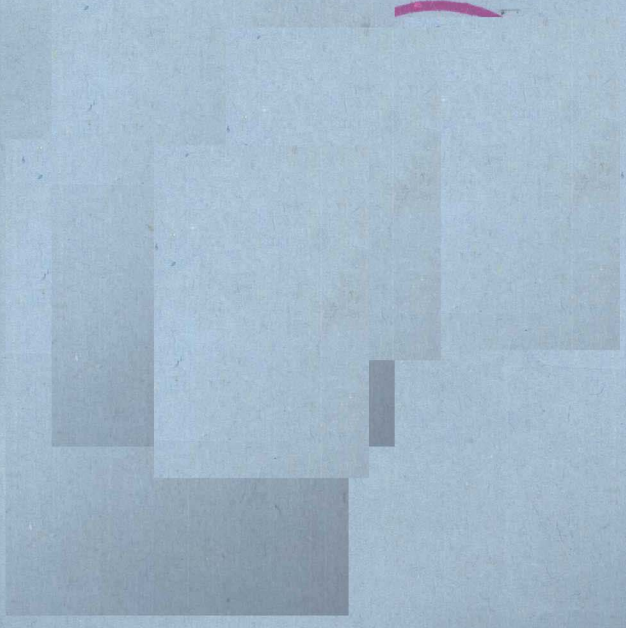
Mastering Reading

Learning About Manufacturing

Book 3



Mastering Reading

Learning About Manufacturing Book 3

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Delmar Occupational Learning System®

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TO THE LEARNER

Welcome to ***Mastering Reading: Learning About Manufacturing, Book 3.*** All the books in the manufacturing series are written with you, the adult learner, in mind. As you know, having good reading skills is very important in today's world. With good reading skills, you have a much better chance of getting the kind of job you want. Good reading skills may also let you move ahead in the job you already have. Reading can teach you new and interesting things about the world in which you live.

The book you are about to use will improve your reading skills, and at the same time, you will learn something about the manufacturing business.

Book 3 is made up of 20 lessons. You can look at the **Table of Contents** to see what they are about. The first page of each lesson tells you something about the lesson and then asks you some questions. These questions have no right or wrong answers. Examples of questions are, "What kinds of manufactured products do you have at home?" and "What kind of precautions can workers take to keep accidents from happening?" These questions let you look at and think about some of the things that you have already learned in your life. That way, the lesson will make more sense to you. Some of you reading this book will be in a class with other students. If so, your instructor will probably have you talk about these questions as a class. If you are working alone with a tutor, you can discuss your ideas with the tutor.

Each lesson has two pages of reading. Most of these readings are about manufacturing matters. Some others are about cleanliness, safety, teamwork, and personal care. All of them will be useful to you if you decide to learn more about manufacturing. As you read, you will notice that some words are in **boldface**. The bold-faced words are defined in the **Glossary** in the back of the book. The Glossary tells you what each bold-faced word means. After you read the meaning, you will find one or two sentences using that word.

After each reading, you will find three pages or so of exercises that ask questions based on the reading or on your own experience in life. There are two kinds of exercises in each lesson:

- one Review exercise
- two or more Practice exercises

Answers for all the Review and Practice exercises are in the back of the book in the **Answer Key**. You can find the Answer Key just before the Glossary. The Answer Key lets you check your answers and correct them if you need to.

The Review questions have three possible answers to choose from. To find the right answers, you may want to go back and do the reading again. You will probably discuss your answers with people in your class and with your teacher. The first Review question in each lesson is answered for you.

There are several different kinds of Practice exercises. Some exercise questions have just one right answer. Others have more than one answer. These types of Practice exercises will have the words: "More than one answer is possible. Check with your instructor or tutor." With such exercises, each learner might have a different answer, but all those answers would be correct. For example, the question "What jobs are interesting to you?" would have several different answers. But each answer would be correct for the person giving it.

When you have read ***Mastering Reading: Learning About Manufacturing, Book 3*** you may wish to continue with ***Mastering Reading: Learning About Manufacturing, Book 4***. This book will give you more useful information about manufacturing and what it's like to be a manufacturing worker. If you think that you may want a career in manufacturing, Books 3 and 4 will be useful to you. They describe how the field works and what some of the jobs in manufacturing are about.

Some adult learners reading these books will want to train to get a job in manufacturing. Others of you will want to read the books to learn how to read better and to know more about manufacturing. Whatever reason you have, we hope that you are able to enjoy this book and to learn from it. Good Luck!

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UNIT 1

Manufacturing Goes on Everywhere

This unit is about:

- where manufacturing is done
- what kinds of things are manufactured

Think About

What kinds of manufactured products do you have at home?
Can you name some products that are made in factories?

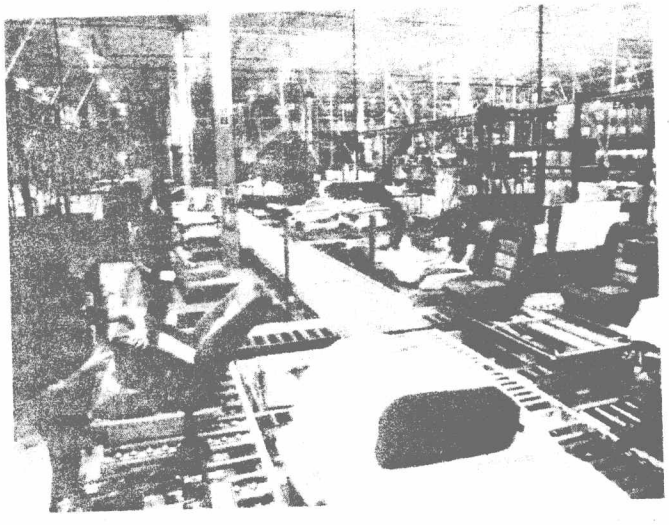
Manufacturing Goes on Everywhere

Everything that is made by people, instead of by nature, is manufactured. For hundreds of years, manufactured items were items made by hand. Years ago, people made chairs, tables, hand tools, plows, and pots and pans by hand out of wood, clay, and metal. Today, most manufactured items are made by machine. But the machines are **operated**, or run, by people. People are still the most important part of manufacturing.

Manufacturing is done all over the world. Manufacturing is done in almost every country on earth—in small factories and large factories and in **chemical** plants and **steel mills**.

Large factories make many things: carpets, nails, towels, paint, glue, shower curtains, canned food, blankets, paper, candy, chewing gum, fan belts, basketballs, playing cards, mobile homes, computer chips, televisions, automobiles, doors and windows, books, and tires, to name a few. These large factories make thousands, even millions, of their products.

Small factories make a variety of items, but on a smaller scale. Often these are the small things—such as automobile parts and farm machinery parts—that go into larger things. A small factory that makes furniture from wood may buy the glue or nuts and bolts it uses to assemble the pieces from another small factory. Small factories also make large items, such as custom-made cars, that need attention to detail. Small factories make items that need individual attention from the worker, such as wooden toys, eyeglasses, jewelry, and fine furniture.



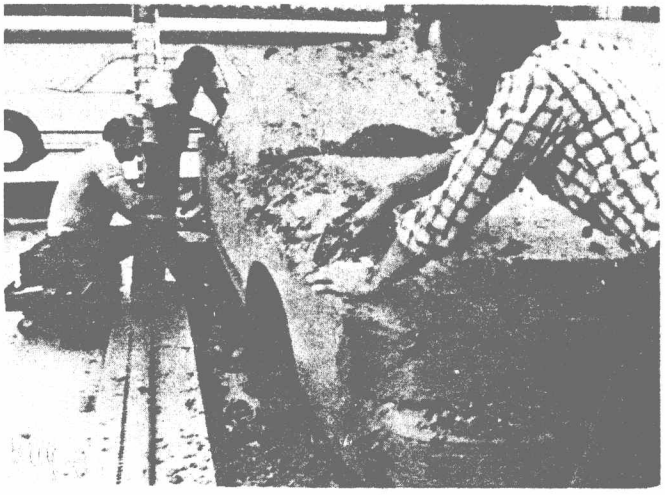
Courtesy of Johnson Controls, Inc.

To make a product, workers in chemical plants usually begin with **raw materials**. **Petroleum**, an oil, is an example of a raw material. Beginning with a base of petroleum, workers at chemical plants make products such as gasoline, plastics, cleaning fluids, fertilizers, and chemical sprays. The workers first put the raw material through a **process**. A process is any number of steps that lead to a **finished product**. One process may require that workers mix materials and chemicals together. The materials may then be heated to various temperatures. Often the materials are cooled or dried after they are heated. The chemicals and raw materials become a finished product. The finished product is often very different from the chemicals and raw materials that it started out as.

Steel mills make rods, beams, and huge rolls of steel used for manufacturing other products and for constructing buildings. Steel mills have special processes for making their products. The steel is heated to very high temperatures and later molded into different shapes. The steel goes into the manufacture of kitchen **appliances**, trucks, bicycles, airplanes, portable buildings, and subway cars.

Some manufacturers make basic building materials such as plywood out of a natural product. Other manufacturers use the building materials to make finished products, such as table and desk tops. Different kinds of manufacturing occur in different manufacturing places.

All manufacturing places are alike in some ways. They all have a system, which is their own special way of making things. All manufacturing places need people to buy supplies, operate machines, and make decisions about how to do things best. Manufacturing goes on everywhere.



Courtesy of Ford Motor Company

REVIEW

Choose the best answer. Circle it. Go back to the reading to check your answers. The first one is done for you.

1. Today, most manufacturing is done by _____.
   a. hand
   (b) nature
   c. machine
   d. operation

2. Steel is manufactured in _____.
   a. mills
   b. small factories
   c. automobiles
   d. mobile homes

3. Small factories make _____.
   a. small objects
   b. medium objects
   c. large objects
   d. all of the above

4. Fertilizers are usually made at _____.
   a. farm machinery factories
   b. steel mills
   c. chemical plants
   d. plastics factories

5. Most kitchen appliances, bicycles, and subway cars are made of _____.
   a. chemicals
   b. fluids
   c. steel
   d. wood

6. Wood is a natural product that can be used to manufacture _____.
   a. plastic
   b. furniture
   c. steel
   d. fertilizer

PRACTICE

A. What are the topics? There are eight paragraphs in the reading. Go back and number the paragraphs from 1 to 8. Each paragraph talks about one main topic. Read each paragraph again. Then decide which idea below best describes the main topic of the paragraph. The first one is done for you.

1. Paragraph One
   a. Small factories make a variety of items.
   b. Manufacturing is no longer done in the United States.
   ⓒ Manufacturing is done by people and machines.

2. Paragraph Two
   a. Manufacturing is done only in the United States.
   b. Manufacturing is done all over the world.
   c. Manufacturing is not done anymore.

3. Paragraph Three
   a. Large factories make large numbers of an item.
   b. Small factories are more popular than they used to be.
   c. Chemical plants are responsible for making most things today.

4. Paragraph Four
   a. In most of the world, steel is manufactured in steel mills.
   b. Small factories manufacture items on a small scale.
   c. Large factories make things on a large scale.

5. Paragraph Five
   a. Raw materials are put through a process to create the finished product.
   b. Materials may be broken up into smaller pieces.
   c. Chemical plants manufacture products that can be dangerous.

6. Paragraph Six
   a. Manufacturing is done everywhere.
   b. Plywood is made in chemical plants.
   c. Steel mills have special processes for making steel.

7. Paragraph Seven
   a. Different kinds of manufacturing occur in different places.
   b. Manufacturing is important for the safety of the world.
   c. Plywood is made from wood.

8. Paragraph Eight
   a. Raw materials go into a finished product.
   b. People need to decide how to do things best before they start a job.
   c. In some ways, manufacturers are all similar.

B. Where does it happen? List **A** shows different places where manufacturing goes on. List **B** names various things that are manufactured. Put the letter of the manufactured item in the space next to the correct place. More than one answer may be correct. The first one is done for you.

List A		List B
1. f	steel mill	a. carpets
2. _____	chemical plant	b. gasoline
3. _____	small factory	c. jewelry
4. _____	large factory	d. a million nails
		e. cleaning fluid
		f. steel beams

C. Write about yourself. Look around you. What are you wearing? What are you sitting on? What are you using to write with? Write about these things and guess where and how they were manufactured. Afterward, discuss your ideas with your teacher or with other students.

UNIT 2

Climbing the Ladder

This unit is about:

- basic skills needed in manufacturing jobs
- the importance of reading and math in manufacturing

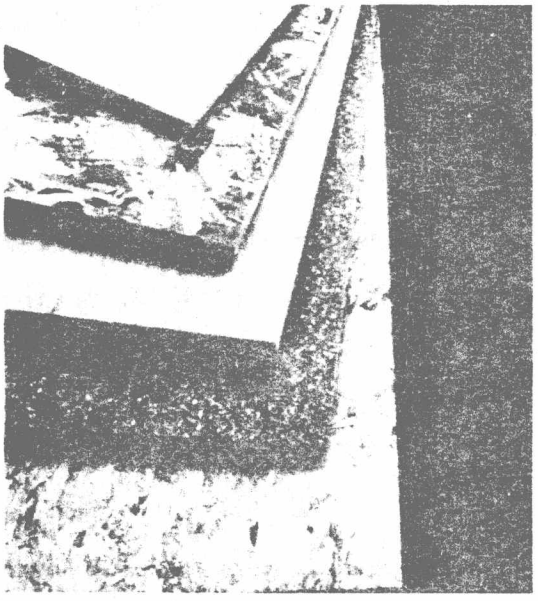
Think About

When was the last time you had to read directions to make something?
What are some things that you are good at?
What kind of job do you want to work toward?

Climbing the Ladder

Manufacturing jobs call for many skills and abilities. Some jobs require physical strength. Other jobs call for knowledge of math. Some require **specialized** knowledge, such as knowledge of metals, plastics, or types of wood. Most manufacturing jobs require basic skills in reading and math.

Maria works in a small factory that makes kitchen countertops. She is in charge of a machine that cuts thin pieces of plastic of various colors to make countertops. These plastic layers are then glued onto thick boards made of **particleboard**. Particleboard is made up of thousands of particles, or small pieces, of wood held together with glue. Particleboard is used in manufacturing because it is inexpensive and easy to mold into shapes. At the factory where Maria works, the particleboard is molded into different countertop shapes. Then a thin plastic layer is glued on to make a finished product.



Courtesy of American Plywood Association

Maria must read instructions that tell her how long and how wide to make the plastic layer for the countertop. Then she must set numbers on a special machine so that the plastic will be cut just that long and wide. She reads the instructions carefully each time a new order comes in. After she reads the instructions, she punches numbers on her machine. She reviews the instructions to make sure she has done everything right. After she checks everything, she flips a switch that tells the machine to begin cutting. Maria watches the machine as it cuts to make sure it does the job correctly.

Maria started out in the factory on the **loading dock**. She helped to unload large sheets of plastic and particleboard. But Maria did the same thing every day and wanted a change. She took classes at night to learn how to read better. Then, she took classes to earn her **GED**, her high school equivalency diploma. She got promoted to the **production line**, where she started making some of the factory's products. She took a class in math. She learned how to use special manufacturing machines called **numerical control** machines. These machines are operated by numbers and **symbols** (a symbol is a mark or design that stands for something else). Operating a numerical control machine is a specialized skill. Now, Maria has been promoted again.

Maria is "climbing the ladder" in her company. This means she is trying to do better and better. She is always alert on the job, and she asks questions when she does not understand something. She works very hard. She has three children at home, but she works overtime when she can. She tries to get promoted to new jobs. That way, she can learn new skills.

The higher she goes, the more money Maria will make. She will also have more **job security**. That is, she will not be particularly worried about being laid off because she knows that not everyone will have the special skills she has.

REVIEW

Choose the best answer. Circle it. Go back to the reading to check your answers. The first one is done for you.

1. Most manufacturing jobs require _____.
   a. physical strength
   b. woodworking
   c. writing
   (d) reading

2. In the reading, Maria is in charge of a machine that cuts layers of _____.
   a. wood
   b. plastic
   c. stone
   d. metal

3. In Maria's job, the layers for countertops are cut by _____.
   a. hand
   b. nature
   c. a drill
   d. machine

4. To make sure she has set the numbers on the machine correctly, Maria _____ the instructions.
   a. reviews
   b. shapes
   c. manufactures
   d. cuts

5. Earning _____ helped Maria get ahead in her company.
   a. a GD
   b. an ACD
   c. a GED
   d. an LD

6. Another title for this reading could be _____.
   a. Getting Ahead
   b. Earning a GED
   c. Working on the Loading Dock
   d. Learning Math in Night Classes

PRACTICE

A. Guess the meaning. Some words from the reading are used in the sentences below. Circle the word or phrase that is closest in meaning to the *italicized* word. Use the words and sentences around the italicized word to help you guess its meaning. The first one is done for you.

1. For two years, Phyllis has had *specialized* training in how metals react to high temperatures. Because of her training, she now knows the way that carbon steel reacts when it is heated at the steel mill where she works.

   Specialized probably means _____.
   - (a) a particular way
   - b. ordinary or usual
   - c. basic and necessary
   - d. old and outdated

2. Particleboard is used in manufacturing more than hardwoods. This is because it is inexpensive and easy to make into a variety of objects. It is made up of thousands of *particles* that are glued together and pressed into construction sheets.

   Particles probably means _____.
   - a. high temperatures
   - b. tiny shapes
   - c. large forms
   - d. small pieces

3. Particleboard is popular because manufacturers can *mold* it into various sizes and shapes.

   To mold probably means _____.
   - a. to spoil
   - b. to heat
   - c. to shape
   - d. outdated

4. Maria worked for several months on the *loading dock* at her company. She and the other people she worked with loaded and unloaded materials from trucks. The materials were then taken into the company warehouse and stored there.

   A *loading dock* is probably a place where _____.
   - a. materials are loaded and unloaded
   - b. particleboard is cut, glued, and pressed to form shapes
   - c. numerical control machines are set up each morning
   - d. a number of products are manufactured