

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

**COMMUNICATIONS SKILLS
VOCABULARY / WORD ATTACK SKILLS**

**AN ACADEMIC SKILLS MANUAL
for**

The Small Motor Service Trades

This trade group includes the following trades:
Marine & Small Powered Equipment Mechanics,
Motorcycle Mechanics, and Small Motor Mechanics

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

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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.

COMMUNICATIONS SKILLS

VOCABULARY / WORD ATTACK SKILLS

*An academic skill required for the study of the
Small Motor Service Trades*

INTRODUCTION

As you learn your trade, you will come across distinctive words that describe techniques and materials used in the small motor service trades. There are many reasons you need to be familiar with the language of your trade: to understand what you read in manuals and textbooks, to talk with other workers and trades people, to read schematics, and to accurately interpret the material in technical manuals, specifications, safety manuals and work orders.

When you are first involved in the trades, you will come across terms that you don't recognize or understand. These words won't go away, and you will need them. If you develop *word attack skills*, you will be able to learn the vocabulary of the small motor service trades. You will then be able to understand and speak the language of your trade with others. Moreover, you will be able to comprehend and follow written materials.

In this skill sheet, we look at developing *word attack skills*. We suggest three methods to do this:

- ◆ Context clues
- ◆ Word parts: root, prefix and suffix
- ◆ Use of glossary and dictionary

PART I

CONTEXT CLUES

Your boss gives instructions, or your teacher assigns a major project. To deal with either assignment, start with the meaning of the words, whether the words are written or spoken

There are a number of reasons why a word may stump you:

- You have never heard or seen the word before.
- You are familiar with the word, but it is used in a different way.
- It is a technical or trade-related word, and you are new to the trade.
- It is an abbreviation unknown to you.

Whatever the reason, you need a systematic approach to find meanings for these unfamiliar words. We begin by finding word meanings from the text itself.

The context

A new word is often used in a sentence, so this is the first place to search for its meaning. The sentence or paragraph where you find a new word is called its **context**. If you read slowly and carefully, you can guess – with reasonable accuracy – what an unfamiliar word means. Meanings of a word are given in a sentence by using:

- A. Definitions,
- B. Examples,
- C. Contrasts.

We will look at how signals can alert you to the fact that the meaning of a new word is being given.

NOTE: *It's important to remember that the clues that signal meaning have other uses as well. In other words, they do not always signal meaning or definitions for words.*

A. Definitions

In technical and trade material, writers define and explain words – often they do this as a starting point. A definition tells you what something means, what it is or what it does. Watch for sentences that define a word or term.

Examples:

Detonation is an excessively rapid burning or explosion of the mixture in the engine cylinders.

Files are made of heat treated, high-carbon steel and are used to smooth and shape parts by hand. They are hard and brittle and will shatter easily against hard surfaces.

Throttling is the expansion of gas through an orifice or controlled opening without gas performing any work as it expands.

These examples define a term or word; the words “*is*” and “*are*” let you know a definition is being given. Notice that the second example uses the word *brittle*. If you are not sure about its meaning, the rest of the sentence helps define its meaning or characteristic: *it will shatter easily against hard surfaces*.

This can be combined with italic or bold print to get your attention: *Italic print looks like this*, while **bold print looks like this**.

Example:

Additives are chemical compounds used to alter characteristics of lubricating oils and fuels.

We also use variations of *is* and *are* to explain terms, including *is known as*, *is called*, *means*, and *is referred to as*.

Examples:

is known as: The system that transfers power from the crankshaft to the rear wheel in varying ratios is known as the power transmission.

<i>is called:</i>	The second shaft in a direct drive gearbox that transfers power from input shaft to high gear pinion is called the <i>lay shaft</i> .
<i>means:</i>	The term for air pressure is “ <i>psi</i> ” which means pounds per square inch.
<i>is referred to as:</i>	The mechanism that pumps fluid by using a rotation motion <i>is referred to as</i> the rotary compressor.

It is essential that you first understand, and then learn, new vocabulary as you go. These terms will be used again, and you will be expected to become comfortable with them in order to build a trade vocabulary.

Example:

Proper lubrication reduces friction between components and increases component life by reducing wear.

Friction refers to the tendency of components to resist movement when their surfaces are in contact when they move. This term was probably explained earlier in the text. It is used here without an explanation, based on the assumption that it is now part of your new vocabulary.

Sometimes the word *or* gives you another meaning or word for a new trade term.

Examples:

For proper cooling action, air must pass across the extended metal surfaces or “cooling fins” of the cylinder block and cylinder head.

The pneumatic or *air vane governor* is operated by the stream of air created by the flywheel cooling fins.

We may not understand what “cooling fins” or “air vane governors” are when starting out, but we might understand them by their description (extended metal surfaces) or by another name (pneumatic).

Parentheses

Parentheses look like this () and they often signal a definition.

Examples:

The periphery (outside edge) of a rotating object moves at a particular velocity.

This lack of cohesion allows a gas to diffuse (expand) quickly and broadly.

Parentheses also frequently signal an abbreviation.

Example:

The organization that creates the voluntary technicians certification tests for outdoor power equipment technicians the Engine & Equipment Training Council (EETC).

Abbreviations

Usually a term is written in full the first time it is used, followed by the abbreviation in parentheses. After that, *only* the abbreviation is used. These examples appear later in the same text as the example above

Examples:

The Engine Service Association works in conjunction with the EETC to promote the improvement of the outdoor power equipment industry.

You can understand EETC having seen the words written in full above.

Here is an example where you might not know what the abbreviation stands for.

In a four-cycle engine, the movement of the piston from TDC to BDC with the intake valve, drawing the air-fuel mixture into the cylinder is called the *intake stroke*.

There is no definition here for TDC or BDC. You have go back to find where the words were first used to find the meaning. Or, you could look in a glossary or list of terms

Commas and Dashes

Commas (,) and dashes (–) are also used to signal a definition or an alternate way of saying something.

Examples:

The cup located at the bottom of the fuel petcock, also known as a sediment bowl, is designed to prevent the flow of dirt and water into the fuel line.

An electrolyte - a mixture of sulphuric acid and distilled water - is used in conventional lead acid type storage batteries.

NOTE: Punctuation marks such as commas and dashes are used in a variety of ways, not just to signal examples or definitions.

B. Examples

A definition is a starting point. For full understanding, you may need an example. Watch for a clue or signal. It may be in clear language that you can't miss.

Example:

A liquid is said to be highly volatile if it changes quickly from a liquid to a gas. For example, gasoline that is heated converts into a vapour that occupies more space.

The words *for example* tell you that what follows is an example. Other signals are not so direct. Watch for the words and phrases like ***such as, like, including***

Examples:

Two dissimilar metals, such as copper and iron, can be welded together to form a junction.

Good conductors like metal will heat and cool quickly.

Common toxic gases include carbon monoxide from engine exhaust and hydrogen sulphide in sewers.

C. Contrast

Sometimes you can figure out an unknown word because you understand a word that is its opposite. Try to determine the meaning of *opaque* by using its opposite.

Example: If the mixture is **opaque**, it will not be suitable; on the other hand, a **translucent** mixture will allow some light to pass through the object making it a suitable choice. A transparent mixture will let too much light through.

If a translucent mixture lets some light through and a transparent mixture lets more light through, we can reason that an opaque one does not let any through. By a process of reasoning, you can get closer to understanding the word even if you do not have a dictionary nearby.

Some common signals for contrast and words are *but, however, though, on the other hand, whereas*.

In addition

The punctuation marks semi-colon (;) and colon (:) often signal an explanation or additional information.

Example:

Fatigue: The tendency for metal to break after repeated or cyclic loadings that are below the ultimate tensile strength.

After the semi-colon (;) you find the meaning for *fatigue*.

Putting it together

Sometimes, several different context clues are combined.

Example:

Ferrous metals, such as iron, *oxidize* (that is, combine with oxygen) to form iron oxide – rust.

We've underlined the context clues here:

Ferrous metals, such as iron, oxidize (that is, combine with oxygen) to form iron oxide – rust.

Here is a passage using context clues. Look at how it works (and keeps on working) to make sure you really get it. It uses a variety of signals to get across a complicated explanation.

Read the passage and underline the context clues, built-in definitions and/or restatements that you find. Suggestions are underlined at the end of this skill manual.

Alloys

Alloys are mixtures of a metal with other metals or non-metals. For example, brass is an alloy of copper and zinc. Like any other mixture, an alloy's properties depend on the proportion of its parts. For example, you can vary the proportions of copper and zinc to produce different effects: a bronze

coloured alloy has 90% copper and 10% zinc; a silvery white alloy has 55% copper and 45% zinc. Brass is produced in about a dozen formulations each with its own distinct characteristics.

PART II

WORD PARTS

Another method used to work out the meaning of new words is to break the word into parts to see what the parts mean. For example, *bicycle* has two parts: *bi* means two, and *cycle* means wheel. In the same way, we get words like *tricycle* (*tri* = three) and *motorcycle*, and so on.

Word parts

The basic part of the word is the root; the part added at the beginning is the **prefix**; the part added to the end is the **suffix**. Here's an example with the three parts:

dis order ly

You can see the root, *order*, and how the prefix, *dis* (when added) changes the meaning of *order* to its opposite. The ending *ly* answers the question *how?* or *in what way or manner?* “How were the tools laid out? In an orderly (or disorderly) way.

When you pull words apart and look at the pieces, you can often figure out what the whole thing means.

Root Words

The root word carries the basic meaning of a word. When you understand the meaning of the root of a word, you can often make a good guess at an unfamiliar word.

Here is a short list of root words and their meanings:

Root	Meaning	Sample
dict / dic	say / tell	predict
duc / duct	lead	conduct
fac / fact	make/do	manufacture
flux	flow	fluctuate
port	carry	transport
vert / vers	turn	invert
scribe	write	inscribe, prescribe

New words may not be so new

The root word is the real building block of a word. There are several hundred; the list above gives some common examples.

We will look more closely at the root word *vis / vid*. You know the meaning of *visible*, *video*, *invisible*, *vision*, *television*. You don't have to think about what these words mean because you know. But, if you know that “*vid*” means “*see*”, you can use your knowledge to understand a variety of new words that are related by the root *vis / vid*.

Try this with a different root word. The root word *vers / vert* means *turn* and it has many relatives. Can you guess the meanings of these *vers/vert* words? In fact, some new words may not be so new after all. **Answers are at the end of this skills manual.**

1. invert / inversion
2. convert / conversion / convertible
3. revert / reversion
4. divert / diversion / diverse

Prefixes

The part added to the beginning of a word is the *prefix*. Here is a list of prefixes used in your trade. They tell the amount of something.

Prefix	Symbol	Amount
milli	m	one-thousandth
centi	c	one-hundredth
deci	d	one-tenth
kilo	k (K)	one thousand

Some words can be changed in form slightly and used as prefixes. When used as a prefix, they change or add to the meaning of the root word. “*Electro*” which means having to do with electricity, is the first example. The three words below all have something to do with electricity. (We have separated the prefix from the root in the list below to emphasize the two parts).

electro chemical electro lytic electro meter

Here are three more words commonly used as prefixes in your trades:

1. *Hydro* means *water* (Greek) and is used in:
hydro carbon de hydr ation hydr aulic
2. *Thermal* means *heat* (Greek, again) and is used in:
thermo stat thermo meter
3. *Ferro* means *iron* (Latin), and is used in:
ferro chromium ferrous alloy

When you know that *hydro* means water, you know that the first three words above have something to do with water. Similarly, when you know that *thermo* means heat, and *ferro* means iron, you know the second and thirds groups have something to do with heat and iron.

You may still need a dictionary or glossary for a definition, but you can see that patterns in words will help you find the meaning of new words. *When you pull words apart and look at the pieces, you can often figure out what the whole word means.*

Here's a list of common prefixes with their meanings.

Prefixes referring to *amount or number*

Prefix	Meaning	Example
uni	one	unit /unify
bi /di	two	dioxide
deci	ten	decimal
equi	equal	equivalent
mono	one	monolithic
poly	many	polyurethane

Prefixes meaning *not or negative*

Prefix	Example
anti	antifriction
dis	displacement
im	improper
mis	misalign
non	non-ferrous
un	unfused

Prefixes meaning *direction, placement or location*

Prefix	Meaning	Example
ante/pre	before	precede
con/com /col	with, together	compress
dia	through	diameter
sub	below	subzero, subnormal
trans	across	transform

Suffixes

A suffix appears at the end of a word and changes its meaning. Here are some examples with their meanings:

Suffix	Meaning
able / ible	able to
ous	full of
er /or / ist	one or thing that does
al	about
tion	the act of

Combining a root with a suffix produces something different – though related. For example, *retain* means “hold in or hold back”. *Retention* is “the act of holding in or back”. *Flux* means to “flow or to change back and forth” - fluctuation is “the act of flowing, changing, or rising and falling”.

Here are a few words with suffixes, commonly used in the small motors service trades.

Root (with prefix)

adhere
resist
compress
condense
conduct
fabricate
oxygen
permeate
reproduce

with Suffixes

adhesive, adhesion
resistance, resistor, resisted
compression, compressor
condensation, condensor
conductor, conducting
fabrication
oxygenate, oxydize
permeable
reproduction

When you take a word apart, you can see each of the pieces. As you examine each piece, you begin to see how it works on its own and with the other pieces. It is not very different from taking a motor apart to see how it works.

PART III ***GLOSSARY AND DICTIONARY***

Glossary

A ***glossary*** is a mini dictionary found in a manual or textbook. A glossary lists the words used in that manual or text to help you understand terms *as they are used in that book*. You will find a page reference for a glossary in the Table of Contents so you can find it easily. Sometimes a short glossary (or list of key terms) is placed at the end (or beginning) of a chapter or section.

Words in a glossary are defined as they relate to a particular trade.

Examples:

Schematic: A diagram representing an electrical system.

Inertia: The tendency of a stationary object to resist movement or tendency of a moving object to continue moving in the same direction.

You can see that the definitions are not like those in a standard dictionary. A glossary:

- is designed for the book it is in,
- may direct you to an alternate word, and
- gives you specialized meanings.

Find out where the glossary is in each manual or book that you use. Refer to it before, during and after your reading to find the meanings of the words you encounter.

Check for any other list of trade terms. Some texts have all the trade abbreviations listed alphabetically at the back of the book. If you forget one, you can find it there. Note that some texts may call the glossary something else: *Shop Terms* or *Trade Terms* are possible alternatives.

A glossary is an essential tool but it may not give you definitions of everything you need. For instance, you may not find some of words we've used in Parts I through II - familiar but not necessarily related to your trade alone. For words like this, you need to use a dictionary.

Dictionary

A *dictionary* lists words in alphabetical and explains their meaning. Dictionaries can define words in general usage. There are also specialized dictionaries that define words used in a precise way, such as trade dictionaries.

Standard dictionaries

A standard dictionary will give you meanings for words that are non-technical or non-trade. If you miss key words in a passage, you can get side-tracked. If you miss important words, you are not getting information you need. This puts you at a disadvantage.

Example: You read that the *adjacent* panel will receive damage. *Adjacent?* Does this mean beside, under? What if you do not understand such words as, *succeeding* strips or *consecutive* numbers?

Trade or specialized dictionaries

One of the most important tools to develop the technical reading, writing and speaking vocabulary of your trade is a good dictionary. A specialized trade dictionary will give you meanings as they apply to the industry.

I still don't get it!

When you come to a word that you can't figure out using context or the root word, stop and go to a dictionary. Try this system:

1. Write down the word when you read or hear it. It's almost guaranteed that you won't remember the word unless you write it down. It's new!
2. Look it up. Find the appropriate meaning – there may be several.
3. Write out the definition.
4. Write out some examples and put the word in a sentence.
5. Test your understanding of the new word the next day.
6. Use it or lose it; practice it until you know it.

Using a system

Have you ever looked for a single sock in a drawer full of socks? Then you know a system - other than the jumble system - is essential. In Parts I through III, we looked at methods to develop *word attack skills*. The success of any method depends on several factors: applying it consistently, and developing a system for retrieving what you have learned.

Find a system that works for you. Develop a notebook, your own dictionary, or index cards with the new words on them to practice. There is no wrong way to learn new words. Remember, if you say, "I need that black thingamajig with little wires coming out of it," you may not get what you need.

CONCLUSION

You can expect that many trade and trade-related terms will be taught in the classroom, in textbooks and in manuals. However, you'll need to put in time and make an effort to learn these words so that they belong to you.

Unknown words are just that - new or unfamiliar to you. They can make you feel baffled by what you are reading. But, if you know the problem, you can fix it. Acquiring a trade vocabulary, in spite of the time and effort, is worth achieving - for yourself, for your employers, and for your customers.

Summary

1. **Use the context clues** found in a sentence and paragraph that define, explain or give examples of a word.
2. **Narrow in on the word itself:** use the root, prefix and suffix. Take the word apart, look at the pieces and put it together again. Develop vocabulary by building from the roots.
3. **Use the glossary** (or list of trade terms). In some textbooks, it's placed at the beginning of a chapter to prepare you for what's ahead.
4. **Use a dictionary.** A specialized trade dictionary will define and explain words specific to your trade.
5. **Use a system** to learn, remember and use technical and non-technical terms.
6. **Read carefully to understand.**

ANSWER PAGE

Part I Context clues for Alloys

The underlined words indicate that a context signal - a definition, explanation, or example - will be provided.

Alloys

Alloys are mixtures of a metal with other metals or non-metals. For example, brass is an alloy of copper and zinc. Like any other mixture, an alloy's properties depend on the proportion of its parts. For example, you can vary the proportions of copper and zinc to produce different effects: a bronze coloured alloy has 90% copper and 10% zinc; a silvery white alloy has 55% copper and 45% zinc. Brass is produced in about a dozen formulations each with its own distinct characteristics.

Let's look at each sentence:

1. The first clue is a **definition**: it tells us what an alloy is.
2. The second gives us an **example** of an alloy: brass.
3. The third clue uses **comparison and explanation**: we know that an alloy's properties are "like any other mixture" in that they "depend on the proportion of its parts."
4. The fourth gives us different **examples** of alloys affected by proportion: "bronze coloured" and "silvery white" alloys.
5. The last context clue is an **explanation** of how one alloy, brass, can be made from many different formulations resulting in different characteristics.

Part II Meanings of root, "vers" or "vert", plus prefix and suffix

Each of the words contains *vers* or *vert* and, therefore, means something related to "turn". The prefixes indicate something about how or in what direction. By looking at these relatives, you may see patterns that will help you understand new words.

- | | | |
|----|--------------------------------------|---|
| 1. | invert
inversion | to turn upside down
turned upside down |
| 2. | convert
conversion
convertible | turn or transform
the act of converting (changing, turning into something else)
able to be changed (turned into something else) |
| 3. | revert
reversion | to turn back
turning back into |
| 4. | divert
diversion | to turn away
the act of turning away or being turned away or aside |