

**EVALUATING  
ACADEMIC READINESS  
FOR APPRENTICESHIP TRAINING**  
Revised for  
**ACCESS TO APPRENTICESHIPS**

**COMMUNICATIONS SKILLS  
RESTATEMENT AND PARAPHRASING**

**AN ACADEMIC SKILLS MANUAL  
for**

**The Metal Work Trades**

This trade group includes the following trades:  
Heat & Frost Insulator, Iron Worker,  
Precision Metal Fabricator, Sheet Metal Worker, and  
Welder & Fitter

*Workplace Support Services Branch  
Ontario Ministry of Training, Colleges and Universities*

*Revised 2011*

In preparing these Academic Skills Manuals we have used passages, diagrams and questions similar to those an apprentice might find in a text, guide or trade manual.

**This trade related material is not intended to instruct you in your trade. It is used only to demonstrate how understanding an academic skill will help you find and use the information you need.**

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# COMMUNICATIONS SKILLS

## RESTATEMENT AND PARAPHRASING

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*An academic skill required for the study of the  
Metal Work Trades*

### **INTRODUCTION**

**Restatement, or paraphrasing**, means saying something in your own words. We do this to be sure that we get the correct meaning from information. This important skill allows you to clearly communicate ideas about metal theory, fabrication, or blueprint reading to co-workers, other tradespersons and customers.

Technical writing activities related to *paraphrasing or restatement* include writing brief reports, submitting job proposals and estimates, reporting on potential worksite hazards, and completing work-related documentation.

In this skills manual, we will look at some examples of restatement. We will do this to:

- ◆ Understand and explain technical information,
- ◆ Restate information in graphic and written material, and,
- ◆ Recognize signals that indicate restatement.

### **PART I**

#### **UNDERSTAND AND EXPLAIN TECHNICAL INFORMATION**

Try to explain an idea – *in your own words* and *out loud*. You will discover what you know and what you don't know. When you use your own words, you find out where you can repeat ideas clearly and where you stumble because you can't find the right words.

#### **Let me get this right**

When you paraphrase an idea or written instruction, you are forced to be clear about what you have read or heard. If you have difficulty expressing an idea out loud, you know something is unclear. Stop. Reread the sections that stumped you, and then try again. This can be a slow process, but if you can restate the idea, you probably understand it.

We will use information from your trade to show you what we mean. Read **Passage 1** below to understand the information. Proceed methodically and read with attention. Try the following suggestions:

- read slowly,
- read out loud,
- ask questions,
- look up unfamiliar words or terms, and,
- take notes, *using your own words*.

When you have finished, test your understanding. Could you explain this to someone who knows nothing about the idea? Would they understand it?

**Read Passage 1 and answer the questions. Answers are at the end of the skills manual.**

**Passage 1**  
**Precision Shearing**

In order to guarantee optimum accuracy, shearing should be done with the work piece firmly held against the appropriate sidestop. Because the rake angle on the blade has the tendency to push the material along in the direction of cutting, the sidestop opposite should be used to ensure a straight, parallel cut.

Factors that contribute to accurate shearing are accurate calculation of cutting size and set stops, sharp cutting edges on the blades and clamping ability and capacity. The sheet stock should be non-stressed and undistorted. Also critical are the thickness and hardness of the stock and the length and width of the part to be cut. All of these, with the exception of the stressed stock are the responsibility of the operator.

Sometimes, difficulty is experienced when shearing narrow strips of any gauge. This usually results in one of three major distortion problems that will require a straightening operation after shearing. These problems are camber (strip distorts and edges become curved), curl (strip curls around itself) and bow (strip changes from its flat condition). These problems are more likely to occur with soft, ductile materials. **Remember** when shearing, to use extreme caution. Shears can cause disabling injury, especially the amputation of fingers.

1. What does “*guarantee optimum accuracy*” mean?
2. Accurate measurements and equipment preparation should help to assure precise shearing.

**T F**

3. You can reduce the chances of camber, curl or bow if you use stronger more rigid materials.

**T F**

4. Which of the following accurately describes curl?
  - a) Curl is a distortion in which the edges of the strip bend.
  - b) Curl is a distortion that occurs when the strip starts to corkscrew.
  - c) Curl is a distortion in which the strip no longer lies flat.

***Paraphrasing Step-By Step***

As you read and figure out what each step of **Passage 1** means, mentally check it off; or use a pencil to do so. If you don't understand any part of the directions or don't see how it fits with the others, reread, and try again. As you recognize how each piece fits into the job, you begin to develop a sense of the whole picture.

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### Paragraph one

In paragraph one, you may have had a few questions about the second sentence.

- What do *tendency* and *parallel* mean? If you aren't sure or have forgotten, look them up.
- The dictionary gives *a leaning or inclination* as the definition of *tendency*. For *parallel*, we find *aligned* or *even*.

These definitions give you the meaning of the words, but more importantly, when you put these meanings for the terms back into the sentences, you can understand more clearly what is being said about the cut.

**Example:** You can restate a confusing sentence.

*“Because the rake angle on the blade will push the material in the direction of cutting, use the sidestop opposite to keep the cut straight and parallel”.*

It means

*“Use the sidestop to guide the material for a straight even cut. It keeps the rake angle on the blade from moving the material along the direction of cutting.”*

### Paragraph two

Experiment with different words to restate what you are reading. You could break paragraph two into points with slightly different wording. You might come up with something like this:

In order to be certain that the shear is precise, the following factors are essential:

- exact cutting sizes and set stops,
- sharp edges on blades,
- clamping ability and capacity,
- non-stressed and undistorted sheet stock,
- thickness and hardness of sheet stock, and,
- length and width of part.

Who is responsible for all of these details? The operator is, *except* for the stressed stock.

**Note:** *You will learn the definitions of trade terms, as you move through your training. Knowing those terms will help you restate ideas clearly.*

### Paragraph three

Paraphrase paragraph three, one step at a time. Make sure you understand, and can **explain in your own words**, exactly what this information means. Think of how you would explain paragraph three to a new employee. You would have to know and describe:

- What difficulties might I encounter?
- How do these happen?
- How do I tell the difference between each problem?
- How can I correct them?
- Why *exactly* is extreme caution necessary?

### **I still don't get it**

When you read something and say, "I don't get it", you need to solve a problem. What *exactly* don't you get? It is critical to move beyond feeling that you do not understand the material. Usually there's something that you do understand so, which parts do you get?

Separate what you know from what you don't know, and then find explanations for the confusing parts. It's important to *ask yourself questions and find answers* to all aspects of the information. When you change written ideas into your own words, it will help you to develop a mental picture of the ideas and an understanding of the meaning.

When you can restate what you've read – in your own words – and can write it out, you know that you have understood the material. Using your own words will help you remember information. If you can explain it clearly to someone else, you have got it.

### **Examples of Restatement**

You will find two samples of restatement below, in **Passage 2** and **Passage 3**. The two passages were written by different people to explain a concept. Read them to compare the details.

First, read each passage following these directions:

- ◆ read slowly,
- ◆ ask yourself questions,
- ◆ look up unfamiliar words or terms, and,
- ◆ take notes, or explain to yourself what the passage says *using your own words*.

Second, **compare** the information in the two passages. Look for similarities and differences.

#### **Passage 2**

Every material is composed of minute particles called *molecules*. In any magnetic material, each molecule is a magnet with a north and south pole.

#### **Passage 3**

The molecular theory of magnetism states basically that all substances are made up of an infinite number of molecular magnets.

When you read **Passage 3** to compare it with **Passage 2**, did you see that each is about the theory of magnetism? Each uses different expression, different types of sentences and different vocabulary, but *the information is essentially the same*. Below you can see some examples from the passages where the same ideas are expressed differently:

<b>Passage 2</b>		<b>Passage 3</b>
every material	=	all substances
is composed of	=	are made up of
each molecule is a magnet with a north and south pole	=	molecular magnets

You may find that one passage or one group of words is clearer or easier than the other passage. The important point is that they each express the same theory.

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### Didn't I just read this?

If information sometimes seems familiar to you, it may be because you've read it before. But, what you've read before didn't use the exact wording of what you're reading now. Continue to read and compare **Passages 2 and 3** for examples of restatement.

#### Passage 2

In non-magnetized material, molecules lie in a haphazard manner. When a material has been magnetized, the molecules lie in an orderly fashion.

#### Passage 3

Molecular magnets can be arranged in two ways: *organized or disorganized*. If the molecular magnets are *disorganized*, the material is considered to be unmagnetized. When the molecular magnets are *organized*, the material is considered to be magnetized.

How do they compare? Look at examples of vocabulary from these passages which restate the same information:

<b>Passage 2</b>		<b>Passage 3</b>
nonmagnetized	=	unmagnetized
haphazard manner	=	disorganized
orderly fashion	=	organized

These two passages are restatements of each other. Each passage gives you accurate information but in a different way. In your reading, you might prefer one textbook or manual to another because the way it expresses ideas is easier for you to understand.

## **PART II** **GRAPHICS AND TEXT**

In Part II, we will look at how *graphics* and *text* are used together as examples of restatement.

### **Graphics**

When we use the term *graphics*, we mean the types of illustrations that you find in manuals and textbooks: diagrams, graphs, photographs and charts. They present a restatement in a visual way.

### **Using graphics**

Graphics relay information you need for your trade. To use graphics effectively, you need to convert the information into actions – either the mental action of understanding information or the physical action of following directions. To do either, restate the information so that you understand it. If you find terms or symbols that are not clear, stop and find out what they mean.

### **Text**

When we use the term *text*, we mean everything that is in print form. This includes writing that goes with a diagram, graph, photograph or chart. The text uses words to describe or explain something while a graphic uses a picture.

### What am I looking at?

If you know the purpose of a diagram, it may change the way you look at it. You may study each part of the diagram and mentally convert the items pictured in the diagram to descriptions in the text. Going back and forth between the diagram and the text increases your ability to picture the whole process or concept.

You should move between the text and graphic:

- to understand each on its own,
- to understand them together,
- to remember the information, and/or
- to get answers for things you are not sure about.

We will use the text and figure below (**Figure 1**) to look at restatement.

#### Passage 4 Effect of Impact Forces

The grain pattern of a metal determines how it reacts to force. The resistance of sheet metal to change has three properties: elastic deformation, plastic deformation and work hardening. All of these properties are related to the yield point. The **yield point** is the amount of force that a piece of metal can resist without tearing or breaking.

*Elastic deformation* is the ability of metal to stretch and return to its original shape (Figure 1). If you take a piece of sheet metal and gently bend it to form a slight arc, it will spring back to its original shape when released. Because metal has a tendency to spring back to its original shape, you need to apply this principle of elastic deformation when working with damaged panels.

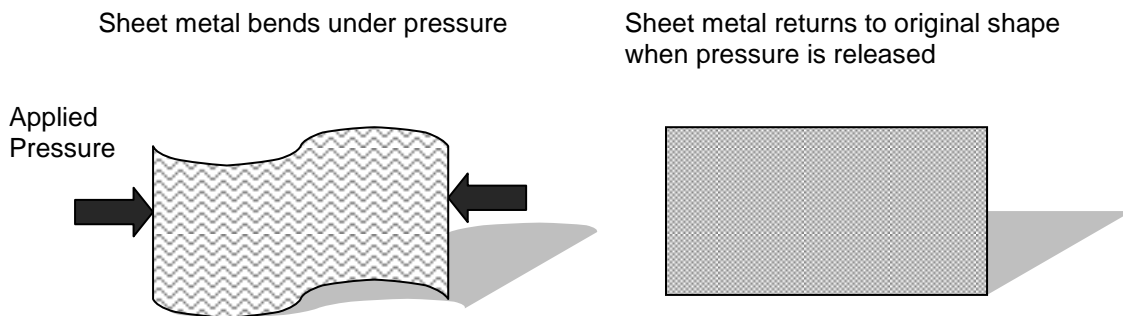


Figure 1: **Elastic Deformation:** Metal possesses elastic deformation so it springs back to its original shape after being bent

**The text** provides definitions of trade terms: *yield point*, and *elastic deformation*. It refers to a principle, *sheet metal's resistance to change* and lists the three properties, *elastic deformation*, *plastic deformation* and *work hardening*. It explains the relationship between force, yield point and elastic deformation as they relate to your trade. The text also tells us to look at the diagram.

**The diagrams** compare metal at rest and metal under pressure. They show the effect of impact forces, and what elastic deformation is.

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The text and diagram give you important information in different formats. **Together**, they provide a more complete picture than each would alone.

### What am I looking at?

If you know the purpose of a diagram, it may change the way you look at it. You may glance over a diagram to get a general idea of what it illustrates.

**Example:** Figure 1 gives you an idea of how the metal might react if you were shaping a cylinder.

You can study each part of the diagram and mentally convert the items pictured in the diagram to the stages described in the text. Going back and forth between the diagram and the text increases your ability to picture the whole process or concept. You move between the text and graphic:

- to understand each on its own,
- to understand them together,
- to remember the information, and/or
- to get answers to questions that you may have.

### Examine everything

1. The text will direct you to a graphic: the number of the graphic may be in parentheses like this (*Figure 2-10*). When the text directs you to look at the graphic, it may also tell you what it will show you.

**Example:** *Figure 2 shows metal before and after damage.*

2. When you come to a diagram, stop. Read the title or heading and the description at the bottom. *The title and description tell you what the diagram contains.* Some diagrams contain directions or details not found in the text.
3. Next, see how it restates the text. Then look for information that is not in the text.

**Passage 5**, below, is about *work hardening*. Read the text and study the diagram to understand how they work together to explain the concept. Think of each as a restatement of the other. Notice how they complement each other. Think of how each could help you explain or describe something to someone else – your boss or a client.

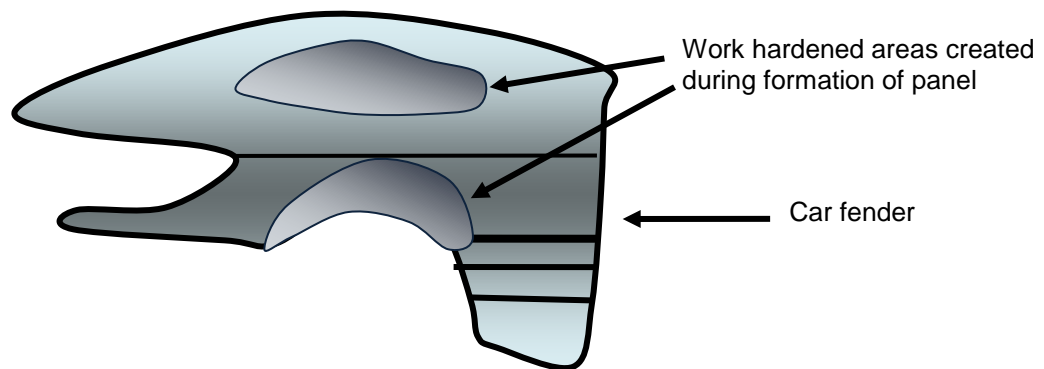
Note the writer asks you to *visualize* a flat sheet of metal. **Visualization is a kind of restatement.** When you form a mental picture, you convert words into a picture to understand them. Use the actual diagram and your own mental picture to understand the property of work hardening.

### Passage 5 Work Hardening

When metal is shaped by the manufacturer and when it is damaged, work hardening occurs. Visualize a flat sheet of metal formed into a body panel such as a fender. The flat sheet is placed in the stamping press, and the edges are firmly clamped. Then, the centre is stretched into the press until the flat metal

takes the shape of the press. The metal was relatively soft before it went into the press, but now it is quite hard. Because of this process, the grain structure has been rearranged and work hardening has now occurred. The relatively flat areas are softer.

**Figure 2** shows a fender with the harden areas (shaded) indicated. If you are working on a damaged fender, you need to know where the work hardened metal is because it will not bend back into its original shape the way the softer metal will.



**FIGURE 2: Work Hardening:**

Work hardening (shaded areas) occurs during shaping by manufacturer. These areas are harder to damage but, if damaged, are harder to straighten. Correct straightening operations are essential to avoid causing damage to undamaged metal.

### What does it say?

**The text** explains the concept in a clear, detailed way and prepares you to apply it on the job.

**The graphic** relays the same information in a picture form. You can see a portion of a fender. Note the differences between the shaded and unshaded areas of the manufactured metal. It is important to “see” this in the diagram because you can’t see it by looking at a fender in a shop.

You can see more by using the graphic with the text. This can help you put the concepts of *elastic deformation* and *work hardening* into your own words.. You can also draw a simple diagram or use a piece of sheet metal to add to your explanation. You can explain to a customer, “*This is what elastic deformation is, and I’ll show you how it works.*”

### Graphics restate the text

We’ve looked at the text and the diagram to see what each adds to the whole picture and how each restates the other. Graphics and text combine to complete the information required.

**Graphics** can peel back the layers so you can see it all. They are related directly to the writing.

- They are labelled clearly and usually placed beside the text.
  - The text and **Figures 1 and 2** are typical examples of this.
- It is important that you understand what you read and see as you proceed through the trade material.
  - Be sure to match the text with the graphic and read the information that goes with it.

The text tells you when to go to the diagram and what to look for. Find the information and understand what it is saying. *The diagram and text work with each other to make information clearer or to explain a procedure or a principle.*

Remember to test your understanding by restating the information to someone who hasn't read the text or seen the graphics. You may need to try an explanation more than once to get the right words in the right order. If you understand what you have read and what you have seen, though, you'll get it right.

### Tables

You will use tables for a variety of purposes.

#### Example:

**TABLE 1: DECIMAL AND METRIC EQUIVALENTS OF FRACTIONS**

Fractions	Decimal (in.)	Metric (mm)
1/64	.015625	.397
1/32	.03125	.794
3/64	.046875	1.191
1/16	.0625	1.588
etc.		

Tables like this one will show you such things as measurements, maximum spans, and depths of holes. Like other examples of restatement, tables convert information so that you get the right understanding and results.

### **PART III** **SIGNALS OF RESTATEMENT**

In Part III, we will look at examples of words and symbols that act as signals to indicate when a text is using restatement or paraphrasing. Successful readers pay attention to these signals.

*Note: The words and symbols in this section are not always or only used for this purpose. Make sure you know what they are signaling.*

#### **Signals Indicating Restatements**

Technical writing contains new vocabulary and new and complicated concepts. Explanations that restate information are built right into the text, often as examples or definitions.

There are many written clues that signal that a similar word or a definition is going to follow. Here are a few to watch for.

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## Some word and phrase signals

1. **That is**, is a word combination that can be used in several ways to let you know that something will be rephrased. These include:

- a) a colon followed by *that is*, (... : that is, ...)

Welding strength can be assured by lengthening the current flow time: that is, letting low current flow for a long time.

- b) a pair of commas around *that is* (... , that is, ...).

A buckle, that is, a fold or hinge in the metal due to damage or tension, may be present when metal is damaged by impact.

2. **In other words** is a signal that what you have just read will be explained in another way. Compare the two ways of saying the same thing; make sure you understand both.

A high tip pressure causes a small spot weld and a reduced mechanical bond of the weld. In other words, the high tip pressure forces the tip into the softened area thinning and weakening the weld.

- 3 **Or ...** sometimes tells you that there are two ways of saying the same thing. The words on each side of the “or” mean the same thing.

A vernier caliper is a precision measuring instrument that consists of a main frame or beam and a moveable jaw.

When machines are not available, sheet metal can be riveted, seamed, formed and bent by means of a steel anvil or bench stake.

4. **Visualization:** In some cases, a writer asks you to *visualize* or *imagine* something. This kind of restatement asks you to convert words into a picture to understand them.

The section shows a part of the structure as if cut by a vertical plane. Imagine that you are looking at the part after it has been sawed in half, and you are looking at the cut edge.

## Some punctuation signals

**Dashes** – A dash may be used to give another name or short explanation of something. This first example uses several devices as well as the dash: *italics* and “such as.”

Two types of twist drills are commonly found in the shop environment – carbide and HSS. *Carbide twist drills* are often used for drilling tougher materials such as concrete.

*Killed steel* - steel that is deoxidized with silicon or aluminum – may be produced with a boron addition to improve “hardenableity”.

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**Parentheses ( )** Words in parentheses restate or define terms and abbreviations specifically related to your trade.

After repeated use, the heads of punches may become mushroomed (flared outward).

The coarseness of a blade is designated by the number of teeth per inch (tpi).

**Colon:** The information that follows the colon (:) often explains a word or term.

The capacity of the brake is 16.8: that is, 16 gage metal 8 feet long can be bent when the reinforcing bar is in place.

These examples provide you with a sampling of the kinds of signals and supports available to you to help you understand your trade material. There are many more. Restatement gives you a second chance to understand information, so watch for the clues.

## **CONCLUSION**

Restatement or paraphrasing is a method used to understand, explain and remember technical information. This is an essential technical reading and writing skill to develop and refine.

It will make information clear to you – and you can make it clear to others. When you identify information presented in a new or different form, you can move between written or graphic information understanding each, on its own, and together.

## **Summary**

1. **Use your own words to restate or paraphrase** technical information. *Talk* yourself through the material.
2. **Find out where** you get stopped. Go back over the difficult steps to master them.
3. **Paraphrase step-by-step** to master material. *Walk* your way through complex information by dividing the steps into smaller bits.
4. **Examine and understand each piece** like pieces in a jigsaw puzzle. As you make sense of each piece, you arrive at the big picture.
5. **Use graphics as restatement** of the text and vice versa. Read the text to understand what is in the graphic: read the graphic for interpretations of the text.
6. **Convert the words and ideas** into the mental action of understanding, or the physical action of performing a task.
7. **Watch for the signals:** use these built-in guides which restate, explain or define text or graphic material.

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## Answers to Questions

### Part I Passage 1, Precision Shearing

1. What does “*guarantee optimum accuracy*” mean?

The word *guarantee* means *a promise or assurance*. *Optimum* means *the most favourable of something or of a situation*. *Accuracy* can be defined as *exactness or precision*. When you look at the sentence in its entirety, you can now restate it as, “*In order to assure that you will be as precise as possible, shearing should be performed with the workpiece solidly held against the correct side stop*”.

Make sure you include all the ideas from the original to the paraphrased material.

2. Accurate measurements and equipment preparation should help to assure precise shearing.

**T** This statement summarizes the contents of paragraph two. In one sentence, it paraphrases the factors that contribute to accurate shearing.

3. You can reduce the chances of camber, curl or bow if you use stronger and more rigid materials.

**T** Sentence four in paragraph three answers this question. It states, “*These problems...are more likely to occur with soft, ductile materials*”. The question asks you to decide if these problems are more likely to occur with materials that are *soft* and *ductile* than with stronger, more rigid materials. The answer is true - the question is just a restatement of the information in the passage.

4. Which of the following accurately describes curl?

b) Curl is a distortion that occurs when the strip starts to corkscrew.

Each of the possible answers is a restatement of different descriptions given in the passage. A corkscrew provides a vivid description of something that is curling around itself, like a spiral. Since the passage describes curl as “a tendency for the strip to curl around itself”, we can safely answer b). Answer a) is a restatement of camber, and c) is a restatement of bow.