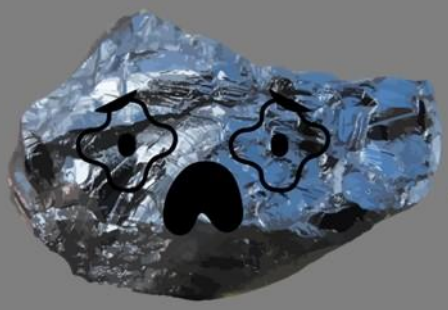
Magical Elements of the Periodic Table

Element 14

Silicon Presented By Silonar
From The Magical Elements of the
Periodic Table Book Series

Silonar

14	28.09
Si	
silicon	



Silicon

By Sybrina Durant with Illustrations by Pranavva et al.

Silonar Presents Silicon

This Element 14 book features the periodic table element, Silicon. It is presented by Silonar, an Alchemical Wizard who wields a magical elemental staff with powers based on its periodic table element.

Silonar is just one of the 118 elementals who will present all of the Magical Elements of the Periodic Table to readers who are curious about the wonders of the world.

Silonar introduces the very magical element, Silicon, in his book.

The Alchemical Wizards and their other techno-magical friends are the perfect group to introduce you to the elements in the Periodic Table. Hopefully, this Magical Elements of the periodic table book will 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.

Each 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 118 elements presented by fanciful characters like unicorns, dragons, wizards, knights and goblins.. They want you to remember that if there's no metal...there's no magic or technology.

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

It's Techo-Magical.

Note: Sybrina Publishing websites are Sybrina.com and MagicalPTElements.com. Follow sybrinapublishing on Instagram, Magical Elements of the Periodic Table on Facebook, @sybrinad on Pinterest, Sybrina_SPT on Twitter; and Sybrina Durant on LinkedIn.

Silicon is a Metalloid

Antimony has been in use since 4000-5000 BCE. Nicolas Lémery, a French chemist, was the first person to scientifically study antimony and its compounds. He published his findings in 1707.

It is a brittle, crystalline solid at room temperature that exhibits poor electrical and heat conductivity properties.

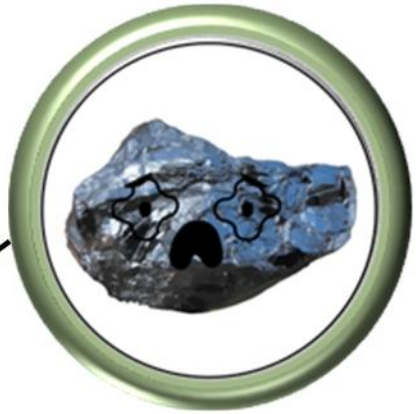
Antimony is strongly antiferromagnetic meaning it has a net magnetic field of zero.

It is not ductile or malleable so it can not be drawn out into tubes or wires, or hammered into sheets.

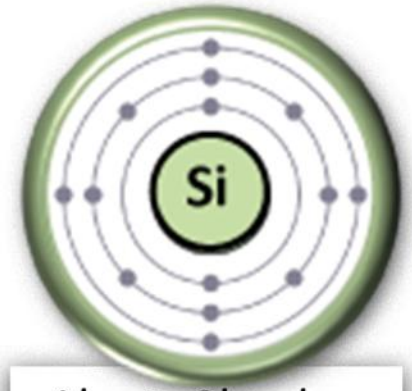
Antimony is a metalloid which can easily be alloyed with other metals to increase their strength.

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

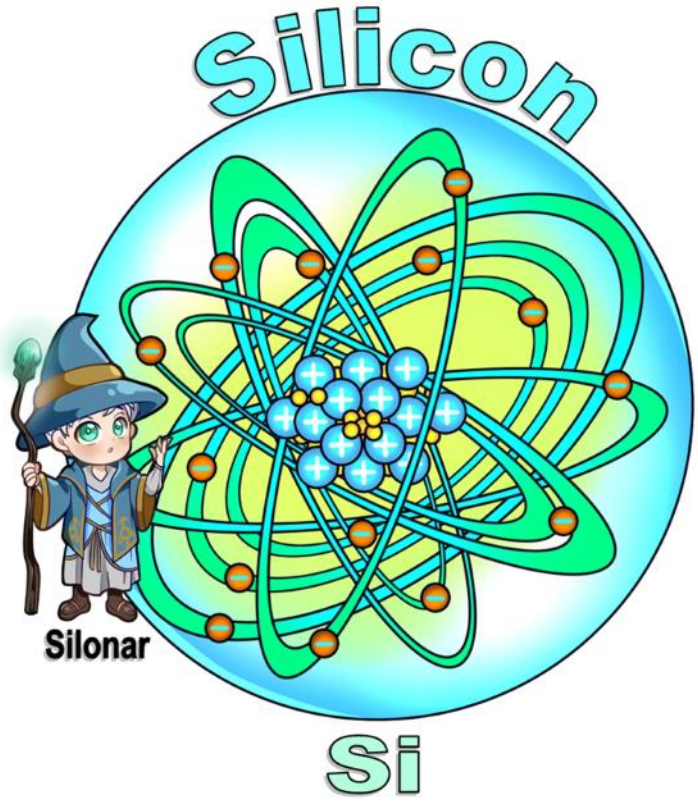


Silicon Element



Atomic Structure

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.



Did you know that the shiny, silver element called silicon has a fascinating history dating back thousands of years? Today, silicon is all around us in the form of computer chips, solar panels, and even makeup products. But its first uses were quite different from what we might expect!

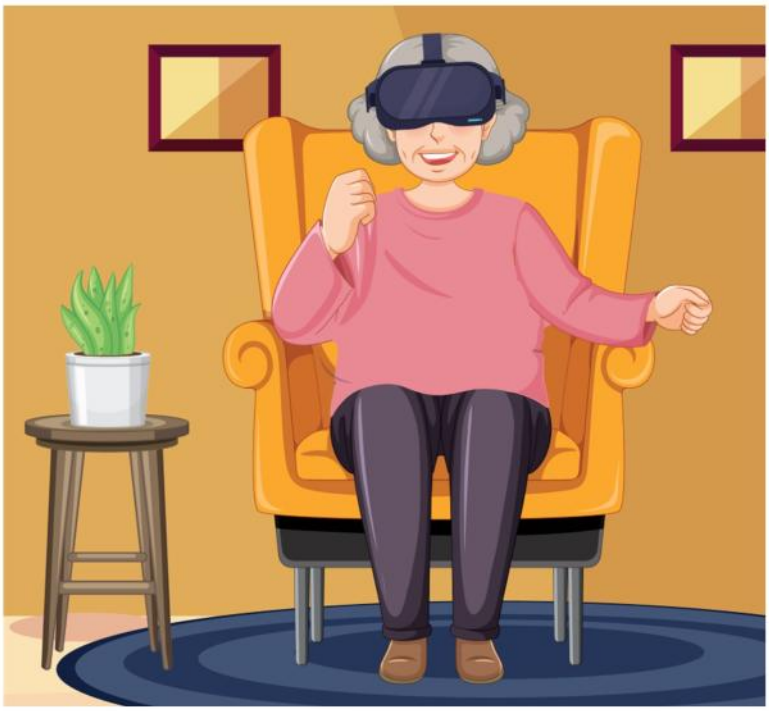
Silicon was first isolated in pure form by Jöns Jacob Berzelius, a Swedish chemist, in 1824. Although the element occurs naturally in vast quantities within sand, quartz, and many minerals, early humans interacted with it primarily through its compounds rather than the refined metal. Ancient civilizations dating back to 3000 BCE in Mesopotamia and Egypt harnessed silicon-rich sands to craft the earliest glass beads and vessels. These primitive applications highlighted silicon's ability to form strong, transparent structures when heated with other materials. Over centuries, silicon compounds continued to play quiet but essential roles in pottery, bricks, and early construction materials across Roman aqueducts and medieval cathedrals.

By the 19th century, industrial interest grew as scientists recognized silicon's potential beyond glassmaking. Berzelius's isolation process involved reacting potassium fluosilicate with potassium metal, yielding a brown, amorphous powder that revealed silicon's metallic luster and semiconductor properties when purified. In the early 20th century, engineers began experimenting with silicon to create stronger alloys and heat-resistant ceramics. Ferro-silicon alloys became critical for steel production, improving durability in railways and machinery. At the same time, silicon dioxide found widespread use in optical lenses, laboratory glassware, and early electronic insulators.

One of the first major breakthroughs in silicon's application came during World War II, when it was used in the production of radar equipment. Its ability to conduct electricity under controlled conditions and withstand extreme temperatures made silicon a valuable component in military technology. Allied forces relied on silicon-based point-contact detectors in radar receivers to detect enemy aircraft at long range. These detectors outperformed earlier crystal materials, proving silicon's reliability in high-frequency environments and laying groundwork for postwar electronics.

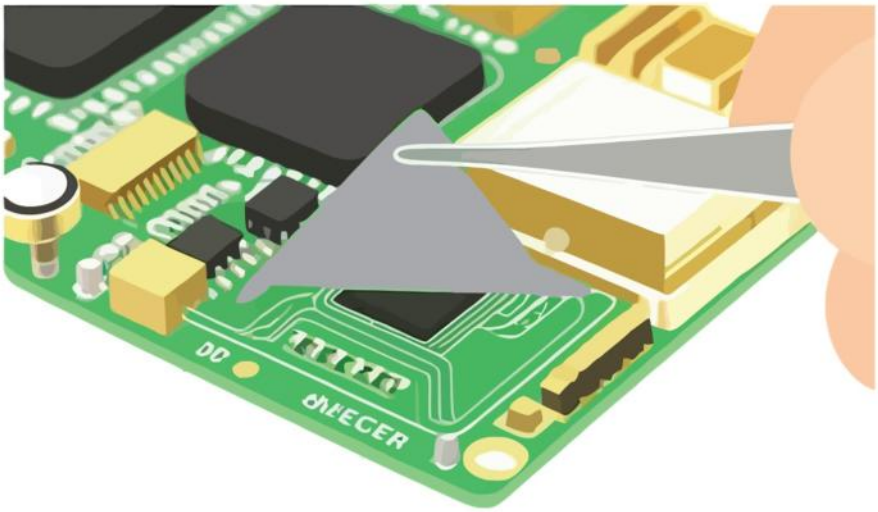
Uses For Silicon

(Continued)

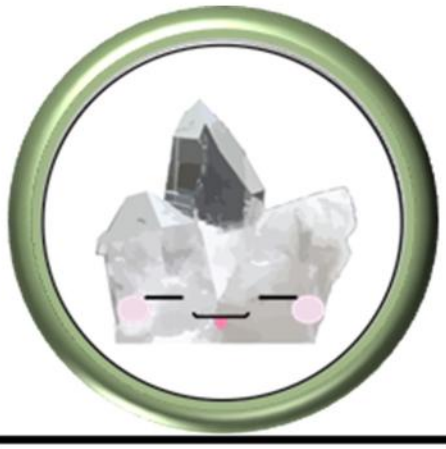


Silicon is widely used in improved materials that support Enhanced Reality Technologies such as augmented reality and virtual reality experiences. Its unique properties make it valuable in the development of advanced sensors, processors, displays, and memory components that power these immersive systems. By enabling faster performance, greater efficiency, and more reliable hardware, silicon plays an important role in making AR and VR technologies more responsive, realistic, and accessible for everyday users.

Silicon is widely used to make materials that help spread and manage heat in electronics. These materials draw heat away from sensitive components, helping devices stay cooler and work more reliably. By improving thermal conductivity, silicon-based materials reduce the risk of overheating, which can damage parts or shorten a device's lifespan. This makes silicon especially valuable in computers, phones, and other electronic systems that generate a lot of heat during operation.



The Source of Silicon



Silicon is found in practically all rocks as well as in sand, quartz, clays, and soils as silica. It also occurs in all natural waters, in the atmosphere (as siliceous dust), in many plants, and in the skeletons, tissues, and body fluids of some animals.

Silicon is one of the most important elements in modern life, even though many people rarely think about it. Silicon is also extremely abundant on Earth, making up about 27% of the Earth's crust. Because of this, it can be found in many natural materials, especially sand, clay, quartz, and silicate minerals. In nature, it is most commonly found combined with oxygen rather than in pure form. One of the most common compounds is silicon dioxide, also called silica, which is a major part of sand and quartz.

Silicon is found all around us, often in places we do not immediately notice. It occurs in beaches and deserts as sand, in rocks such as granite, in soil, and in minerals used to make ceramics and glass. It is also found in the Earth's crust in huge quantities because it bonds easily with oxygen and other elements. Although pure silicon is rare in nature, its compounds are widespread. This makes silicon one of the most accessible raw materials on the planet and one of the most valuable for industry.

To make silicon that can be used in factories and high-tech products, manufacturers first need to extract it from these natural compounds. The process usually begins with silica-rich sand, which is mined from deposits

Silonar Presents Silicon

Did You Know?

The late 20th century to early 21st century has been described as the Silicon Age (also known as the Digital Age or Information Age) because of the large impact that elemental silicon has on the modern world economy. Silicon Valley gets its name from silicon chips.

- During the 1969 Apollo 11 mission, astronauts left behind a small white container holding a silicon disc slightly larger than a silver dollar. Etched in tiny type on the disc were messages from many nations, all expressing hopes for goodwill, peace, and unity, symbolizing humanity's shared aspirations beyond Earth.
- Silicon is the seventh most abundant element in the universe and the second most abundant element in Earth's crust. It is a versatile metalloid widely used in electronics, construction, glassmaking, and solar panels. Because of its properties, silicon plays a crucial role in modern technology and everyday materials.
- Most silicon is used commercially without being separated, often with very little processing of the natural minerals. Such use includes industrial construction with clays, silica sand, and stone. In these applications, silicon-bearing materials serve as essential raw ingredients for cement, glass, ceramics, and other building products, supporting modern infrastructure and manufacturing.
- Plants and algae use sunlight for fuel; scientists at the National Laboratory of the Rockies have moved closer to doing this with semiconductors. A silicon semiconductor with a molecular catalyst can capture higher-energy sunlight unused by plants or panels, potentially driving fuel, chemical, and fertilizer production.

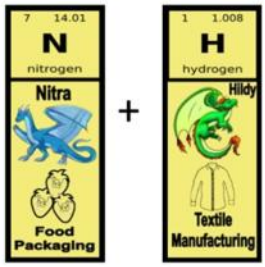
Polyatomic Ions

While individual elements are typically not polyatomic, certain elements can form polyatomic molecules or ions. Many polyatomic ions exist, formed by groups of atoms covalently bonded together with an overall charge. Polyatomic ions carry a net electric charge, either positive (cation +) or negative (anion -). Despite being made of multiple atoms, polyatomic ions behave as a single, distinct entity in chemical reactions and compounds.

Ammonium =

(NH4+)

Contains one nitrogen and four hydrogen atoms.

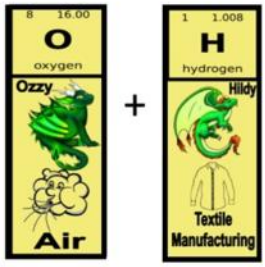


Ammonium is widely used in agriculture as a fertilizer and in industrial applications for cleaning, refrigeration, and chemical manufacturing.

Hydroxide =

(OH-)

Contains one oxygen and one hydrogen atom.

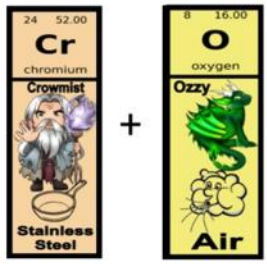


Hydroxide is commonly used for cleaning, paper production, water treatment, food processing, and as a component in pharmaceuticals and various industrial processes

Chromate =

(CrO4 -2)

Contains one chromium and four oxygen atoms.



Chromate is commonly used for corrosion prevention on metals, as a pigment in paints and dyes, and in leather tanning. It also finds applications in cement and mortar, and as a corrosion inhibitor in cooling water systems.

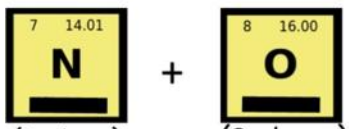
Sulfate =

(SO4 2-)

Contains one sulfur and four oxygen atoms.

Sulfates are found in detergents, shampoos, and other cleaning products as surfactants, which help create lather and remove dirt and oil. Additionally, sulfates are used in agriculture, medicine, and industrial processes.

Can you guess the most commonly used polyatomic ion?



= ??????

The above chart only shows a few of the polyatomic ions formed by those elements. There is no known fixed finite number of polyatomic ions but some other important ones are:

Carbonate (CO3 2-): Crucial in construction, medicine, agriculture, and food production. **Phosphate (PO4 3-):** Most notably used in fertilizers to enhance plant growth, in animal feed supplements, and in cleaning products. **Acetate (CH3COO-):** Used in the preparation of metal acetates, used in some printing processes; vinyl acetate, employed in the production of plastics; cellulose acetate, used in making photographic films and textiles.

The most commonly used Polyatomic Ion is ***Nitrate (NO3-)*** : Primarily used in medicine, food preservation, and as fertilizers .

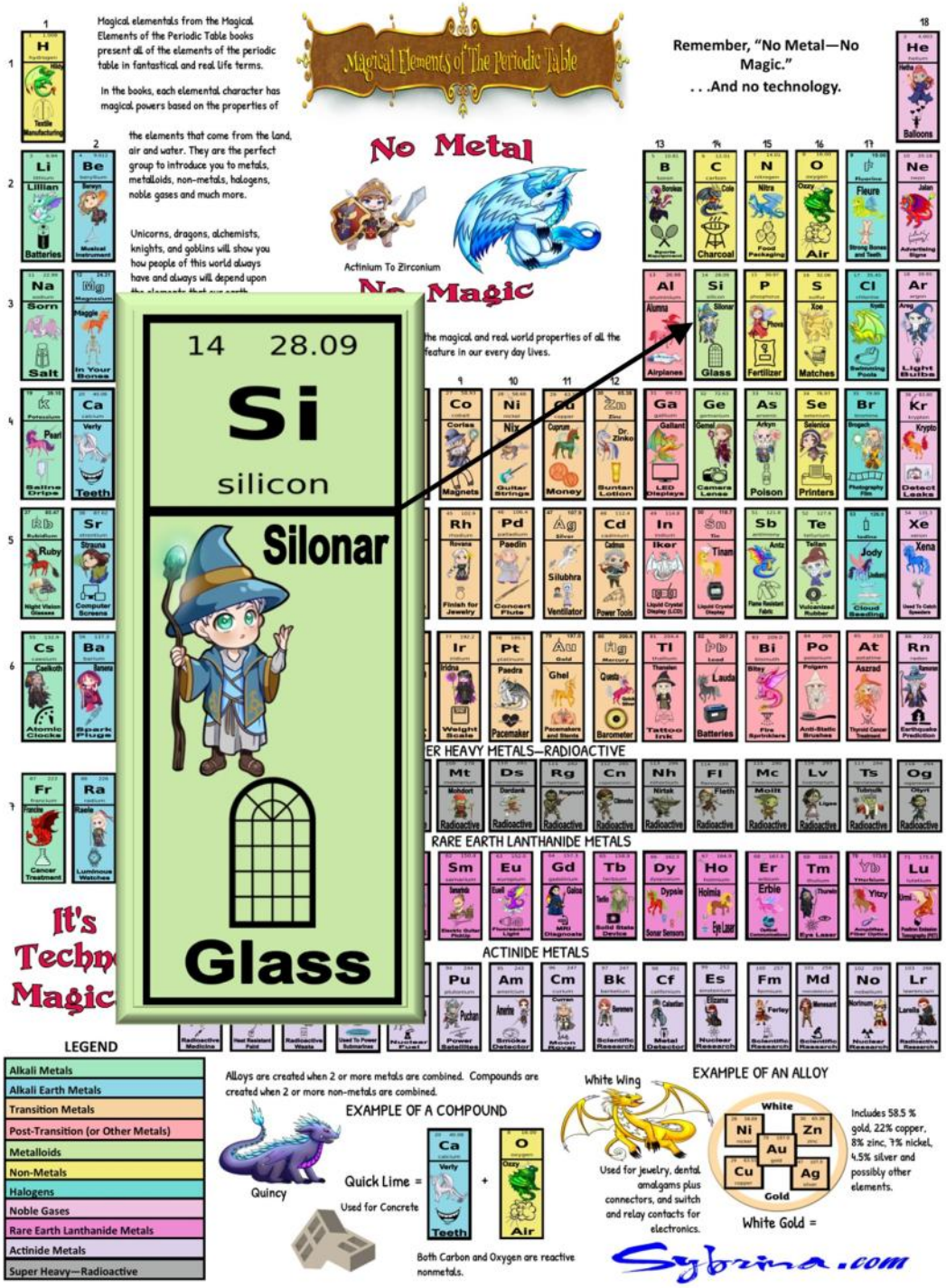
Silonar

The Wizard With
The Silicon Staff

Symbol: Si Atomic Number: 14 Atomic Mass: 28.09

Silicon resides in Group 14, Period 3 on the Periodic Table.

The atomic symbol is Si. Its Atomic Number is 14. Its Atomic Mass is 28.09.



Meet Silonar, The Wizard With The Silicon Tipped Staff

The road to Glassmere ran under a pale moon and through fields that glittered like polished tin. At the front of the small traveling party walked Silonar, a young wizard with a cherub-faced calm, silver-white hair, and emerald eyes that glowed with quiet intelligence. His layered robes of sky and steel blue shimmered faintly as he moved, and his gnarled staff — topped with a green-lit silicon crystal — pulsed softly in his left hand.

He looked like a boy at first glance. But anyone who watched him for long enough saw the truth: Silonar carried the patience of ages, the mind of a scholar, and the confidence of someone who had spent a lifetime studying the hidden laws beneath magic and matter. Behind him trudged Marek, a sword-bearing mercenary with a distrustful stare. And beside Marek walked Elia, a young tinkerer with grease on her fingers and a satchel full of tools.

"Are you certain this is the right road?" Marek asked. Silonar did not turn. "Very certain."

"You said that before."

"And I was correct before."

Marek grunted. "That's not the same as comforting."

Silonar smiled faintly. "Comfort is not the goal. Accuracy is."

Elia looked up at him. "You really can tell where things are just by looking at the air?"

"In some cases," Silonar said, "yes. The flow of energy around a place is often quite revealing."

"And machines?" she asked. His eyes brightened. "Especially machines."

That was one of the things Silonar never tired of explaining. Long ago, he had been trained in traditional wizardry by a long line of respected mages. But while others studied stars, stones, and spirits, Silonar became fascinated with something new: silicon, the strange element at the heart of glass, crystals, and modern technology.

Over time, he discovered a rare power he called "Silicon Manipulation". It let him influence electronic devices, computers, engines, and systems of metal and wire. He could speak to machines in his mind, sense how they were running, alter their function, and even make them perform magical effects. To Silonar, a computer was no less wondrous than a spellbook.

He once said, "Magic is simply chemistry that hasn't been properly documented yet."

Marek had replied, "That sounds dangerous."

"It often is," Silonar had answered.

When the village of Glassmere finally came into view, the party stopped. A black structure had risen in the center of town: part machine, part tower, part chapel. Thick cables crawled up its sides. Blue sparks ran across its iron ribs. The old bell tower had been transformed into something unnatural and alive.

Elia stared. "That wasn't there last week."

"No," said Silonar, "it wasn't."

Marek rested a hand on his sword. "That's never a good sign."

A cry went up from the village square. "You! Wizard!"

A farmer hurried toward them. "Master Vey built that thing. He promised us engines, pumps, and light. But now the tower hums at night, the animals panic, and the children hear voices from inside it."

Silonar's expression grew serious. "Where is the builder now?" The farmer pointed toward the chapel steps. There stood Master Vey, a tall man in black and copper robes, a cruel smile stretched beneath his narrow beard.

At the sight of Silonar, Vey laughed. "So the famous Silonar arrives at last."

Silonar gave a courteous bow. "And you have built something dangerous."

"I have built the future," Vey said. "While you hide behind your precious ethics, I intend to command every device, every circuit, every machine in this town. I will rule through power."

Enjoy This Coloring Page Featuring Silonar

The Alchemical Wizard With The Silicon Tipped Staff

Magical Elements of The Periodic Table

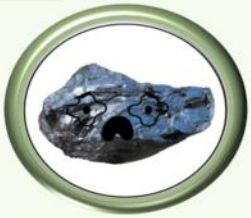
Create Your Own Magical Wizard Elemental

Silonar — The Wizard With The Silicon Staff

Symbol: Si Atomic Number: 14 Atomic Mass: 28.09

Magical Elemental Symbol

14 28.09
Si
silicon



Silicon is a Metalloid

Extracted from Quartz and Silica

Silonar's Magical Abilities

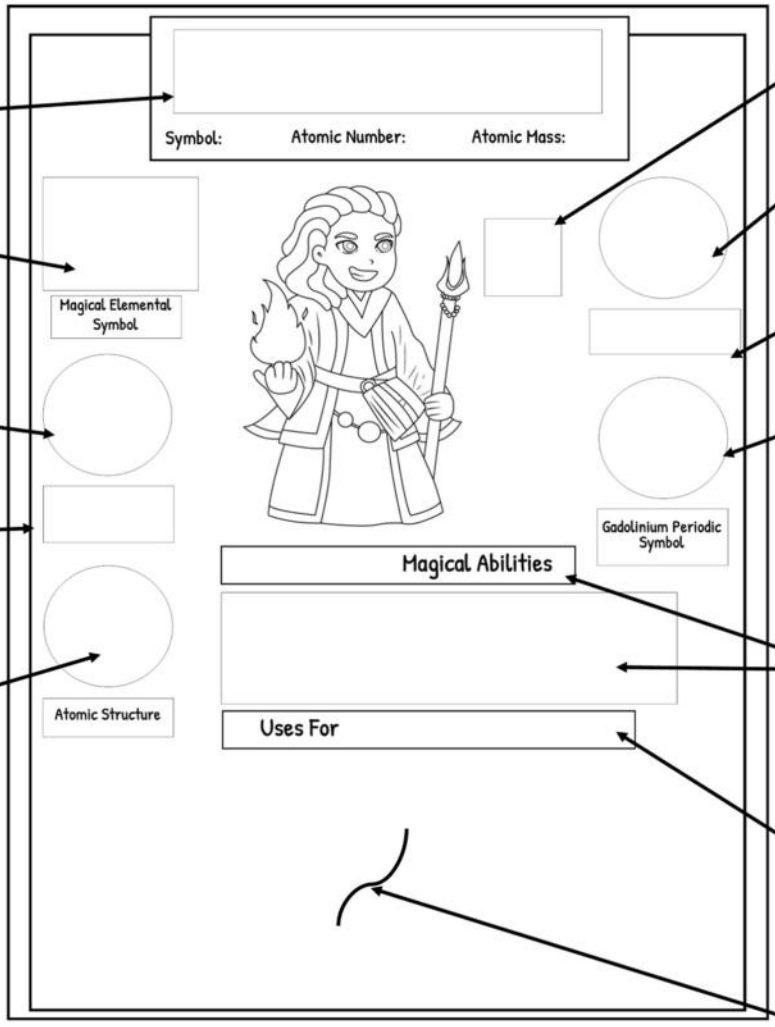
Silonar can control and use electronic stuff like computers and machines with his mind. He calls it "Silicon Manipulation". He can change how things work, talk to machines in his head, and make tech gadgets do magical things. He's like a wizard of electronics, mixing ancient magic tricks with modern science.

Silicon Periodic Symbol

Atomic Structure

Magical Elements of The Periodic Table

Students may either use a program like power point to cut and paste clip art into a Magical Wizard Elemental Blank or, if they wish, they may draw everything themselves.



Draw the periodic Symbol for this Element

Place your dragon name and related element here

Draw a cute cartoon picture representing ore or other source of extraction

Draw a Magical ClanCrest Symbol. Represent the elemental magic.

List what this element is mined or extracted From

Show a cute cartoon picture of the element.

Create a tag containing the element symbol, atomic number, name of element plus a picture of a use for the element.

List the element type here. Ie: Rare Earth, Halogen, Etc.

Show the number of electrons in the atomic structure

Personalize this Magical Elemental Dragon List 1 or 2 of their magical abilities that are based on the properties of the element.

Design a border that represents the element properties.

Show element Name

Draw or place clip art pictures here representing use of element

Magical Wizard Elemental Research Sheet

Before starting your Magical Wizard Elemental graphics page, do some research on your chosen element.

Name of Magical Wizard:	
Wizards's Magic Power Based on the Element's Properties:	
Magical Elemental Symbol:	
Element Name:	
Element Symbol:	
Atomic Number:	
Atomic Mass:	
What year and where was this Element discovered?	
Who discovered this Element?	
Element Group:	
Element Period:	
Element Family Name:	
State of Element At Room Temperature:	
What is Element Mined or Extracted From?	
Is Element Magnetic?	
Does Element Conduct Electricity?	
Where is the Element commonly found in Nature?	
What is 1 alloy of the Element? How used?	
What is 1 compound of the Element? How used?	
Name the most common use for this Element:	
Name a little known use for this Element:	
Name one more use for this Element:	
Interesting and Fun Facts:	

I hope you enjoyed this sample

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Sybrina Publishing

If you love the book,

please spread the word to teachers,

home schoolers and anyone else who might enjoy it.