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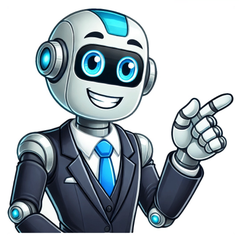

To help you plan your year 8 science lesson on: Metallic elements, download all teaching resources for free and adapt to suit your pupils' needs.The starter quiz will activate and check your pupils' prior knowledge, with versions available both with and without answers in PDF format.We use learning cycles to break down learning into key concepts or ideas linked to the learning outcome. Each learning cycle features explanations with checks for understanding and practice tasks with feedback. All of this is found in our slide decks, ready for you to download and edit. The practice tasks are also available as printable worksheets and some lessons have additional materials with extra material you might need for teaching the lesson.The assessment exit quiz will test your pupils' understanding of the key learning points.Our video is a tool for planning, showing how other teachers might teach the lesson, offering helpful tips, modelled explanations and inspiration for your own delivery in the classroom. Plus, you can set it as homework or revision for pupils and keep their learning on track by sharing an online pupil version of this lesson.Explore more key stage 3 science lessons from the Atoms, elements and compounds unit, dive into the full secondary science curriculum, or learn more about lesson planning.Last updated2 September 2022KS3 new for the Activate 2 resource The Periodic Table unit.Full lesson ready to use straight out of the box.Similar structure to my other power points following the input - activity - review phasingplenary sections for progress checkingClear learning objectives and outcomesModern and engaging layoutLittle adaptation neededPlease give constructive feedback :DCreative Commons "NoDerivatives"Select overall rating(no rating)Your rating is required to reflect your happiness.Write a reviewUpdate existing reviewIt's good to leave some feedback.Something went wrong, please try again later.Thank you for sharing freely.Empty reply does not make any sense for the end userEmpty reply does not make any sense for the end userEmpty reply does not make any sense for the end userEmpty reply does not make any sense for the end userThanks for sharing, really useful resource.Empty reply does not make any sense for the end userReport this resourceto let us know if it violates our terms and conditions. Our customer service team will review your report and will be in touch.Switch to our new teaching resources now - designed by teachers and leading subject experts, and tested in classrooms.These resources were created for remote use during the pandemic and are not designed for classroom teaching.View new resourcesKey learning pointsDescribe some properties of metals and explain how these relate to their usesDescribe some properties of non-metals and explain how these relate to their usesThis content is made available by Oak National Academy Limited and its partners and licensed under Oaks terms & conditions (Collection 1), except where otherwise stated.Q1.What do we call the physical and chemical characteristics of a substance?Correct Answer: properties, propertyproperties, propertyQ2.An element is a chemical that can be separated into two different chemicals.Correct answer: contains only one type of atom.contains only one type of atom.melts at room temperature.Q3.There are _____ groups in the periodic table.Correct answer: eighteightQ4.In the modern periodic table, elements are arranged in order of their _____ numbers.Correct answer: atomicatomicQ5.Which two elements are metals?Correct answer: ironironCorrect answer: sodiumsodiumQ6.Elements with similar properties are found in the same ...Correct answer: group.group.Q1.Where are metals found in the periodic table?Correct answer: the left columnsthe left columnsQ2.The temperature at which a substance changes from a liquid to a gas is called the ...Correct answer: boiling point.boiling point.Q3.A material that allows heat and electricity to pass through it is called a . Correct Answer: conductorconductorQ4.Select two properties of non-metals.Correct answer: brittlebrittleCorrect answer: low melting pointslow melting pointsQ5.Select the two properties that makes metals suitable for making electrical cables.Correct answer: conducts electricityconducts electricityCorrect answer: ductileductileQ6.Match the metal property to its use.Correct Answer:shiny,mirrorCorrect Answer:sonorous,cymbalCorrect Answer:conducts electricity,lightning rodconducts electricity -lightning rodCorrect Answer:strong,axe headCorrect Answer:conducts heat,radiator or heaterconducts heat -radiator or heaterLast updated: December 27, 2022Please read these terms and conditions carefully before using our services.DefinitionsFor these Terms and Conditions:Affiliatemeans an entity that controls, is controlled by or is under common control with a party, where control means ownership of 50% or more of the shares, equity interest or other securities entitled to vote for the election of directors or other managing authority.Accountmeans a unique account created for you to access our services or some of our services.Countryrefers tothe United KingdomCompanyrefers to Shalom Education Ltd, 86 London Road, (Kingsland Church), Colchester, Essex, CO3 9DW, and may be referred to as we, us, our, or Shalom Education in this agreement.Devicemeans any device that can access the Service, such as a computer, a mobile phone or a digital tablet.Feedbackmeans feedback, innovations or suggestions sent by You regarding the attributes, performance or features of our service.Free Trialrefers to a limited period of time that may be free when purchasing a subscription.Ordersmean a request by you to purchase services from us.Promotionsrefer to contests, sweepstakes or other promotions offered by us through the website.Servicesrefer to our website, resources and tutoring service.Subscriptionsrefer to the services or access to the service offered on a subscription basis by the company to you.Terms and Conditions(also referred to as Terms) mean these Terms and Conditions that form the entire agreement between you and Shalom Education Ltd regarding the use of the services we offer.Third-party Social Media Servicemeans any services or content (including data, information, products or services) provided by a third party that may be displayed, included or made available on the website.Youmeans the individual accessing or using our services, or the company, or other legal entity on behalf of which such individual is accessing or using our services.Tutorrefers to an individual who teaches a single pupil or a small group of students who have registered with Shalom Education Ltd.Tutee refers to a student or a pupil who has registered for tutoring with Shalom Education Ltd, which is administered through our tutoring platform.AcknowledgementThank you for choosing Shalom Education Tuition for your educational needs. 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All the elements found in the periodic table are elements that could be found on any planet in the whole universe.There are 118 elements on the periodic table.90 of these occur naturally.The rest are produced by man.The elements are arranged by their increasing atomic number.Metals can be found on the left-hand side (of the dividing step line).Non-metals are found on the right-hand side (of the dividing step line).The vertical columns of the periodic table are called groups.Elements in each group can be named:Group 1: the alkali metals.Group 7: the halogens.Group 0: the noble gases.The large block in the middle is called the transition metals.Elements in each group have similar properties and patterns to each other. For instance:Group 1, the alkali metals, are very reactive. They get more reactive as they go down the group.Group 7, the halogens, are also reactive. They get less reactive as they go down the group.The horizontal rows of the periodic table are called periods.Patterns can also be seen as you go along the periods.The size of the atom decreases as you go from left to right along the period.The elements get less metallic as you go from left to right.Jump to other topicsUnlimited access to 10,000+ open-ended exam questionsMini-mock exams based on your study historyUnlock 800+ premium courses & e-booksGet started with Seneca PremiumPage 5KS3ScienceNational Curriculum2.4.3Dmitri Mendeleev arranged elements into what we now know as the modern periodic table.Dmitri Mendeleev was a Russian scientist.He was born in 1834 and died in 1907.As a very young man, it was clear he had the potential to go on to greatness.At the age of 16, his mother took him to Moscow to enrol in university. They wouldn't accept him so he later enrolled at the university in St. Petersberg.In 1869, Mendeleev had knowledge of the 60 known elements.He placed them in order of their atomic mass and their properties in what we now know as the periodic table.He even left gaps and predicted the properties of the missing elements!Jump to other topicsUnlimited access to 10,000+ open-ended exam questionsMini-mock exams based on your study historyUnlock 800+ premium courses & e-booksGet started with Seneca PremiumPage 6KS3ScienceNational Curriculum2.4.2Chemical properties of elements are properties that can be observed during a chemical reaction. The properties include how likely they are to undergo a chemical reaction.The properties of elements that allow them to react and undergo a chemical change are called chemical properties.We will look at the chemical properties of elements on the next slides...Toxic elements are those that are poisonous to humans and can cause serious illness, even death.Mercury used to fill thermometers but it is easily absorbed through your skin and can be inhaled. Inhalation can cause death.Arsenic is used as a poison. It can also cause cancer.Lead in your body causes vomiting, coma and death. Lead was once used to line water pipes, and can be seen on the periodic table with the element symbol Pb.Pb comes from its latin name, Plumbum.The flammability of an element is how easily it will react with oxygen, causing a fire.If an element is more flammable, it will react with oxygen and burn at a much lower temperature.Hydrogen gas is very flammable. The Hindenberg, a hydrogen-filled German Zeppelin airship in 1937, was destroyed by fire.Jump to other topicsUnlimited access to 10,000+ open-ended exam questionsMini-mock exams based on your study historyUnlock 800+ premium courses & e-booksGet started with Seneca PremiumPage 7KS3ScienceNational Curriculum2.4.1Physical properties of elements are properties of elements that we are able to test without them undergoing any changes.These properties are seen and tested without changing the element.We will look at the different properties on the next slides...Colours of the elements vary.Most metals are silver in colour.Gases like hydrogen and helium are colourless.Carbon is black.Sulphur is yellow.The density of an element will determine if it will sink or float.Hydrogen has the lowest density of all elements.Helium has the second lowest. This is why hydrogen and helium float in air.Lithium is the least dense metal which is why it floats on water.Mercury is the only metal that is liquid at room temperature, and it is also 13.5x more dense than water. This means other metals could float on mercury but sink in water.The boiling point is the temperature that an element will change from a liquid to a gas. It is also the temperature of condensation when an element will change from a gas to a liquid.The boiling point of water is 100C. But water is a compound, not an element.The element with the lowest boiling point is helium at -269C.The element with the highest boiling point is rhenium at 5,596C, followed by tungsten at 5,555C.The melting point is the temperature at which an element will change from a solid to a liquid. It is also the temperature of freezing - when an element will change from a liquid to a solid.The melting point of water is 0C. But water is a compound, not an element.The element with the lowest melting point is helium at -272C.The element with the highest melting point is carbon at 4,500C.Jump to other topicsUnlimited access to 10,000+ open-ended exam questionsMini-mock exams based on your study historyUnlock 800+ premium courses & e-booksGet started with Seneca PremiumEnd of Topic Test - Particles & Atoms100%(4)100% found this document useful (4 votes)919 viewsThis document provides a worksheet on metals and non-metals. Students are asked to shade in areas on the periodic table to identify metals and non-metals. They are also asked to correct 15 sAI-enhanced title and descriptionSaveSave ks3-metals-and-non-metals For Later100%100% found this document useful, undefinedHow can financial brands set themselves apart through visual storytelling? 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You do not have to comply with the license 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 use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Three main groups The periodic table has 118 different elements, and each one has its own chemical properties. Elements are divided into three main groups: metals, nonmetals, and metalloids. What is a metal? Metals are elements on the periodic table that have similar features and molecular structures. They are usually hard, shiny materials that can transfer heat and electricity well. Metals are also known for their special properties of being bendable, stretchable, and reflective, which make them useful for building, making, and medical purposes. There are over 90 kinds of metal on the periodic table, which are grouped differently based on physical or chemical properties. What are the properties of metals? Metals are elements that people use a lot in their daily lives. Some examples are iron, copper, gold and silver. Metals have many common properties with each other. For example: They are solid at room temperature because they have high melting and boiling points. They can transfer heat and electricity well. They are shiny when they look at them. They are bendable. Some other properties of metals include: They are hard and strong. They are heavy. They are sonorous (They make a sound when they hit something). What are non- metals? Non-metals are elements that do not have the properties of metals. They are often not very strong and do not transfer heat and electricity well. Non-metals are natural elements that are used on their own or in compounds with other elements. There are 20 non-metals on the periodic table, which are divided into three subgroups: Nonmetals: Elements that are usually thought of as non-metals. They include elements such as sulphur, phosphorus, chlorine, and carbon. Halogens: Elements that have some properties of metals and some of non-metals. They include elements such as silicon, boron, and arsenic. Noble gases: Elements that are very stable and do not react with other elements. They include elements such as helium, neon, and argon. Noble gases are often seen as a separate group from non-metals, but they are actually non-metals. What are the properties of non-metals? Non-metals share some properties with each other. For example, they are often: Poor conductors of heat and electricity. Not shiny when they look at them. Not very strong and easy to break. Some other properties that non-metals have are: Usually low melting and boiling points, so they are gases and liquids at room temperature. Do not make a sound when they hit something. Some non-metals do not have all these properties. For example, carbon can be graphite or diamond. Both graphite and diamond have very high melting points and are shiny. Graphite can transfer electricity, which is not common for non-metals. But graphite is also easy to break, which is common for non-metals. What are metalloids? Metalloids are elements that have some properties of metals and some of nonmetals. They can transfer heat or electricity better than nonmetals, but not as well as metals. Metalloids look like metals, but they are not very strong and can break easily even though they are solid at room temperature. What are the properties of metalloids? Metalloids have some properties of metals and some of nonmetals. Their properties are a mix of the two, depending on their physical and chemical traits. For example, a metalloid can look like a metal but act like a nonmetal. Metalloids are useful elements that are often used to make alloys and compounds. Heat resistance: Metalloids need more heat than nonmetals but less heat than metals to change from solid to liquid or gas. They have medium melting and boiling points. Conductivity: Metalloids can transfer electricity and heat, but not as well as metals. Hardness: Metalloids are usually not very strong and can break or crack like nonmetals. Lustre: Metalloids are usually shiny and reflective like metals. Density: Metalloids are usually heavier than nonmetals but lighter than metals. Physical forms: Most metalloids are solid at room temperature, but they can become liquid or gas when heated. Ionisation: Metalloids have medium ionization energies and electronegativity values. Summary: The periodic table shows the properties of elements based on their position. Most elements are metals and they are on the left and middle of the periodic table. Metals have many common properties, such as being good at transferring heat and electricity. Non-metals usually have the opposite properties. For example, they are bad at transferring heat and electricity. Gethin: Today, we've got super science teacher Miss Armit with us. What she doesn't know about chemistry is not worth knowing. And today, we're going to be looking at the periodic table.Miss Armit - explain.Miss Armit: So what we're going to look at today are the metal elements in Group 1 of the periodic table, along with the metal elements in the transition metal block of the periodic table and their properties.Gethin: I think this is going to be good, isn't it.So we're going to talk about transition metals, which are found in the middle of the periodic table. What are their key properties?Miss Armit: So their key properties are they conduct electricity, they conduct heat, they are malleable - which means they're bendy - and they're shiny.Gethin: All right. And what metals are we talking about here and what are they used for.Miss Armit: Well, we've got copper and it's a really good conductor of electricity, so we use that in our wires. We've also got iron and aluminium and they're great at conducting heat, so we use these metals for our pots and pans. And gold and silver are used in jewellery, because they're shiny, they're malleable and unreactive with oxygen, so they don't rust easily.Can you name a liquid transition metal?Gethin: I would say mercury.Miss Armit: Very good.Gethin: Yeah.Miss Armit: It's the only liquid transistor metal and because of its properties it's perfect for a thermometer. Why do you think that is?Gethin: Well, it's something to do with the heat.Miss Armit: Yeah, because mercury's a great conductor of heat. So, when it gets hot the space between the particles expands and then this rises up the thermometer.Gethin: So, it's great for thermometers, but not so good for pots and pans.Miss Armit: Exactly.Gethin: They would just melt and it would just make a mess anyway. Science >> Chemistry for Kids The Periodic Table is a way of listing the elements. Elements are listed in the table by the structure of their atoms. This includes how many protons they have as well as how many electrons they have in their outer shell. From left to right and top to bottom, the elements are listed in the order of their atomic number, which is the number of protons in each atom.Periodic Table of ElementsClick for larger viewWhy is it called the Periodic Table?It is called "periodic" because elements are lined up in cycles or periods. From left to right elements are lined up in rows based on their atomic number (the number of protons in their nucleus). Some columns are skipped in order for elements with the same number of valence electrons to line up on the same columns. When they are lined up this way, elements in the columns have similar properties. Each horizontal row in the table is a period. There are seven (or eight) total periods. The first one is short and only has two elements, hydrogen and helium. The sixth period has 32 elements. In each period the left most element has 1 electron in its outer shell and the right most element has a full shell.GroupsGroups are the columns of the periodic table. There are 18 columns or groups and different groups have different properties.One example of a group is the noble or inert gases. These elements all line up in the eighteenth or last column of the periodic table. They all have a full outer shell of electrons, making them very stable (they tend not to react with other elements). Another example is the alkali metals which all align on the left-most column. They are all very similar in that they have only 1 electron in their outer shell and are very reactive. You can see all the groups in the table below. This lining-up and grouping of similar elements helps chemists when working with elements. They can understand and predict how an element might react or behave in a certain situation.Element AbbreviationsEach element has its own name and abbreviation in the periodic table. Some of the abbreviations are easy to remember, like H for hydrogen. Some are a bit harder like Fe for iron or Au for gold. For gold the "Au" comes from the Latin word for gold "aurum".Who invented it?The periodic table was proposed by Russian chemist Dmitri Mendeleev in 1869. Using the table, Mendeleev was able to accurately predict the properties of many elements before they were actually discovered.Fun facts about the Periodic Table Carbon is unique in that it is known to form up to 10 million different compounds. Carbon is important to the existence of life. Francium is the rarest element on earth. There are probably no more than a few ounces of it on earth at any given time. The only letter not in the periodic table is the letter J. The country Argentina is named after the element silver (symbol Ag) which is argentum in Latin. Although there is helium on Earth, it was first discovered by observing the sun.ActivitiesTake a ten question quiz on this page. Listen to a reading of this page:Your browser does not support the audio element.Full Periodic Table Periodic Table with detailed information(click for larger view) More on the elements and the Periodic TableElements More Chemistry Subjects Science >> Chemistry for Kids Cal: OK, friends. Chemistry time and in the studio with me I have super science school teacher Mrs Roberts, who's gonna show us how to make a massive fizzing volcano. We're gonna have sparks, lava exploding, aren't we Miss?Mrs Roberts: Not quite. So, today we're going to look at the periodic table. That thing that you see behind your teacher on the wall in science lessons. It actually tells us a lot about the elements that make up the world around us.Cal: Ok. So, what actually is the periodic table?Mrs Roberts: At its simplest, the periodic table is all the different elements arranged together in a chart. A Russian scientist called Dmitri Mendeleev produced one of the first practical periodic tables in the nineteenth century. The modern periodic table is based closely on the ideas he used.Cal: And how is it ordered?Mrs Roberts: So, the elements are arranged in order of increasing atomic number. The horizontal rows are called periods and the vertical columns are called groups, so elements in the same group as similar to each other.Cal: Ah, OK. Now that does make a bit more sense.

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