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Hey! Check out our New Interactive Periodic Table with rotating Bohr modelsit's a game-changer!Take a look!This is a SUPER easy guide on Carbon element.In fact, the table mentioned below is the perfect information box (Which gives you every single detail about the Carbon element in Periodic table.)So if you want to know anything about Carbon element, then this guide is for you.Lets finish this very quickly.AppearanceAppearance of graphite: Shiny blackAppearance of diamond: ClearState (at STP)SolidPosition in Periodic tableGroup: 14, Period: 2, Block:pCategoryNonmetalsAtomic number:pProtons6Neutrons6Electrons6SymbolCAtomic mass12.011 uElectrons arrangementorBohr model2, 4Electronic configuration[He] 2s2 2p2Atomic radius170 picometers (van der Waals radius)Valence electrons4Ist Ionization energy11.26 eVElectronegativity2.55 (Pauling scale)Crystal structureHEX (Hexagonal)DensityGraphite: 2.267 g/cm3Diamond: 3.515 g/cm3Main isotope12C, 13C, 14CCAS numberGraphite: 7482-42-5Diamond: 7482-40-3Explore our New Interactive Periodic Table with Rotating Bohr ModelsAccess detailed info on all elements: atomic mass, electron configurations, charges, and more.View rotating Bohr models for all 118 elements.Get a free HD image of the Periodic Table.For future use, bookmark this Periodic table or visit PeriodicTableGuide.comCarbon element is in group 14 and period 2 of the Periodic table. Carbon is the p-block element and it is classified as a nonmetal.Click on above elements (in Periodic table) to see their information or Visit Interactive Periodic Table (which shows names, symbol, atomic mass, electron configuration, electrons arrangement, etc. of all the elements)Click on above elements (in Periodic table) to see their information Move to: Boron (B) element Periodic TableMove to: Nitrogen (N) element Periodic TableCarbon is in group 14 because it has 2 valence electrons.Carbon is in period 2 because it has 2 shells or orbits.Now 10 it explain to you the perfect detailed reason why carbon is in group 14, why it is in period 2 and also why it is in p-block?Lets see the reasons one by one.Do you know, how many electrons are accommodated in the first shell, second shell, third shell, fourth shell, etc?Here is the table showing the capacity of orbits to hold electrons.Number of electrons in shells.Orbit / Shell (n)Maximum no. of electrons this orbit can holdK shell, n = 12 1 = 2L shell, n = 22 2 = 8M shell, n = 32 3 = 18N shell, n = 42 4 = 32Thus,1st shell can hold 2 electrons.2nd shell can hold 8 electrons.3rd shell can hold 18 electrons.4th shell can hold 32 electrons.Now the atomic number of Carbon (C) is 6.Hence, carbon element has the electrons arrangement 2, 4.This electron arrangement indicates that the outermost orbit of Carbon (C) has 4 electrons.Hence, it lies in group 14.Let me ask you a question.How many shells does carbon have?Its 2. Right?You have already seen the bohr model of carbon atom in the above table.From the Bohr model, it can be found that the number of orbits or shells in carbon is 2.Hence, as carbon has 2 orbits, it lies in period 2 of the Periodic table.Before knowing this reason, first of all a simple question to you.How can you determine the blocks wise position of elements?The simple answer: The elements will lie in the s, p, d or f block will completely depend upon the subshell in which the last electron will enter.For example; the electron configuration of carbon is [He] 2s2 2p2.So the last electron of carbon enters the p-subshell or p-orbital.Hence, carbon is the p-block element.Carbon is important for life because of many reasons, mentioned below.#1 Carbon is present in all living organismsLife does not exist without carbon.Carbon is present in all the living organisms including humans, animals as well as plants.#2 Carbon is also present on other planets and starsCarbon is not only present on the earth, but it is also present on other planets in the form of carbon dioxide gas.Carbon also exists on the sun and other stars.#3 Carbon present in CO2 helps in maintaining earths temperatureCarbon is also very important for the existence of life on the earth.The carbon element is present in Carbon dioxide which is a green-house gas.Carbon dioxide gas holds the heat of the solar radiation and does not allow the heat to escape from the earths atmosphere.It reflects few of the solar radiations back to the earth and keeps the earths atmosphere warm.If carbon dioxide were not present on the earths surface, then earth would remain frozen all time.#4 Fuels used in daily life, also contains carbonCarbon is very important as it is present in fuels like methane, coal, natural gas, petroleum, crude oil, etc. which are used by us in our day to day life.#5 Animals exhale carbon in the form of CO2 which is taken by plants during photosynthesisWe inhale Oxygen gas and when this oxygen gas combines with the carbon in our body, it produces carbon dioxide.This carbon dioxide is taken by the plants during the photosynthesis process and they give out pure oxygen.When carbon (C) is burnt in air, it reacts with oxygen (O2) and produces carbon dioxide (CO2).Here is the chemical equation for the above reaction.C + O2 > CO2When the oxygen supply is reduced, the incomplete combustion takes place and carbon monoxide (CO) is obtained.Here is the equation for the formation of carbon monoxide (CO).2C + O2 > 2COAlso see:1). Why does boron burn green?2). Why does Lithium emit red light on heating?First of all, I want to clarify that the pure form of carbon is diamond and it is not black but it is colorless.While graphite (the allotrope of carbon), is shiny black in color.And the soot or carbon black is completely black in color.Now the question is;What decides the color of any substance?The color of any substance depends upon the light absorption by the object.If the object absorbs all the light, then it will appear completely black.And if the object does not absorb any light (or it reflects all the light), then it will appear completely white.Now, for graphite and diamond, the entire concept is based on how the electrons are bonded with each other.You might be knowing that graphite is a good conductor of electricity. That means graphite has delocalized electrons which are responsible for electric current.Also, these delocalized electrons absorb most of the light.And as the light is absorbed, it appears shiny black in color.While in diamond, the adjacent atoms are covalently bonded with each other. And so, these bonded electrons do not absorb any light.Hence, diamond appears as the structure of diamond is such that of the light passes through it.Hence, diamond appears colorless.Note: Not all the diamonds are colorless.There may occur some impurities in the diamond and due to these impurities, they appear to be of different color.This color of diamond depends upon the type of impurities present in it.Yes carbon is present everywhere, in all living organisms.In the human body, around 18.5 % of mass is because of carbon.In other words, carbon consists of around 18.5 % of mass in the human body.Carbon is the basic building block of our body. It is present in our body cells in the form of sugars like glucose.Carbon enters our body from the food we intake.Carbon is present in high quantities in foods which are rich in carbohydrates.The molecules of proteins, lipids, carbohydrates, nucleic acids, contain carbon in it.When we breathe in oxygen gas (O2), it combines with the carbon (C) of the body and finally carbon dioxide (CO2) is formed which comes out of the body when we exhale.In this way carbon is a very important element of the human body.The simple answer: Graphite has free electrons which conducts electricity. While the diamond does not have free electrons, so it does not conduct electricity.Explanation:Graphite and diamond are the two different allotropes of carbon.That means both of them are made up of carbon only, but they have a different crystal structure.Carbon has a valency of 4. Hence it has a tendency to form 4 bonds.Graphite has a crystal structure in which there are only 3 covalent bonds formed by the carbon atoms.One electron remains delocalized and it is free to flow between the layers of graphite.So when the electric current is allowed to pass through the graphite, it passes very easily because of the free electrons present in it.Hence graphite is a good conductor of electricity.Now diamond is also made up of carbon atoms. But in diamond, all the four valence electrons of carbon are covalently bonded with other adjacent atoms.Thus, there are no free electrons to conduct electricity.Hence, diamond is a bad conductor of electricity.First of all, what is electronegativity?Electronegativity is a tendency to attract the shared pair of electrons.For example, when two atoms are bonded with each other by sharing of electrons, the shared pair of electrons remains attracted towards one of the atoms.The atom which has more electronegativity attracts the electron pair towards itself.Now the question is, why is Carbon more electronegative than silicon?Answer:Carbon atom is smaller in size as compared to Silicon.Due to small size of carbon atom, it attracts the shared electron pair with a greater force.While silicon atom is bigger in size, so it attracts the electron pair with lesser force.Hence, as the carbon atom is smaller than silicon atom, it is more electronegative than silicon.Interesting facts about Carbon element are mentioned below.Carbon is also called a King of elements as it forms more compounds than any other elements.Around 18.5 % of our body mass is due to carbon element. The molecules of proteins, lipids, carbohydrates, nucleic acids, contain carbon in it.Graphite (the allotrope of carbon) is the only nonmetal which is a good conductor of electricity.Diamond (the allotrope of carbon) is the hardest substance known in the world.Carbon is the 4th most abundant element in the universe, while it is the 15th most abundant element found from the earths crust. And carbon has been known to humans since prehistoric time.Our body removes carbon in the form of carbon dioxide gas (CO2), when we exhale.Carbon present in CO2 helps in maintaining earths temperature. Carbon dioxide gas holds the heat of the solar radiation and does not allow the heat to escape from the earths atmosphere. It reflects few of the solar radiation back to the earth and keeps the earth warm.Details about this Periodic table:Access detailed infoon all elements: atomic mass, electron configurations, charges, and more.Viewrotating Bohr modelsfor all 118 elements.Get a freeHD image of the Periodic Table.For future use, bookmark this Periodic table or visit PeriodicTableGuide.comExternal resources: Electron Configuration Chart: Today, through the use of our online tool, we are confident that many students with their users or anyone cannot master the subject. Therefore, if you are new to this subject and are finding difficulties in solving questions related to electronic configuration, then you have landed at the right place, because today, while you leave from here, you will be able to clear at least some of your concepts. What is Electron Configuration?Firstly, for new users or students, they must keep practising the topic because chemistry is similar to a subject like maths. Just like maths needs proper practice and time, similarly, chemistry also needs proper time and practice from time to time. One cannot be perfect in this subject in a day or two, but to make it one of your favourite subjects, one has to study and keep revising the topic again and again.When we talk about the term Electron Configuration Chart, in short words, it shows the exact distribution of various elements in their respective atomic orbitals. Every element has its electronic configuration,n, and no two elements can have the same.Electron Configuration Diagram of All ElementsNow that you have come to know what is meant by Electron Configuration Chart, the main use of the electronic configuration is in finding the valence of any or various elements. Apart from that, it also helps in forecasting certain properties of the elements that are present in the groups.PDFOne must also know that the elements whose Electron Configuration Chart is similar to each other also exhibit similar properties. One must have heard about quantum chemistry, so the electronic configuration plays a major role in quantum chemistry.One must have also come through the term, which is named as shells and their subshells. So one doesnt have to get confused as much as one is a part of the other. Shell is the gathering of the subshells with its principal quantum number (is the same). If we say in short, then without a subshell, the shell cannot be found, and similarly, without a shell, one cannot have its subshells.Subshells are also similar to the shells; the only difference is that it is the gathering of orbitals with the same principal quantum number and angular momentum. One major point is that the subshells in which the electrons are divided are completely based on an azimuthal quantum number. The symbol of the term azimuthal quantum number is denoted by l. Electron Configuration.Worksheet.Now, many of the users must be wondering why they are now required to know the electron configuration, but how it is possible that they can use and refer to it anytime they want?. So now is the solution and also a good opportunity for you guys, as we are coming up with our new worksheet, which will have the various electronic configurations of the elements.In todays world, everything is almost chargeable, and due to this reason, many users cannot afford some things which are related to education., Today, the fees of various private tuitions and coaching centres are so much that few students can even think of joining. So to make it easier, we have come up with that solution, and that is our worksheet is available free of cost, and no charges are needed to use our worksheet. The users can refer to our worksheet can download the worksheet, and will be able to use our worksheet whenever they want. They can get the hard copy of the worksheet too by going to any nearby printing shop and can get the printable form of it. The worksheet will have all the Electron Configuration charts of every element, and through our sheet, they can clear all their doubts and queries and can use it any number times.Electron Configuration ChartBefore you come to the part of electronic configuration, you must come to know about the various elements of the periodic table. If you are looking for a periodic table along with its electronic configuration, then you can find it on our worksheet, as we have mentioned above. The worksheet has all the electronic configurations of every element. Firstly, the users must know how many elements are in the periodic table.For those users who don't know how many elements are there, so for them, the answer is that there are 118 elements mentioned in the periodic table. It is one very easy way to remember all the elements, but their students who are new to this subject can remember the first 20 elements as they need their higher level class or grade, and they will be able to manage the first 20 elements.Apart from that, it is also important to know how to get the full information of any elements, we have mentioned every one's name, the atomic number, the atomic mass, the electron configuration, charges, and more.Viewrotating Bohr modelsfor all 118 elements.Get a freeHD image of the Periodic Table.Note: For future use, bookmark this Periodic table or visit PeriodicTableGuide.comReferences:Electronic configuration of elements (Data page-Wikipedia)Electronic configuration for super heavy elements (Source)

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