

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

**COMMUNICATIONS SKILLS  
RESTATEMENT AND PARAPHRASING**

**AN ACADEMIC SKILLS MANUAL**  
for  
**The Precision Machining And Tooling Trades**

This trade group includes the following trades:  
General Machinist, Tool & Die Maker,  
Mould Maker, Pattern Maker, and  
Machine-Tool Builder Integrator

*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  
Precision Machining and Tooling 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 contained in charts, blueprints, diagrams, and written material including metal theory, tooling, or blueprint reading to co-workers, other tradespersons and customers.

Technical writing activities related to *paraphrasing or restatement* include clarifying work instructions, explaining fabrication procedures to others, writing brief reports, submitting job proposals and estimates, reporting 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**

### **UNDERSTANDING 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 after you gave your explanation?

**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 workpiece 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.

#### **Questions:**

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.

#### **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 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 term, 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 would you explain

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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 the concept of magnetism. 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 covers 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:

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<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.

### 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.

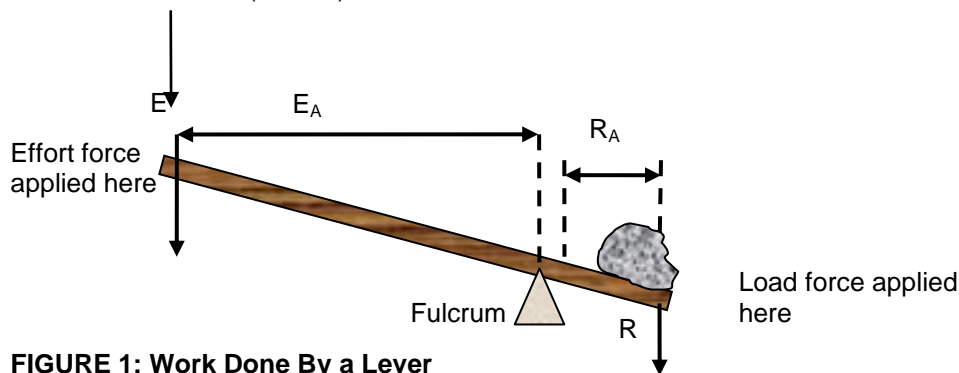
We'll use the text and figure below (**Figure 1**) to demonstrate restatement.

### Passage 4 Levers

A simple machine magnifies the effects of an applied force. Using one makes work easier and more efficient. When the machine does this, we say that a *mechanical advantage* (MA) has been gained. Moreover, when the work is done with little loss of energy, we say that the machine's *efficiency* is high.

Levers are the simplest of the basic machines. Figure 1 shows the use of a lever to move a large object.

The point at which the lever (bar or rod) pivots is called the *fulcrum* of the lever. The length of the effort arm and the resistance arm of the lever are measured from the *fulcrum* (pivot point). The effort arm is measured from the point where the *effort* (applied force) is applied to the fulcrum; the resistance arm is measured from the *resistance* (or load) to the fulcrum.



**FIGURE 1: Work Done By a Lever**

A large load is placed a short distance from the fulcrum ( $R_A$ ) on one end of the lever. It can be moved by a weaker force on the other end of the lever if the effort force is a longer distance ( $E_A$ ) from the fulcrum.

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The calculations for all levers are derived from mathematical ratios as follows:

$$\begin{aligned}M_A &= R \div E \\E_A \div R_A &= R \div E \\E \times E_A &= R \times R_A\end{aligned}$$

Where:

$M_A$  = mechanical advantage  
 $E_A$  = length of the effort arm  
 $R_A$  = length of the resistance arm  
 $R$  = resistance force  
 $E$  = effort force

**The text** provides definitions of terms: *simple machines* and *levers*. It then focuses on what a lever is, the names of its parts and the formula for making calculations of a lever's mechanical advantage. The text also tells us to look at the diagram.

**The diagram** lets us see what has been described in the text. It shows and labels the parts of the lever. Because we see the arrow where the effort force is applied, we understand what applied force means. We understand resistance force when we see the rock. The diagram restates what is in the text so that we understand how a lever works.

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 shows us what each part of a lever is, and how it works.

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.

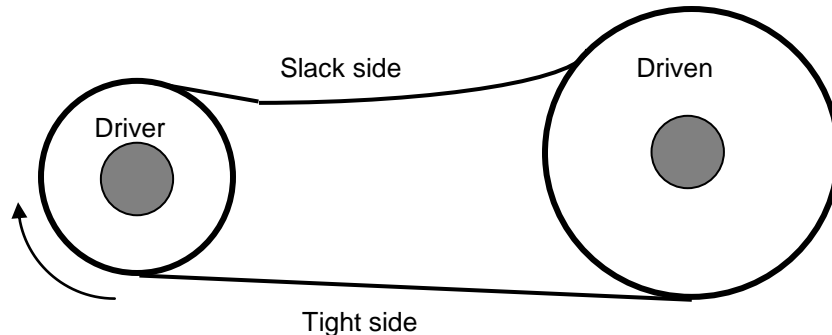
**Example:** *Figure 2 shows the part before and after damage.*

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 *effective tension in belt drives*. 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.

**Passage 5**  
**Effective tension**

Effective tension is the tension needed on the belt to transmit power without slipping. When the drive is running, the pull on the belt increases the tension and stretch on the tight side as it overcomes the resistance of the load. See Figure 2. The slack side has no tension increase because it simply returns the belt to the driven pulley.



**FIGURE 2: Effective Tension**  
Drive assembly in operation showing tight and slack sides of the belt.

**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. It clearly labels the slack and tight sides of the pulley belt. The figure shows you the direction of movement (with the arrows) so you understand *which side is doing the pulling*. The figure also shows you the pull transmitted **from** the driver **to** the driven. The diagram explains the words.

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. You can explain to a customer, “*This is what effective tension 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, ...)

Iron can be used as a temporary magnet: that is, its molecules are easily aligned, but can just as easily move out of alignment.

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

Use draw filing to produce a flat, smooth surface, that is, hold the files on both ends with your index fingers and draw the file toward you.

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.

Make sure that you do not cause an injury (cuts, eye injuries from flying fragments) because of a screwdriver and fastener that are mismatched. In other words, a screwdriver that is too big or too small for the screw or not matched to the screw head.

- 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 common file found in the shop is a flat or mill file.

Layout dye (or bluing) is a blue dye that can be brushed or sprayed onto a surface to enable layout lines to be seen more easily.

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 you another name or a 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 hardenability.

**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 number of teeth per inch (tpi) designates the coarseness of a blade.

**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. 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 titles and labels for complete information about the graphic: read the text for directions and interpretations of the graphic.
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 the built-in guides that restate, explain or define text or graphic material.

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## ANSWER PAGE

### 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.