

Free Reading Sample

Magical Elements of the Periodic Table

Presented Alphabetically By

The Elemental



By Sybrina Durant with Illustrations by Pranavva et al.

Elemental Dragons

present

"Magical Elements Of The Periodic Table."

In this unique alphabet book, members of the Elemental Dragon Clan present 23 Magical Pure Elements of the Periodic Table plus 1 isotope-Deuterium, 1 compound-Quicklime, and 1 alloy-White Gold in alphabetical order. Each dragon has a magical tail tipped with an element which gives them unique powers.



Antz starts out the book by introducing the very necessary element Antimony on his element page.

Zora rounds out the alphabet by presenting facts and other fun information about the metal, Zirconium on her element page.



There is one dragon in the book whose magical tail is tipped with an alloy created by combining 5 different elements.



That would be, White Wing, the dragon with the White Gold tipped tail. He will reveal some interesting things about that metal alloy.

Dusa, the dragon with the Deuterium tipped tail will help readers understand what an isotope is and which pure element it comes from.



While not all elements in the Periodic Table are represented by letters of the alphabet, some in this book are introduced by alternate designations. For instance, the letter **V** is represented by the dragon with the **V**ital Calcium Tipped Tail.



The Elemental Dragon Clan and their techno-magical unicorn friends (from Book 1) are the perfect group to introduce you to metals and other elements in the Periodic Table. Hopefully, the Magical Elements of this periodic table book will spark an interest in the magical and real world properties of all the metals and other elements known today. You may be surprised at how prominently they feature in our every day lives.

Each element page in this book contains terms that might not be completely familiar to the reader. Refer to the definitions in the back of the book to get a clear understanding of each meaning.

There is also a fun elemental themed Periodic Table at the back of the book. It features metal horn unicorns, dragons with element tipped tails, wizards and knights with elemental staffs and swords; and radiated goblins.

Remember, "No metal – No Magic. . .and No Technology".

It's Techo-Magical.

Note: The reference page for all entries in this periodic table book is at Sybrina.com/MDAPT. Follow [sybrinablueunicorn](#) on Instagram, The Blue Unicorn Book Store on Facebook, [@sybrinad](#) on Pinterest, [Sybrina_SPT](#) on Twitter; and Sybrina Durant on LinkedIn.



Antimony Facts

- In use since 4000-5000 BCE
- Brittle, crystalline solid
- Weak conductor of heat and electricity
- Strongly antiferromagnetic
- Neither ductile or malleable
- Metalloid

Antz Presents Antimony

Symbol: Sb Atomic Number: 51 Atomic Mass: 121.760

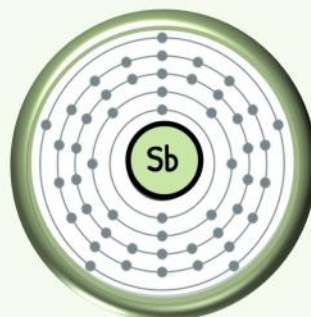


Antimony naturally occurs in the mineral stibnite. The largest crystals of stibnite are mined in Japan, China and the Baia Mare region of Romania.



Antz's Magical Abilities

- Antz can wave his Antimony tipped tail over a flame and the fire will die out.



Atomic Structure



Uses For Antimony



Antimony(III) oxide is added to some glass, like television screens, to remove bubbles.

Antimony is alloyed with tin to make the utensils we use in our kitchens!



Antimony trioxide compound is primarily used in flame-retardant formulations.

Antimony alloys are used in making typefaces for clear, sharp printing.



Compounds of antimony are also used to make paints, glass, pottery and ceramics.

Did You Know?

- Cleopatra used stibnite (the source of Antimony) to make her mascara. She would crush the rock into a black powder and put it on her eyes to make them look pretty. This mascara was called "khol."
- In olden times, people used a pill made from Antimony to help with tummy troubles. It made them go to the bathroom. Here's the yucky part. They would save the pill to use again later. Nowadays, we don't do that because we now know it's not clean or good for our health.
- Mozart believed that Antimony was the top of the line medication of his time for fevers and other sickness. Some people think that the famous composer's doctor gave him too much and it became poisonous for his body and caused him to die.



Bismuth Facts

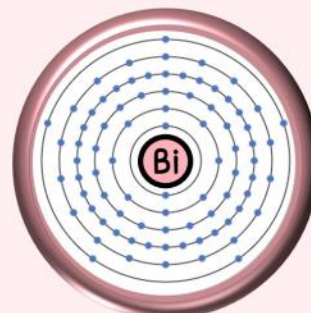
- Discovered in 1753 by Claude Geoffrey Junine
- Solid
- Poor conductor of electricity
- The most diamagnetic metal
- Some ductility and alloys are malleable
- Post Transition Metal

Bitsy Presents Bismuth

Symbol: Bi Atomic Number: 83 Atomic Mass: 208.98



Bismuth naturally occurs in the Earth's crust as Bismuthimite and Bismite ores. The largest Bismuth production is located in Vietnam and China. Also found in Bolivia, Peru, Mexico and Canada.



Atomic Structure



Bitsy's Magical Abilities

- When Bitsy taps her Bismuth tipped tail on another's belly, it rids them of indigestion.

Uses For Bismuth



Basic Bismuth carbonate is taken in tablet or liquid form to soothe stomach aches from indigestion.

It is used as a catalyst in rubber production for things like gloves, boots, buckets and even rubber duckies.



Bismuth is used as a replacement for Lead in bullets and fishing weights.

When alloyed with Tin or Cadmium, Bismuth is used in fire detectors, extinguishers, electric fuses, and solders.



Did You Know?

- Bismuth metal does not rust when exposed to water and oxygen.
- If you take too much medication containing bismuth, you might get a black line on your gums next to your teeth. It's a condition called Bismuthia. Luckily, this is very rare.
- When liquid bismuth gets really cold, it doesn't get smaller like most things do. Instead, it actually gets bigger! This happens because it turns into ice-like crystals. There are four more elements that also do this: silicon, gallium, antimony, and germanium.
- Bismuth originates from the Latin word "bisemutum" and the German word "wissmuth", which means white mass.



Carbon Facts

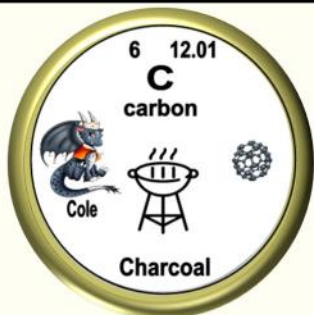
- Element first proposed in 1789
- Soft, solid
- Strong conductor of heat and electricity
- Has a net magnetic moment of zero
- Neither ductile or malleable
- Non-Metal

Cole Presents Carbon

Symbol: C Atomic Number: 6 Atomic Mass: 12.01

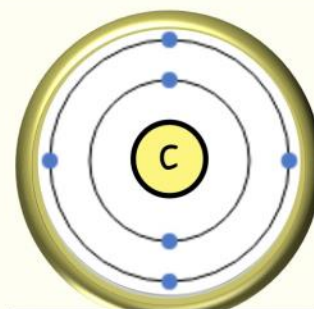


The largest deposits of Carbon are found in the deep ocean, atmosphere, and sediments. It naturally occurs as coal, diamond, and graphite. Diamonds formed in the earth's mantle rise to the surface in kimberlite pipes.



Cole's Magical Abilities

- With the touch of Cole's carbon tipped tail, he can purify air and water.



Atomic Structure

Uses For Carbon



Coal is used as a key energy source in cement production for bridges and buildings.



Carbon fiber is used to make airplanes and rockets.



Industrial diamonds are used for drilling and cutting rocks.



Carbon dioxide is essential for plant's survival.



Graphene can be used as an ultrafiltration medium to destroy airborne viruses.



Pencil leads are made from carbon graphite.

Did You Know?

- Carbon has 4 natural allotropes. They are coal, graphite, diamonds and graphene. Graphene is the thinnest, lightest, strongest, most stretchy material ever created. Allotropes are naturally formed through nature. The only other elements that form allotropes are tin, sulfur, phosphorus, and oxygen.
- C60 Buckminsterfullerenes or Buckyballs were discovered in 1985. They have a cage-like fused-ring structure made of twenty hexagons and twelve pentagons, and resembles a soccer ball. They are considered the universe's weirdest molecule. They could one day replace silicon — the element on which computers and other electronic devices depend.
- Because Carbon forms more compounds than any other element, it is sometimes called the "King of the Elements."



Deuterium Facts

- Deuterium Isotope discovered in 1931—Harold Urey
- Electrical conducting is characteristic of liquid metal
- Has a freely diffusible nuclear magnetic resonance
- Colorless, odorless gas that is easily ignited.

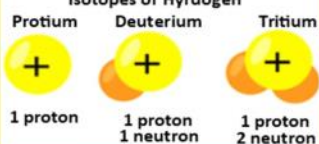
Dusa Presents Deuterium (Hydrogen Isotope)

Symbol: D (or 2H) Atomic Number: 1 Atomic Mass: 2



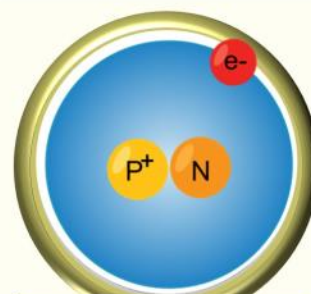
Deuterium is also known as Hydrogen-2 or Heavy Hydrogen. It is a naturally occurring stable isotope and can be readily extracted from the oceans. The largest production facilities are in the Canada and USA.

The Nuclei of the Three Isotopes of Hydrogen



Dusa's Magical Abilities

- A touch of the deuterated tip of Dusa's tail cures psoriatic arthritis and other ailments.



Atomic Structure

Uses For Deuterium



Deuterated drugs are being used for physical ailments such as Psoriatic Arthritis, Lupus and Crohn's disease

The current best bet for future fusion power plants is deuterium-tritium fuel.



By using Deuterated compounds, manufacturers can produce better-performing electronics, faster microprocessors, and see an increased life span of their devices, including OLED screens.

Did You Know?

- Nearly all Deuterium is thought to be left over from the Big Bang. It is not radioactive.
- The fusion energy released from just 1 gram of deuterium-tritium fuel equals the energy from about 2400 gallons of oil.
- Deuterated water (HDO) occurs naturally in normal water and can be separated through distillation, electrolysis, or chemical exchange processes. This "heavy water" is 10.6% denser than normal water and it does not have the blue color of regular water. Heavy water can be toxic to humans, but a large amount would be needed for poisoning to occur.
- An ice cube made of deuterium oxide will sink in normal water.

Alloys

An **alloy** is a mixture of chemical elements of which at least one is a metal. An alloy is a solid. Unlike chemical compounds with metallic bases, an alloy will retain all the properties of a metal in the resulting material, such as electrical conductivity, ductility, opacity, and luster, but may have properties that differ from those of the pure metals, such as increased strength or hardness. In some cases, an alloy may reduce the overall cost of the material while preserving important properties. In other cases, the mixture imparts synergistic properties to the constituent metal elements such as corrosion resistance or mechanical strength. Some of the most common alloys are

BeCu =

Beryllium
Copper alloy is
used for
strengthening
tools, musical
instruments,
and sports
equipment



0.5% min /
3% max

+



96% min /
97% max



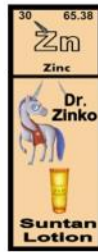
Brass =

Used for
decoration,
plumbing,
instruments



65% min /
90% max

+



10% min /
35% max

+

May also Include iron, lead,
manganese, aluminum, silicon
and other elements.



Steel =

Used for
structures,
cutlery, car
bodies, rails



50% min /
99% max

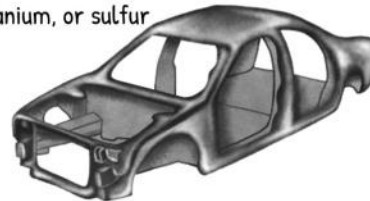
+



0.1% min /
2.5% max

+

May also Include manganese,
silicon, copper, nitrogen,
niobium, titanium, or sulfur



White Gold =

18K—Used for
jewelry &
orthodontics



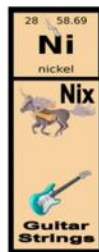
58.5%

+



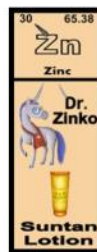
22%

+



7%

+



8%

+



4.5%



Some other common alloys are Bronze, Cast Iron, Cupronickel, Magnalium, Mischmetal, Nichrome, Nitinol, Pewter, Solder, Sterling Silver and Tungsten Carbide.

The above chart only shows a few of the hundreds of metal combinations. For instance, 24 carat gold is a pure naturally occurring yellow metal. There are four basic shades of gold alloys: yellow gold, white gold, rose gold, and green gold. A huge range of other colored golds are also possible, including red (gold and copper), grey (gold, iron and copper), purple (gold and aluminum), blue (gold and iron) and black (gold and cobalt), depending on the amounts of different metals alloyed together.

1

H
hydrogen
Hilga

Textile Manufacturing

Magical elementals from the Magical Elements of the Periodic Table books present all of the elements of the periodic table in fantastical and real life terms.

In the books, each elemental character has magical powers based on the properties of

the elements that come from the land, air and water. They are the perfect group to introduce you to metals, metalloids, non-metals, halogens, noble gases and much more.

Unicorns, dragons, alchemists, knights, and goblins will show you how people of this world always have and always will depend upon the elements that our earth provides for all of our needs.

Use this Periodic Table as you would any other to spark an interest in the magical and real world properties of all the elements known today. You may be surprised at how prominently they feature in our every day lives.



No Metal



Actinium To Zirconium



No Magic

Remember, "No Metal—No Magic."

...And no technology.

18

He
helium
Hella

Balloons

2

Li
lithium
Lillian

Batteries

Be
beryllium
Beryn

Musical Instrument

3

Na
sodium
Sorn

Salt

Mg
magnesium
Maggie

In Your Bones

3		4		5		6		7		8		9		10		11		12		Airplanes		Glass		Fertilizer		Matches		Pools		Light Bulbs	
21	44.956	22	47.87	23	50.94	24	52.00	25	54.94	26	55.85	27	58.93	28	58.69	29	63.55	30	65.38	31	69.72	32	72.61	33	74.92	34	78.97	35	79.90	36	83.80
Sc	titanium	V	vanadium	Cr	chromium	Mn	manganese	Fe	iron	Co	cobalt	Ni	nickel	Cu	copper	Zn	zinc	Ga	gallium	Ge	germanium	As	arsenic	Se	selenium	Br	bromine	Kr	krypton		
Scandia	Tilly	Vana	Chromel	Manger	Iown	Corias	Nix	Cuprum	Dr. Zinko	Gallant	Gemel	Arkyn	Selenice	Brogh	Krypto																
Bicycles	Aerospace	Black Printer Ink	Stainless Steel	Earth Movers	Bicycle Chains	Magnets	Guitar Strings	Money	Suntan Lotion	LED Displays	Camera Lense	Poison	Printers	Photography Film	Detect Leaks																
37	88.906	40	91.22	41	92.91	42	95.95	43	98	44	101.1	45	102.9	46	106.4	47	107.8	48	112.4	49	114.8	50	118.7	51	127.6	52	127.6	53	126.9	54	131.3
Y	yttrium	Zr	zirconium	Nb	niobium	Mo	molybdenum	Tc	technetium	Ru	ruthenium	Rh	rhodium	Pd	palladium	Ag	silver	Cd	cadmium	In	indium	Sn	tin	Sb	antimony	Te	tellurium	I	iodine	Xe	xenon
Yago	Zora	Nomach	Maximo	Tophen	Ruth	Rowana	Paedin	Silubhra	Cadmus	Iker	Tinam	Antz	Tellan	Jody	Xena																
Microwave	Chemical Pipelines	Mag Lev Trains	Cutting Tools	Radio Active Diagnosis	Electrical Switches	Finish for Jewelry	Concert Flute	Ventilator	Power Tools	Liquid Crystal Display (LCD)	Liquid Crystal Display	Flame Resistant Fabric	Vulcanized Rubber	Cloud Seeding	Used To Catch Speeders																
57 thru 71		72	178.5	73	180.9	74	183.8	75	186.2	76	190.2	77	193.2	78	197.2	79	197.2	80	200.6	81	204.4	82	207.2	83	209.0	84	209	85	210	86	222
		Hf	hafnium	Ta	tantalum	W	tungsten	Re	rhenium	Os	osmium	Ir	iridium	Pt	platinum	Au	gold	Hg	mercury	Tl	thallium	Pb	lead	Bi	bismuth	Po	polonium	At	astatine	Rn	radon
Rare Earth Lanthanide Metals		Hallam	Taltira	Woffie	Rankin	Osm	Iridina	Paedra	Ghel	Questa	Thanelen	Lauda	Bity	Polgarn	Aszrad	Ramon															
		Nuclear Submarines	Mobile Phones	3D Printing Nozzles	Rocket Engines	For Lab Testing	Weight Scale	Pacemaker	Pacemakers and Stents	Barometer	Tattoo Ink	Batteries	Fire Sprinklers	Anti-Static Brushes	Thyroid Cancer Treatment	Earthquake Prediction															
89 thru 103		104	261	105	262	106	265	107	267	108	277	109	278	110	281	111	282	112	285	113	286	114	287	115	289	116	291	117	294	118	296
Actinide Metals		Rf	rutherfordium	Dubn	dubnium	Sg	seaborgium	Bh	bohrium	Hs	hassium	Mt	meitnerium	Ds	darmstadtium	Rg	rogersium	Cn	copernicium	Nh	nihonium	Fl	flerovium	Mc	moscovium	Lv	livermorium	Ts	tennessine	Og	oganeson
		Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive	Radioactive
57		138.9	58	140.1	59	140.9	60	144.2	61	145	62	150.4	63	152.0	64	157.3	65	158.9	66	162.5	67	164.9	68	167.3	69	168.9	70	173.0	71	175.0	
		La	lanthanum	Ce	cerium	Pr	praseodymium	Nd	neodymium	Pm	promethium	Sm	samarium	Eu	euprium	Gd	gadolinium	Tb	terbium	Dy	dysprosium	Ho	holmium	Er	erbium	Tm	thulium	Yb	ytterbium	Lu	lutetium
		Lannion	Ceriala	Prathic	Nekushia	Protha	Samarina	Eustil	Gado	Terin	Dypsil	Holmia	Erbie	Thurvin	Yitzy	Lutina															
		Telescope Lenses	Lighter Flints	Welder Mask	Electric Car Motors	Night Light	Electric Guitar Pickup	Fluorescent Light	MRI Diagnostics	Solid State Device	Sonar Sensors	Eye Laser	Optical Communications	Eye Laser	Amplifier Filter Optics	Pyrotron Emulsion Photography (PET)															
99		227	90	232.0	91	231.0	92	238.0	93	237	94	244	95	243	96	247	97	247	98	251	99	252	100	257	101	258	102	259	103	264	
		Ac	actinium	Th	thorium	Pa	protactinium	U	uranium	Np	neptunium	Pu	plutonium	Am	americium	Cm	curium	Bk	berkelium	Cf	californium	Es	einsteinium	Fm	fermium	Md	mendelevium	No	nobelium	Lr	lawrencium
		Acams	Thorda	Protik	Uri	Nepthas	Puchan	Amethe	Curran	Berkens	Calafan	Elizama	Ferley	Menesant	Norium	Larels															
		Radioactive Medicine	Heat Resistant Paint	Radioactive Waste	Used To Power Submarines	Nuclear Fuel	Power Batteries	Smoke Detector	Moon Rover	Scientific Research	Metal Detector	Nuclear Research	Scientific Research	Scientific Research	Nuclear Research	Radioactive Research															

SUPER HEAVY METALS—RADIOACTIVE

RARE EARTH LANTHANIDE METALS

ACTINIDE METALS

*It's
Techno-
Magical*

LEGEND

Alkali Metals
Alkali Earth Metals
Transition Metals
Post-Transition (or Other Metals)
Metalloids
Non-Metals
Halogens
Noble Gases
Rare Earth Lanthanide Metals
Actinide Metals
Super Heavy—Radioactive

Alloys are created when 2 or more metals are combined. Compounds are created when 2 or more non-metals are combined.

EXAMPLE OF A COMPOUND



Quincy

Quick Lime =
Used for Concrete



Ca
calcium
Verly

O
oxygen
Oozy

Teeth

Both Carbon and Oxygen are reactive nonmetals.

White Wing



Used for jewelry, dental amalgams plus connectors, and switch and relay contacts for electronics.

EXAMPLE OF AN ALLOY

White Gold

White Gold =

Includes 58.5 % gold, 22% copper, 8% zinc, 7% nickel, 4.5% silver and possibly other elements.

Sybrina.com

Types of Elements On The Periodic Table

Alkali Metals—Some metals on the periodic table are soft and shiny. They are so soft that they can be cut with a knife! These metals are excited to give away electrons to elements in need, making them highly reactive. This electron transfer creates a compound known as a salt. Surprisingly, these metals are not found in nature alone; they must be extracted from other sources. Examples of these metals include lithium, sodium, potassium, rubidium, cesium, and francium.

Alkali Earth Metals—The elements in column 2 of the periodic table have 2 outer electrons in their shell. This makes them very active with nonmetals that need electrons to stay stable. When they react, they make something called a salt. They are often found in nature all by themselves, and they can even conduct electricity. The elements are beryllium, magnesium, calcium, strontium, barium, and radium.

Post-Transition (or other Metals)— Elements directly to the right of the transition metals. They are known as "poor metals: and are soft and brittle. These include aluminum, gallium, indium, tin, thallium, lead, bismuth, zinc, cadmium and mercury.

Transition Metal—The main metals are found in the middle and bottom rows of the periodic table. They look like metal, can conduct electricity, can bend and be shaped easily. The period 4 transition metals are scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper, and zinc. The period 5 transition metals are yttrium, zirconium, niobium, molybdenum, technetium, ruthenium, rhodium, palladium, silver, and cadmium. The period 6 transition metals are lanthanum, hafnium, tantalum, tungsten, rhenium, osmium, iridium, platinum, gold, and mercury. The period 7 transition metals are the naturally-occurring actinium, and the artificially produced elements rutherfordium, dubnium, seaborgium, bohrium, hassium, meitnerium, darmstadtium, and roentgenium.

Metalloids—The elements called metalloids are a mix of metals and nonmetals. They look like metals, but can't conduct electricity very well. They also break easily and act like nonmetals. These include boron, silicon, germanium, arsenic, antimony, tellurium, astatine, and polonium.

Non-Metals—These elements reside in columns 15–17, and can be gases, liquids, or solids. They don't conduct heat or electricity. The solids are brittle, and they have no metallic luster. They readily accept electrons from metals to form salts. These include nitrogen, oxygen, fluorine, chlorine, bromine, and iodine.

Halogens—Halogen chemicals are a special type of element. When they mix with metal, they become a kind of salt. Halogens are super reactive because they like to take an electron from metals. They can be found in column 17 of the element table. Some of them can be found in nature, but most are very dangerous and can hurt you if you touch them. They include fluorine, chlorine, bromine, iodine, and the radioactive elements astatine and tennessine.

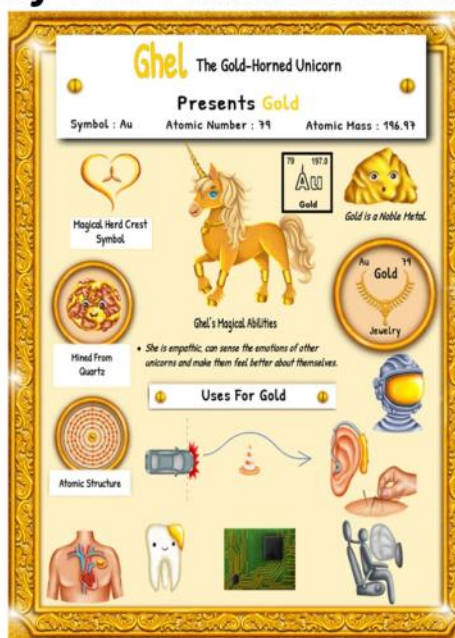
Noble Gases—These elements reside in column 8. They are all odorless, colorless gases that are chemically very stable (inert). They don't generally form compounds by bonding with another element. These include helium, neon, argon, krypton, xenon, and radon.

Lanthanide Rare Earth Minerals—The Japanese call them "the seeds of technology." The US Department of Energy calls them "technology metals." These elements have atomic numbers 57–71. They are vital to industry. They can be added to metals to strengthen them to make alloys such as stainless steel, used to refine crude oil, and are crucial in producing technology—electronics, telecommunications, and metal devices to name a few. They are lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium, scandium and yttrium.

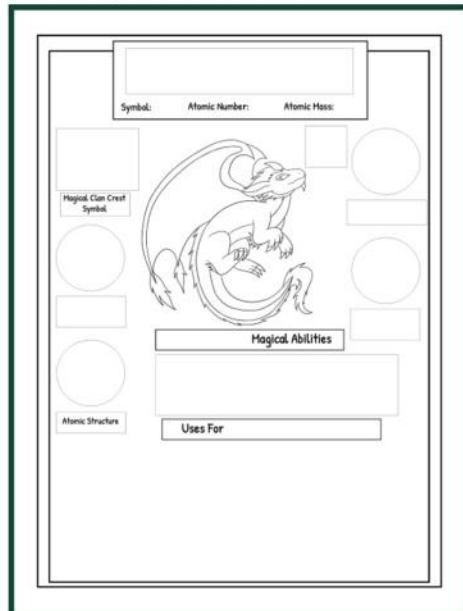
Actinide Metals—Any of a series of chemically similar metallic elements with atomic numbers ranging from 89 (actinium) to 103 (lawrencium). All of these elements are radioactive, and two of the elements, uranium and plutonium, are used to generate nuclear energy. The lanthanides and actinides are sometimes called the inner transition metals, referring to their properties and position on the table. They are actinium, thorium, protactinium, uranium, neptunium, plutonium, americium, curium, berkelium, californium, einsteinium, fermium, mendelevium, nobelium, and lawrencium.

Super Heavy—Radioactive—Superheavy elements are those elements with a large number of protons in their nucleus. Elements with more than 92 protons are unstable; they decay to lighter nuclei with a characteristic half-life. They do not occur in large quantities (if at all) naturally on earth, and only exist briefly under highly controlled circumstances. They include lawrencium, rutherfordium, dubnium, seaborgium, bohrium, hassium, meitnerium, darmstadtium, roentgenium, copernicium, nihonium, flerovium, moscovium, livermorium, tennessine, and oganesson.

Fun Way For Students To Learn The Elements Of The Periodic Table



Blank Research Sheet



Blank Research Sheet

Get These Fun Elemental Periodic Table Activity Sheets at *MagicalPTElements.com*

I hope you enjoyed this sample



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