14.1 The Elements

Chemistry

Summarize main points from each video.

Video Title / topic _____

Video Title / topic _____

Video Title / topic _____

Topic Introduction

Summarize your understanding of each paragraph.

Element(s) often refers to the elements of chemistry, each a pure substance of one type of atom, which together make up all the matter in the universe. The periodic table of elements displays all of the elements and their defining attributes.

A chemical element is a species of atoms having the same number of protons in their atomic nuclei (i.e. the same atomic number, or Z). There are 118 elements that have been identified, of which the first 94 occur naturally on Earth. The remaining 24 are synthetic elements.

When different elements are chemically combined, with the atoms held together by chemical bonds, they form chemical compounds. Only a minority of elements are found uncombined as relatively pure minerals.

Common native elements are copper, silver, gold, carbon (as coal, graphite, or diamonds), and sulfur. All but a few of the most inert elements, such as noble gases and noble metals, are usually found on Earth in chemically combined form, as chemical compounds.

Read/Summarize Text

1. **Read the passage.**
2. **Underline key expressions in each sentence.**
3. **Re-write each word (or expression) you underlined.**
4. **Summarize the passage.**

Where can I find pure elements around my house?

1

2

Q. My chemistry teacher is having us put together an "Element Collection" and I want to be able to make a good one. I've already got carbon from burning sugar, and my teacher said that aluminum foil is pure aluminum. He also said gold-plated or silver plated objects count as gold or silver. But he said that you can't bring him a cup of water and say "Here's pure hydrogen mixed with pure oxygen." Any suggestions of easy to find pure elements?

A. A piece of iron, not steel; A neon lamp; A piece of copper; A piece of zinc; A thermometer containing mercury; A piece of lead (the metal, not graphite from a pencil).

https://answers.yahoo.com

Re-write words you underlined

3

_____ _____ _____

_____ _____ _____

Using a complete sentence, summarize or rephrase the passage

4

Read Text for Comprehension

Read this article for deeper understanding. No summary is required, although you may want to circle, underline, or mark key ideas and words.

ACI Alloys works with all non-radioactive metals in the periodic table, as well as their alloys and ceramics. Due to the nearly infinite number of possible combinations, we include here only the MSDS sheets for the pure elements. For questions involving properties of alloys or ceramics, please contact us.

ACI ALLOYS understands the importance of quality for both R&D and production materials. We have developed an in-house process to ensure that high quality, reproducible products are made for even the most unusual alloy combinations.

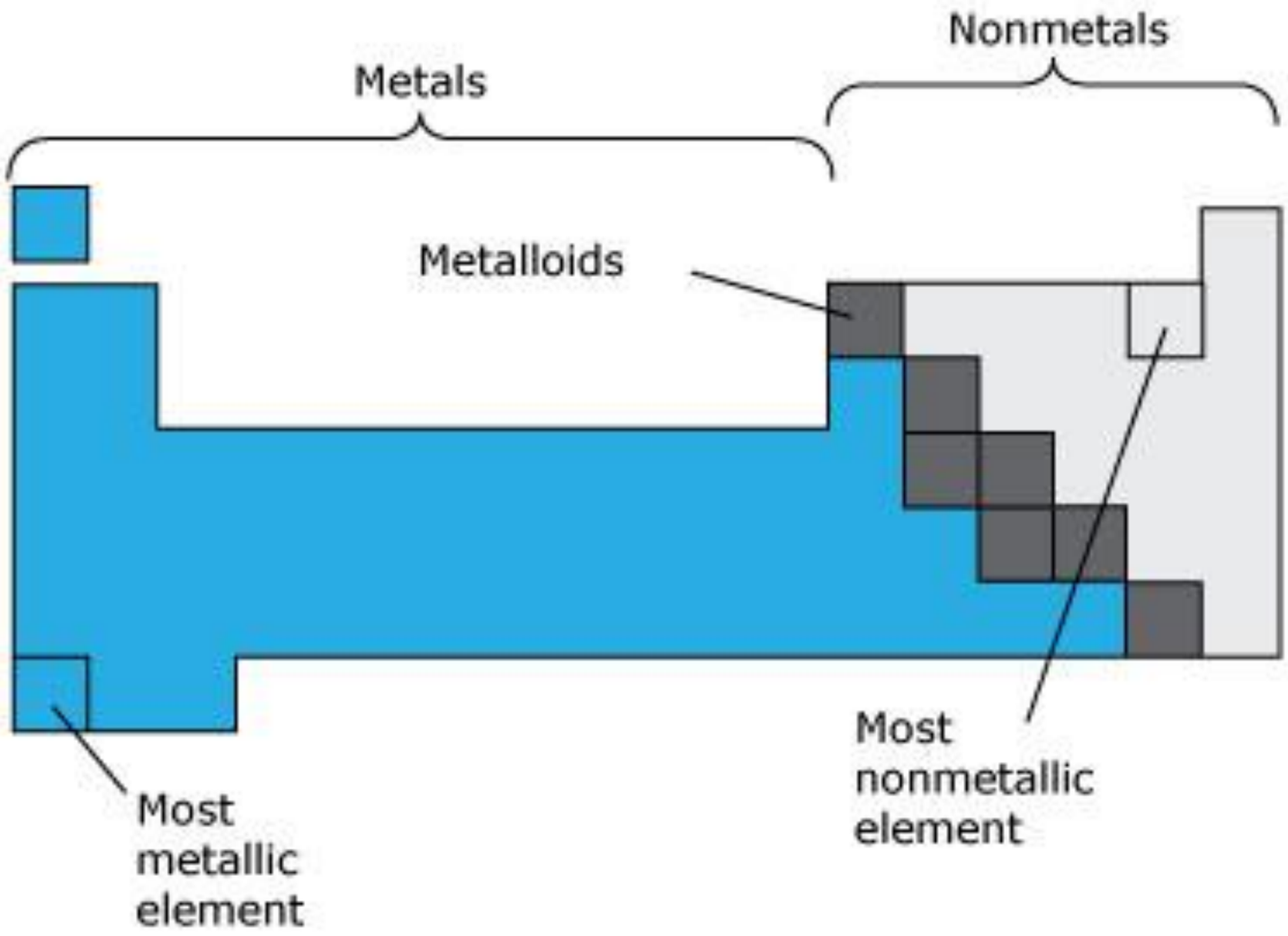
Here are some recent rare-earth sputtering targets we have made:

- Cerium and cerium alloys (cerium-gadolidium, cerium-samarium)
- Dysprosium and dysprosium alloys (iron-dysprosium-terbium)
- Erbium and erbium alloys (gadolinium-erbium-silicon)
- Europium and europium alloys (aluminum-barium-europium, barium-europium)
- Gadolinium and gadolidium alloys (cobalt-gadolinium, iron-gadolinium, gadolinium-terbium)
- Holmium and holmium alloys (holmium-zirconium)
- Lanthanum and lanthanum alloys (lanthanum-nickel)
- Lutetium and lutetium alloys (gold-lutetium, silver-lutetium, tin-silver-lutetium)
- Neodymium and neodymium alloys (neodymium-iron-boron, aluminum-neodymium)
- Praeseodymium and praeseodymium alloys (praeseodymium-iron-boron)
- Samarium and samarium alloys (samarium-cobalt, silver-samarium, samarium-iron)
- Scandium and scandium alloys (aluminum-scandium, chromium-scandium, nickel-scandium, scandium-titanium)

http://www.acialloys.com

Draw Illustration

Copy and Label the Illustration in the Space Provided



 www.sciencelearn.org.nz

Draw (Copy) the Illustration Here

Interpret a Graph

Write the title of the graph _____

Circle the type of chart this represents

Bar Chart *Line Chart* *Pie Chart* *Other*

If applicable,

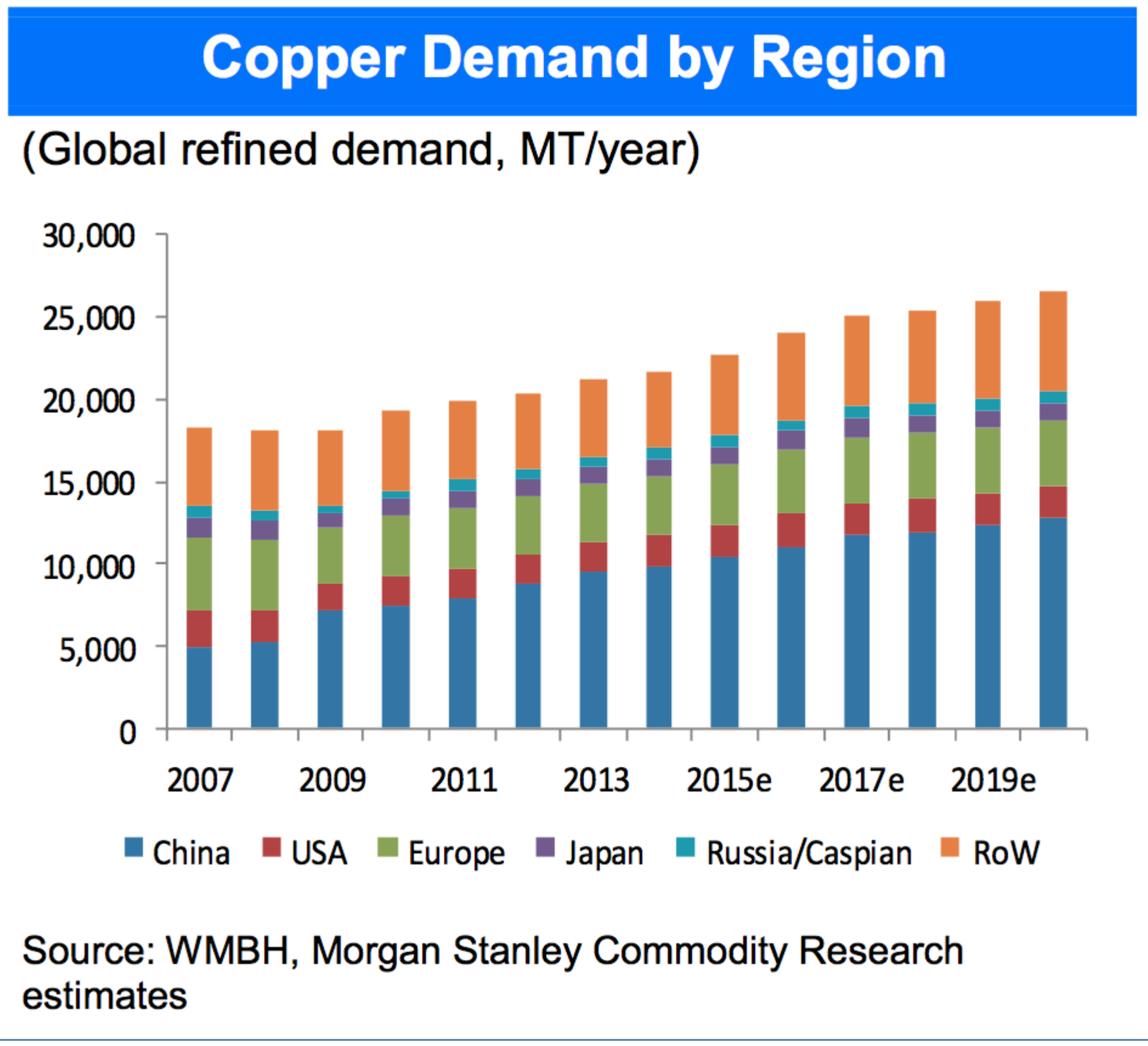
What does the X-axis represent _____

What does the Y-axis imply _____

Summarize what this graph represents or conveys

_____

http://www.businessinsider.com



Show-Off Your Smarts!

Instructions

- Complete as an individual or small group.
- Discuss your ideas/answers/responses in a small group.
- Select one person to present your responses to the class.

Q1. How can this information be applied to a young-person's life?

Q2. How does this information apply to (or impact) communities?

Q3. When do scientists need to apply this information? How?

Q4. How would a person from 100 years ago view this information?

Q5. How does this topic connect to other science topics or math?

Write down at least three words introduced or covered by this topic.

1.
2.
3.
4.
5.
6.

Make a Poster

In the space provided here, create/draw a poster which conveys the concepts you have learned on this topic.