply legal terms or technological measures that legally restrict others from descriptions.	riodic Table ImageClick image to enlarge Although Mendeleev had made a anation of the regular patterns in Mendeleev's periodic table to be found riodic table with the symbol Tl.Thallium is not freely found in nature. It is ounds are used in the manufacture of glasses. It is used in photocells. It is u avoided with the skin.Thallium (Tl) is a chemical element or a metal of the standing of this concept to test by answering a few MCQs. Click Start Quiz sor cannot revoke these freedoms as long as you follow the license terms loing anything the license permits. You do not have to comply with the lice	crucial breakthrough, he made little further progress. With the benefit Read More The Periodic Table continued Chemical Properties of a soft grey post-transition metal. It resembles tin when isolated but when sed in the production of infrared optics. Properties of ThalliumThallium main Group 13 (IIIa, or boron group) of the periodic table. It is to begin! Select the correct answer and click on the Finish buttonCheck Attribution You must give appropriate credit, provide a link to the nse for elements of the material in the public domain or where your use
is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended u hydrogen gas. Hydrogen glows violet when ionized. Creative Commons LicenseName: HydrogenAtomic Number: 1Element Symbol: HGroup: 1Period: 1Block: sE suggested the name hydrogene in 1783 and hydrogen was adopted soon after.Name Origin: Hydro (Greek for water) Gene (Greek for forming). Lavoisier showed naturally occurring hydrogen is deuterium.3HTritium contains 1 proton, 2 neutrons and 1 electron. This isotope is commonly denoted by the letter T. The name of 32.938 K at 1.2858 MPaState at 20C: GasHeat of Fusion: 0.117 kJ/mol for H2.Heat of Vaporization: 0.904 kJ/mol for H2.Molar Heat Capacity: 28.836 J/molK for new stars. Credit: NASAHydrogen is the lightest of the elements. Hydrogen is the most abundant of the elements. It accounts for approximately 75% of the eleme produces water. One method of preparing hydrogen gas is by reacting metal with acid. Positive ions of hydrogen are called hydrons. Negative hydrogen ions are Industrial Plants to Multifuel Microreformers. Catalysis Reviews. 47 (4): 491588. doi:10.1080/01614940500364958Lide, D. R., ed. (2005). CRC Handbook of Cherents is widely used in the field of Chemistry to look up chemical pelements as they are arranged in a manner that displays periodic trends in the chemical produces.	Element Family: NonmetalAtomic Mass: [1.00784; 1.00811] IUPAC guidelines1.008 Il if you combusted hydrogen with oxygen, water was formed. Common Isotopes:1H comes from the Greek word tritos meaning third. Trition is radioactive and decays H2.Atomic Radius: 1.10Covalent Radius: 0.32Van der Waals Radius: 1.2Electron Af ent mass of the universe. Hydrogen is a colorless and odorless gas at room temper hydrides. Hydrogen is largely used in industry to produce ammonia and process fos mistry and Physics(86th ed.). Boca Raton (FL): CRC Press. ISBN 0-8493-0486-5.Sco	is commonly used for a single valueElectron Configuration: 1s1Discovery: Henry Caver Protium is the most common isotope. It has 1 proton and 1 electron. 99.98% of all nature by decay into He-3 with a half-life of 12.32 0.02 years. 10-18% of naturally occurring hyfinity: 72.769 kJ/molElectronegativity: (Pauling scale): 2.201st IonizationEnergy: 1312.0 ture and pressure. Hydrogen gas at room temperature and pressure is 14 times lighter is if fuels. Hydrogen is often prepared by electrolysis of water. It is also prepared by runn erri, Eric (2007). The Periodic System, Its Story and Its Significance. New York: Oxford	ndish in 1766.Cavendish was the first to recognize hydrogen as an element. Others had ally occurring hydrogen is protium.2HDeuterium is 1 proton, 1 neutron and 1 electron. drorgen is tritium.Electron configuration of a hydrogen atom.Density: 0.000082 g/cm38.05 kJ/molCommon Oxidation States: 1, -1Here are some interesting and fun facts about than air. It is so light, it easily escapes Earths gravity and enters space.Hydrogen gas is ing steam across heated carbon or the reaction of acids on metals.Learn more about ell University Press. ISBN 978-0-19-530573-9.Weast, Robert (1984).CRC, Handbook of Ch	prepared samples of hydrogen gas without identifying it as an element. Car This isotope is commonly denoted by the letter D. The name comes from the felting Point: 13.99k (-259.16C or -434.182F)Boiling Point: 20.271 K (-252. hydrogen: Hubble Space Telescope composite image of NGC 604 nebula. To extremely flammable when mixed with oxygen. Burning hydrogen gas cau ements on the periodic table. Ferreira-Aparicio, P.; Benito, M. J.; Sanz, J. L. emistry and Physics. Boca Raton, Florida: Chemical Rubber Company Publ	wendish called his discovery inflammable air. Antoine Lavoisier the Greek word deuteros meaning second. Approximately 0.02% of 879C or -423.182F)Triple Point: 13.8033 K at 7.041 kPaCritical Point: his nursery of new stars is a vast region of ionized hydrogen gas forming sed the famous Hindenburg airship disaster.Burning hydrogen gas in air (2005). New Trends in Reforming Technologies: from Hydrogen ishing. ISBN 978-0-8493-0464-4. Related Posts The periodic table of
be traced to the Latin word for iron, Ferrum. It could prove difficult for a beginner in chemistry to learn the names of all the elements in the periodic table becau beginners in chemistry. To learn more about how elements are classified in the periodic table, visit BYJUS.Related Topics Also, checkChemistry Concept Questio table. A chemical symbol is a notation of one or two letters denoting a chemical element. Example: The symbol of chlorine is Cl.The first letter is always capitalise which has no neutron. The chemical symbol of gold metal is Au. Put your understanding of this concept to test by answering a few MCQs. Click Start Quiz to begi article is about the element. For the color, see Silver (color). Silver bar, or ingotisliver (symbol Ag) is a chemical element. In chemistry, silver is element 47, a trained in the symbol and ductile, which means it can be pulled into wire or hammered into thin sheets. Silver is one of the few words in the English language easily. It only corrodes when there is hydrogen sulfide in the air. Then, it forms a black coating known as tarnish. Silver(I) oxide Silver exists in two main oxidatic carbonate, yellowishSilver chloride, white Silver(I) fluoride, yellow-brownSilver iodate, colorlessSilver iodide, yellowSilver intrate, colorlessSilver oxide, brown-bi mines that are operated for copper and zinc. Silver is also in chemical compounds. Acanthite is a silver ore that is a silver compound. AcanthiteSilver is extracted.	use these symbols do not always correspond to the English names of the elements. In the atomic number of an atom is equivalent to the total number of differ writing the chemical symbol of an element, while the second letter is small. Considering the chemical symbol of an element, while the second letter is small. Considering the considering the chemical symbol of an element, while the second letter is small. Considering the considering the same and an action metal. It has an atomic weight of 107.86 a.m.u. Its symbol is Ag, from the Light does not rhyme with any other word. Silver coins and bars can be bought on states: +1 and +2. The +1 is much more common. A few compounds exist in the lackSilver sulfide, blackSilver(II) compoundsSilver(II) compounds are powerful oxidering the sum of the considering the sum of the	Practise more on Interactive Periodic Table A list of 118 elements and their symbols and felectrons present in a neutral atom or the total number of protons present in the nucle hemical symbols play a crucial role in easing the writing. It is universal, i.e. identical the nswers at the end of the quiz Visit BYJUS for all Chemistry related queries and study matin word for silver, argentum. Silver is a soft metal. It is also a precious metal. When it not sold at coin shops around the world. Natural silver tarnished Silver is less reactive the +2 oxidation state, but they are very strong oxidizing agents. Silver compounds can be dizing agents and rare. Silver(II) fluoride, strong oxidizing agent, highly reactive, white	I atomic numbers is provided below:118 Elements and Their Symbols and Atomic Numleus of an atom. An element is a substance that can not be decomposed into simpler subs roughout the world. The chemical symbol of sodium metal is Na. Helium is the smallest aterials 0 out of 0 arewrong 0 out of 0 are correct 0 out of 0 are Unattempted View Qui is used in money or in jewellery, it is often alloyed with gold or some other metal to man most other metals. It does not dissolve in most acids. Nitric acid dissolves it, though, brown, black, yellow, gray, or colorless. Silver compounds are disinfectants. Silver(I) or or graySilver as a metalSilver can be found as a native metal. Most silver is found with	pers Recommended Videos Periodic Table in 60 seconds The list of 118 Elen tances by ordinary chemical processes. It is the fundamental unit of the matom with a radius of 31 pm, while the caesium is the largest atom with a rz Answers and Analysis This article does not have any sources. You can he ke it harder. It is bluish-white. Among metals, it is the most reflective and to make silver nitrate. It does react with strong oxidizing agents like pota ompounds Silver(I) compounds are oxidizing agents. They are more commo copper, lead, or gold in rocks. The rocks are found mostly in Canada, Mexi	nents and their symbols and atomic numbers will prove useful to atter. There is a total of 118 elements present in the modern periodic adius of 298 pm. Yes, there is an isotope of the hydrogen atom, protium, p Wikipedia by finding good sources, and adding them. (May 2013)This the best conductor of electricity and heat. It is considered a precious ssium dichromate or potassium permanganate. It does not corrode n. Most of them are very expensive. Silver bromide, light yellow Silver co, Peru, and the United States. Peru produces the most silver, mostly in
with gold, copper, zinc, cadmium, tin, nickel, lead, bismuth, germanium, and mercury. The most common silver alloy is called sterling silver, which is 92.5% silve silver. Leaded solder can also contain silver, but this is less common. Silver compounds are disinfectants. It can kill bacteria and has other useful properties. It is argentum. Silver was also used to prevent infections and decay. Silver is not a large danger to humans. Silver compounds are toxic. They make the skin turn blue these can react with silver to make unstable silver salts. More silver has been used each year than the amount mined in each year since 1990, when the amount back, instead of taking more I.O.U.'s. The price of silver increased to 28 US dollars per troy ounce as of December 2010. The Simple English Wiktionary has a definements Atomic Number Name Symbol Group Period Number 1 Hydrogen H112 Helium Hel 1813 Lithium Li12 Heryllium Be225 Boron B1326 Carbon C1427 Nitrogen N1526 List Chemical symName Origin of symbol Atomic No. Atomic mass Density (near r.t.) Melting point Boiling point Fear of discovery Discoverer Academium 89227.0278 u Magnus Atastatine 85209.9871 u7 g/cm3302 C337 C1940 Corson and MacKenzie Augold Latin Aurum 79196.96654 u19.32 g/cm31064.4 C2940 Cprehistoricum known.	er and 7.5% copper. Sometimes a small amount of germanium is added to prevent used in the silver oxide battery. They are also used in photographic film. They can be can be carcinogens. Colloidal silver, a common homeopathic remedy, is not mined each year stopped growing and its use increased. Companies that use silver inition for: silver. Silver - CitizendiumRetrieved from " is a list of elements by atomic 80xygen01629FluorineF17210NeonNe18211SodiumNa1312MagnesiumMg23131.0.07 g/cm31047 C3197 C1899DebierneAgSilverLatin Argentum47107.8682 u10.4 wnBBoron510.811 u2.46 g/cm32300 C2550 C1808Davy and Gay-LussacBaBarium5	tarnish. An alloy of silver and mercury (an amalgam) is used to fill teeth in dentistry. Sil also be used to reduce odors in clothes. Some silver compounds are used in creams the toxic in normal amounts, but it does not do much. Silver is very toxic to fish, so silver-have benefited from speculators who sell promises to deliver silver that does not exist, a number with symbol.List of uminiumAl13314SiliconSi14315PhosphorusP15316SulfurS16317ChlorineCl17318Argo [yg/cm3961.9 C2212 CprehistoricunknownAlAluminium1326.981539 u2.70 g/cm3660.8 6137.327 u3.65 g/cm3725 C1640 C1808DavyBeBeryllium49.012182 u1.85 g/cm31278	ver is added to some solder alloys in small amounts (5% or less), where it acts to make at help burns heal. Silver has been used for thousands of years. It was normally conside containing waste (for example, photographic chemicals or silver oxide batteries) must neeping prices artificially low. This is called naked short selling. The amount owed is mar18319PotassiumK1420CalciumCa2421ScandiumSc3422TitaniumTi4423VanadiumV. 6 C2467 C1825OerstedAmAmericium95243.0614 u13.67 g/cm3994 C2607 C1944Seabo C2970 C1797VauqueliBhBohrium107262.1976OganessianBiBismuth83208.98037 u9.81	the solder more durable, more conductive, and less vulnerable to tin pest. red second to gold in value. Many people including Romans and Chinese u of be released into the environment and should be properly recycled. Silve ore than all the silver in the world. The price of silver could go very high w 5424ChromiumCr6425ManganeseMn7426IronFe8427CobaltCo9428Nickel rgArArgon1839.948 u1.66 g/l-189.4 C-185.9 C1894Ramsay and RayleighArd of g/cm3271.4 C1560 C1540AgricolaBkBerkelium97247.0703 u13.25 g/cm3	The common lead-free SAC305 solder used in electronics contains 3% sed silver as money. The symbol Ag is from the Latin name for silver, r should not be stored near ammonia, acetylene, or strong acids, as then the stored silver runs out and investors start asking for their metal Ni10429CopperCu11430ZincZn12431GalliumGa13432GermaniumGe1443SArsenic3374.92159 u5.72 g/cm3613 C613 (Subl.) Cca. 1250Albertus 986 C2627 C1949SeaborgBrBromine3579.904 u3.14 g/cm3-7.3 C58.8
C1826BalardCCarbon612.011 u3.51 g/cm33550 C4827 CprehistoricunknownCaCalcium2040.078 u1.54 g/cm3839 C1487 C1808DavyCdCadmium48112.411 u8.6 g/cm31495 C2870 C1735BrandtCrChromium2451.9961 u7.14 g/cm31857 C2482 C1797VauquelinCsCaesium55132.90543 u1.90 g/cm328.4 C690 C1860Kirchho C1952SeaborgEuEuropium63151.965 u5.25 g/cm3822 C1597 C1901DemaayFFluorine918.9984032 u1.58 g/l-219.6 C-188.1 C1886MoissanFeironLatin Ferrum2 C-252.9 C1766CavendishHeHelium24.002602 u0.17 g/l-272.2 C-268.9 C1895Ramsay and CleveHfHafnium72178.49 u13.31 g/cm32150 C5400 C1923Coster and C4130 C1803Tenant and andereKPotassiumGerman Kalium1939.0983 u0.86 g/cm363.7 C774 C1807DavyKrKrypton363.8 u3.48 g/l-156.6 C-152.3 C1898Ramsas C1755BlackMnManganese2554.93805 u7.44 g/cm31244 C2097 C1774GahnMoMolybdenum4295.94 u10.28 g/cm32617 C5560 C1778ScheeleMtMeitnerium1092 TraversNhNihonium113NiNickel2858.69 u8.91 g/cm31453 C2732 C1751CronstedtNoNobelium102259.1009 u1958SeaborgNpNeptunium93237.0482 u20.48 g/c1740 CprehistoricunknownPdPalladium46106.42 u12.02 g/cm31552 C3140 C1803WollastonPmPromethium61146.9151 u7.22 g/cm31080 C2730 C1945Marinsi g/cm339 C688 C1861Bunsen and KirchhoffReRhenium75186.207 u21.03 g/cm33180 C5627 C1925Noddack, Tacke and BergRRutherfordium104261.1087 u196	ff and BunsenCuCopperLatin Cuprum2963.546 u8.92 g/cm31083.5 C2595 Cprehis 655.847 u7.87 g/cm31535 C2750 CprehistoricunknownFiFlerovium114FmFermiuv n HevesyHgMercuryLatin Hydragyrum - quicksilver80200.59 u13.55 g/cm3-38.9 iy and TraversLaLanthanum57138.9055 u6.16 g/cm3920 C3454 C1839MosanderLi 266 u1982Society for Heavy Ion ResearchNNitrogen714.00674 u1.17 g/l-209.9 C-1 cm3640 C3902 C1940McMillan and AbelsonOOxygen815.9994 u1.33 g/l-218.4 C18 y and GlendeninPoPolonium84208.9824 u9.20 g/cm3254 C962 C1898Marie and F4/69Flerow oder GhiorsoRgRoentgenium111272 u1994Society for Heavy Ion Research	toricunknownDbDubnium105262.1138 u1967/70Flerow oder GhiorsoDsDarmstadtium1 n100257.0951 u1952SeaborgFrFrancium87223.0197 u27 C677 C1939PereyGaGallium5 (2356.6 CprehistoricunknownHoHolmium67164.93032 u8.78 g/cm31470 C2720 C18785 Lithium36.941 u0.53 g/cm3180.5 C1317 C1817ArfvedsonLrLawrencium103260.1053 u 95.8 C1772RutherfordNaSodiumLatin Natrium1122.989768 u0.97 g/cm397.8 C892 C18 82.9 C1774Priestley and ScheeleOgOganesson1180sOsmium76190.2 u22.61 g/cm3304 vierre CuriePrPraseodymium59140.90765 u6.48 g/cm3931 C3212 C1895von WelsbachParchRhRhodium45102.9055 u12.41 g/cm31966 C3727 C1803WollastonRnRadon86222.	10269 u1994Society for Heavy Ion ResearchDyDysprosium66162.5 u8.56 g/cm31409 C 3169.723 u5.91 g/cm329.8 C2403 C1875Lecoq de BoiskaudranGdGadolinium64157.25 c SoretHsHassium108265 u1984Society for Heavy Ion ResearchIIodine53126.90447 u4.9 1961GhiorsoLuLutetium71174.967 u9.84 g/cm31656 C3315 C1907UrbainLvLivermorit 307DavyNbNiobium4192.90638 u8.58 g/cm32468 C4927 C1801HatchetNdNeodymium 5 C5027 C1803TenantPPhosphorus1530.973762 u1.82 g/cm344 (P4) C280 (P4) C16691 tPlatinum78195.08 u21.45 g/cm31772 C3827 C1557ScaligerPuPlutonium94244.0642 u 10176 u9.23 g/l-71 C-61.8 C1900DornRuRuthenium44101.07 u12.45 g/cm32310 C3900	2335 C1886Lecoq de BoisbaudranErErbium68167.26 u9.05 g/cm31522 C2 u7.89 g/cm31311 C3233 C1880de MarignacGeGermanium3272.61 u5.32 g 4 g/cm3113.5 C184.4 C1811CourtoisInIndium49114.82 u7.31 g/cm3156.2 im116McMoscovium115MdMendelevium101258.0986 u1955SeaborgMgM60144.24 u7.00 g/cm31010 C3127 C1895von WelsbachNeNeon1020.1797 3randtPaProtactinium91231.0359 u15.37 g/cm31554 C4030 C1917Soddy, 119.74 g/cm3641 C3327 C1940SeaborgRaRadium88226.0254 u5.50 g/cm311844ClausSSulfur1632.066 u2.06 g/cm3113 C444.7 Cprehistoricunknown	2510 C1842MosanderEsEinsteinium99252.0829 u860 (cm3937.4 C2830 C1886WinklerHHydrogen11.00794 u0.084 g/l-259.1 C2080 C1863Reich and RichterIrIridium77192.22 u22.65 g/cm32410 agnesium1224.305 u1.74 g/cm3648.8 C1107 u0.84 g/l-248.7 C-246.1 C1898Ramsay and Cranston and HahnPbLeadLatin Plumbum82207.2 u11.34 g/cm3327.5 700 C1140 C1898Marie and Pierre CurieRbRubidium3785.4678 u1.53 ISbAntimonyLatin Stibium51121.75 u6.69 g/cm3630.7 C1750
CprehistoricunknownScScandium2144.95591 u2.99 g/cm31539 C2832 C1879NilsonSeSelenium3478.96 u4.82 g/cm3217 C685 C1817BerzeliusSgSeaborgium10 g/cm31360 C3041 C1843MosanderTcTechnetium4398.9063 u11.49 g/cm32172 C5030 C1937Perrier and SegrTeTellurium52127.6 u6.25 g/cm3449.6 C990 C178 g/cm31890 C3380 C1801del RioWTungstenGerman Wolfram74183.85 u19.26 g/cm33407 C5927 C1783Gebrder de ElhuyarXexenon54131.29 u4.49 g/l-111.9 C-1 WikipediaHow to write Simple English pages Useful pages Simple talk Categories HelpSchools Gateway (for users who want to make changes from a school)This all been published under both the Creative Commons Attribution/Share-Alike License 4.0 International License and the GNU Free Documentation License. You c written information. Use the pages to learn and teach. These pages can help people learn English. You can also use them to make a new Wikipedia to help other p make articles better yourself. Powderfinger is a rock band from Brisbane, Australia. The band started in 1989. Powderfinger has five members; Bernard Fanning over 350,000 copies. Odyssey Number Five was their fourth album and was released in 2000. It is their most famous album; it was sold overseas in the United St that with over \$975 million in the box office, Oppenheimer is the highest-grossing biographical movie of all time? that the mayor of Kiev, Vitali Klitschko, was a	32von Reichenstein ThThorium 90232.0381 u11.72 g/cm 31750 C4787 C1829 Berzelii 107 C1898 Ramsay and Travers YYttrium 3988.90585 u4.47 g/cm 31523 C3337 C179 is is the front page of the Simple English Wikipedia. Wikipedias are places where peran help here! You may change these pages and make new pages. Read the help page of the simple with the simple of the simple o	usTiTitanium2247.88 u4.51 g/cm31600 C3260 C1791Gregor and KlaprothTiThallium81: 4GadolinYbYtterbium70173.04 u6.97 g/cm3824 C1193 C1878de MarignacZnZinc3065.iople work together to write encyclopedias in different languages. We use Simple Engli ges and other good pages to learn how to write pages here. If you need help, you may a rords are used. It does not mean readers want basic information. Articles do not have to n Collins (plays bass guitar), and Jon Coghill (plays drums). After some extended plays (iter ones, but still got to number one on the Australian Recording Industry Association (4).	204.3833 u11.85 g/cm3303.6 C1457 C1861CrookesTmThulium69168.93421 u9.32 g/cm 39 u7.14 g/cm3419.6 C907 CprehistoricunknownZrZirconium4091.224 u6.51 g/cm3185 sh words and grammar here. The Simple English Wikipedia is for everyone, such as chick questions at Simple talk.When writing articles here:Use Basic English words and ship be short to be simple; expand articles, add details, but use basic vocabulary.Be bold! YePs) that sold quite well, and making one full album, Powderfinger became popular in ARIA) charts.moreOther very good articles Proposals RequirementsFrom a collection	31545 C1727 C1879CleveTsTennessine117UUranium92238.0289 u18.97 (2 C4377 C1789KlaprothRetrieved from "free encyclopedia that anyone ca ddren and adults who are learning English.There are 271,031 articles on the orter sentences. This allows people to understand complex terms or phrass four article does not have to be perfect, because other editors will fix it and ustralia with their second album; Double Allergic. Their third album, Inter of Wikipedia's articles that Lily Gladstone (pictured) is the first Native A	g/cm31132.4 C3818 C1789KlaprothVVanadium2350.9415 u6.09 n change.Search the 271,031 articles in the Simple English es Simple English Wikipedia. All of the pages are free to use. They have es. Write good pages. The best encyclopedia pages have useful, well-I make it better. And most importantly, do not be afraid to start and nationalist, was even more popular and made them celebrities. It sold merican to be nominated for the Academy Award for Best Actress?
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O out of 0 are Unattempted View Quiz Answers and Analysis Here's a list of all of the chemical elements of the periodic table ordered by increasing atomic numb chemical substance in the Universe, constituting roughly 75% of all baryonic mass. Page 3 From Wikipedia, the free encyclopediaHelium is a chemical element when the length of the alkali metal group of chemical elements. Under standard conditions it is the lightest metal and the least dense solid element. Page 5 Beryllium is gray metallicColor SlateGray Number of protons4 p+Number of neutrons5 noNumber of electrons4 e- From Wikipedia, the free encyclopediaBeryllium is a chem vaporization297 kJ/mol Electronegativity (Pauling Scale)1.57Electron affinity-48 kJ/molOxidation states0, +1, +2(an amphoteric oxide)Ionization energies899.5 l Vauquelin (1798)First isolationFriedrich Whler, Antoine Bussy (1828)Discovery of berylliumThe mineral beryl, which contains beryllium, has been used at least stath the found a new "earth" by dissolving aluminium hydroxide from emerald and beryl in an additional alkali. The editors of the journal Annales de Chimie et de Every element on it tells a story about matter, energy, and the very building blocks of life. For students beginning their journey into chemistry, the first 30 element.	eer. Click on the column header to sort the table by that column or click on an elem with symbol He and atomic number 2. It is a colorless, odorless, tasteless, non-toxis is a chemical element of the periodic table with chemical symbol Be and atomic numical element with symbol Be and atomic number 4. It is created through stellar nukl/mol 1757.1 kJ/mol 14848.7 kJ/mol 21006.6 kJ/mol Electron configuration Shorthsince the Ptolemaic dynasty of Egypt. In the first century CE, Roman naturalist Plin Physique named the new earth "glucine" for the sweet taste of some of its components form the foundation for deeper understanding in science, engineering, medicing the state of the s	ent name to get detailed facts about the element. Page 2 From Wikipedia, the free ency, inert, monatomic gas that heads the noble gas group in the periodic table. Its boiling mber 4 with an atomic weight of 9.01218 u and is classed as alkaline earth metal and is cleosynthesis and is a relatively rare element in the universe. It is a divalent element wind configuration[He] 2s2 Electron configuration Full configuration1s2 2s2 Electron copy the Elder mentioned in his encyclopedia Natural History that beryl and emerald ("sm. unds. Klaproth preferred the name "beryllina" due to the fact that yttria also formed swene, and even environmental studies. This article brings these 30 elements to lifenot just.	velopedia Hydrogen is a chemical element with chemical symbol H and atomic number 1 and melting points are the lowest among all the elements. Page 4 From Wikipedia, the is part of group 2 (alkaline earth metal). Beryllium is solid at room temperature. Lithium hich occurs naturally only in combination with other elements in minerals. Phase at STI infiguration chart Electrons per shell 2, 2 Valence electrons 2 Valency electrons 2 Bohr mo aragdus") were similar. The Papyrus Graecus Holmiensis, written in the third or fourth eet salts. The name "beryllium" was first used by Whler in 1828. CAS Number 7440-41-7 listing them, but explaining their meaning, use, and mnemonic tricks to remember ther	. With an atomic weight of 1.00794 u, hydrogen is the lightest element on free encyclopediaLithium (from Greek: lithos, "stone") is a chemical elemen Periodic table Boron SymbolBeAtomic number4Group2 (Alkaline earth me ?SolidDensity1.85 g/cm3Atomic weight9.01218 u Melting point1560 K1286 delElectron shell for Beryllium, created by Injosoft ABBeFigure: Shell diag century CE, contains notes on how to prepare artificial emerald and beryl. (ChemSpider ID4573986EC number231-150-7PubChem CID Number54604 ne effectively. Whether youre a school student or someone revisiting the tal	the periodic table. Its monatomic form (H) is the most abundant at with the symbol Li and atomic number 3. It is a soft, silver-white metal tal)Period2BlocksClassificationAlkaline Earth Metal AppearanceWhite-8.85 C2348.33 FBoiling point2742 K2468.85 C4475.93 FHeat of ram of Beryllium (Be) atom.Orbital Diagram DiscoveryLouis Nicolas In a 1798 paper read before the Institut de France, Vauquelin reported 167 The periodic table is not just a chartit's the language of chemistry. We after years, this quide simplifies and humanizes the elemental
essentials. Why Focus on the First 30 Elements?The first 30 elementsfrom Hydrogen to Zinccover the lightest, most commonly used elements in science education NameSymbolCategoryCommon Use Example1HydrogenHNon-metalFuel cells, water2HeliumHeNoble gasBalloons, MRI machines3LithiumLiAlkali metalRechard chlorophyll13AluminiumAlPost-transitionFoil, airplanes14SiliconSiMetalloidComputer chips, sand15PhosphorusPNon-metalDNA, fertilizers16SulfurSNon-metalE metalDry cell batteries26IronFeTransition metalCoinstruction, blood (hemoglobin)27CobaltCoTransition metalMagnets, batteries28NickelNiTransition metalCoir Songs Clearly Around Kings Castle.Breakdown:H He Li Be B C N O F Ne Hydrogen to NeonNa Mg Al Si P S Cl Ar K Ca Sodium to CalciumYou can customize the a periodIncreases down a groupWhy it matters: These trends help you predict how elements will react, bond, and form compounds.Everyday Applications of the and even your emotions.How to Study the Periodic Table EffectivelyUse FlashcardsWrite element on one side, symbol and uses on the other Color Code by Typel quantum computing, and green energy depend heavily on elemental knowledge.Titanium and cobalt are vital in medical implants.Lithium and nickel are revoluti their English names (e.g., Na for Sodium)?Ans: Their symbols come from Latin names. Sodium is from Natrium, Potassium from Kalium, etc.Q2: What are the mo	geable batteries4BerylliumBeAlkaline earthAerospace alloys5BoronBMetalloidBorg Rubber, medicine17ChlorineClHalogenDisinfectants, PVC18ArgonArNoble gasLigh s, plating29CopperCuTransition metalWiring, plumbing30ZincZnTransition metall phrase to make it funnier, weirder, or more personalwhich actually helps retentio First 30 ElementsMany students wonder, Where do I see these in real life? Heres; Use highlighters to distinguish metals, nonmetals, and metalloids.Make Element Stonizing electric vehicles.Phosphorus and nitrogen influence how we grow food sus	silicate glass6CarbonCNon-metalLife forms, diamonds, fuels7NitrogenNNon-metalFert t bulbs19PotassiumKAlkali metalNerve function, fertilizers20CalciumCaAlkaline earthB immune system, galvanization of steelMnemonics to Remember the First 30 ElementsA n.Trends Observed in the First 30 ElementsUnderstanding how these elements are arra glimpse:Hydrogen is used in rockets.Carbon is the backbone of all life.Iron is in your toriesFor example: "Sodium (Na) is salty like Na-cho chips."Sing Periodic SongsYouTub tainably.Zinc and copper are key in new-age antimicrobial surfaces.Your career in scier	ilizers, proteins8OxygenONon-metalBreathing, combustion9FluorineFHalogenToothpasones, cement21ScandiumScTransition metalSports equipment alloys22TitaniumTiTranspowerful way to learn the symbols and order of elements is through memory aids. Here inged gives insight into periodic trends: Atomic SizeDecreases across a period (left to riolood and your bridges. Calcium is why your bones stay strong. Silicon is inside your phoe has many songs that help memorize the order. Use Apps or GamesDuolingo-style apps (i.e., medicine, engineering, or the environment could hinge on how well you understand	ste. Teflon I ONeonNeNoble gasNeon lights 11 Sodium NaAlkali metalTable sition metalImplants, aerospace 32 Vanadium VTransition metalSteel alloys 2 's one popular mnemonic for the first 20 elements: Hi He Likes Beer But C ght)Increases down a group (top to bottom)Ionization EnergyIncreases acree. Zinc helps heal wounds and strengthens your immune system. Chemistr now exist for chemistry too! Future Implications of Understanding These E I these 30 tiny pieces of the universe. FAQs About the First 30 Elements an	alt (NaCl)12MagnesiumMgAlkaline earthFireworks, 4ChromiumCrTransition metalStainless steel25ManganeseMnTransition ould Not Offer Full Nine Songs, Naughty Maggie Always Sings Perfect oss a periodDecreases down a groupMetallic CharacterDecreases across y is not confined to labs. Its in your toothpaste, your food, your laptop, clementsScience is evolving fast. Fields like biotechnology, nanotech, d SymbolsQ1: Why do some elements have symbols that dont match
order of elements faster?Ans: Use funny mnemonics, periodic table puzzles, and daily revision with flashcards.Q5: What happens after Zinc (30th element)?Ans: that means for yourvisuals.Download Our Latest VisualGPS ReportData-backed trends. Generative AI demos. Answers to your usage rights questions. Our original video podcast covers it allnow ondemand.Watch NowEnjoy sharper detail, mo original video podcast covers it allnow ondemand.Watch NowEnjoy sharper detail, mo original video podcast covers it allnow ondemand.Watch Now GroupLanthanidesMelting point824C, 1515F, 1097 KPeriod6Boiling point1196C, 2185F, 1469 KBl the village in Sweden.It is a white silvery, soft, ductile and rare earth metal.It is attacked by strong acids and reacts slowly with cold water and air. It is oxidised other elements.Usually, elements will have ferromagnetic and antiferromagnetic properties at low temperatures but it is paramagnetic at a temperature above 1 quintillion).It is used as a doping agent to improve the strength, grain refinement and mechanical properties of stainless steel.It also acts as an industrial catalys buttonCheck your score and answers at the end of the quiz Visit BYJUS for all Chemistry related queries and study materials 0 out of 0 arewrong 0 out of 0 are coccurs in stars and nebulae. On Earth, we extract it from natural gas for use in balloons, cryogenics, breathing mixtures, and fusion research.Name.HeliumAtom	al video podcast covers it allnow ondemand. Watch NowEnjoy sharper detail, more pre accurate color, lifelike lighting, believable backgrounds, and more with our new ockfDensity (g cm3)6.90Atomic number70Relative atomic mass173.045State at 20 by air to the corresponding oxide which forms the protective layer on the surface .0 Kelvin. The alpha allotrope of Ytterbium is diamagnetic. Ytterbium can form dihe st. Few alloys of Ytterbium are used in dentistry. Ytterbium is a silvery-white metal to torrect 0 out of 0 are Unattempted View Quiz Answers and Analysis Periodic Table	accurate color, lifelike lighting, believable backgrounds, and more with our new model model update. Your generated images will be more polished thanever.See What's New CSolidKey isotopes172Yb,173Yb,174YbElectron configuration[Xe] 4f146s2CAS number of Ytterbium. It tarnishes slowly in the air to golden or brown colour.Natural Ytterbium alides and trihalides but most of the compounds of Ytterbium are in +3 state. Dihalides hat is electropositive and reacts with water to form ytterbium hydroxide.Nowadays, this cell for the elementHelium.Helium is a chemical element with the symbol He and atomi	update. Your generated images will be more polished thanever. See What's NewExplore Explore how consumers want to see climate stories told today, and what that means for 7440-64-4ChemSpider ID22428ChemSpider is a free chemical databaseYtterbium is an is a mixture of seven isotopes namely 168Yb, 170Yb, 171Yb, 172Yb, 173Yb, 174Yb, and undergo disproportionation to give trihalides and metallic ytterbium. Ytterbium clocks as is element is used in the making of memory devices and tunable lasers. Put your unde ic number 2. It is a colorless, odorless, tasteless, non-toxic, inert, monatomic gas that h	e how consumers want to see climate stories told today, and what that mear yourvisuals. Download Our Latest VisualGPS ReportData-backed trends. Celement of the periodic table with an atomic number of 70, discovered by 1.176Yb. It is found in three major minerals monazite, euxenite, and xenoting the worlds most stable atomic clock. Numerous atoms present in the elements of this concept to test by answering a few MCQs. Click Start Quieads the noble gas group in the periodic table. Helium is the second lighte:	ns for yourvisuals.Download Our Latest VisualGPS ReportData-backed Generative AI demos. Answers to your usage rights questions. Our ean de Marignac in the year 1878. The element is named after Ytterby, the The physical properties of Ytterbium differ widely when compared to ement make the clock more stable(to within less than two parts in 1 z to begin! Select the correct answer and click on the Finish st and second most abundant element in the universe. Helium mainly
new yellow spectral line while observing a total solar eclipse in 1868. He assumed it was part of the sodium spectrum. English astronomer Norman Lockyer later year in Sweden. Name Origin: Helios, Greek god of the Sun. Lockyer and Frankland named their unknown element after the location it was first discovered, the Stelement. Helium has a wide range of applications, including: Cryogenics: Used as a coolant for superconducting magnets, such as those in MRI machines. Balloons the universe, constituting about 24% of its elemental mass. However, it is relatively rare on Earth. It occurs in: Natural Gas Fields: Helium is extracted from nature non-toxic, inhaling it in place of oxygen leads to asphyxiation. Prolonged exposure to high concentrations causes dizziness, nausea, and loss of consciousness. He Diamagnetic Crystal Structure: Hexagonal close-packed (hcp) Electron shell configuration of a helium atom. Atomic Radius: 1.40 Covalent Radius: 0.37 Van der Wa of the existence of helium was from spectroscopy data from the Sun. Even though helium is relatively rare on Earth, it is the second most abundant element. Heli deposits. Radioactive emissions from decay are helium nuclei. Helium is the second least reactive noble gas after neon. Inhaling helium gas makes a persons voice doi:10.1007/s10698-017-9302-7[anssen, Pierre Jules (1868). Indication de quelques-uns des rsultats obtenus Cocanada, pendant Iclipse du mois daot dernier, et.	r observed the same line but could not link it to sodium. Together with English che un.The natural isotopes of helium are helium-3, which has two protons and one ne s and Airships: Due to its lighter-than-air properties. Welding: Acts as a protective of ural gas, where it exists in concentrations up to 7%. Purification is via fractional dis lium in a gas-discharge tube. (pslawinski, metal-halide.net)Density: 0.000164 g/cm hals Radius: 1.40 Electron Affinity:not stableElectronegativity:unknown1st Ionization ium accounts for roughly 24% of all elemental mass of the universe. Helium has the sound higher (it changes the timbre but does not actually raise the pitch of a pers	mist Edward Frankland, they decided it was associated with a new element. In 1985, So thron, and helium-4, which has two protons and two neutrons. Both isotopes are stable, yas in arc welding.Breathing Mixtures: For use in deep-sea diving and medical treatmer tillation of liquefied natural gas.Atmosphere: The Earths atmosphere contains helium a 3Melting Point:0.95K (-272.20C or -457.96 F) at 2.5 MPaBoiling Point:4.222 K (-268392 onEnergy:2372.3 k]/mol2ndlonization Energy:5250.5k]/molCommon Oxidation State:0H lowest melting and boiling points of all the elements. Creating solid and liquid helium to ons voice). Even though helium was discovered by its yellow spectral line, ionized heliur	cottish chemist William Ramsay isolated a gasfrom a sample of a mineral cleveite which He-3 accounts for 1.37 x 10-4% of helium found in the atmosphere. Helium-4 is the mosts. Scientific Research: Important in experiments involving low temperatures and as a cast about 5.2 parts per million by volume. Cosmic Sources: Helium is produced in large quarter of the control of the contr	contained the yellow spectral line. Swedish chemists Per Teodor Cleve an st common form of helium. It accounts for 99.999863% of all helium in the earrier gas in gas chromatography. Nuclear Fusion: Helium-3 has potential lantities by nuclear fusion in stars and during the Big Bang. Helium has no aState at 20C: GasHeat of Fusion: 0.0138 kJ/molHeat of Vaporization: 0.08 mpounds, but a few exist, such as helium fluorohydride (HHeF). Helium wildified using only temperature. Helium gas is colorless, tasteless, odorless, hala, Wojciech (2017). On the position of helium and neon in the Periodic 7	d Abraham Langlet independently made the same discovery the same atmosphere. There are also seven synthetic radioisotopes of the use in fusion reactors. Helium is the second most abundant element in known biological role and is considered biologically inert. While it is 29kJ/molMolar Heat Capacity:20.78 J/molKMagnetic Ordering: as the first element to be discovered outside of Earth. The first evidence non-toxic and inert. Most helium gas is extracted from natural gas Table of Elements. Foundations of Chemistry. 20 (2018): 191207.
Chen Hwang, Robert D. Lein, Daniel A. Morgan (2005). Noble Gases. Kirk Othmer Encyclopedia of Chemical Technology. Wiley. pp. 343383. doi:10.1002/047123 physical data along with general information and history. Beryllium periodic table tile. Name:BerylliumAtomic Number:4Element Symbol:BeGroup:2Period:2Block was first isolated in 1828 by German chemist Friederich Whler and French chemist Antoine Bussy, independently from each other. Name Origin:Vauquelin name other natural isotopes occur in trace amounts. 7BeBeryllium-7 is a radioactive isotope containing 3 neutrons. It decays into 7Li through electron capture. Its half-chronic allergic lung condition called chronic beryllium disease (CBD) or berylliosis, even at low exposure levels. Health Effects:Inhalation: Lung inflammation, so Behavior:Beryllium does not bioaccumulate significantly and is generally immobile in soil. However, its soluble compounds are potentially harmful to aquatic life atom. Atomic Radius: 1.12 (empirical)Covalent Radius:0.96 Van der Waals Radius: 1.82Electron Affinity:not stableElectronegativity: (Pauling scale):1.851st Ioniza commercial oreBertrandite (BeSiO(OH)) the main source of mined beryllium in the United StatesOther minerals: phenakite, chrysoberylGeological Sources:Foun	88961.0701190508.230114.a01Weast, Robert (1984). CRC, Handbook of Chemistry k: sElement Family:Alkaline EarthAtomic Mass: 9.012182(3)Electron Configuration d hiselement after the substance he was investigating, beryl. He first named the su life is 53.12 days.9BeBeryllium-9 is the most common natural isotope. It contains 5 carring, coughing, shortness of breathSkin contact: Rashes, ulcersCarcinogenic po Large crystal of pure beryllium. Credit: Heinrich Pniok/Creative CommonsDensity ationEnergy: 899.504 kJ/mol2ndIonizationEnergy: 1757.108 kJ/mol3rdIonizationEn Id in pegmatite veins, granitic rocks, and mica schistsOften occurs alongside lithiu:	and Physics. Boca Raton, Florida: Chemical Rubber Company Publishing. ISBN 0-8493-:[He]2s2(shorthand) or 1s22s2 (full)Discovery:Louis-Nicholas Vauquelinin 1798. Vauque libstance Earth of beryl, but switched to glucenum to reflect the sweet taste. Whler proponeutrons and is stable.10BeBeryllium-10 is a radioactive isotope containing 6neutrons. tential: Classified as a Group 1 carcinogen by the IARC (International Agency for Resea:1.85 g/cm3Melting Point:1560 K (1287 C or 2349F)Boiling Point:3243 K (2970 C or 53 ergy: 14848.767 kJ/mol4thIonizationEnergy: 21006.658 kJ/molOxidation States:+2 (com, tantalum, and tin depositsMajor Producing Countries:United States (especially Utah).	-0464-4. Related Posts Beryllium is the fourth element of the periodic table, with element of the periodic table, with element of the periodic table, with element of beryls. Beryls come in a wide variety of ossed changing the name from the taste property since there are many elements with a lift decays into 10B by- decay with a half-life 1.36 million years. Beryllium has no known rch on Cancer) Occupational Hazards: Workers in aerospace, electronics, and mining in 38F) State at 20C: Solid Heat of Fusion: 12.2 kJ/mol Heat of Vaporization: 292 kJ/mol Molar mmon), 0, +1 (uncommon) Beryllium is a relatively rare element in Earths crust, making JChina Brazil Madagascar Mozambique Beryllium is not typically found in its elemental for	at symbol Be. You encounter it in non-sparking tools and gemstones, such a f colors, but have similar chemical attributes. Vauquelin isolated a compou sweet taste. He named the element beryllium after the Greek word beryllous essential biological role in humans, plants, or animals. Toxicity:Beryllium is dustries are at greatest risk. Strict workplace exposure limits and personal Heat Capacity:16.443 J/molKCrystal Structure: hexagonal close-packed (h up about 26 parts per million by weight. Although not abundant, it concern in nature due to its strong affinity for oxygen. Instead, its extracted from	is emerald and aquamarine. These beryllium facts contain chemical and nd containing an unknown element with a sweet taste. Pure beryllium is for beryl. NaturalIsotopes: Beryllium is nearly 100% beryllium-9. Two highly toxic, especially when inhaled as dust or fumes. It can cause a protective equipment are essential for safety. Environmental cp) Magnetic Ordering: diamagnetic Electron configuration of a beryllium trates in specific minerals, most notably: Beryl (BeAlSiO) the primary n ores through a multi-step process that includes crushing, chemical
treatment, and reduction. Despite its scarcity and toxicity, berylliums unique properties make it valuable in various advanced technologies. Its light weight, stiffn Telecommunications Beryllium copper (BeCu) alloys: non-sparking tools, electrical connectors, springs, and switches Heat sinks and high-performance electronics. These three minerals are all beryls. Credit: Chris Ralph/Public Domain Beryllium is a soft, silvery-white metal with low density. Crystals are strong but brittle. Ber formula Be3Al2(SiO3)6 that come in many different colors. Beryllium has a sweet taste. One standard test for early chemists was a taste test. What does the samp production. When bombarded with alpha particles (helium nuclei), the resulting reaction can produce a high yield of neutrons. Although beryllium has a low atom Elements(2nd ed.). Butterworth-Heinemann. ISBN 978-0-08-037941-8. Kumberger, Otto; Schmidbaur, Hubert (1993). Warum ist Beryllium so toxisch?. Chemie in Publishing. ISBN 0-8493-0464-4. Related Posts What is an Element? An element is a substance whose atoms all have the same number of protons: another way of different masses. When atoms of the same element have different numbers of neutrons, they are called isotopes. How Elements Came to be Defined Correctly In brought light to the darkness. With only one proton, hydrogen is the simplest, lightest element, followed by helium, which has two protons. Oxygen atoms have elements are supplied to the darkness.	sMedical and Scientific EquipmentX-ray windows (transparent to X-rays but strong ryllium is added to alloys to increase electrical and thermal conductivity. Beryllium let taste like? Today, we know beryllium and its compounds are all extremely toxic ic number (4), it is surprisingly rare in Earths crust because it is not formed in sign unserer Zeit (in German). 27 (6): 310316. doi:10.1002/ciuz.19930270611Vauquel saying this is that all of a particular element's atoms have the same atomic numb 1913, chemistry and physics were topsy-turvy. Some big hitters - including Dmitricight protons. At 75 percent, hydrogen is the most abundant element in the universe	Particle detectors and analytical instruments Automotive and Mechanical Engineering tools are made to prevent sparking when the tool strikes another metal. These tools are and carcinogenic. One early name for beryllium wasglyceynumafter the Greek word glyl inficant amounts during stellar nucleosynthesis and is often destroyed inside stars. Lear in, Louis-Nicolas (1798). De laiguemarine, ou Bril; et dcouverie dune terre nouvelle dan r. Elements are chemically the simplest substances and hence cannot be broken down u Mendeleev - were talking seriously about elements lighter than hydrogen and elements, and followed by helium at 23 percent, then oxygen at 1 percent. All of the other elements	Figh-performance brake discs and precision instruments. Although beryllium is expensive vital in environments where the risk of flames or explosions are high. Beryllium has the kis meaning sweet. Beryllium is relatively transparent to x-rays. Beryllium foil is used as a more about elements on the periodic table. Boesgaard, A. M. (1976). Beryllium in mains cette pierre [Aquamarine or beryl; and discovery of a new earth in this stone]. Annale sing chemical reactions. Elements can only be changed into other elements using nucles between hydrogen and helium. Visualizing the atom was a free-for-all, and Mendeleev make up the remaining 1 percent. In the earths crust, oxygen (47%) is the most abunda	e, small quantities are sufficient for most applications, particularly when all highest melting point of the light metals. Beryllium was discovered while in the window for x-ray emitters. Beryllium is used in nuclear as neutron moch-sequence stars. Astrophysical Journal. 210: 466474. doi:10.1086/1548499 as de Chimie. 26: 155169. Weast, Robert (1984). CRC, Handbook of Chemis har methods. Although an elements atoms must all have the same number of signistification for a periodic table based on the elements' atomic weights with telement, followed by silicon (28%) and aluminum (8%). Element Names	Joyed with copper or other metals.Morganite, aquamarine and heliodor. Investigating beryls. Beryls are minerals with chemical lerators and reflectors.Beryllium is used as a target for neutron 3reenwood, Norman N.; Earnshaw, Alan (1997).Chemistry of the try and Physics. Boca Raton, Florida: Chemical Rubber Company f protons, they can have different numbers of neutrons and hence vas falling apart at the seams. This is the story of how Henry Moseley and NumbersAll of the elements have been named. Some of these names
are familiar to us, such as nitrogen and sodium, and some are less familiar, such as dysprosium and roentgenium. We can also name elements using their atomic are: antimony, arsenic, carbon, copper, iron, gold, lead, mercury, silver, sulfur, and tin. All other elements have been discovered since 1669: this was the year He Group? Melting point3185C, 5765F, 3458 KPeriod680iling point5590C, 10094F, 5863 KBlockdDensity (g cm3)20.8Atomic number? 5Relative atomic mass186.21! mineral characteristic and it has been detected in certain ores of platinum and molybdenite. The element is mainly used as a petroleum reforming catalyst and al high melting point next to Tungsten. The element is formed using oxidising smelter residues gained by molybdenite processing. The atmospheric heat would be m your score and answers at the end of the quiz Visit BYJUS for all Chemistry related queries and study materials 0 out of 0 areworing 0 out of 0 are correct 0 out c known chemical elements, ordered by increasing atomic number (the number of protons in an atoms nucleus). Each element is identified by a unique name and a horizontal row in the periodic table. 2. Importance of Knowing Element SymbolsScientific Communication: Symbols are the universal shorthand in chemistry, ehechemistry topics like stoichiometry, bonding, and spectroscopy. 3. List of Elements 130 with SymbolsBelow is the comprehensive list: Hydrogen (HHellum (Hellum (Hellum (Hellum (Hellum (Hellum))).	numbers. For example, element 1 is hydrogen, element 2 is helium, element 3 is libraring Brand became the first known person to discover a new element - phosphorus State at 20CSolidKey isotopes187ReElectron configuration[Xe]4f145d56s2The two so in the turbine engine of high-temperature components as superalloys. The element ore than sufficient to form the metallic version of this element. The element is an in f0 are Unattempted View Quiz Answers and Analysis Answer: Learning the first 3(a one- or two-letter symbol. The arrangement of elements in groups (columns) and abling scientists worldwide to communicate effectively. Reading Chemical Equation	thium, element 8 is oxygen, etc. How Many Elements Are There? There are currently 118 s. Combining Elements An element can combine with one or more other elements to form most important uses of rhenium have been in high-temperature superalloys turbine ble ent amplifies the high-temperature strength properties of some nickel-based superalloys inportant part of photoflash in photography. It is used in the hydrogenation of fine chemical elements of the periodic table and their corresponding symbols is fundamental in stud periods (rows) helps predict chemical properties and behaviors. Key Terms to Know: Ato is: Understanding symbols is crucial for reading, interpreting, and writing balanced chemical properties.	B accepted elements. We use the periodic table to display all of the elements in an organ a compounds, of which there are millions. For example, one of the best known compoun does for aircraft engines and platinum-rhenium catalysts. It is a heavy, silvery-white and B. Rhenium is added to molybdenum and tungsten to form alloys that are used for makin icals and also as an additive to molybdenum and tungsten-basedalloys. Put your unders ying chemistry. Below, youll find a comprehensive overview of these elements, along winic Number: The number of protons in the nucleus of an atom. Chemical Symbol: An alternical equations. Laboratory Work: In laboratory settings, labels on reagents, solutions,	ized way. Elements Ancient and ModernSome elements have been known finds is water, written chemically as H2O, which means that water is made of third-row transition metal in group 7 of the periodic table. The element can gilaments for lamps andovens. Rhenium is added to high-temperature suptanding of this concept to test by answering a few MCQs. Click Start Quiz the useful tips and a reference table. Table of Contents 1. Introduction to the observation of the elements name, usually one or two letters. Periodic Table and equipment often use element symbols. Further Studies: A strong found	or thousands of years, and we do not know who discovered them. These two atoms of hydrogen chemically bonded to one of oxygen. I be traced on the earths surface in parts per billion. The element has no eralloys which are used to make jet engine parts. The element has a very to begin! Select the correct answer and click on the Finish button Check he Periodic Table The periodic table is an organized arrangement of all Group: A vertical column in the periodic table. Periodic Table Period: A lation in elemental symbols is essential for mastering advanced

horizontal row in the periodic table. 2. Importance of Knowing Element Symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is essential for mastering advanced chemistry (possible to communication: Symbols is essential for mastering advanced chemistry (possible to communicate effectively. Reading Chemical Equations. Laboratory Work: In laboratory work: In laboratory work: In laboratory symbols is essential for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading symbols is crucial for reading, interpreting, and writing balanced chemical equations. Understanding symbols is crucial for reading symbols in the chemical equations. Understanding symbols is essential for reading symbols is essential for reading symbols in the chemical equations. Understanding symbols is essential for reading symbols in the chemical equations. Understanding symbols is essential for reading expensions. In the understanding symbols is essential for reading expensions. In the understanding symbols is essential for reading expensions. In the understanding symbols is essential for reading expensions. In the understanding symbols is essent

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Cobalt (Co):Used in rechargeable batteries and blue pigments in glass and ceramics. 28. Nickel (Ni):Used in coins, batteries, and to make stainless steel. 29. Copper (Cu):An excellent conductor of electricity. Used in wires and plumbing. 30. Zinc (Zn):Used to prevent rusting (galvanization) and in vitamin supplements. Learn more about the SI units of measurement in chemistry guide. Easy Mnemonics to Remember 130 Elements & Their Valency Mnemonic for Atomic Numbers 130 (First Letter Technique) Each word's first letter corresponds to an element in order. Hi He Likes Beer But Could Not Offer Full Nine Sweet Mangoes. All Silly People Should Close Around Kings Castle Scared That Very Cranky Men Feared Cold Nights. Cows Zipped! Breakdown (130 Elements): Hydrogen He Liuming Department of Valency (120 Elements) Elements (120 Elements) Elements): Hydrogen bad arms CHNN3Forms NHOO2Think of HOFF1Forms HFNeNeOInert like other noble gases are stable LiLi1Group 1 = 1, Group 2 = 2, Group 13 = 3, Group 14 = 4, etc. Quick Trick for Common Groups: Group 1 (Alkali Metals): Always 1 valency Li, Na, KGroup 2 (Alkaline Earth): Always 2 Be, Mg, CaGroup 13: 3 B, AlGroup 14: 4 C, SiGroup 17 (Halogens): 1 F, ClGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 2 C, SiGroup 17 (Halogens): 1 F, ClGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 2 C, SiGroup 17 (Halogens): 1 F, ClGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 17 (Halogens): 1 F, ClGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 17 (Halogens): 1 F, ClGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable) Chemical browsprosium group Lanthanides Melting point 14: 4 C, SiGroup 18 (Noble gases): 0 (stable ga 66th degreement in the periodic target and solvent The Millioner's this gradual, I to 30 diagrams with residual for the state of the s

point1572C, 2862F, 1845 KPeriod/7Boiling point4000C, 7232F, 4273 KBlockfDensity (g cm3)15.4Atomic number91Relative atomic mass231Pastectron configuration[Rn] 5f26d17s2CAS number7440-13-3ChemSpider is a free chemical database Applications of Protactinium evaluation and sometimes a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. The configuration and sometimes a free chemical database Applications of Protactinium metal is a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactivity and toxicity. Hence, it does not have as a shirty, radioactive and shirty and toxicity. Hence, it does not have a shirty and toxicity and tox

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