THE LIFE AND TIMES OF A NO. 2 PENCIL

Overview

In this lesson, students examine a common wooden pencil. They list the resources used in its production, classify those resources by the factors of production and discuss alternative ways to produce a pencil. Discussion can also focus on how the resources are selected, the decisions that are involved in production and how the production is an example of global interdependence.

Student Page: I Am a Pencil provides students with examples of the factors of production and their relationships to each other. Teacher Page: I, Pencil provides a more detailed description of the production process and information to answer many student questions.

Objectives

The students will:

- Identify the factors of production used to produce a common wooden pencil. (Ohio Grade Six Citizenship Learning Outcome #12)
- Explain how the factors of production are used in the production process. (Ohio Grade Six Citizenship Learning Outcome #12)
- Suggest alternative uses for the factors of production used to produce a pencil. (Ohio Grade Six Citizenship Learning Outcome #12)
- Explain how the production of a pencil is an example of global interdependence. (Ohio Grade Six Citizenship Learning Outcome #15)
- Apply understanding of the factors of production to write a first-person description of the resources used to produce a consumer good. (Ohio Grade Six Reading Learning Outcomes #10, #12 and #16) (Ohio Grade Six Writing Learning Outcomes a-h)

Student Learning Statements

- Factors of production (land, labor, capital and entrepreneurship) are resources used to produce goods and services. These are also called “productive resources.”

- Land resources are found in nature. Examples are soil, water, plants and minerals.

- Labor resources are the skills, talent and knowledge provided by people.

- Capital resources are goods used to produce goods and services for consumers.

- Entrepreneurial resources consist of the decisions people make about how to use resources to produce goods and services.

- People become interdependent as they rely on others for resources or the goods and services used to satisfy their wants.
Vocabulary

- **Capital**: Goods produced and used to produce other goods and services (physical capital, not financial capital).
- **Cost**: What one gives up when deciding to do something. Referring to production, a payment for productive resources.
- **Entrepreneur**: A person who is an innovator and takes the financial risk of organizing resources for production of goods or services in order to make a profit.
- **Entrepreneurship**: The resource (factor of production) provided by people who organize other productive resources to produce goods and services.
- **Factors of Production**: Land resources (natural), labor resources (human), capital goods (physical capital) or entrepreneurial resources available to produce goods and services. Also called “productive resources.”
- **Interdependence**: When people, firms or regions depend on each other for production or satisfaction of wants because of specialization or division of labor.
- **Labor**: Human effort used to produce goods and services. Also called “human resources,” “human capital” or “skills and knowledge.”
- **Land**: Resources found in nature. Resources that are present without human intervention. Also called “natural resources.”
- **Producer**: A person or business using factors of production to produce goods and services.
- **Production**: The act of using resources to make goods and services.
- **Resources**: The factors of production, or resources, for producing goods or services.
- **Substitutes**: Two or more goods or services that can satisfy the same want.

Materials

- Plain wooden pencils (one per work group)
- Teacher Page: Factors of Production (transparency)
- Teacher Page: I, Pencil
- Student Page: Resources for a Pencil (transparency)
- Globe, world map or Student Page: World Map (transparency)
Factors of Production:
Land resources (natural), labor resources (human), capital goods (physical capital) or entrepreneurial resources available to produce goods and services. Also called “productive resources.”

Resources:
The factors of production, or resources, for producing goods or services.

TEACHER TIP:
Students will probably first mention the land resources, such as wood, metal or other natural resources. Remind them that the production of the desk also requires labor resources, such as sawing, fabricating and painting; capital resources, such as paint brushes, saws and other tools; and entrepreneurial resources, such as the idea to make the desk in the first place or the decision to use these particular materials to produce it.

Producing Ohio Video Connections

Factors of Production (Southwest Local Schools)
Markets & Prices (Ohio Farm Bureau, the Ohio corn industry)

Internet Resources

http://www.pencilpages.com/
http://www.fee.org/about/readbio.html
http://www.pencils.com/
http://www.faber-castell.com/
http://www.quia.com/jw/13122.html
http://vcsd.neric.org/distancelearning/Ch29notes/tsld002.htm
http://www.amosweb.com/cgi-bin/gls_dsp.pl?term=factors+of+production

Prepare

Duplicate Student Page: Resources for a Pencil (one per work group).
Duplicate Student Page: I Am a Pencil (one per student).
Assign students to work groups (three to four students).

Introduce

1. Introduce students to the four “factors of production” (types of “resources”) using the transparency Teacher Page: Factors of Production.

   Define the factors of production and provide examples of resources that are included in each of the four categories. Students should begin the lesson with a basic understanding of these vocabulary terms:
   - Capital
   - Entrepreneurship
   - Factors of Production
   - Labor
   - Land
   - Producer
   - Production
   - Resources

2. Ask the class to identify the resources that are used in the production of a common object in the classroom, such as a desk or a table.

Teach

3. Distribute one pencil to each work group.
4. Assign the following tasks to the members of each work group:
   • Recorder (records the group’s responses)
   • Reporter (reports the group’s findings)
   • Investigator (the remaining group members, who identify the resources)

5. **Step 1:** Each group should brainstorm all of the resources that go into the “production” of a common wooden pencil. Students should examine their pencils very carefully and think about all four types of factors of production during this exercise.

   Suggest that the students be as specific as possible about the resources they list, identifying the specific skills, tools or decisions involved. Allow enough time for all groups to suggest a list of 12 to 15 resources.

   Using Student Page: Resources for a Pencil, each Recorder will list his or her work group’s responses.

6. **Step 1:** Ask each Reporter to tell about one of the resources identified by his or her group. As Reporters mention each resource, take a little time to expand on each suggestion and which type of factor of production it represents.

   Refer to Teacher Page: I, Pencil or Internet Resources for details about the production of pencils, discussion ideas and answers to the questions the students may ask.

   If appropriate, a brief discussion can identify where the resources named are found. This may relate the lesson to geography concepts. Continue the reporting until each group has mentioned at least one resource and until at least one example of each factor has been discussed.

7. **Step 2:** The next task for each group is to go back to its Student Page: Resources for a Pencil list and identify each of the resources named as “land,” “labor,” “capital” or “entrepreneurship” factors of production. Students put a check mark in the appropriate column for each of their resources. Each work group then reports on the factors that it has identified. There may be questions about some resources. Refer to the transparency Teacher Page: Factors of Production for definitions.

   **Land:** Resources found in nature. Resources that are present without human intervention. Also called “natural resources.”

   **Labor:** Human effort used to produce goods and services. Also called “human resources,” “human capital” or “skills and knowledge.”

   **Capital:** Goods produced and used to produce other goods and services (physical capital, not financial capital).
Entrepreneurship: The resource (factor of production) provided by people who organize other productive resources to produce goods and services.

8. Again referring to the Student Page: Resources for a Pencil lists from the brainstorming sessions, ask the groups to think about any resources on their lists that can be replaced with a different resource. For example, if wood was not available, what resource could replace it (plastic, metal, etc.)? Suggest other ways to produce a writing instrument (ballpoint pens, nylon tip pens, markers, crayons, chalk, computer printers).

Explain that these alternative resources may be “substitutes” for the resources used in a pencil. A substitute is another resource that satisfies the same want or can be used in the same way.

Discuss

9. What happens when a resource used to produce something becomes too expensive?
   Generally, “producers” seek substitutes. For example: Cedar makes very good pencils, but is very scarce and expensive.

   To keep the price down, producers have sought other types of wood to make pencils. People do not want to pay a high price for a simple pencil. Remember, the wood cannot be too soft or too hard. It must be the right kind of wood to produce pencils that consumers like.

10. Why is the part of the pencil that actually writes made from graphite, not lead?
   Students may or may not be aware that pencils were once made of lead, until the safety concerns about lead pencils became an issue. The government has restricted the use of lead to protect consumers.

   How does this substitute resource (graphite) affect the “cost” of pencils? If graphite costs more, the price will probably be higher.

   Other science or health examples affecting the production of a pencil:
   • To protect those who chew on their pencils, the paint on pencils cannot contain harmful ingredients.
   • Safety rules restrict how people can use machines in the pencil factory.
   • Those who supply the labor in the factory (workers) must be over a certain age so that it is safe for them to work with and around machinery.

11. Why do you think the producer decided to attach the eraser to the top of the pencil?
   This innovative idea made it easier to use a pencil and correct mistakes.

   What might we call the person who came up with the idea to use different resources to improve the product?
   An “entrepreneur.”
What is the difference between a No. 2 pencil and a No. 3 pencil?
The number identifies how hard the graphite is. The lower the number, the harder the graphite.

Why do people want No. 2 pencils?
No. 2 pencils can be used to take standardized tests on scan sheets.

Why do some pencils have six sides?
To make the pencil fit better into the hand of the user.

Why do some people pay more for designer pencils?
They like the design or want something different.

12. Referring to a globe, world map or Student Page: World Map (transparency), ask the students if they know where in the world people can find the resources to produce pencils. Use information from Teacher Page: I, Pencil for examples.

Do we rely on people from other areas of the United States or the world to find the resources required to produce pencils?
Yes. Some resources, such as graphite, are found in other countries.

13. Introduce the vocabulary term “interdependence.” Explain that when people rely on others for goods and services or the satisfaction of their wants, they are interdependent.

Ask students to give examples of other goods and services they use that are made from resources found in other countries. Explain to students that they are dependent on people from these other countries for the resources used to satisfy their wants.

Conclude


Extension activity: Ask each work group to choose one other good found in the classroom. Each group can write a brief story about that good, identifying the factors of production used to produce it. The story can be in the first person, similar to Student Page: I Am a Pencil (see Geography Connect activity). The groups then read or act out their stories to the class.

Assess

15. Using print, Internet or other resources, students can research a consumer product found in their homes and create visual displays that correctly identify the factors of production (types of resources) required to produce those goods.
Connect: Expanding the Learnings

GEOGRAPHY
This connecting activity helps students understand geographic interdependence among nations of the world by following the transportation routes of the land resources used to produce pencils.

Materials List
- Student Page: I Am a Pencil (one per student)
- World atlases, desk maps or globes
- World almanacs
- Student Page: World Map (one per student)

1. Students read Student Page: I Am a Pencil, highlighting all of the countries mentioned as they read.

2. Working in small groups, students make a chart listing each country highlighted and the land resource(s) found in that country that are used to produce pencils.

3. Groups identify the locations of the listed countries and label them on Student Page: World Map.

4. Using information from the world atlases, desk maps or globes, students trace the possible transportation routes from each country to a pencil factory in Wilkes-Barre, Pennsylvania.
   - Use only navigable water routes.
   - Sea routes must begin and end at major seaports.
   - Avoid mountain ranges, deserts or other land obstacles.
   - Note that primary land routes typically go through nearby major cities.

5. Indicate the type of transportation used for each route. Make sure that the transportation route selected is appropriate for the type of resource being moved.

6. Groups share their ideas for transportation routes and the best types of transportation for each resource.

7. Discuss how improving transportation routes improves trade and makes nations more interdependent.

Assess
8. Students select a consumer good produced in their area of Ohio. They identify the land resources used for production and other states or countries where those land resources can be found. Students draw a map of the transportation routes for those resources to a manufacturing facility in Ohio. Students should explain how those resources will be transported to Ohio.
LANGUAGE ARTS
There are a variety of children’s books on the production of goods or services. A few good examples: *Peanut Butter*, by Arlene Erlbach; *Soda Pop*, by Arlene Erlbach; *The Toothpaste Millionaire*, by Jean Merrill; *How Things Are Made*, by J. Cook; and *Steven Caney’s Book of Great Inventions*, by Steven Caney.

MATHEMATICS
Students can determine the distances between their hometown and the countries that produce goods they use or where the land resources are found for these goods. How far did a good have to travel to reach their homes?
Factors of Production

Factors of production, also called “productive resources,” are the resources used to produce the goods and services that we consume. All production requires the use of some amount of one or more of each of the following factors of production.

Production: The act of combining land, labor, capital and entrepreneurship resources to make goods and services.

LAND
Productive resources that occur in nature, such as water, soil, trees and minerals. Also called “natural resources.”

LABOR
The abilities, talents, training, skills and knowledge—the “human capital” of people—that contribute to the production of goods and services. Labor can be either physical or mental efforts. Also called “human resources.”

CAPITAL
Productive resources—including: machinery, tools, factories, stores, vehicles, etc.—made by past human efforts that are used to produce goods or services (physical capital, not financial capital).

ENTREPRENEURSHIP
The resource provided by profit-seeking decision makers who organize other productive resources and determine which economic activities to undertake and how they should be undertaken. The most common example is one who starts a business enterprise.
I, Pencil is an original essay by Leonard E. Read, founder of the Foundation for Economic Education.

I, Pencil was first published in 1958. It was reprinted in July 1992 in IMPRIMIS, the monthly journal of Hillsdale College, Hillsdale, Michigan. The essay’s purpose, then and now, is to illustrate through the story of a very simple, common product, how the signals of markets bring together the resources that are used to create the goods and services we take for granted every day. These words, in prose of the 1950s, show that markets are not mysteries, but the result of natural reactions to economic incentives and the desire of human beings to satisfy their wants.

The essay for students, I Am a Pencil, has been adapted and considerably shortened from Mr. Read’s work, using language that is more appropriate for inclusion in classroom materials.

I, Pencil

I am a lead pencil—the ordinary wooden pencil familiar to all boys and girls and adults who can read and write. (My official name is “Mongol 482.” My many ingredients are assembled, fabricated and finished by Eberhard Faber Pencil Company, Wilkes-Barre, Pennsylvania.)

Writing is both my vocation and my avocation; that’s all I do.

You may wonder why I should write a genealogy. Well, to begin with, my story is interesting. And, next, I am a mystery—more so than a tree or a sunset or even a flash of lightning. But, sadly, I am taken for granted by those who use me, as if I were a mere incident and without background. This supercilious attitude relegates me to the level of the commonplace. This is a species of the grievous error in which mankind cannot too long persist without peril. For, as a wise man, G.K. Chesterton, observed, “We are perishing for want of wonder, not for want of wonders.”

I, Pencil, simple though I appear to be, merit your wonder and awe, a claim I shall attempt to prove. In fact, if you can understand me—no, that’s too much to ask of anyone—if you can become aware of the miraculousness that I symbolize, you can help save the freedom mankind is so unhappily losing. I have a profound lesson to teach. And I can teach this lesson better than can an automobile or an airplane or a mechanical dishwasher because—well, because I am seemingly so simple.

Simple? Yet, not a single person on the face of this earth knows how to make me. This sounds fantastic, doesn’t it? Especially when you realize that there are about one and one-half billion of my kind produced in the United States each year.

Pick me up, and look me over. What do you see? Not much meets the eye—there’s some wood, lacquer, the printed labeling, graphite lead, a bit of metal and an eraser.
INNUMERABLE ANTECEDENTS

Just as you cannot trace your family tree back very far, so is it impossible for me to name and explain all my antecedents. But I would like to suggest enough of them to impress upon you the richness and complexity of my background.

My family tree begins with what in fact is a tree, a cedar of straight grain that grows in Northern California and Oregon. Now contemplate all the saws and trucks and rope and the countless other gear used in harvesting and carting the cedar logs to the railroad siding. Think of all the persons and the numberless skills that went into their fabrication: the mining of ore; the making of steel and its refinement into saws, axes, motors; the growing of hemp and bringing it through all the stages to heavy and strong rope; the logging camps with their beds and mess halls, the cookery and the raising of all of the foods. Why, untold thousands of persons had a hand in every cup of coffee the loggers drink!

The logs are shipped to a mill in San Leandro, California. Can you imagine the individuals who made flat cars and rails and railroad engines and who construct and install the communication systems incidental thereto? These legions are among my antecedents.

Consider the millwork in San Leandro. The cedar logs are cut into small, pencil-length slats less than one-fourth of an inch in thickness. These are kiln-dried and then tinted for the same reason women put rouge on their faces. People prefer that I look pretty, not a pallid white. The slats are waxed and kiln-dried again. How many skills went into supplying the heat, the light and power, the belts, motors and all the other things a mill requires? Are sweepers in the mill among my ancestors? Yes, and also included are the men who poured the concrete for the dam of a Pacific Gas & Electric Company hydroplant, which supplies the mill’s power. And don’t overlook the ancestors present and distant who have a hand in transporting 60 carloads of slats across the nation from California to Wilkes-Barre.

COMPLICATED MACHINERY

Once in the pencil factory $4,000,000 in machinery and building, all capital accumulated by thrifty and saving parents of mine—each slat is given eight grooves by a complex machine, after which another machine lays leads in every other slat, applies glue and places another slat atop—a lead sandwich, so to speak. Seven brothers and I are mechanically carved from this “wood-clinched” sandwich.

My “lead” itself—it contains no lead at all—is complex. The graphite is mined in Ceylon. Consider the miners and those who make their many tools and the makers of the paper sacks in which the graphite is shipped and those who make the string that ties the sacks and those who put them aboard ships and those who make the ships. Even the lighthouse keepers along the way assisted in my birth—and the harbor pilots.
The graphite is mixed with clay from Mississippi in which ammonium hydroxide is used in the refining process. Then wetting agents are added such as sulfonated tallow—animal fats chemically reacted with sulfuric acid. After passing through numerous machines, the mixture finally appears as endless extrusions—as from a sausage grinder—cut to size, dried and baked for several hours at 1,850 degrees Fahrenheit. To increase their strength and smoothness, the leads are then treated with a hot mixture, which includes candililla wax from Mexico, paraffin wax and hydrogenated natural fats.

My cedar receives six coats of lacquer. Do you know all of the ingredients of lacquer? Who would think that the growers of castor beans and the refiners of castor oil are a part of it? They are. Why, even the processes by which the lacquer is made a beautiful yellow involves the skills of more persons than one can enumerate!

Observe the labeling. That’s a film formed by applying heat to carbon black mixed with resins. How do you make resins and what, pray, is carbon black?

My bit of metal—the ferrule—is brass. Think of all the persons who mine zinc and copper and those who have the skills to make shiny sheet brass from these products of nature. Those black rings on my ferrule are black nickel. What is black nickel, and how is it applied? The complete story of why the center of my ferrule has no black nickel on it would take pages to explain.

Then there’s my crowning glory, inelegantly referred to in the trade as “the plug,” the part man uses to erase the errors he makes with me. An ingredient called “fastice” is what does the erasing. It is a rubber-like product made by reacting rape seed oil from the Dutch East Indies with sulfur chloride. Rubber, contrary to the common notion, is only for binding purposes. Then, too, there are numerous vulcanizing and accelerating agents. The pumice comes from Italy, and the pigment which gives “the plug” its color is cadmium sulfide.

**VAST WEB OF KNOW-HOW**

Does anyone wish to challenge my earlier assertion that no single person on the face of this earth knows how to make me?

Actually, millions of human beings have had a hand in my creation, no one of whom even knows more than a very few of the others. Now, you may say that I go too far in relating the picker of a toffee berry in far-off Brazil and food growers elsewhere to my creation; that this is an extreme position. I shall stand by my claim. There isn’t a single person in all these millions, including the president of the pencil company, who contributes more than a tiny, infinitesimal bit of know-how. From the standpoint of know-how, the only difference between the miner of graphite in Ceylon and the logger in Oregon is in the type of know-how. Neither the miner nor the logger can be dispensed with, any more than the chemist at the factory or the worker in the oil field—paraffin being a by-product of petroleum.

Here is an astounding fact: Neither the worker in the oil field nor the chemist nor the digger of graphite or clay nor anyone who mans or makes the ships or trains or trucks nor the one who runs the machine that does the knurling on my bit of
metal nor the president of the company performs his singular task because he wants me.

Each one wants me less, perhaps, than does a child in the first grade. Indeed, there are some among this vast multitude who never saw a pencil nor would they know how to use one. Their motivation is other than me. Perhaps it is something like this: Each of these millions sees that he can thus exchange his tiny know-how for the goods and services he needs or wants. I may or may not be among these items.

**NO HUMAN MASTERMIND**

There is a fact still more astounding: The absence of a mastermind, of anyone dictating or forcibly directing these countless actions that bring me into being. No trace of such a person can be found. Instead, we find the Scottish economist and moral philosopher Adam Smith's famous “Invisible Hand” at work in the marketplace. This is the mystery to which I earlier referred.

It has been said that “only God can make a tree.” Why do we agree with this? Isn’t it because we realize that we ourselves could not make one? Indeed, can we even describe a tree? We cannot, except in superficial terms. We can say, for instance, that a certain molecular configuration manifests itself as a tree. But what mind is there among men that could even record, let alone direct, the constant changes in molecules that transpire in the life span of a tree? Such a feat is utterly unthinkable!

I, Pencil, am a complex combination of miracles: a tree, zinc, copper, graphite and so on. But to these miracles which manifest themselves in nature an even more extraordinary miracle has been added: the configuration of creative human energies—millions of tiny bits of know-how configuring naturally and spontaneously in response to human necessity and desire and in the absence of any human master-minding! Since only God can make a tree, I insist that only God could make me. Man can no more direct millions of bits of know-how so as to bring a pencil into being than he can put molecules together to create a tree.

That’s what I meant when I wrote earlier, “If you can become aware of the miraculousness that I symbolize, you can help save the freedom mankind is so unhappily losing.” For, if one is aware that these bits of know-how will naturally, yes, automatically, arrange themselves into creative and productive patterns in response to human necessity and demand—that is, in the absence of governmental or any other coercive master-minding—then one will possess an absolutely essential ingredient for freedom: a faith in free men. Freedom is impossible without this faith.

Once government has had a monopoly on a creative lesson—the delivery of the mail, for instance—most individuals will believe that the mail could not be efficiently delivered by men acting freely. And here is the reason: Each one acknowledges that he himself doesn’t know how to do all the things involved in mail delivery. He also recognizes that no other individual could. These assumptions are correct. No individual possesses enough know-how to perform a nation’s mail delivery any more than any individual possesses enough know-how to make a pencil. In the
absence of a faith in free men—unaware that millions of tiny kinds of know-how would naturally and miraculously form and cooperate to satisfy this necessity—the individual cannot help but reach the erroneous conclusion that the mail can be delivered only by governmental master-minding.

**TESTIMONY GALORE**

If I, Pencil, were the only item that could offer testimony on what men can accomplish when free to try, then those with little faith would have a fair case. However, there is testimony galore; it’s all about us on every hand. Mail delivery is exceedingly simple when compared, for instance, to the making of an automobile or a calculating machine or a grain combine or a machine—or to tens of thousands of other things.

Delivery? Why, in this age where men have been left free to try, they deliver the human voice around the world in less than one second; they deliver an event visually and in motion to any person’s home when it is happening; they deliver 150 passengers from Seattle to Baltimore in less than four hours; they deliver gas from Texas to one’s range or furnace in New York at unbelievably low rates and without subsidy; they deliver each four pounds of oil from the Persian Gulf to our Eastern Seaboard—halfway around the world—for less money than the government charges for delivering a one-ounce letter across the street! [Editor’s note: Some things have changed since this essay ran in 1958 and 1983.]

**LEAVE MEN FREE**

The lesson I have to teach is this: Leave all creative energies uninhibited. Merely organize society to act in harmony with this lesson. Let society’s legal apparatus remove all obstacles the best it can. Permit creative know-how to freely flow. Have faith that free men will respond to the “Invisible Hand.” This faith will be confirmed. I, Pencil, seemingly simple though I am, offer the miracle of my creation as testimony that this is a practical faith, as practical as the sun, the rain, a cedar tree and the good earth.

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I Am a Pencil

Hi there! I am a pencil. You can use me to do your schoolwork, write a note to your parent, fill out a contest entry form or a million other things. I am a relative of a pen, marker, crayon and chalk. You probably first used me during your first year in school. Maybe earlier. You probably think you know all about me. Do you know what it takes to make me?

What you really need to make me is something called graphite. It’s that black stuff in my middle. Without it, the rest of me wouldn’t be worth much. My graphite was mined in the country of Sri Lanka (on the island of Ceylon). Mining graphite is hard work and takes a lot of tools. My graphite is mixed with clay to hold it together. The graphite, clay, waxes and other ingredients go into a machine that looks like a sausage grinder, and out comes a long, thin strip that is baked at a very high temperature.

Holding onto my graphite would be very messy, so someone came up with the great idea to surround my graphite with wood. That makes me more comfortable to hold and a lot easier to sharpen. My wood is very interesting. If it is too soft, I would break. If it is too hard, I would be difficult to sharpen. It takes just the right wood to make me. Cedar is the best. Cedar trees grow very straight. I also smell a little nicer when I am made from cedar. My cedar comes from Northern California or Oregon. The climate and land in these states are just right for trees to grow. I would like to meet the person who discovered that cedar works so well.

It takes all kinds of tools to cut the trees, haul them to the mill, cut them into long strips, smooth them and make me into the right shape. My wooden shell is really a whole bunch of thin strips glued together. That makes me stronger.

Most of the time I am painted yellow. Some people like me in different colors or designs. Personally, I like bright colors and cartoon characters. But, that makes me cost more. One thing I don’t like is when people chew on me. I get all bumpy and ugly. I don’t think I taste very good, but, somehow, chewing on me helps people think better about answers to questions. I don’t want to hurt anyone, so I make sure that my lacquer (my “coat”) is made of chemicals that are not harmful. There is even a little caster oil in my lacquer. Because of that, part of me could be used to make medicine. Of course, my printing is made from a different color and pressed very hard onto my side.

Most of the time, I get to wear a little hat. You probably know this as my eraser. The people that make me call it “the plug.” Back in the good old days, my eraser might have been made from rubber. But, with the wonders of science, my plug is made up of all kinds of ingredients, including “fastice,” which is made from seeds.
grown in the Dutch East Indies; pumice from Italy; a little rubber; and lots of other chemicals. It’s the fastice that actually removes the graphite from the paper. Somebody really had a good idea when they attached my plug to the top of me with a round piece of metal. That piece of metal is called a “ferrule.” It holds my eraser on and can be made from brass or aluminum. Did you know that brass is made from copper and zinc? Those metals are found right here in the good old U.S.A. Sometimes I have rings in my ferrule made with a press. Remember, I like to be a little fancy.

I hate to even think about the cost of the machinery that it takes to put me together. It is all found in a big factory with a lot of trucks going in and out of the gates. Some trucks take the raw materials into the factory and some take pencils out to the stores. Somebody even has to build the roads to get me to the market and the stores to display me. It is a wonder that I have such a low price. Maybe that’s because there are so many of me.

What’s even more amazing is that all of those resources from all over the world end up in one place, and here I am!
Resources for a Pencil

Names:

Step 1: List the resources used to produce a pencil in the first column, labeled “Resource.”

Step 2: Put a check mark in the column for each resource to indicate which factor of production category is the correct category for that resource.

<table>
<thead>
<tr>
<th>RESOURCE</th>
<th>LAND</th>
<th>LABOR</th>
<th>CAPITAL</th>
<th>ENTREPRENEURSHIP</th>
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