Mesleki Eğitim ve Öğretim Okullarında
Müfredat Geliştirme

Curriculum Development in Vocational Education and Training Schools

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Annex 25

Delivery of Foreign Language in Occupation
Packages of the Learning Materials for:
1. **Metal Technologies**
2. **Machine Technologies**
Grade: 9, 10, 11

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Contents

Exit level of the whole period of Foreign Language education 9th – 12th grade

Target group and position	Students in vocational schools trained to acquire qualification in "Metal Technologies" and "Machine Technologies" in 9th, 10th, 11th and 12th grade who need to communicate in English to native speakers and non-native speakers in English; students who will need English as part of their job to communicate on a frequent or occasional basis to foreigners at their work place using digital means of communication or related to digital means of communication. They do not usually need a foreign language in demanding interactive situations.
Entry level and Exit level	Listening A1 – A2 Reading A1 - A2 Spoken interaction A1 - A2 Spoken production A1- A2 Writing A1 - A2 The levels are described according to the Common European Framework of Reference for Languages: learning, teaching, assessment (CEFR). CEFR was designed to provide a transparent, coherent and comprehensive basis for the elaboration of language syllabuses and curriculum guidelines, the design of teaching and learning materials, and the assessment of foreign language proficiency.

Entry and Exit Level

According to the European Framework of reference

	A1	A2	B1	B2	C1	C2
Listening						
Reading						
Spoken Interaction						
Spoken Production						
Writing						

	Entry level
	Exit level

Description of language skills Exit level

Level of language skills	General language skills	Professional language skills
Understanding Listening A2	Can understand phrases and the highest frequency vocabulary related to areas of most immediate personal relevance (e.g. very basic personal and family information, shopping, local geography, employment). Can understand the main points of clear standard speech on familiar matters regularly encountered in work, school, leisure, etc. Can understand the main points of radio and TV programmes on current affairs or topics of personal or professional interest when the delivery is slow and clear.	➢ Can follow everyday conversations if speech is carefully articulated though words and expressions may need to be repeated. ➢ Can understand information about everyday events if speech is clear and pronunciation – standard. ➢ Can understand the main points in a well-structured, factual presentation in my area of work or interest. ➢ Can understand the main points in TV and radio broadcasts, advertisements, commercials, presentations and promotions if speech is clear, comparatively slow and topic is familiar. ➢ Can understand the main aspects of longer talks/meetings referring to routine work-related matters when standard language is used.
Reading A2	Can read very short, simple texts. Can find specific,	➢ Can understand short, simple texts composed of the most common words and expressions including international words.

	predictable information in simple everyday material such as advertisements, prospectuses, menus and timetables and can understand short simple personal letters.	➢ Can understand short, simple job-related texts and letters/orders.
		➢ Can understand standard routine correspondence (letters, faxes, e-mails), e.g. concerning simple arrangements
		➢ Can identify familiar and predictable information in advertisements, leaflets and timetables.
		➢ Can understand simple operating instructions, e.g. in lifts, on public telephones, cash machines, etc.
		➢ Can scan simple written materials such as brochures and short newspaper articles and extract factual information I need
	Can understand texts that consist mainly of high frequency every day or job-related language.	➢ Can read and extract the necessary information related to my work tasks.
Spoken interaction A2	can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities.	➢ Can handle most situations likely to arise in business and on travelling to a country where the language is spoken.
		➢ Can handle a conversation as long as it concerns routine activities within a familiar and/or predictable context.
		➢ Can hold a spontaneous conversation on familiar topics of personal and professional interest.
	can handle very short social exchanges, even though I can't usually understand enough to keep the conversation going myself.	➢ Can give or seek personal views and opinions on familiar topics in an informal discussion with friends/colleagues, agreeing and disagreeing politely.
	Can deal with most situations likely to arise whilst travelling in an area where the language is spoken. Can enter unprepared	

	into conversation on topics that are familiar, of personal interest or pertinent to everyday life, especially if the conversation is about routine activities in a predictable context.	
Spoken production A2	Can connect phrases in a simple way in order to describe experiences, events, hopes and ambitions related mostly to my professional life. Can briefly give reasons and explanations for opinions and plans related to familiar professional, everyday and social issues.	➢ Can give comparatively detailed accounts of experiences, events, work processes etc. ➢ Can give routine information about own area of work/department/company/product. ➢ Can give a brief summary of a story, e.g. the plot of a book or film and make comments on it. ➢ Can give reasons for my plans, opinions, decisions and actions.
Writing A2	Can write short, simple notes and messages, relating to matters in areas of immediate need. Can write a very simple personal letter, for example thanking someone for something.	➢ Can write short letters, fax messages, e-mail messages, memos following a sample ➢ Can write SMSs using standard abbreviations. ➢ Can take notes related to matters of immediate interest in work ➢ Can fill in forms or questionnaires briefly describing personal and job-related information. ➢ Can produce short messages, faxes or e-mails with simple variations on memorised language. ➢ Can give directions how to get to a meeting, place or company in a written form. ➢ Can give short accounts of past or present events and activities, or of future plans. ➢ Can briefly describe something or somebody.

GRADE 9

Description of module content and learning objectives

Module objectives 9th grade	The module is skill-oriented and emphasizes on developing and consolidating practical skills in a variety of relevant work-related contexts. It focuses both on fluency in language use as well as on accuracy.
Module 1 Focus on vocabulary Use of terminology in the foreign language	Students learn and practice **how to**: General linguistic range - use isolated words/signs and basic expressions in order to give simple information about themselves. - use a very basic range of simple expressions about personal details and needs of a concrete type. - use some basic structures in one-clause sentences with some omission or reduction of elements. Vocabulary range - effectively apply and make use of a basic vocabulary repertoire of words/signs and phrases related to particular concrete situations. Grammatical accuracy - employ very simple principles of word/sign order in short statements. Shows only limited control of a few simple grammatical structures and sentence patterns in a learnt repertoire.

	Vocabulary control • control a narrow repertoire dealing with concrete, everyday needs. • pronounce a very limited repertoire of learnt words and phrases which can be understood with some effort by interlocutors used to dealing with speakers of the language group. • reproduce correctly a limited range of sounds as well as stress for simple, familiar words and phrases. • reproduce sounds in the target language if carefully guided. • articulate a limited number of sounds, so that speech is only intelligible if the interlocutor provides support (e.g. by repeating correctly and by eliciting repetition of new sounds). • use the rhythm and intonation of a limited repertoire of simple words and phrases intelligibly, in spite of a very strong influence on stress, rhythm and/or intonation from the other language(s) they speak; their interlocutor needs to be collaborative.
Module 2 Professional communication in the foreign language	Students learn and practice **how to** Interact with colleagues or customers generally and more specifically for the level **how to**: Verbally • establish basic social contact by using the simplest everyday polite forms of: greetings and farewells; introductions; saying please, thank you, sorry, etc. However, repair of communication is often required • adapt well-rehearsed, memorised, simple phrases to particular circumstances through limited lexical substitution and difficulties in articulating less familiar words is usual. • communicate basic information about personal details and needs of a concrete type in a simple way. • communicate very basic information about personal details in a simple way, while pausing is expected and usual to search for expressions • manage very short, isolated, rehearsed utterances using gesture and signalled requests for help when necessary.

	In Writing
	• write short messages, e-mail messages using a template. • write SMSs using standard abbreviations. • can fill in forms with personal details (job, age, address, etc. • can write simple isolated phrases and sentences, which I have memorized or copied. • can write simple notes to colleagues/friends about appointments (time, place) often using familiar templates, and including greetings, forms of address, formulas to thank and ask for things.

Description of language skills

Level of language skills	General language skills	Professional language skills	Examples Teaching and learning resources developing these occupational skills
Listening A1	Can recognise familiar terminology for the occupation and very basic phrases concerning immediate concrete surroundings when people speak/sign slowly and clearly.

Can understand phrases and the highest frequency vocabulary related to areas of most immediate professional relevance (e.g. very basic information, | ➢ Can understand figures, prices and times given slowly and clearly in an announcement by other people in work environment or in a shop.
 ➢ Can recognise relevant terminology, words and numbers that they already know in simple, short recordings, provided these are delivered very slowly and clearly
 ➢ Can understand instructions addressed carefully and slowly to them and follow short, simple directions (adding, subtracting, multiplying, dividing)
 ➢ Can understand in outline very simple information being explained in a predictable situation like a guided tour or process of calculation, provided the delivery is very slow and clear and that there are long pauses from time to time.
 ➢ can understand phrases and expressions related to the most immediate priority in the work environment provided speech is clearly and slowly articulated
 ➢ Can understand simple technical information, such as operating instructions for everyday equipment
 ➢ Can extract the essential information from short, recorded passages dealing with predictable everyday work matters
 ➢ | **From Industrial Assembly, Express Publishing, 2022**
 Book 1 Exercise 5, 6 and 7 from Unit 12 Measurements 1, p. 26 – 27
 Book 1 Exercise 5, 6 and 7 from Unit 13 Measurements 2, p. 28 – 29

 From Electrician, Express Publishing, 2022
 Book 1 Exercise 5, 6 and 7 from Unit 9 Numbers, p. 20-21

 From Electronics, Express Publishing, 2022
 Book 1 Exercise 5, 6 and 7 from Unit 13 Math, p. 28-29
 Book 1 Exercise 5, 6 and 7 from Unit 14 Measurements, p. 30-31
 Book 1 Exercise 5, 6 and 7 from Unit 15 Prefixes, p. 32-33
 Book 3 Exercise 5, 6 and 7 from Unit 1 Diagrams, p. 4-5

 From Computing, Express Publishing, 2022
 Book 1 Exercise 5, 6 and 7 from Unit 1 Types of Computers, p. 4 – 5
 Book 1 Exercise 5, 6 and 7 from Unit 2 Monitors, p. 6 – 7
 Book 1 Exercise 5, 6 and 7 from Unit 3 Keyboards, p. 8 – 9
 Book 1 Exercise 5, 6 and 7 from Unit 4 Mice, p. 10 – 11
 Book 1 Exercise 5, 6 and 7 from Unit 5 Inside the Computer, p. 12 – 13
 Book 1 Exercise 5, 6 and 7 from Unit 6 Data Storage Devices, p. 14 – 15
 Book 1 Exercise 5, 6 and 7 from Unit 7 Printers, p. 16 – 17
 Book 1 Exercise 5, 6 and 7 from Unit 8 Scanners, p. 18 – 19 |

	shopping, local area, employment, prices, etc.).		Book 1 Exercise 5, 6 and 7 from Unit 11 The User Interface, p. 24 – 25 **From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (introduction) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (introduction) **Other materials:** https://youtu.be/rLKBKwWcZ5w?si=Jagb6B75IrcXYb7m (metalwork vocabulary) https://youtu.be/KIJk9mQBXmw?si=Ru7HGvGe5nE0PHs7 (tools in English vocabulary)
Reading A1 towards A1+	can understand familiar names, words/ signs and very simple sentences, for example on notices and posters or in catalogues. can find specific, predictable information in simple everyday material, such as advertisements, prospectuses, menus and	➢ Can understand from a letter, card or e-mail the event to which they are being invited and the information given about day, time and location. ➢ Can recognise times and places in very simple notes and text messages from friends or colleagues (e.g. "Back at 4 o'clock" or "In the meeting room"), provided there are no abbreviations. ➢ Can understand short, simple messages sent via social media or e-mail (e.g. proposing what to do, when and where to meet). ➢ Can understand simple everyday signs such as "Parking", "Station", "Dining room", "No smoking", etc. ➢ Can understand very short, simple, instructions used in familiar everyday contexts (e.g. "No parking", "No food or drink"), especially if there are illustrations. ➢ Can find information about places, times and prices on posters, flyers and notices.	**From Industrial Assembly, Express Publishing, 2022** Book 1 Exercise 2, 3 and 4 from Unit 12 Measurements 1, p. 26 – 27 Book 1 Exercise 2, 3 and 4 from Unit 13 Measurements 2, p. 28 – 29 **From Electrician, Express Publishing, 2022** Book 1 Exercise 2, 3 and 4 from Unit 9 Numbers, p. 20-21 **From Electronics, Express Publishing, 2022** Book 1 Exercise 2, 3 and 4 from Unit 13 Math, p. 28-29 Book 1 Exercise 2, 3 and 4 from Unit 14 Measurements, p. 30-31 Book 1 Exercise 2, 3 and 4 from Unit 15 Prefixes, p. 32-33 Book 3 Exercise 2, 3 and 4 from Unit 1 Diagrams, p. 4-5 **From Computing, Express Publishing, 2022** Book 1 Exercise 2, 3 and 4 from Unit 1 Types of Computers, p. 4 – 5 Book 1 Exercise 2, 3 and 4 from Unit 2 Monitors, p. 6 – 7 Book 1 Exercise 2, 3 and 4 from Unit 3 Keyboards, p. 8 – 9

	timetables, and I can understand	➤ Can find and understand simple, important information in advertisements, programmes for special events, leaflets and brochures (e.g. what is proposed, costs, the date and place of the event, departure times). ➤ Can understand store guides (information on which floors departments are on) and directions (e.g. where to find lifts). ➤ Can understand basic work information (e.g. times when work starts, breaks are scheduled, meals are served).	Book 1 Exercise 2, 3 and 4 from Unit 4 Mice, p. 10 – 11 Book 1 Exercise 2, 3 and 4 from Unit 5 Inside the Computer, p. 12 – 13 Book 1 Exercise 2, 3 and 4 from Unit 6 Data Storage Devices, p. 14 – 15 Book 1 Exercise 2, 3 and 4 from Unit 7 Printers, p. 16 – 17 Book 1 Exercise 2, 3 and 4 from Unit 8 Scanners, p. 18 – 19 Book 1 Exercise 2, 3 and 4 from Unit 11 The User Interface, p. 24 – 25 **From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (introduction) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (introduction) - Reading a text about steel types, p: 18 - Reading a text about famous buildings, p: 20 - Reading a text about cold forming, p: 21 - Reading a dialogue about some tools, p: 26-29-30
Spoken interaction A1 towards **A1+**	can interact in a simple way provided the other person is prepared to repeat or rephrase things at a slower rate and help me formulate what I am trying to express.	➤ Can understand and use basic, formulaic expressions such as "Yes", "No", "Excuse me", "Please", "Thank you", "No thank you", "Sorry". ➤ Can recognise simple greetings. ➤ Can greet people, state their name and take leave in a simple way. ➤ Can understand a number of familiar words/signs and recognise key information (e.g. numbers, prices, dates and days of the week), provided the delivery is very slow, with repetition if necessary. ➤ Can make an introduction and use basic greeting and leave-taking expressions. ➤ Can ask how people are and react to news.	**From Industrial Assembly, Express Publishing, 2022** Book 1 Exercise 1, 7 and 8 Unit 12 Measurements 1, p. 26 – 27 Book 1 Exercise 1, 7 and 8 Unit 13 Measurements 2, p. 28 – 29 **From Electrician, Express Publishing, 2022** Book 1 Exercise 1, 7 and 8 Unit 9 Numbers, p. 20-21 **From Electronics, Express Publishing, 2022** Book 1 Exercise 1, 7 and 8 Unit 13 Math, p. 28-29 Book 1 Exercise 1, 7 and 8 Unit 14 Measurements, p. 30-31 Book 1 Exercise 1, 7 and 8 Unit 15 Prefixes, p. 32-33 Book 3 Exercise 1, 7 and 8 Unit 1 Diagrams, p. 4-5 **From Computing, Express Publishing, 2022** Book 1 Exercise 1, 7 and 8 Unit 1 Types of Computers, p. 4 – 5 Book 1 Exercise 1, 7 and 8 Unit 2 Monitors, p. 6 – 7

		➢ Can ask people for things and give people things.
		➢ Can handle numbers, quantities, cost and time.
			Book 1 Exercise 1, 7 and 8 Unit 3 Keyboards, p. 8 – 9
			Book 1 Exercise 1, 7 and 8 Unit 4 Mice, p. 10 – 11
			Book 1 Exercise 1, 7 and 8 Unit 5 Inside the Computer, p. 12 – 13
			Book 1 Exercise 1, 7 and 8 Unit 6 Data Storage Devices, p. 14 – 15
			Book 1 Exercise 1, 7 and 8 Unit 7 Printers, p. 16 – 17
			Book 1 Exercise 1, 7 and 8 Unit 8 Scanners, p. 18 – 19
			Book 1 Exercise 1, 7 and 8 Unit 11 The User Interface, p. 24 – 25
			
			From Vocational English Metal Technology
			Module 1: TERMS OF COLD FORMING (introduction)
			Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (introduction)
			    - Working in pairs, asking about the features of some materials, p: 19
			    - Talking about what kind of tools and machines students use, p: 26

Oral production A1	can use simple phrases and sentences to describe where I live and people I know.	➢ Can produce short phrases about themselves, giving basic personal information (e.g. name, address, family, nationality). ➢ Can produce simple, mainly isolated phrases about people and places. ➢ Can describe themselves (e.g. name, age, family), using simple words/signs and formulaic expressions, provided they can prepare in advance. ➢ Can express how they are feeling using simple adjectives like "happy" or "tired", accompanied by body language.	▪ The language user produces an oral text which is received by an audience of one or more listeners. ▪ Examples: reading a written text aloud, speaking from notes or visual aids (diagram, pictures, charts, etc.) ▪ Acting out a rehearsed role See above exercises for speaking interaction: ▪ Distribute role cards – students read their role cards Write a diagram of the role play words/sentences on the board

Written production A1	can produce simple isolated phrases and sentences.	➢ Can give basic personal information (e.g. name, address, nationality), perhaps with the use of a dictionary. ➢ Can use simple words/signs and phrases to describe certain everyday objects (e.g. the colour of a car, whether it is big or small).	**From Industrial Assembly, Express Publishing, 2022** Book 1 Exercise 9 from Unit 12 Measurements 1, p. 26 – 27 Book 1 Exercise 9 from Unit 13 Measurements 2, p. 28 – 29 **From Electrician, Express Publishing, 2022** Book 1 Exercise 9 from Unit 9 Numbers, p. 20-21 **From Electronics, Express Publishing, 2022** Book 1 Exercise 9 from Unit 13 Math, p. 28-29 Book 1 Exercise 9 from Unit 14 Measurements, p. 30-31 Book 1 Exercise 9 from Unit 15 Prefixes, p. 32-33 Book 3 Exercise 9 from Unit 1 Diagrams, p. 4-5 **From Computing, Express Publishing, 2022** Book 1 Exercise 9 from Unit 1 Types of Computers, p. 4 – 5 Book 1 Exercise 9 from Unit 2 Monitors, p. 6 – 7 Book 1 Exercise 9 from Unit 3 Keyboards, p. 8 – 9 Book 1 Exercise 9 from Unit 4 Mice, p. 10 – 11 Book 1 Exercise 9 from Unit 5 Inside the Computer, p. 12 – 13 Book 1 Exercise 9 from Unit 6 Data Storage Devices, p. 14 – 15 Book 1 Exercise 9 from Unit 7 Printers, p. 16 – 17 Book 1 Exercise 9 from Unit 8 Scanners, p. 18 – 19 Book 1 Exercise 9 from Unit 11 The User Interface, p. 24 – 25 **From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (introduction) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (introduction)

Teaching/learning contents (guide lines) – Metal Technologies / Machine Technologies, Grade 9

2 teaching hours per week

Topics from the Curriculum Package	Resources	Comments Teaching and learning focus and methods Linguistic aspects/teaching and learning methods
TECHNICAL DRAWING	**From Industrial Assembly, Express Publishing, 2022** Book 1 Unit 12 Measurements 1, p. 26 – 27 Book 1 Unit 13 Measurements 2, p. 28 – 29 **From Electrician, Express Publishing, 2022** Book 1 Unit 9 Numbers, p. 20-21 **From Electronics, Express Publishing, 2022** Book 1 Unit 13 Math, p. 28-29 Book 1 Unit 14 Measurements, p. 30-31 Book 1 Unit 15 Prefixes, p. 32-33 Book 3 Unit 1 Diagrams, p. 4-5	
COMPUTER AIDED DRAWING	**From Computing, Express Publishing, 2022** Book 1 Unit 1 Types of Computers, p. 4 – 5 Book 1 Unit 2 Monitors, p. 6 – 7 Book 1 Unit 3 Keyboards, p. 8 – 9 Book 1 Unit 4 Mice, p. 10 – 11 Book 1 Unit 5 Inside the Computer, p. 12 – 13 Book 1 Unit 6 Data Storage Devices, p. 14 – 15 Book 1 Unit 7 Printers, p. 16 – 17 Book 1 Unit 8 Scanners, p. 18 – 19 Book 1 Unit 11 The User Interface, p. 24 – 25	

METAL TECHNOLOGY BASIC METAL FORMING	**From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (introduction) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (introduction)	**Module 1: TERMS OF COLD FORMING** - the meaning of PPE and personal protective equipment, p: 14-15 - the meaning of metalwork and what a metal worker does, p: 16 - advantages and disadvantages of steel (features of steel), p: 17-18-19 - famous buildings and their features, p: 20 - learning about the features and steps of cold forming, p: 22-23 - advantages and disadvantages of cold forming, p: 24 **Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING** - machines and tools used in cold shaping, p:26-27-28-29-30-31 - features of drilling machine , p: 36 - matching actions with the pictures, p:37 - answering the questions about tools and machines used in metalwork, p:38-39-40-41.

Assessment:

> ➢ <u>Self-assessment</u>: According to the scale in the self-assessment grid of the Common European Framework (CEF)
> ➢ <u>Tutor assessment</u>: Tests, quizzes, case studies, simulations, role plays
> ➢ <u>Final assessment:</u> Test, case study

Recommended learning time:

> ➢ 60 hours face to face learning
> ➢ 60 hours individual learning

Vocabulary focus for reading and listening comprehension

Getting Started provides warm-up questions about the chapter topic. The questions' main purpose is to activate students' prior knowledge about the topic before they read the passage or listen to the audio file. The 'Get Ready!' exercise includes suggestions of questions that can serve this function. The teachers can also ask additional questions related to the school and occupational environment to activate students' prior knowledge.

Target words (terms)

Each unit introducing target words and asks students to assess their knowledge of each word both before and after they work through the chapter. Vocabulary learning is incremental (gradual, step-by step). Revision is required at least 3-4 times during the school year in various contexts. Even if students do not achieve productive mastery of every word by the time the chapter is finished, the process can show partial improvement (for example, from *no knowledge* to *receptive knowledge*). By avoiding a *no knowledge / full mastery dichotomy*, the process can show smaller degrees of learning. We would expect every student to learn enough about the target words to show some improvement, which should maintain and enhance their motivation.

Reading presents a reading passage that has been graded in various levels of difficulty. The embedding of the target vocabulary in these texts ensures that it is not introduced in isolation, but in meaningful contexts. There is also a great deal of target vocabulary in these texts that is not specifically focused on in the chapter, and that provides natural recycling in new contexts of words students have already studied.

In addition, the passages are suitable for a wide range of reading-based tasks that can be constructed by the teacher to ensure mastering of target words. This integration of reading and vocabulary allows the study of lexis in programs that

have a reading focus, and promotes the beneficial concurrent improvement of reading and vocabulary skills. For example, at the end of each passage, there are exercises (Reading Comprehension) that focus on comprehension ranging from literal details, recognition o true/false, matching of terms with definitions and filling gaps with targeted words.

Focusing on Vocabulary means:

• Word Meaning features a variety of exercises designed to help students learn the meaning of each of the twenty-four target words.

• Word Families provides practice in recognizing and using the various derivative word forms that make up a word's family (or words of the same category).

• Collocation exercises are designed to improve students' intuitions about the collocations a word takes (mouse, LED mouse, laser mouse, ball mouse).

Vocabulary Learning Strategies

To learn target words well, students will need to continue meeting and learning these word families outside of this book. This means you will need to use vocabulary strategies to maximize your learning. Below, we describe a number of these vocabulary learning strategies.

USING A DICTIONARY
One of the most important reasons to use a dictionary is to discover a word's meaning. However, many words have more than one meaning, and you must be careful to choose the one that matches the context.

3 Match the words or phrases (1-8) with the definitions (A-H).

1 __ Mac
2 __ Windows
3 __ macOS
4 __ Linux
5 __ hardware
6 __ software compatible
7 __ processing speed
8 __ vulnerable

A a computing device
B being able to run different programs
C an operating system developed by Apple
D an operating system that uses open source software
E a measure of how fast a computer operates
F an operating system developed by Microsoft
G a computer developed by Apple
H open to attack

Teachers can design similar tasks using a dictionary or the glossary to the teaching and learning resources as part of this package.

GUESSING FROM CONTEXT

Guessing the meaning of a new word from context is a very good way to supplement the learning of vocabulary from a book like this. You can get clues from the surrounding words and the construction of the sentences.

Teachers can use short texts for guessing from context. The teachers can ask questions such as:

What is the meaning of ……..?
What are the clues that helped you discover this meaning?
How could this help you understand the meaning of ……….?

EXTENSIVE READING

Although students gain a lot of benefits from studying words, they also need to see or hear them in many contexts to understand how to use them appropriately. One of the best ways to gain this wide exposure is to read extensively. The repeated exposure to words in reading will help students remember their spellings and meanings, and will also show the other words they commonly occur with. In other words, by reading widely, you will eventually begin to get a feel for which words collocate with the words you are learning.

USING INTERNET TOOLS

Nowadays, there are many Internet sites that can help your learning. Teachers can use internet sources for allowing for extensive reading and seeing target words in many contexts to understand how to use them appropriately.

Guide to Vocabulary Focus Approach – Metal Technologies / Machine Technologies, Grade 9

From Industrial Assembly, Express Publishing, 2022

	Unit	Topic	Reading		Comments
			Book 1		
	12	Measurements 1	Reading a conversion chart (true/false statements)	centimeter, diameter, foot, imperial, inch, kilogram, length, meter, metric, pound, ton, tonne, weight	
	13	Measurements 2	Reading a note (true/false statements)	Celsius, convert, cubic centimeter, degree, Fahrenheit, fluid ounce, gallon, liter, milliliter, temperature, volume	

From Electrician, Express Publishing, 2022

	Unit	Topic	Reading		Comments
			Book 1		
	9	Numbers	Reading a chart (true/false statements)	add, and, come to, divided by, eighth, equal, hundred, is, less, minus, multiplied by, over, plus, subtract, times	

From Electronics, Express Publishing, 2022

	Unit	Topic	Reading		Comments
				Book 1	
	13	Math	Reading a course description (multiple choice questions)	add, decimal, divide, formula, fraction, multiply, power, proportion, ratio, root, subtract	
	14	Measurements	Reading an article (multiple choice questions)	angular frequency, centimeter, decibel, inch, micron, milibar, millimeter, phase angle, time constant, watt-hour	
	15	Prefixes	Reading a chart (multiple choice questions)	giga (G), kilo (k), mega (M), micro (μ), milli (m), nano (n), pico (p), prefix, symbol, terra (T), value	
				Book 3	
	1	Diagrams	Reading a magazine article (multiple choice questions)	block diagram, chassis, conceptual, diagram, drawing, lay out, navigate, overall, pictorial diagram, placement, schematic diagram, section, service manual, specify	

From Computing, Express Publishing, 2022

	Unit	Topic	Reading	Vocabulary/ Target words and phrases	Comments / additional target words and phrases
				Book 1	
	1	Types of Computers	Reading a magazine article (multiple choice questions)	computer, desktop computer, laptop, notebook, personal computer, portable, processing power, server, tablet, workstation	
	2	Monitors	Reading an article (multiple choice questions)	aspect ratio, contrast, display, HD, LCD, LED, monitor, resolution, response time, screen	
	3	Keyboards	Reading a blog post (filling in the gaps)	Alt key, Caps Lock, Control key, diacritical mark, function key, keyboard, numeric keypad, QWERTY, Shift key, type	
	4	Mice	Reading a product listing (multiple choice questions)	ball mouse, click, button, cordless, laser mouse, LED mouse, mouse, scroll wheel, scrolling, USB	
	5	Inside the Computer	Reading a magazine article (multiple choice questions)	case, CPU, disk drive, fan, hard drive, heat sink, motherboard, optical drive, port, power supply, processor, removable drive, USB port	
	6	Data Storage Devices	Reading an advertisement (multiple choice questions)	capacity, flash drive, GB, memory, portable hard drive, solid state drive, SD (Solid State Drive), TB, thumb drive	

7	Printers	Reading an email (multiple choice questions)	cartridge, dpi (dots per inch), ink, inkjet printer, laser printer, ppm (pages per minute), print, printer, toner, two-sided	
8	Scanners	Reading an article (multiple choice questions)	all-in-one, automatic document feeder, color depth, copy, flatbed, optical resolution, ppi (pixels per inch), scan, scan area, scanner	
11	The User Interface	Reading a user guide (multiple choice questions)	cursor, desktop, dropdown menu, folder, GUI (Graphical User Interface), icon, organize, right-click, select, user	

From *VOCATIONAL ENGLISH METAL TECHNOLOGY*

	Unit	Topic	Reading		Comments
	1	Physical and personal protective equipment		Dust mask, protective helmet, high visibility clothes, face shield, ear plugs, safety gloves, safety boots, goggles, chemical suit, welding vest, respirator mask, safety harness.	
	2	Name of materials		Steel, copper, aluminium, brass, nickel, chrome	
	2	Name of some tools		Steel ruler, depth vernier calliper, outside and inside callipers, micrometer, hammer, file, chisel, hacksaw, snips, hexwrench	
	2	Action words		Striking, unplugging, drilling, tightening, inserting, grinding, hammering, sanding, shaping.	

Resource for distribution of the teaching/learning content – Metal Technologies / Machine Technologies, Grade 9

(using the description of the teaching/learning content you can indicate when during the school year you plan to use the relevant units and exercises for developing of language skills; under comments you can indicate whether revision is needed and when)

From Industrial Assembly, Express Publishing, 2022

	Unit	Topic	Reading	Listening	Speaking	Writing	Comments
				Book 1			
	12	Measurements 1	Reading a conversion chart (true/false statements)	Listening to a conversation between two factory workers (multiple choice questions); Completing a conversation	Acting out a dialogue between two factory workers	Filling out an email	
	13	Measurements 2	Reading a note (true/false statements)	Listening to a conversation between an ops manager and a supervisor (multiple choice questions); Completing a conversation	Acting out a dialogue between an ops manager and a supervisor	Filling out an email	

From Electrician, Express Publishing, 2022

	Unit	Topic	Reading	Listening	Speaking	Writing	Comments
				Book 1			
	9	Numbers	Reading a chart (true/false statements)	Listening to a conversation between two electricians (multiple choice questions); Completing a conversation	Acting out a dialogue between an electrician and an electrician's co-worker	Filling out a deposit slip correctly	

From Electronics, Express Publishing, 2022

	Unit	Topic	Reading	Listening	Speaking	Writing	Comments
				Book 1			
	13	Math	Reading a course description (multiple choice questions)	Listening to a conversation between a student and a teacher (true/false statements); Completing a conversation	Acting out a dialogue between a student and a teacher	Filling out a conversation from	
	14	Measurements	Reading an article (multiple choice questions)	Listening to a conversation between two technicians (true/false statements); Completing a conversation	Acting out a dialogue between an apprentice technician and experienced technician	Filling out a work report	

	15	Prefixes	Reading a chart (multiple choice questions)	Listening to a conversation between two electronics technicians (true/false statements); Completing a conversation	Acting out a dialogue between an experienced technician and a new technician	Filling out a new technician's email	
				Book 3			
	1	Diagrams	Reading a magazine article (multiple choice questions)	Listening to a conversation between two electronics techs (true/false statements); Completing a conversation	Acting out a dialogue between two electronics techs	Writing an excerpt from an article on reading electronics manuals	

From Computing, Express Publishing, 2022

	Unit	Topic	Reading	Listening	Speaking	Writing	Comments
				Book 1			
	1	Types of Computers	Reading a magazine article (multiple choice questions)	Listening to a conversation between an employee and a co-worker (true/false statements); Completing a conversation	Acting out a dialogue between an employee and a co-worker	Completing a computer request form	
	2	Monitors	Reading an article (multiple choice questions)	Listening to a conversation between a store clerk and a customer (true/false statements); Completing a conversation	Acting out a dialogue between a store clerk and a customer	Completing a description of a computer monitor	
	3	Keyboards	Reading a blog post (filling in the gaps)	Listening to a conversation between two employees (true/false statements);	Acting out a dialogue between two employees	Completing a note	

			Completing a conversation			
4	Mice	Reading a product listing (multiple choice questions)	Listening to a conversation between two employees (true/false statements); Completing a conversation	Acting out a dialogue between two employees	Completing a product feedback form for a new mouse	
5	Inside the Computer	Reading a magazine article (multiple choice questions)	Listening to a conversation between a computer store employee and a customer (true/false statements); Completing a conversation	Acting out a dialogue between a computer store employee and a customer	Completing a customer survey	
6	Data Storage Devices	Reading an advertisement (multiple choice questions)	Listening to a conversation between a shop assistant and a customer (true/false statements); Completing a conversation	Acting out a dialogue between a shop assistant and a customer	Completing an order form	
7	Printers	Reading an email (multiple choice questions)	Listening to a conversation between a manager and an employee (true/false	Acting out a dialogue between a manager and an employee	Completing a form	

				statements); Completing a conversation			
	8	Scanners	Reading an article (multiple choice questions)	Listening to a conversation between two employees about a scanner (true/false statements); Completing a conversation	Acting out a dialogue between two employees about a scanner	Completing a description of the scanner	
	11	The User Interface	Reading a user guide (multiple choice questions)	Listening to a conversation between two co-workers (true/false statements); Completing a conversation	Acting out a dialogue between two co-workers	Completing a user guide	

GRADE 10

Description of module content and learning objectives

Module objectives 10th grade Module 1 Focus on vocabulary Use of terminology in the foreign language	The module is skill-oriented and emphasizes on developing and consolidating practical skills in a variety of relevant work-related contexts. It focuses both on fluency in language use as well as on accuracy. Students learn and practice **how to**: General linguistic range - Use some simple structures correctly but still systematically makes basic mistakes - Pronounce words and phrases generally clear enough to be understood but still has a strong influence on stress, rhythm and intonation from the other language spoken - Clearly pronounce familiar words although repetition is needed from time to time - produce sounds in the target language if carefully guided. It may affect intelligibility, requiring collaboration from interlocutors. - Use effectively and close to independently a repertoire of basic language which enables them to deal with everyday situations with predictable - Convey very basic content, though they will generally have to compromise the message and search for words/signs. Vocabulary range - effectively apply and make use of a basic vocabulary repertoire of words/signs and phrases related to particular concrete situations. - Use sufficient vocabulary for the expression of basic communicative needs. - Use sufficient vocabulary for coping with simple survival needs.

	Grammatical accuracy • employ very simple principles of word/sign order in short statements. Shows only limited control of a few simple grammatical structures and sentence patterns in a learnt repertoire. • Use some simple structures correctly, but still systematically makes basic mistakes; nevertheless, it is usually clear what they are trying to say. Vocabulary control • control a narrow repertoire dealing with concrete, everyday needs and in professional context • Clearly pronounce enough to be understood, but conversational partners will need to ask for repetition from time to time. • Can deal with situations affected by a strong influence by the other language(s) they speak on stress, rhythm and intonation, requiring collaboration from interlocutors. • Demonstrate an intelligible pronunciation when communicating in simple everyday situations, provided the interlocutor makes an effort to understand specific sounds. • Communicate with the interlocutor when systematic mispronunciation of phonemes might hinder intelligibility, provided the interlocutor makes an effort to recognise and adjust to the influence of the speaker's language background on pronunciation. • use the rhythm and intonation of everyday words and phrases intelligibly, in spite of a strong influence on stress, intonation and/or rhythm from the other language(s) they speak.
Module 2 Professional communication in the foreign language	Students learn and practice **how to** Interact with colleagues or customers generally and more specifically for the level **how to**: Verbally • Can make and respond to invitations, suggestions, apologies, etc. using learnt phrases and memorized exchanges • Can handle very short social exchanges, using everyday polite forms of greeting and address • Can expand learnt phrases through simple recombination of their elements • Can ask for attention • adapt well-rehearsed, memorised, simple phrases to particular circumstances through limited lexical substitution and difficulties in articulating less familiar words is usual.

- Can expand learnt phrases through simple recombinations of their elements.
- Can use simple techniques to start, maintain or close a short conversation.
- Can give an example of something in a very simple text using "like" or "for example".
- Can communicate what they want to say in a simple and direct exchange of limited information on familiar
- communicate basic information about basic professional details and needs of a concrete type in a simple way.
- communicate very basic information about professional topics in a simple way, while pausing is expected and usual to search for expressions
- manage very short, isolated, rehearsed utterances using gesture and signalled requests for help when necessary.

In Writing

- write short messages, e-mail messages, memos following a sample
- write SMSs using standard abbreviations and basic repertoire of written words and phrases
- fill in forms with details related to standards work situations
- write simple isolated phrases and sentences, which I have memorized or copied.
- write simple notes to colleagues/friends about appointments (time, place) often using familiar templates, and including greetings, forms of address, formulas to thank and ask for things.
- take notes related to matters of immediate interest in work
- write simple isolated phrases and sentences, which he/she have memorized or copied.
- write simple notes to colleagues/friends about appointments (time, place) often using familiar templates, and including greetings, forms of address, formulas to thank and ask for things.
- give information about matters of personal and professional relevance (e.g. likes and dislikes, family, pets) using simple words/signs and basic expressions.
- produce simple isolated phrases and sentences.
- describe in very simple language what a familiar object looks like.

Description of language skills

Level of language skills	General language skills	Professional language skills	Examples Teaching and learning resources developing these occupational skills
Understanding Listening A1+	Can understand phrases and the highest frequency vocabulary related to areas of most immediate personal relevance (e.g. very basic personal and family information, shopping, local area, employment). Can catch the main point in short, clear, simple messages and announcements.	➤ can understands phrases and expressions related to the most immediate priority in the work environment provided speech is clearly and slowly articulated ➤ can identify the topic of discussion ➤ can follow speech which is very slow and carefully articulated ➤ can understand instructions addressed carefully and slowly ➤ Can catch the main point in short, clear, simple message and announcements ➤ Can understands simple technical information, such as operating instructions for everyday equipment ➤ Can extracts the essential information from short, recorded passages dealing with predictable everyday work matters ➤ Can understand words/signs and short sentences in a simple conversation (e.g. between a customer and a salesperson in a shop), provided people communicate very slowly and very clearly. ➤ Can follow a very simple, well-structured presentation or demonstration, provided it is illustrated with slides, concrete examples or diagrams, it is delivered slowly and clearly with repetition, and the topic is familiar. ➤ Can understand the outline of simple information given in a predictable situation, such as on a guided	**From Industrial Assembly, Express Publishing, 2022** Book 1 Exercises 5, 6 and 7 from Unit 1 Parts of a Factory, p. 4 – 5 Book 1 Exercises 5, 6 and 7 from Unit 2 Types of Industries, p. 6 – 7 Book 1 Exercises 5, 6 and 7 from Unit 3 Common Materials 1, p. 8 – 9 Book 1 Exercises 5, 6 and 7 from Unit 5 Properties of Materials, p. 12 – 13 Book 1 Exercises 5, 6 and 7 from Unit 6 Hand Tools, p. 14 – 15 Book 1 Exercises 5, 6 and 7 from Unit 7 Fasteners, p. 16 – 17 Book 1 Exercises 5, 6 and 7 from Unit 8 Machines 1, p. 18 – 19 Book 1 Exercises 5, 6 and 7 from Unit 9 Machines 2, p. 20 – 21 Book 1 Exercises 5, 6 and 7 from Unit 10 Parts of a Machine 1, p. 22 – 23 Book 1 Exercises 5, 6 and 7 from Unit 11 Parts of a Machine 2, p. 24 – 25 Book 1 Exercises 5, 6 and 7 from Unit 14 Basic Actions, p. 30 – 31 Book 1 Exercises 5, 6 and 7 from Unit 15 Assembly Operations, p. 32 – 33 **From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (review) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (review)

		tour of work environment (e.g. "This is where the master works"). ➤ Can understand simple directions on how to get from X to Y, by foot or public transport. ➤ Can understand basic instructions on times, dates and numbers, etc., and on routine tasks and assignments to be carried out. ➤ Can understand straightforward announcements (e.g. of a cinema programme or sports event, that a train has been delayed), provided the delivery is slow and clear. ➤ Can pick out concrete information (e.g. places and times) from short recordings on familiar everyday topics, provided they are delivered very slowly and clearly.	**Other materials**: https://youtu.be/rLKBKwWcZ5w?si=Jagb6B75IrcXYb7m (metalwork vocabulary) https://youtu.be/KIJk9mQBXmw?si=Ru7HGvGe5nE0PHs7 (tools in English vocabulary)
Reading A1 towards A1+	Can read very short, simple texts. Can find specific, predictable information in simple everyday material such as advertisements, prospectuses, menus and timetables and can understand short simple personal letters.	➤ can read and extract the necessary information related to working environment and the occupation. ➤ can extract the important information and main points from short specialised texts, manuals, orders, instructions, etc. ➤ can get a general understanding of an occupation-specific text. ➤ Can understand very simple formal e-mails and letters (e.g. confirmation of a booking or online purchase). ➤ Can understand everyday signs and notices, etc. in public places, such as streets, restaurants, railway stations; in workplaces, such as directions, instructions, hazard warnings. ➤ Can find specific, predictable information in simple everyday material such as advertisements, prospectuses, menus, reference lists and timetables.	**From Industrial Assembly, Express Publishing, 2022** Book 1 Exercises 2, 3 and 4 from Unit 1 Parts of a Factory, p. 4 – 5 Book 1 Exercises 2, 3 and 4 from Unit 2 Types of Industries, p. 6 – 7 Book 1 Exercises 2, 3 and 4 from Unit 3 Common Materials 1, p. 8 – 9 Book 1 Exercises 2, 3 and 4 from Unit 5 Properties of Materials, p. 12 – 13 Book 1 Exercises 2, 3 and 4 from Unit 6 Hand Tools, p. 14 – 15 Book 1 Exercises 2, 3 and 4 from Unit 7 Fasteners, p. 16 – 17 Book 1 Exercises 2, 3 and 4 from Unit 8 Machines 1, p. 18 – 19 Book 1 Exercises 2, 3 and 4 from Unit 9 Machines 2, p. 20 – 21 Book 1 Exercises 2, 3 and 4 from Unit 10 Parts of a Machine 1, p. 22 – 23 Book 1 Exercises 2, 3 and 4 from Unit 11 Parts of a Machine 2, p. 24 – 25 Book 1 Exercises 2, 3 and 4 from Unit 14 Basic Actions, p. 30 – 31 Book 1 Exercises 2, 3 and 4 from Unit 15 Assembly Operations,

		➢ Can locate specific information in lists and isolate the information required (e.g. use catalogues to find a service or tradesman). ➢ Can understand texts describing people, places, everyday life and work environment, etc., provided they use simple language. ➢ Can understand information given in illustrated brochures and maps (e.g. the principal attractions of a city). ➢ Can understand a short factual description or report within their own field, provided simple language is used and that it does not contain unpredictable detail. ➢ Can understand simple, brief instructions, provided they are illustrated and not presented in continuous text.	p. 32 – 33 **From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (review) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (review) - Reading a text about steel types, p: 18 - Reading a text about famous buildings, p: 20 - Reading a text about cold forming, p: 21 - Reading a dialogue about some tools, p: 26-29-30
Spoken interaction **A1+**	Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities. Can handle very short social exchanges, even though cannot usually understand	➢ can exchange information on a variety of simple and routine matters directly related to the immediate work environment. ➢ can ask questions, confirm information and avoid misunderstanding ➢ can handle a simple conversation in order to obtain goods and services ➢ can handle simple social exchanges with customers/colleagues, e.g. introductions, invitations, apologies. ➢ can ask and answer simple questions about someone's preferences, requests, purchases and orders.	**From Industrial Assembly, Express Publishing, 2022** Book 1 Exercises 1, 7 and 8 from Unit 1 Parts of a Factory, p. 4 – 5 Book 1 Exercises 1, 7 and 8 from Unit 2 Types of Industries, p. 6 – 7 Book 1 Exercises 1, 7 and 8 from Unit 3 Common Materials 1, p. 8 – 9 Book 1 Exercises 1, 7 and 8 from Unit 5 Properties of Materials, p. 12 – 13 Book 1 Exercises 1, 7 and 8 from Unit 6 Hand Tools, p. 14 – 15 Book 1 Exercises 1, 7 and 8 from Unit 7 Fasteners, p. 16 – 17 Book 1 Exercises 1, 7 and 8 from Unit 8 Machines 1, p. 18 – 19 Book 1 Exercises 1, 7 and 8 from Unit 9 Machines 2, p. 20 – 21 Book 1 Exercises 1, 7 and 8 from Unit 10 Parts of a Machine 1, p. 22 – 23

| | enough to keep the conversation going myself. | ➢ Can interact in a simple way but communication is totally dependent on repetition at a slower rate, rephrasing and repair.
➢ Can ask and answer simple questions, initiate and respond to simple statements in areas of immediate need or on very familiar topics.

➢ Can understand questions and instructions addressed carefully and slowly to them and follow short, simple directions.

➢ Can understand what is said clearly, slowly and directly to them in simple everyday conversation; can be made to understand, if the interlocutor can take the trouble.

➢ Can understand everyday expressions aimed at the satisfaction of simple needs of a concrete type, delivered directly to them in clear, slow and repeated language by a sympathetic interlocutor.
➢ Can take part in a simple conversation of a basic factual nature on a predictable topic (e.g. their home country, job, school).

➢ Can ask for and provide everyday goods and services.
➢ Can give and receive information about quantities, numbers, prices, etc.
➢ Can make simple purchases by stating what is wanted and asking the price.

➢ Can understand questions and instructions addressed carefully and slowly to them and follow short, simple directions. | Book 1 Exercises 1, 7 and 8 from Unit 11 Parts of a Machine 2, p. 24 – 25
Book 1 Exercises 1, 7 and 8 from Unit 14 Basic Actions, p. 30 – 31
Book 1 Exercises 1, 7 and 8 from Unit 15 Assembly Operations, p. 32 – 33

From Vocational English Metal Technology
Module 1: TERMS OF COLD FORMING (review)
Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (review)
    - Working in pairs, asking about the features of some materials, p: 19
    - Talking about what kind of tools and machines students use, p: 26 |

		➢ Can ask and answer simple questions, initiate and respond to simple statements in areas of immediate need or on very familiar topics. ➢ can ask and answer questions about my own area of work using simple language. ➢ can ask for and give directions referring to a map or plan. ➢ can discuss in a very simple way events, activities and plans. ➢ can take simple telephone calls or put callers through. ➢ can make arrangements concerning meeting points/date/time/arrival and departure, when simple language is used.	
Oral production A1+	I can use simple phrases and sentences to describe where I live and people I know. ⬇ Can use a series of phrases and sentences to describe in simple terms my family and other people, living conditions,	➢ can describe myself and my environment, using simple language. ➢ can give a simple account of my work place, my job or company. ➢ can produce simple mainly isolated phrases about people and places related to my occupation. ➢ can read a very short, rehearsed statement – e.g. to introduce a person, propose a product. ➢ Can give a simple description or presentation of people, living or working conditions, daily routines. likes/ dislikes, etc. as a short series of simple phrases and sentences linked into a list. ➢ Can describe themselves, what they do and where they live. ➢ Can describe simple aspects of their everyday life in a series of simple sentences, using simple words/signs and basic phrases, provided they can prepare in advance.	▪ The language user produces an oral text which is received by an audience of one or more listeners. ▪ Examples: reading a written text aloud, speaking from notes or visual aids (diagram, pictures, charts, etc.) ▪ Acting out a rehearsed role See above exercises for speaking interaction: ▪ Distribute role cards – students read their role cards Write a diagram of the role play words/sentences on the board

	my educational background and my present or most recent job.	➢ Can name an object and indicate its shape and colour while showing it to others using basic words/signs, phrases and formulaic expressions, provided they can prepare in advance. ➢ Can use a very short prepared text to deliver a rehearsed statement (e.g. to formally introduce someone, to propose a toast).	
Written production A1	Can produce simple isolated phrases and sentences. ⬇ Can produce a series of simple phrases and sentences linked with simple connectors like "and", "but" and "because".	➢ can write short letters, messages, e-mail messages, memos following a sample ➢ can write SMSs using standard abbreviations. ➢ can take notes related to matters of immediate interest in work ➢ can fill in forms with personal details (job, age, address, etc. ➢ can write simple isolated phrases and sentences, which I have memorized or copied. ➢ can write simple notes to colleagues/friends about appointments (time, place) often using familiar templates, and including greetings, forms of address, formulas to thank and ask for things. ➢ Can give information about matters of personal relevance (e.g. likes and dislikes, family, pets) using simple words/signs and basic expressions. ➢ Can produce simple isolated phrases and sentences. ➢ Can describe in very simple language what a room (or a familiar object) looks like.	**From Industrial Assembly, Express Publishing, 2022** Book 1 Exercise 9 from Unit 1 Parts of a Factory, p. 4 – 5 Book 1 Exercise 9 from Unit 2 Types of Industries, p. 6 – 7 Book 1 Exercise 9 from Unit 3 Common Materials 1, p. 8 – 9 Book 1 Exercise 9 from Unit 5 Properties of Materials, p. 12 – 13 Book 1 Exercise 9 from Unit 6 Hand Tools, p. 14 – 15 Book 1 Exercise 9 from Unit 7 Fasteners, p. 16 – 17 Book 1 Exercise 9 from Unit 8 Machines 1, p. 18 – 19 Book 1 Exercise 9 from Unit 9 Machines 2, p. 20 – 21 Book 1 Exercise 9 from Unit 10 Parts of a Machine 1, p. 22 – 23 Book 1 Exercise 9 from Unit 11 Parts of a Machine 2, p. 24 – 25 Book 1 Exercise 9 from Unit 14 Basic Actions, p. 30 – 31 Book 1 Exercise 9 from Unit 15 Assembly Operations, p. 32 – 33 **From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (review) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (review)

Teaching/learning contents (guide lines) – Metal Technologies / Machine Technologies, Grade 10

2 teaching hours per week

Topics from the Curriculum Package	Resources	Comments Teaching and learning focus and methods Linguistic aspects/teaching and learning methods
BASIC METAL FORMING	**From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (review) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (review) **Other materials:** https://youtu.be/rLKBKwWcZ5w?si=Jagb6B75IrcXYb7m (metalwork vocabulary) https://youtu.be/KIJk9mQBXmw?si=Ru7HGvGe5nE0PHs7 (tools in English vocabulary)	
MANUFACTURING OPERATIONS	**From Industrial Assembly, Express Publishing, 2022** Book 1 Unit 1 Parts of a Factory, p. 4 – 5 Book 1 Unit 2 Types of Industries, p. 6 – 7 Book 1 Unit 3 Common Materials 1, p. 8 – 9 Book 1 Unit 5 Properties of Materials, p. 12 – 13 Book 1 Unit 6 Hand Tools, p. 14 – 15 Book 1 Unit 7 Fasteners, p. 16 – 17 Book 1 Unit 8 Machines 1, p. 18 – 19 Book 1 Unit 9 Machines 2, p. 20 – 21 Book 1 Unit 10 Parts of a Machine 1, p. 22 – 23 Book 1 Unit 11 Parts of a Machine 2, p. 24 – 25 Book 1 Unit 14 Basic Actions, p. 30 – 31 Book 1 Unit 15 Assembly Operations, p. 32 – 33	

Assessment:

- ➢ <u>Self-assessment</u>: According to the scale in the self-assessment grid of the Common European Framework (CEF)
- ➢ <u>Tutor assessment</u>: Tests, quizzes, case studies, simulations, role plays
- ➢ <u>Final assessment:</u> Test, case study

Recommended learning time:

- ➢ 60 hours face to face learning
- ➢ 60 hours individual learning

Vocabulary focus for reading and listening comprehension

Getting Started provides warm-up questions about the chapter topic. The questions' main purpose is to activate students' prior knowledge about the topic before they read the passage or listen to the audio file. The 'Get Ready!' exercise includes suggestions of questions that can serve this function. The teachers can also ask additional questions related to the school and occupational environment to activate students' prior knowledge.

Target words (terms)

Each unit introducing target words and asks students to assess their knowledge of each word both before and after they work through the chapter. Vocabulary learning is incremental (gradual, step-by step). Revision is required at least 3-4 times during the school year in various contexts. Even if students do not achieve productive mastery of every word by the time the chapter is finished, the process can show partial improvement (for example, from *no knowledge* to *receptive knowledge*). By avoiding a *no knowledge / full mastery dichotomy*, the process can show smaller degrees of learning. We would expect every student to learn enough about the target words to show some improvement, which should maintain and enhance their motivation.

Reading presents a reading passage that has been graded in various levels of difficulty. The embedding of the target vocabulary in these texts ensures that it is not introduced in isolation, but in meaningful contexts. There is also a great deal of target vocabulary in these texts that is not specifically focused on in the chapter, and that provides natural recycling in new contexts of words students have already studied.

In addition, the passages are suitable for a wide range of reading-based tasks that can be constructed by the teacher to ensure mastering of target words. This integration of reading and vocabulary allows the study of lexis in programs that have a reading focus, and promotes the beneficial concurrent improvement of reading and vocabulary skills. For example, at the end of each passage, there are exercises (Reading Comprehension) that focus on comprehension ranging from literal details, recognition o true/false, matching of terms with definitions and filling gaps with targeted words.

Focusing on Vocabulary means:

• Word Meaning features a variety of exercises designed to help students learn the meaning of each of the twenty-four target words.

• Word Families provides practice in recognizing and using the various derivative word forms that make up a word's family (or words of the same category).

• Collocation exercises are designed to improve students' intuitions about the collocations a word takes (mouse, LED mouse, laser mouse, ball mouse).

Vocabulary Learning Strategies

To learn target words well, students will need to continue meeting and learning these word families outside of this book. This means you will need to use vocabulary strategies to maximize your learning. Below, we describe a number of these vocabulary learning strategies.

USING A DICTIONARY
One of the most important reasons to use a dictionary is to discover a word's meaning. However, many words have more than one meaning, and you must be careful to choose the one that matches the context.

3 Match the words or phrases (1-8) with the definitions (A-H).

1 __ Mac		5 __ hardware	
2 __ Windows		6 __ software compatible	
3 __ macOS		7 __ processing speed	
4 __ Linux		8 __ vulnerable	

A a computing device
B being able to run different programs
C an operating system developed by Apple
D an operating system that uses open source software
E a measure of how fast a computer operates
F an operating system developed by Microsoft
G a computer developed by Apple
H open to attack

Teachers can design similar tasks using a dictionary or the glossary to the teaching and learning resources as part of this package.

GUESSING FROM CONTEXT

Guessing the meaning of a new word from context is a very good way to supplement the learning of vocabulary from a book like this. You can get clues from the surrounding words and the construction of the sentences.

Teachers can use short texts for guessing from context. The teachers can ask questions such as:

What is the meaning of ……..?
What are the clues that helped you discover this meaning?
How could this help you understand the meaning of ……….?

EXTENSIVE READING

Although students gain a lot of benefits from studying words, they also need to see or hear them in many contexts to understand how to use them appropriately. One of the best ways to gain this wide exposure is to read extensively. The repeated exposure to words in reading will help students remember their spellings and meanings, and will also show the other words they commonly occur with. In other words, by reading widely, you will eventually begin to get a feel for which words collocate with the words you are learning.

USING INTERNET TOOLS

Nowadays, there are many Internet sites that can help your learning. Teachers can use internet sources for allowing for extensive reading and seeing target words in many contexts to understand how to use them appropriately.

Guide to Vocabulary Focus Approach – Metal Technologies / Machine Technologies, Grade 10

From Industrial Assembly, Express Publishing, 2022

	Unit	Topic	Reading	Vocabulary/ Target words and phrases	Comments / additional target words and phrases
				Book 1	
	1	Parts of a Factory	Reading a manual (true/false statements)	assembly line, break room, control room, factory, factory floor, loading dock, locker room, office, plant, production line, shipping and receiving	
	2	Types of Industries	Reading an email (true/false statements)	automobile, construction, electronics, factory farming, industry, manufacturing, medical, metalworking, product, textile, woodworking	
	3	Common Materials 1	Reading a webpage (filing in the blanks)	alloy, aluminum, concrete, copper, glass, lumber, metal, particle board, rubber, steel, stone	
	5	Properties of Materials	Reading a textbook chapter (completing a table)	brittle, conductor, ductile, hardness, insulator, luster, malleable, natural, synthetic, tensile	
	6	Hand Tools	Reading a memo (multiple choice questions)	caliper, clamp, cutter, hammer, hand tool, pliers, saw, screwdriver, tool crib, wrench	
	7	Fasteners	Reading an email (true/false statements)	adhesive, bolt, fastener, nail, nut, rivet, screw, sealant, staple, washer	

	8	Machines 1	Reading a maintenance report (true/false statements)	band saw, chainsaw, drill, drill press, edgebander, honing machine, lathe, machine tool, power nut runner, sander, soldering iron	
	9	Machines 2	Reading a webpage (true/false statements)	air compressor, boiler, CNC, dryer, forklift, generator, heat sink, kiln, mill, mixer	
	10	Parts of a Machine 1	Reading a manual (true/false statements)	belt, button, calibrate, component, die, gear, housing, mechanism, regulator, switch, valve	
	11	Parts of a Machine 2	Reading a repair log (true/false statements)	bearing, cam, coolant, engine, feeder, fuel, gasket, intake, motor, sprocket, tooth, wheel	
	14	Basic Actions	Reading a manual (true/false statements)	adhere, bore, cut, dry, feed, fit, join, monitor, sort, stamp, wire	
	15	Assembly Operations	Reading an email (true/false statements)	assembly, automated, compensate, jam, manual, mass produce, misalignment, special-purpose machine, variation, workstation	

From Vocational English Metal Technology

	Unit	Topic	Reading	Vocabulary/ Target words and phrases	Comments / additional target words and phrases
	1	Physical and personal protective equipment		Dust mask, protective helmet, high visibility clothes, face shield, ear plugs, safety gloves, safety boots, goggles, chemical suit, welding vest, respirator mask, safety harness.	
	2	Name of some materials		Steel, copper, aluminium, brass, nickel, chrome	
	2	Name of some tools		Steel ruler, depth vernier calliper, outside and inside callipers, micrometer, hammer, file, chisel, hacksaw, snips, hexwrench	
	2	Action words		Striking, unplugging, drilling, tightening, inserting, grinding, hammering, sanding, shaping.	

Resource for distribution of the teaching/learning content – Metal Technologies / Machine Technologies, Grade 10

(using the description of the teaching/learning content you can indicate when during the school year you plan to use the relevant units and exercises for developing of language skills; under comments you can indicate whether revision is needed and when)

From Industrial Assembly, Express Publishing, 2022

Unit	Topic	Reading	Listening	Speaking	Writing	Comments
Book 1						
1	Parts of a Factory	Reading a manual (true/false statements)	Listening to a conversation between a supervisor and an employee (multiple choice questions); Completing a conversation	Acting out a dialogue between a supervisor and an employee	Filling out an email from a factory owner to a manager	
2	Types of Industries	Reading an email (true/false statements)	Listening to a conversation between an interviewer and an applicant (multiple choice questions);	Acting out a dialogue between an interviewer and an applicant	Filling out an applicant evaluation form	

				Completing a conversation			
	3	Common Materials 1	Reading a webpage (filing in the blanks)	Listening to a conversation between two engineers (multiple choice questions); Completing a conversation	Acting out a dialogue between two engineers	Filling out the materials order form	
	5	Properties of Materials	Reading a textbook chapter (completing a table)	Listening to a conversation between two students (multiple choice questions); Completing a conversation	Acting out a dialogue between two students	Completing an email	
	6	Hand Tools	Reading a memo (multiple choice questions)	Listening to a conversation between supervisor and a line worker (true/false statements); Completing a conversation	Acting out a dialogue between supervisor and a line worker	Filling out an accident report	

	7	Fasteners	Reading an email (true/false statements)	Listening to a conversation between a supervisor and a line worker (multiple choice questions); Completing a conversation	Acting out a dialogue between a supervisor and a line worker	Filling out a note from a supervisor to a line worker
	8	Machines 1	Reading a maintenance report (true/false statements)	Listening to a conversation between two managers (multiple choice questions); Completing a conversation	Acting out a dialogue between two managers	Filling out an email
	9	Machines 2	Reading a webpage (true/false statements)	Listening to a conversation between a supply company representative and a customer (multiple choice questions); Completing a conversation	Acting out a dialogue between a supply company representative and a customer	Filling out an email
	10	Parts of a Machine 1	Reading a manual (true/false statements)	Listening to a conversation between two technicians	Acting out a dialogue between two technicians	Filling out a troubleshooting report

				(multiple choice questions); Completing a conversation			
	11	Parts of a Machine 2	Reading a repair log (true/false statements)	Listening to a conversation between a technician and a supervisor (multiple choice questions); Completing a conversation	Acting out a dialogue between a technician and a supervisor	Filling out a log entry	
	14	Basic Actions	Reading a manual (true/false statements)	Listening to a conversation between a tour guide and a visitor (multiple choice questions); Completing a conversation	Acting out a dialogue between a tour guide and a visitor	Filling out a note	
	15	Assembly Operations	Reading an email (true/false statements)	Listening to a conversation between a manager and an analyst (multiple choice questions); Completing a conversation	Acting out a dialogue between a manager and an analyst	Filling out an email	

GRADE 11

Description of module content and learning objectives

| Module objectives

11th grade

Module 1

Focus on vocabulary

Use of terminology in the foreign language | The module is skill-oriented and emphasizes on developing and consolidating practical skills in a variety of relevant work-related contexts. It focuses both on fluency in language use as well as on accuracy.

Students learn and practice **how to**:

General linguistic range

• Use simple and more complex structures correctly but still systematically makes some mistakes
• Pronounce words and phrases generally clear enough to be understood but still has a strong influence on stress, rhythm and intonation from the other language spoken
• Clearly pronounce familiar words although repetition is needed from time to time
• produce sounds in the target language if carefully guided. It may affect intelligibility, requiring collaboration from interlocutors.
• Use effectively and close to independently a repertoire of basic language which enables them to deal with everyday situations with predictable
• Convey very basic content, though they will generally have to compromise the message and search for words/signs.
• get by using enough language, with sufficient vocabulary to express themselves with some hesitation and circumlocutions on topics such as family, hobbies and interests, work, travel and current events, but lexical limitations cause repetition and even difficulty with formulation at times. |

Vocabulary range

- use sufficient vocabulary to conduct routine everyday transactions involving familiar situations and topics.
- Express using sufficient vocabulary basic communicative needs.
- Cope with survival and routine needs using sufficient vocabulary for coping.
- Communicate using a good range of vocabulary related to familiar topics and everyday situations.

Grammatical accuracy

- employ a range of principles of word/sign order in short statements. Shows only limited control of a few simple grammatical structures and sentence patterns in a learnt repertoire.
- Use a range of structures correctly, but still systematically makes mistakes; nevertheless, it is usually clear what they are trying to say.
- Communicate using reasonably accurately a repertoire of frequently used "routines" and patterns associated with more predictable situations.

Vocabulary control

- control a narrow repertoire dealing with concrete, everyday needs and in professional context
- Clearly pronounce enough to be understood, but conversational partners will need to ask for repetition from time to time.
- Can deal with situations affected by a strong influence by the other language(s) they speak on stress, rhythm and intonation, requiring collaboration from interlocutors.
- Demonstrate an intelligible pronunciation when communicating in simple everyday situations, provided the interlocutor makes an effort to understand specific sounds.
- Communicate with the interlocutor when systematic mispronunciation of phonemes might hinder intelligibility, provided the interlocutor makes an effort to recognise and adjust to the influence of the speaker's language background on pronunciation.
- use the rhythm and intonation of everyday words and phrases intelligibly, in spite of a strong influence on stress, intonation and/or rhythm from the other language(s) they speak.

	• Language features (e.g. word stress) are adequate for familiar everyday words and simple utterances.
Module 2 Professional communication in the foreign language	Students learn and practice **how to** Interact with colleagues or customers generally and more specifically for the level **how to**: Verbally • Can make and respond to invitations, suggestions, apologies, etc. using learnt phrases and memorized exchanges • Can handle very short social exchanges, using everyday polite forms of greeting and address • Can expand learnt phrases through simple recombination of their elements • Can ask for attention • adapt well-rehearsed, memorised, simple phrases to particular circumstances through limited lexical substitution and difficulties in articulating less familiar words is usual. • Can expand learnt phrases through simple recombinations of their elements. • Can use simple techniques to start, maintain or close a short conversation. • Can give an example of something in a very simple text using "like" or "for example". • Can communicate what they want to say in a simple and direct exchange of limited information on familiar • communicate basic information about basic professional details and needs of a concrete type in a simple way. • communicate very basic information about professional topics in a simple way, while pausing is expected and usual to search for expressions • manage very short, isolated, rehearsed utterances using gesture and signalled requests for help when necessary. • Can perform and respond to basic language functions, e.g. information exchange and requests, and express opinions and attitudes in a simple way. • Can socialise simply but effectively using the simplest common expressions and following basic routines.

In Writing

- write short messages, e-mail messages, memos following a sample
- write SMSs using standard abbreviations and basic repertoire of written words and phrases
- fill in forms with details related to standards work situations
- write simple isolated phrases and sentences, which I have memorized or copied.
- write simple notes to colleagues/friends about appointments (time, place) often using familiar templates, and including greetings, forms of address, formulas to thank and ask for things.
- take notes related to matters of immediate interest in work
- write simple isolated phrases and sentences, which he/she have memorized or copied.
- write simple notes to colleagues/friends about appointments (time, place) often using familiar templates, and including greetings, forms of address, formulas to thank and ask for things.
- give information about matters of personal and professional relevance (e.g. likes and dislikes, family, pets) using simple words/signs and basic expressions.
- produce simple isolated phrases and sentences.
- describe in very simple language what a familiar object looks like.

Description of language skills for the Module

Level of language skills	General language skills	Professional language skills	Examples **Teaching and learning resources developing these occupational skills**
Understanding Listening **A2**	Can understand phrases and the highest frequency vocabulary related to areas of most immediate personal relevance (e.g. very basic personal and family information, shopping, local area, employment). Can catch the main point in short, clear, simple messages and announcements.	➢ can understands phrases and expressions related to the most immediate priority in the work environment ➢ can identify the topic of discussion ➢ can follow speech which is very slow and carefully articulated ➢ can understand instructions addressed carefully and slowly ➢ Can catch the main point in short, clear, simple message and announcements ➢ Can understands simple technical information, such as operating instructions for everyday equipment if clearly and slowly articulated ➢ Can extract the essential information from short, recorded passages dealing with predictable everyday work matters ➢ can understand enough to be able to meet needs of a concrete type provided speech is clearly and slowly articulated ➢ Can follow in outline short, simple social exchanges, conducted very slowly and clearly.	**From Industrial Assembly, Express Publishing, 2022** Book 3 Exercise 5, 6 and 7 from Unit 1 Workplace Attire, p. 4 – 5 Book 3 Exercise 5, 6 and 7 from Unit 2 Materials Safety, p. 6 – 7 Book 3 Exercise 5, 6 and 7 from Unit 3 Machine Safety, p. 8 – 9 Book 3 Exercise 5, 6 and 7 from Unit 4 Maintenance, p. 10 – 11 Book 3 Exercise 5, 6 and 7 from Unit 5 Quality Control, p. 12 – 13 Book 3 Exercise 5, 6 and 7 from Unit 7 Factory Management, p. 16 – 17 Book 3 Exercise 5, 6 and 7 from Unit 11 Manufacturing Engineering, p. 24 – 25 Book 3 Exercise 5, 6 and 7 from Unit 13 Computer-Aided Systems, p. 28 – 29 Book 3 Exercise 5, 6 and 7 from Unit 14 Training and Development, p. 30 – 31 **From Electrician, Express Publishing, 2022** Book 1 Exercise 5, 6 and 7 from Unit 1 General Tools, p. 4-5 Book 1 Exercise 5, 6 and 7 from Unit 2 More Tools, p. 6-7 Book 1 Exercise 5, 6 and 7 from Unit 10 Measurements, p. 22-23 Book 1 Exercise 5, 6 and 7 from Unit 11 Elements of Electricity, p. 24-25 Book 2 Exercise 5, 6 and 7 from Unit 4 Panels, p. 10-11 Book 2 Exercise 5, 6 and 7 from Unit 11 Types of Switches, p. 24-25 Book 2 Exercise 5, 6 and 7 from Unit 7 Balancing the Load, p.

		➢ Can generally identify the topic of discussion around them when it is conducted slowly and clearly. ➢ Can recognise when people agree and disagree in a conversation conducted slowly and clearly. ➢ Can understand and follow a series of instructions for familiar everyday activities such as sports, cooking, etc., provided they are delivered slowly and clearly.	16-17 Book 2 Exercise 5, 6 and 7 from Unit 6 Fuses and Circuits Breakers, p. 14-15 **From Art and Design, Express Publishing, 2022** Book 2 Exercise 5, 6 and 7 from Unit 15 CAD, p. 32 – 33 **From Architecture, Express Publishing, 2022** Book 3 Exercise 5, 6 and 7 from Unit 1 Design Tools and Materials, p. 4 – 5 Book 3 Exercise 5, 6 and 7 from Unit 2 Models, p. 6 – 7 Book 3 Exercise 5, 6 and 7 from Unit 3 Drawings 1, p. 8 – 9 Book 3 Exercise 5, 6 and 7 from Unit 4 Drawings 2, p. 10 – 11 **From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (upgrade) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (upgrade) **Other materials:** https://youtu.be/rLKBKwWcZ5w?si=Jagb6B75IrcXYb7m (metalwork vocabulary) https://youtu.be/KIJk9mQBXmw?si=Ru7HGvGe5nE0PHs7 (tools in English vocabulary)
Reading **A1+ to A2**	Can read very short, simple texts. Can find specific, predictable information in simple everyday material such as advertisements, prospectuses, menus and timetables and can understand short simple personal letters.	➢ can read and extract the necessary information related to working environment and the occupation. ➢ can extract the important information and main points from short specialised texts, manuals, orders, instructions, etc. ➢ can get a general understanding of a occupation-specific text.	**From Industrial Assembly, Express Publishing, 2022** Book 3 Exercise 2, 3 and 4 from Unit 1 Workplace Attire, p. 4 – 5 Book 3 Exercise 2, 3 and 4 from Unit 2 Materials Safety, p. 6 – 7 Book 3 Exercise 2, 3 and 4 from Unit 3 Machine Safety, p. 8 – 9 Book 3 Exercise 2, 3 and 4 from Unit 4 Maintenance, p. 10 – 11 Book 3 Exercise 2, 3 and 4 from Unit 5 Quality Control, p. 12 – 13 Book 3 Exercise 2, 3 and 4 from Unit 7 Factory Management, p. 16 – 17

Book 3 Exercise 2, 3 and 4 from Unit 11 Manufacturing Engineering, p. 24 – 25
Book 3 Exercise 2, 3 and 4 from Unit 13 Computer-Aided Systems, p. 28 – 29
Book 3 Exercise 2, 3 and 4 from Unit 14 Training and Development, p. 30 – 31

From Electrician, Express Publishing, 2022
Book 1 Exercise 2, 3 and 4 from Unit 1 General Tools, p. 4-5
Book 1 Exercise 2, 3 and 4 from Unit 2 More Tools, p. 6-7
Book 1 Exercise 2, 3 and 4 from Unit 10 Measurements, p. 22-23
Book 1 Exercise 2, 3 and 4 from Unit 11 Elements of Electricity, p. 24-25

Book 2 Exercise 2, 3 and 4 from Unit 4 Panels, p. 10-11
Book 2 Exercise 2, 3 and 4 from Unit 11 Types of Switches, p. 24-25
Book 2 Exercise 2, 3 and 4 from Unit 7 Balancing the Load, p. 16-17
Book 2 Exercise 2, 3 and 4 from Unit 6 Fuses and Circuits Breakers, p. 14-15

From Art and Design, Express Publishing, 2022
Book 2 Exercise 2, 3 and 4 from Unit 15 CAD, p. 32 – 33

From Architecture, Express Publishing, 2022
Book 3 Exercise 2, 3 and 4 from Unit 1 Design Tools and Materials, p. 4 – 5
Book 3 Exercise 2, 3 and 4 from Unit 2 Models, p. 6 – 7
Book 3 Exercise 2, 3 and 4 from Unit 3 Drawings 1, p. 8 – 9
Book 3 Exercise 2, 3 and 4 from Unit 4 Drawings 2, p. 10 – 11

From Vocational English Metal Technology
Module 1: TERMS OF COLD FORMING (upgrade)
Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING

			(upgrade) - Reading a text about steel types, p: 18 - Reading a text about famous buildings, p: 20 - Reading a text about cold forming, p: 21 - Reading a dialogue about some tools, p: 26-29-30
Speaking Spoken interaction **A1+ to A2**	Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar topics and activities. Can handle very short social exchanges, even though cannot usually understand enough to keep the conversation going myself.	➢ can exchange information on a variety of simple and routine matters directly related to the immediate work environment. ➢ can ask questions, confirm information and avoid misunderstanding ➢ can handle a simple conversation in order to obtain goods and services ➢ can handle simple social exchanges with customers/colleagues, e.g. introductions, invitations, apologies. ➢ can ask and answer simple questions about someone's preferences, requests, purchases and orders. ➢ can ask and answer questions about my own area of work using simple language. ➢ can ask for and give directions referring to a map or plan. ➢ can discuss in a very simple way events, activities and plans. ➢ can take simple telephone calls or put callers through. ➢ can make arrangements concerning meeting points/date/time/arrival and	**From Industrial Assembly, Express Publishing, 2022** Book 3 Exercise 1, 7 and 8 from Unit 1 Workplace Attire, p. 4 – 5 Book 3 Exercise 1, 7 and 8 from Unit 2 Materials Safety, p. 6 – 7 Book 3 Exercise 1, 7 and 8 from Unit 3 Machine Safety, p. 8 – 9 Book 3 Exercise 1, 7 and 8 from Unit 4 Maintenance, p. 10 – 11 Book 3 Exercise 1, 7 and 8 from Unit 5 Quality Control, p. 12 – 13 Book 3 Exercise 1, 7 and 8 from Unit 7 Factory Management, p. 16 – 17 Book 3 Exercise 1, 7 and 8 from Unit 11 Manufacturing Engineering, p. 24 – 25 Book 3 Exercise 1, 7 and 8 from Unit 13 Computer-Aided Systems, p. 28 – 29 Book 3 Exercise 1, 7 and 8 from Unit 14 Training and Development, p. 30 – 31 **From Electrician, Express Publishing, 2022** Book 1 Exercise 1, 7 and 8 from Unit 1 General Tools, p. 4-5 Book 1 Exercise 1, 7 and 8 from Unit 2 More Tools, p. 6-7 Book 1 Exercise 1, 7 and 8 from Unit 10 Measurements, p. 22-23 Book 1 Exercise 1, 7 and 8 from Unit 11 Elements of Electricity, p. 24-25 Book 2 Exercise 1, 7 and 8 from Unit 4 Panels, p. 10-11 Book 2 Exercise 1, 7 and 8 from Unit 11 Types of Switches, p. 24-25 Book 2 Exercise 1, 7 and 8 from Unit 7 Balancing the Load, p.

		departure, when simple language is used.	16-17 Book 2 Exercise 1, 7 and 8 from Unit 6 Fuses and Circuits Breakers, p. 14-15 **From Art and Design, Express Publishing, 2022** Book 2 Exercise 1, 7 and 8 from Unit 15 CAD, p. 32 – 33 **From Architecture, Express Publishing, 2022** Book 3 Exercise 1, 7 and 8 from Unit 1 Design Tools and Materials, p. 4 – 5 Book 3 Exercise 1, 7 and 8 from Unit 2 Models, p. 6 – 7 Book 3 Exercise 1, 7 and 8 from Unit 3 Drawings 1, p. 8 – 9 Book 3 Exercise 1, 7 and 8 from Unit 4 Drawings 2, p. 10 – 11 **From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (upgrade) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (upgrade) - Working in pairs, asking about the features of some materials, p: 19 - Talking about what kind of tools and machines students use, p: 26
Spoken production **A1+**	Can use a series of phrases and sentences to describe in simple terms my family and other people, living conditions, my educational background and my present or most recent job.	➢ can describe myself and my environment, using simple language. ➢ can give a simple account of my work place, my job or company. ➢ can produce simple mainly isolated phrases about people and places related to my occupation. ➢ can read a very short, rehearsed statement – e.g. to introduce a person, propose a product.	Oral production (speaking) activities: ▪ The language user produces an oral text which is received by an audience of one or more listeners. ▪ Examples: reading a written text aloud, speaking from notes or visual aids (diagram, pictures, charts, etc.) ▪ Acting out a rehearsed role See above exercises for speaking interaction: ▪ Distribute role cards – students read their role cards ▪ Write a diagram of the role play words/sentences on the board

| **Writing A1+** | Can write short, simple notes and messages. Can write a very simple personal letter, for example thanking someone for something. | ➢ can write short letters, messages, e-mail messages, memos following a sample
➢ can write SMSs using standard abbreviations.
➢ can take notes related to matters of immediate interest in work
➢ can fill in forms with personal details (job, age, address, etc.
➢ can write simple isolated phrases and sentences, which I have memorized or copied.
➢ can write simple notes to colleagues/friends about appointments (time, place) often using familiar templates, and including greetings, forms of address, formulas to thank and ask for things. | **From Industrial Assembly, Express Publishing, 2022**
Book 3 Exercise 9 from Unit 1 Workplace Attire, p. 4 – 5
Book 3 Exercise 9 from Unit 2 Materials Safety, p. 6 – 7
Book 3 Exercise 9 from Unit 3 Machine Safety, p. 8 – 9
Book 3 Exercise 9 from Unit 4 Maintenance, p. 10 – 11
Book 3 Exercise 9 from Unit 5 Quality Control, p. 12 – 13
Book 3 Exercise 9 from Unit 7 Factory Management, p. 16 – 17
Book 3 Exercise 9 from Unit 11 Manufacturing Engineering, p. 24 – 25
Book 3 Exercise 9 from Unit 13 Computer-Aided Systems, p. 28 – 29
Book 3 Exercise 9 from Unit 14 Training and Development, p. 30 – 31

From Electrician, Express Publishing, 2022
Book 1 Exercise 9 from Unit 1 General Tools, p. 4-5
Book 1 Exercise 9 from Unit 2 More Tools, p. 6-7
Book 1 Exercise 9 from Unit 10 Measurements, p. 22-23
Book 1 Exercise 9 from Unit 11 Elements of Electricity, p. 24-25

Book 2 Exercise 9 from Unit 4 Panels, p. 10-11
Book 2 Exercise 9 from Unit 11 Types of Switches, p. 24-25
Book 2 Exercise 9 from Unit 7 Balancing the Load, p. 16-17
Book 2 Exercise 9 from Unit 6 Fuses and Circuits Breakers, p. 14-15

From Art and Design, Express Publishing, 2022
Book 2 Exercise 9 from Unit 15 CAD, p. 32 – 33

From Architecture, Express Publishing, 2022
Book 3 Exercise 9 from Unit 1 Design Tools and Materials, p. 4 – 5
Book 3 Exercise 9 from Unit 2 Models, p. 6 – 7
Book 3 Exercise 9 from Unit 3 Drawings 1, p. 8 – 9
Book 3 Exercise 9 from Unit 4 Drawings 2, p. 10 – 11 |

			From Vocational English Metal Technology
			Module 1: TERMS OF COLD FORMING (upgrade)
			Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (upgrade)

Teaching/learning contents (guide lines) – Metal Technologies / Machine Technologies, Grade 11

2 teaching hours per week

Topics from the Curriculum Package	Resources	Comments Teaching and learning focus and methods Linguistic aspects/teaching and learning methods
BASIC ELECTRICITY	**From Electrician, Express Publishing, 2022** Book 1 Unit 1 General Tools, p. 4-5 Book 1 Unit 2 More Tools, p. 6-7 Book 1 Unit 10 Measurements, p. 22-23 Book 1 Unit 11 Elements of Electricity, p. 24-25 Book 2 Unit 4 Panels, p. 10-11 Book 2 Unit 11 Types of Switches, p. 24-25 Book 2 Unit 7 Balancing the Load, p. 16-17 Book 2 Unit 6 Fuses and Circuits Breakers, p. 14-15	
BASIC METAL FORMING	**From Vocational English Metal Technology** Module 1: TERMS OF COLD FORMING (upgrade) Module 2: THE TOOLS AND MACHINES ABOUT COLD FORMING (upgrade)	
MANUFACTURING OPERATIONS	**From Industrial Assembly, Express Publishing, 2022** Book 3 Unit 1 Workplace Attire, p. 4 – 5 Book 3 Unit 2 Materials Safety, p. 6 – 7 Book 3 Unit 3 Machine Safety, p. 8 – 9 Book 3 Unit 4 Maintenance, p. 10 – 11 Book 3 Unit 5 Quality Control, p. 12 – 13 Book 3 Unit 7 Factory Management, p. 16 – 17 Book 3 Unit 11 Manufacturing Engineering, p. 24 – 25 Book 3 Unit 14 Training and Development, p. 30 – 31	

COMPUTER-AIDED DRAWING	**From Industrial Assembly, Express Publishing, 2022** Book 3 Unit 13 Computer-Aided Systems, p. 28 – 29	
PROFESSIONAL DRAWING	**From Art and Design, Express Publishing, 2022** Book 2 Unit 15 CAD, p. 32 – 33 **From Architecture, Express Publishing, 2022** Book 3 Unit 1 Design Tools and Materials, p. 4 – 5 Book 3 Unit 2 Models, p. 6 – 7 Book 3 Unit 3 Drawings 1, p. 8 – 9 Book 3 Unit 4 Drawings 2, p. 10 – 11	

Assessment:

➢ Self-assessment: According to the scale in the self-assessment grid of the Common European Framework (CEF)
➢ Tutor assessment: Tests, quizzes, case studies, simulations, role plays
➢ Final assessment: Test, case study

Recommended learning time:

➢ 60 hours face to face learning
➢ 60 hours individual learning

Vocabulary focus for reading and listening comprehension

Getting Started provides warm-up questions about the chapter topic. The questions' main purpose is to activate students' prior knowledge about the topic before they read the passage or listen to the audio file. The 'Get Ready!' exercise includes suggestions of questions that can serve this function. The teachers can also ask additional questions related to the school and occupational environment to activate students' prior knowledge.

Target words (terms)

Each unit introducing target words and asks students to assess their knowledge of each word both before and after they work through the chapter. Vocabulary learning is incremental (gradual, step-by step). Revision is required at least 3-4 times during the school year in various contexts. Even if students do not achieve productive mastery of every word by the time the chapter is finished, the process can show partial improvement (for example, from *no knowledge* to *receptive knowledge*). By avoiding a *no knowledge / full mastery dichotomy*, the process can show smaller degrees of learning. We would expect every student to learn enough about the target words to show some improvement, which should maintain and enhance their motivation.

Reading presents a reading passage that has been graded in various levels of difficulty. The embedding of the target vocabulary in these texts ensures that it is not introduced in isolation, but in meaningful contexts. There is also a great deal of target vocabulary in these texts that is not specifically focused on in the chapter, and that provides natural recycling in new contexts of words students have already studied.

In addition, the passages are suitable for a wide range of reading-based tasks that can be constructed by the teacher to ensure mastering of target words. This integration of reading and vocabulary allows the study of lexis in programs that have

a reading focus, and promotes the beneficial concurrent improvement of reading and vocabulary skills. For example, at the end of each passage, there are exercises (Reading Comprehension) that focus on comprehension ranging from literal details, recognition o true/false, matching of terms with definitions and filling gaps with targeted words.

Focusing on Vocabulary means:

• Word Meaning features a variety of exercises designed to help students learn the meaning of each of the twenty-four target words.

• Word Families provides practice in recognizing and using the various derivative word forms that make up a word's family (or words of the same category).

• Collocation exercises are designed to improve students' intuitions about the collocations a word takes (mouse, LED mouse, laser mouse, ball mouse).

Vocabulary Learning Strategies

To learn target words well, students will need to continue meeting and learning these word families outside of this book. This means you will need to use vocabulary strategies to maximize your learning. Below, we describe a number of these vocabulary learning strategies.

USING A DICTIONARY
One of the most important reasons to use a dictionary is to discover a word's meaning. However, many words have more than one meaning, and you must be careful to choose the one that matches the context.

③ Match the words or phrases (1-8) with the definitions (A-H).

1 __ Mac	5 __ hardware
2 __ Windows	6 __ software compatible
3 __ macOS	7 __ processing speed
4 __ Linux	8 __ vulnerable

A a computing device

B being able to run different programs

C an operating system developed by Apple

D an operating system that uses open source software

E a measure of how fast a computer operates

F an operating system developed by Microsoft

G a computer developed by Apple

H open to attack

Teachers can design similar tasks using a dictionary or the glossary to the teaching and learning resources as part of this package.

GUESSING FROM CONTEXT
Guessing the meaning of a new word from context is a very good way to supplement the learning of vocabulary from a book like this. You can get clues from the surrounding words and the construction of the sentences.

Teachers can use short texts for guessing from context. The teachers can ask questions such as:

What is the meaning of ……..?
What are the clues that helped you discover this meaning?
How could this help you understand the meaning of ……….?

EXTENSIVE READING
Although students gain a lot of benefits from studying words, they also need to see or hear them in many contexts to understand how to use them appropriately. One of the best ways to gain this wide exposure is to read extensively. The repeated exposure to words in reading will help students remember their spellings and meanings, and will also show the other words they commonly occur with. In other words, by reading widely, you will eventually begin to get a feel for which words collocate with the words you are learning.

USING INTERNET TOOLS
Nowadays, there are many Internet sites that can help your learning. Teachers can use internet sources for allowing for extensive reading and seeing target words in many contexts to understand how to use them appropriately.

Guide to Vocabulary Focus Approach – Metal Technologies / Machine Technologies, Grade 11

From Industrial Assembly, Express Publishing, 2022

	Unit	Topic	Reading	Vocabulary/ Target words and phrases	Comments / additional target words and phrases
			Book 3		
	1	Workplace Attire	Reading a poster (completing a table)	apron, business attire, comfortable, coveralls, dress code, enforce, fit, glove, goggles, hairnet, hood, loose, PPE, uniform	
	2	Materials Safety	Reading an email (true/false statements)	chemical, cleanup, designated, handle, hazardous, label, MSDS, reaction, spill, sterilize, toxic, volatile, waste hopper	
	3	Machine Safety	Reading an employee manual (true/false statements)	alert, amputate, blind, burn, crush, emergency procedure, emergency shutdown, first aid, get caught in, guarding, moving part, power surge, react, training	
	4	Maintenance	Reading an email (true/false statements)	document, lubricate, maintain, qualified, regular, repair, replace, report, sanitize, sharpen, technician, worn out	
	5	Quality Control	Reading an article (true/false statements)	acceptability, conformance, eliminate, latent defect, manifest, minimize, quality control, reliability, risk, specification, test planning, testing, tight, tolerance	

	7	Factory Management	Reading a course description (multiple choice questions)	capacity, continuous flow manufacturing, deployment, goal, job shop, major activity planning, MPS, policy, product variety, product volume, repetitive manufacturing, synchronized	
	11	Manufacturing Engineering	Reading a Manufacturing Engineering (multiple choice questions)	cost-effective, design, drafting, HVAC, manufacturing engineer, material requirements planning, mathematics, mechanics, multimedia, physics, process plan, thermodynamics	
	13	Computer-Aided Systems	Reading a webpage (completing a table)	2-D, 3-D, CAD, CAPP, CIM, exploded view, interface, model, modify, operating system, photorealistic rendering, retrieve, translate	
	14	Training and Development	Reading a manual (true/false statements)	advancement, certification, entry-level, equipment procedures, experienced, on-the-job, performance evaluation, probationary period, shadow, skilled, unskilled, versatile, workmanship standards	

From Electrician, Express Publishing, 2022

	Unit	Topic	Reading	Vocabulary/ Target words and phrases	Comments / additional target words and phrases
Book 1					
	1	General Tools	Reading a page from the company manual. (reading for specific information)	tool kit, side cutters, long nose (needle nose) pliers, diagonal cutters, end cutting pliers, wire strippers, screwdriver, flashlight, untidily knife, measuring tape	
	2	More Tools	Reading a web forum. (filling gaps)	allen wrench, torque wrench, tool belt, electrical tape, duct tape, hammer, nut driver, crimper, socket wrench, hacksaw, Phillips screwdriver	
	10	Measurements	Reading a magazine article about measurements (true/false statements)	imperial, metric, round off, inch, centimeter, foot, yard, millimeter, meter, degree, Celsius, Fahrenheit, convert, caliper, micrometer	
	11	Elements of Electricity	Reading a course catalog about electricity class (true/false statements)	voltage, current, resistance, electron, AC, DC, volt, ampere, ohm, watt	

		Book 2			
	4	Panels	Reading a magazine article on service panels (true/false statements)	main service panel, main switch, branch circuit, overcurrent, accommodate, gadget, hot bus, neutral bus, function, cut off, manually, capacity, safeguard	
	6	Fuses and Circuits Breakers	Reading a manufacturer's guide on fuses and circuit breakers (completing a table)	fuse, circuit breaker, overload, ground fault, cartridge fuse, plug fuse, trip, single pole breaker, double pole breaker, blown fuse, replacement	
	7	Balancing the Load	Reading a magazine article on balancing a load (completing a table)	electrical load, balance, analyze, stability, consumption, amperage, parity, appliance, corresponding, owner's manual, transfer, draw, snap	
	11	Types of Switches	Reading a web forum on switches (choosing a correct answer)	residential grad switch, open circuit, commercial grade switch, single pole switch, double pole switch, three-way switch, four-way switch, toggle switch, pilot light switch, timer switch, keyed switch, dimmer switch	

From Art and Design, Express Publishing, 2022

	Unit	Topic	Reading		Comments
			Book 2		
	15	CAD	Reading an advertisement (true/false statements)	2D, 3D, architecture, CAD, diagram, drafting, engineering, exploded view, model, photorealistic rendering, software, technical drawing	

From Architecture, Express Publishing, 2022

	Unit	Topic	Reading		Comments
			Book 3		
	1	Design Tools and Materials	Reading a webpage (multiple choice questions)	45/90 triangle, balsa wood, basswood, bow compass, bumwad, drafting board, drafting vellum, mechanical pencil, parallel bar, protractor, stencil, T square, tracing paper, triangular scales	
	2	Models	Reading a webpage (multiple choice questions)	CAD modeling, concept model, detail model, finished model, manipulate, model, physical model, representation, revise, rough model, surrounding, urban model	
	3	Drawings 1	Reading a letter (true/false statements)	axonometric drawing, bird's-eye view, elevation drawing, façade, full set, horizontal cross section, isometric drawing, oblique drawing, orthographic projection, overhead, plan, section drawing, vertical cross-section	
	4	Drawings 2	Reading an article (multiple choice questions)	accuracy, CAD drawing, convention, deconstruct, detail drawing, drafting, exploded view, hand sketch, manual drawing, mechanical drafting, obsolete, photomontage, reassemble, schematic	

From Vocational English Metal Technology

	Unit	Topic	Reading	Vocabulary/ Target words and phrases	Comments / additional target words and phrases
	1	Physical and personal protective equipment		Dust mask, protective helmet, high visibility clothes, face shield, ear plugs, safety gloves, safety boots, goggles, chemical suit, welding vest, respirator mask, safety harness.	
	2	Name of some materials		Steel, copper, aluminium, brass, nickel, chrome	
	2	Name of some tools		Steel ruler, depth vernier calliper, outside and inside callipers, micrometer, hammer, file, chisel, hacksaw, snips, hexwrench	
	2	Action words		Striking, unplugging, drilling, tightening, inserting, grinding, hammering, sanding, shaping.	

Resource for distribution of the teaching/learning content – Metal Technologies / Machine Technologies, Grade 11

(using the description of the teaching/learning content you can indicate when during the school year you plan to use the relevant units and exercises for developing of language skills; under comments you can indicate whether revision is needed and when)

From Industrial Assembly, Express Publishing, 2022

	Unit	Topic	Reading	Listening	Speaking	Writing	Comments
				Book 3			
	1	Workplace Attire	Reading a poster (completing a table)	Listening to a conversation between a supervisor and a line worker (true/false statements); Completing a conversation	Acting out a dialogue between a supervisor and a line worker	Filling out a memo to the staff about appropriate workplace attire	
	2	Materials Safety	Reading an email (true/false statements)	Listening to a conversation between two employees (true/false statements); Completing a conversation	Acting out a dialogue between two employees	Filling out a accident report	

	3	Machine Safety	Reading an employee manual (true/false statements)	Listening to a conversation between a supervisor and an employee (true/false statements); Completing a conversation	Acting out a dialogue between a supervisor and an employee	Filling out an email from a worker to a supervisor	
	4	Maintenance	Reading an email (true/false statements)	Listening to a conversation between two technicians (true/false statements); Completing a conversation	Acting out a dialogue between two technicians	Filling out a report on the condition of the equipment in a factory	
	5	Quality Control	Reading an article (true/false statements)	Listening to a conversation between a radio host and a quality controller (multiple choice questions); Completing a conversation	Acting out a dialogue between a radio host and a quality controller.	Filling out an article about the importance of quality control	
	7	Factory Management	Reading a course description (multiple choice questions)	Listening to a conversation between two managers (true/false statements); Completing a conversation	Acting out a dialogue between two managers	Filling out an assessment of an applicant for a factory manager position	

11	Manufacturing Engineering	Reading a Manufacturing Engineering (multiple choice questions)	Listening to a conversation between a student and an advisor (true/false statements); Completing a conversation	Acting out a dialogue between a student and an advisor	Filling out an email from an advisor to a student	
13	Computer-Aided Systems	Reading a webpage (completing a table)	Listening to a conversation between a software company representative and a customer (multiple choice questions); Completing a conversation	Acting out a dialogue between a software company representative and a customer	Filling out an email from a software company representative to a potential customer	
14	Training and Development	Reading a manual (true/false statements)	Listening to a conversation between an employee and a supervisor (multiple choice questions); Completing a conversation	Acting out a dialogue between an employee and a supervisor	Filling out a memo to the management about new training procedures	

From Electrician, Express Publishing, 2022

	Unit	Topic	Reading	Listening	Speaking	Writing	Comments
				Book 1			
	1	General tools	Reading a page from a company manual (true/false statements)	Listening to a conversation between two electricians (listening for a specific information); Completing a conversation	Acting out a dialogue between a new electrician and an experienced electrician	Filling out a new electrician's notes about tools	
	2	More tools	Reading a web forum (multiple choice questions)	Listening to a conversation between two electricians (true/false statements); Completing a conversation	Acting out a dialogue between two electricians	Filling out an electrician's shopping list for what he needs to get for his tool kit	
	10	Measurements	Reading a magazine article (true/false statements)	Listening to a conversation between two electricians (multiple choice questions); Completing a conversation	Acting out a dialogue between two electricians	Filling out a work order	

	11	Elements of electricity	Reading a college course catalog describing an electricity class (true/false statements)	Listening to a class about electricity (true/false statements); Completing a conversation	Acting out a dialogue between a teacher and a student	Completing a quiz
Book 2						
	4	Panels	Reading a magazine article on service panels (true/false statements)	Listening to a conversation between electrician and a homeowner (multiple choice questions); Completing a conversation	Acting out a dialogue between an electrician and a homeowner	Filling out an electrician's work order
	6	Fuses and circuit breakers	Reading a manufacturer's guide on fuses and circuit breakers (reading for specific information)	Listening to a conversation between a company representative and a customer (true/false statements); Completing a conversation	Acting out a dialogue between a company representative and a customer	Filling out a representative's call record
	7	Balancing the load	Reading a DIY magazine article on balancing a load	Listening to a conversation between two electricians;	Acting out a dialogue between two electricians	Completing instructions for balancing a load

				(true/false statements) Completing a conversation			
	11	Types of switches	Reading a web forum on switches (multiple choice questions)	Listening to a conversation between contractor and an electrician (true/false statements); Completing a conversation	Acting out a dialogue between a contractor and an electrician	Filling out an electrician's notes	

From Art and Design, Express Publishing, 2022

	Unit	Topic	Reading	Listening	Speaking	Writing	Comments
				Book 2			
	15	CAD	Reading an advertisement (true/false statements)	Listening to a conversation between a manager and a designer (multiple choice questions); Completing a conversation	Acting out a dialogue between a manager and a designer	Completing an email from a manager to a client	

From Architecture, Express Publishing, 2022

	Unit	Topic	Reading	Listening	Speaking	Writing	Comments
				Book 3			
	1	Design Tools and Materials	Reading a webpage (multiple choice questions)	Listening to a conversation between a student and a professor (true/false statements); Completing a conversation	Acting out a dialogue between a student and a professor	Writing an email to students about materials for a class	
	2	Models	Reading a webpage (multiple choice questions)	Listening to a conversation between two architects (true/false statements); Completing a conversation	Acting out a dialogue between two architects	Writing an email from one architect to another architect	
	3	Drawings 1	Reading a letter (true/false statements)	Listening to a conversation between an architect and a client (multiple choice questions); Completing a conversation	Acting out a dialogue between an architect and a client	Writing a letter to a client explaining design changes	

4	Drawings 2	Reading an article (multiple choice questions)	Listening to a conversation between two architects (true/false statements); Complete a conversation	Acting out a dialogue between two architects	Writing a project schedule for a client	

Focus on developing communicative skills through interaction activities and strategies

Module 2 referred to in the Framework curriculum leading towards communicative competences in professional context and environment described by the following learning objectives:

- Can maintain effective communication within the team.
- Can lead effective business communication.
- Can use a foreign language in professional activities.
- Can communicate effectively with customers, both verbally and in writing.
- Can refer to various English resources in order to carry out the daily activities of the profession.
- Can use social networking and current communication applications effectively.

The learning/teaching process in all grades is closely linked to the internships/ practice of students in working contexts and the practical acquisition of vocational/professional skills in real-life work situations and in close familiarization of the routine and a range of standard work activities performed. The methodological message is that language learning should be directed towards enabling learners to act in real-life situations, expressing themselves and accomplishing tasks of different natures. Thus, the criterion suggested for assessment is communicative ability in real life, in relation to a continuum of ability (Levels A1-B1).

The basic approach in all grades is **the action-oriented approach.** At the classroom level, there are several implications of implementing the action-oriented approach. Seeing learners as social agents implies involving them in the learning process, possibly with descriptors as a means of communication. The foreign language packs for each grade contain description of language skills using descriptors in the form of "can-do" statements. The approach also implies recognising the social nature of language learning and language use, namely the interaction between the social and the individual in the process of learning. Seeing learners as language users implies extensive use of the target language in the classroom – learning to use the language rather than just learning about the language (as a subject)[1]. Recommendation: language learning in all grades should be based on the real work tasks that student perform in their practice/internships and should be discussed, if possible, with their mentors/ teachers.

The action-oriented approach implies purposeful, collaborative tasks in the classroom, the primary focus of which is not language. If the primary focus of a task is not language, then there must be some other product or outcome (such as making an appointment, communication with a customer, performing an action, creating a product, taking part in a process, offering advice or discussing prices). Descriptors can be used to help design such tasks and also to observe and, if desired, to (self-)assess the language use of learners during the task. Interaction leads to co-construction of meaning and this has to be central to the learning and teaching process. This has clear implications for the classroom. At times, this interaction will be between teacher and learner(s), but at times, it will be of a collaborative nature, between learners themselves. The precise balance between teacher-centred

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[1] CEFR, Chapter 2.2. Implementing the action-oriented approach.

instruction and such collaborative interaction between learners in small groups is likely to reflect the context, the pedagogic tradition in that context and the proficiency level of the learners concerned.

In any communicative situation, general competences (for example, knowledge of the local context, knowledge of the work process and standard activities) are always combined with communicative language competences (linguistic, sociolinguistic and pragmatic competences: CEFR 2001 Section 5.2) and strategies (some general, some communicative language strategies). These are competences the foreign language teachers has to rely on as they are not expected to be expert in the area of vocational education. Teachers are advised to exploit existing knowledge and competences of student already acquired in their vocational classes and in turn develop them further.

Tasks often require some collaboration with others – hence the need for language. The example chosen in CEFR 2001 Chapter 2 to introduce this idea – moving – is one in which the use of language is only contingent on the task. In moving a wardrobe, some communication, preferably through language, is clearly advisable, but language is not the focus of the task. Similarly, tasks demanding greater sophistication of communication, such as agreeing on the preferred solution to a problem in functioning of a device, or serving a customer, focus on the task outcomes rather than the language used to achieve them.

The overall approach of the CEFR is summarised in a single paragraph:

Language use, embracing language learning, comprises the actions performed by persons who as individuals and as social agents develop a range of **competences**, both **general** and in particular **communicative language competences**. They draw on the competences at their disposal in various contexts under various **conditions** and under various **constraints** to engage in **language activities** involving **language processes** to produce and/or receive **texts** in relation to **themes** in specific **domains**, activating those **strategies** which seem most appropriate for carrying out the **tasks** to be accomplished. The monitoring of these actions by the participants leads to the reinforcement or modification of their competences. (CEFR 2001 Section 2.1)

In performing tasks, competences and strategies are mobilised in the performance and in turn further developed through that experience. In an "action-oriented approach" some collaborative tasks in the language classroom are therefore essential. This is why the CEFR 2001 includes a chapter on tasks. Additionally, you have in your packs a guide for construction of tasks, which you might find useful. CEFR 2001 Chapter 7 discusses real-life tasks and pedagogic tasks, possibilities for compromise between the two, factors that make tasks simple or complex from a language point of view, conditions and constraints. The precise form that tasks in the classroom may take, and the dominance that they should have in the programme, is for individual teachers to decide. No matter what perspective is adopted, it is implicit that tasks in the language classroom
should involve communicative language activities and strategies (CEFR 2001 Section 4.4) that also occur in the real world, like those students are asked to perform or observe in their practices/ internships.

Methodological tip

It is important to apply a methodological approach which does not accept that students have already achieved high competence level (B1 or even A2) in listening, speaking and written interaction. It is significant to start by confirming the acquisition of competences relevant for lower levels (A1 and A1+) and gradually progress to competences relevant for higher levels. Learners are different and it is important to convey the message that acquisition of any level, even A1+ is positive. The focus should be on what students *can do,* which means they can act effectively and perform tasks in real-life situations. The focus at this stage should not be on what students know (linguistic knowledge) but on *what students at various levels can do*.

The current methodological pack includes overview of all skill-based and language competence definitions relevant for the developed Vocational Framework Curricula. The highest potentially achievable level appropriate for the number of teaching and learning hours included in the Framework Curricula is B1 (independent level) at which the learner is beginning to use the language more independently and creatively. B1 is a level for independent user. However, it can be expected that not all students will reach and confirm the acquisition of competences at B1 level. Achieving basic user level (A1+ and A2) should be considered as a major achievement as at this level most of the standard, routine work tasks can be effectively performed.

Communication/ Interaction

Interaction, which involves two or more parties co-constructing discourse, is central to the learning/teaching process in all grades. Interpersonal interaction is considered to be the origin of language, with interpersonal, collaborative and transactional functions. Interaction is also fundamental in learning. The CEFR scales for interaction strategies reflect this with scales for

turntaking, co-operating (= collaborative strategies) and asking for clarification. These basic interaction strategies are as important in collaborative learning as they are in real-world communication. The majority of the activities for interaction concern oral interaction. However, as pointed out in the Vocational Framework Curricula written interaction (= writing much as you would speak, in a slowed-down dialogue) has taken an increasingly significant role over the past 20 years. Therefore, the new category of online interaction has been developed and has to be specially focused upon.
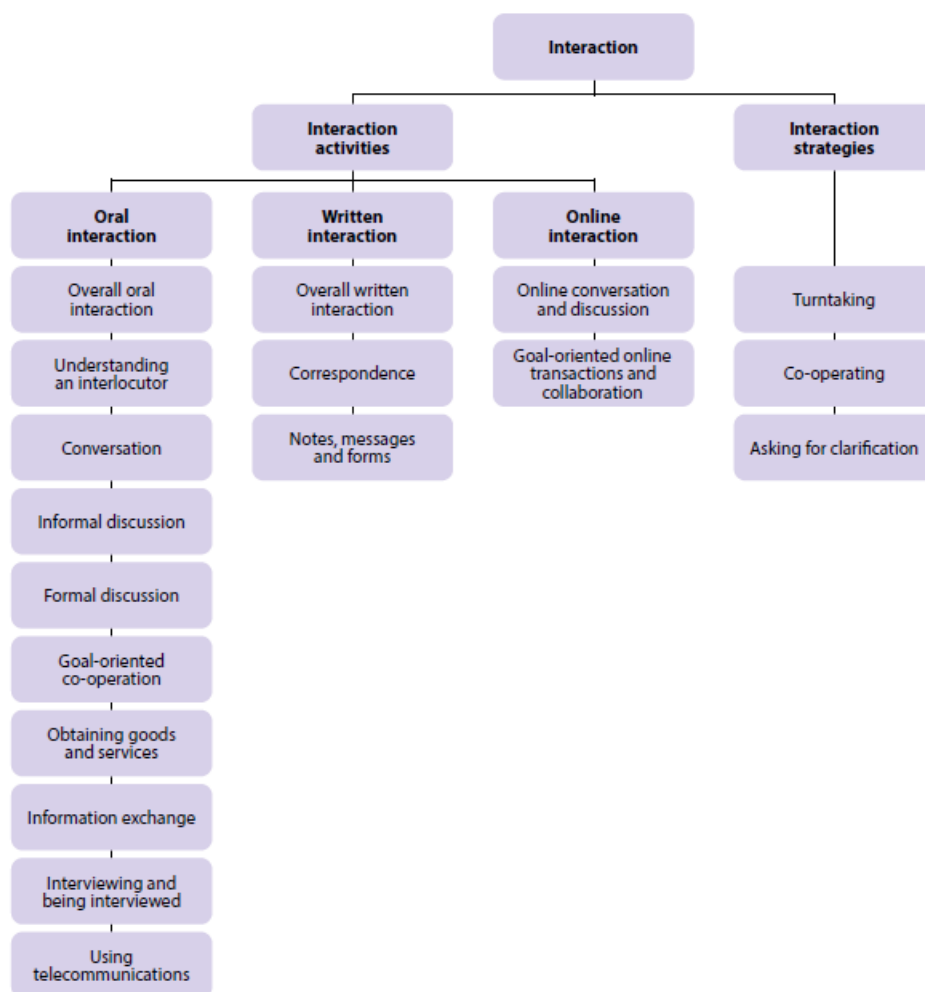
Fig. 1. Interactive activities and strategies (summary).

The activities (descriptors) begin with "Understanding an interlocutor". "Interlocutor" is a somewhat technical term that means the person with whom one is conversing directly in a dialogue.

Here are some explanations of the different categories or type of activities teachers should focus on.

B1	Can communicate with some confidence on familiar routine and non-routine matters related to their interests and professional field. Can exchange, check and confirm information, deal with less routine situations and explain why something is a problem. Can express thoughts on more abstract, cultural topics such as films, books, music, etc.
	Can exploit a wide range of simple language to deal with most situations likely to arise while travelling. Can enter unprepared into conversation on familiar topics, and express personal opinions and exchange information on topics that are familiar, of personal interest or pertinent to everyday life (e.g. family, hobbies, work, travel and current events).
A2	Can interact with reasonable ease in structured situations and short conversations, provided the other person helps if necessary. Can manage simple, routine exchanges without undue effort; can ask and answer questions and exchange ideas and information on familiar topics in predictable everyday situations.
	Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters to do with work and free time. Can handle very short social exchanges but is rarely able to understand enough to keep conversation going of their own accord.
A1	Can interact in a simple way but communication is totally dependent on repetition at a slower rate, rephrasing and repair. Can ask and answer simple questions, initiate and respond to simple statements in areas of immediate need or on very familiar topics.
Pre-A1	Can ask and answer questions about themselves and daily routines, using short, formulaic expressions and relying on gestures to reinforce the information.

Understanding an interlocutor:

- understanding a person with whom you are conversing directly in an interaction, with the possibility of negotiating meaning. The aspects referred to here are:
  - o topic and setting: from personal details and everyday needs to complex and abstract topics of a specialist nature;
  - o degree of accommodation by the interlocutor: from sympathetic repetition and taking the trouble to help to just confirming details if the accent is less familiar.

B1	Can follow clearly articulated speech/sign directed at them in everyday conversation, though will sometimes have to ask for repetition of particular words/signs and phrases.
A2	Can understand enough to manage simple, routine exchanges without undue effort. Can generally understand clear, standard speech/sign on familiar matters directed at them, provided they can ask for repetition or reformulation from time to time. Can understand what is said clearly, slowly and directly to them in simple everyday conversation; can be made to understand, if the interlocutor can take the trouble.
A1	Can understand everyday expressions aimed at the satisfaction of simple needs of a concrete type, delivered directly to them clearly and slowly, with repetition, by a sympathetic interlocutor. Can understand questions and instructions addressed carefully and slowly to them and follow short, simple directions.
Pre-A1	Can understand simple questions that directly concern them (e.g. name, age and address), if the person is asking slowly and clearly. Can understand simple personal information (e.g. name, age, place of residence, origin) when other people introduce themselves slowly and clearly, directly to them, and can understand questions on this theme addressed to them, though the questions may need to be repeated. Can understand a number of familiar words/signs and recognise key information (e.g. numbers, prices, dates and days of the week), provided the delivery is very slow, with repetition if necessary.

Conversation

- interaction with a primarily social function: the establishment and maintenance of personal relationships
  - o setting: from short exchanges, through maintaining a conversation and sustaining relationships, to flexible use for social purposes;
  - o topics: from personal news, through familiar topics of personal interest, to most general topics;
  - o language functions: from greetings, etc., through offers, invitations and permission, to degrees of emotion and allusive, joking usage.

B1	Can start up a conversation and help keep it going by asking people relatively spontaneous questions about a special experience or event, expressing reactions and opinions on familiar subjects.
	Can have relatively long conversations on subjects of common interest, provided the interlocutor makes an effort to support understanding.
	Can enter unprepared into conversations on familiar topics.
	Can follow clearly articulated language directed at them in everyday conversation, though will sometimes have to ask for repetition of particular words/signs.
	Can maintain a conversation or discussion but may sometimes be difficult to follow when trying to express exactly what they would like to.
	Can express and respond to feelings such as surprise, happiness, sadness, interest and indifference.
A2	Can establish social contact (e.g. greetings and farewells, introductions, giving thanks).
	Can generally understand clear, standard language on familiar matters directed at them, provided they can ask for repetition or reformulation from time to time.
	Can participate in short conversations in routine contexts on topics of interest.
	Can express how they feel in simple terms, and express thanks.
	Can ask for a favour (e.g. to borrow something), can offer a favour, and can respond if someone asks them to do a favour for them.
	Can handle very short social exchanges but is rarely able to understand enough to keep conversation going of their own accord, though they can be made to understand if the interlocutor will take the trouble.
	Can use simple, everyday, polite forms of greeting and address.
	Can converse in simple language with peers, colleagues or members of a host family, asking questions and understanding answers relating to most routine matters.
	Can make and respond to invitations, suggestions and apologies.
	Can express how they are feeling, using very basic stock expressions.
	Can state what they like and dislike.
A1	Can understand everyday expressions aimed at the satisfaction of simple needs of a concrete type, delivered directly to them in clear, slow and repeated language by a sympathetic interlocutor.
	Can take part in a simple conversation of a basic factual nature on a predictable topic (e.g. their home country, family, school).
	Can make an introduction and use basic greeting and leave-taking expressions.
	Can ask how people are and react to news.
Pre-A1	Can understand and use basic, formulaic expressions such as "Yes", "No", "Excuse me", "Please", "Thank you", "No thank you", "Sorry".
	Can recognise simple greetings.
	Can greet people, state their name and take leave in a simple way.

Informal discussion (with friends or members of the team)

- includes aspects of both the interpersonal and evaluative use of language, since these tend to be interwoven in everyday interaction.
    - topics: from what to do and where to go, to abstract, complex and even unfamiliar topics and sensitive issues;
    - ability to follow the discussion: from identifying the topic, through following the main points, to keeping up with animated discussion and understanding colloquial references;
    - language functions: from discussing and (dis)agreeing in a limited way to expressing ideas with precision and dealing diplomatically with disagreement and criticism.

B1	Can follow much of what is said around them on general topics, provided interlocutors avoid very idiomatic usage and articulate clearly.
	Can express their thoughts about abstract or cultural topics such as music or films.
	Can explain why something is a problem.
	Can give brief comments on the views of others.
	Can compare and contrast alternatives, discussing what to do, where to go, who or which to choose, etc.
	Can generally follow the main points in an informal discussion with friends provided they articulate clearly in standard language or a familiar variety.
	Can give or seek personal views and opinions in discussing topics of interest.
	Can make their opinions and reactions understood as regards solutions to problems or practical questions of where to go, what to do, or how to organise an event (e.g. an outing).
	Can express beliefs, opinions and agreement and disagreement politely.
A2	Can generally identify the topic of discussion around them when it is conducted slowly and clearly.
	Can exchange opinions and compare things and people using simple language.
	Can discuss what to do in the evening or at the weekend.
	Can make and respond to suggestions.
	Can agree and disagree with others.
	Can discuss everyday practical issues in a simple way when addressed clearly, slowly and directly.
	Can discuss what to do, where to go and make arrangements to meet.
	Can express opinions in a limited way.
A1	Can exchange likes and dislikes for sports, foods, etc., using a limited repertoire of expressions, when addressed clearly, slowly and directly.
Pre-A1	*No descriptors available*

Formal discussion (meetings, instructions, briefings)

- more formal discussion, mainly in a professional context.
    - type of meeting and topics: from exchanges on practical problems to discussion of abstract, complex, unfamiliar issues;
    - ability to follow the discussion: from needing repetition and clarification to understanding points given prominence and keeping up with animated debate;
    - ability to contribute: from needing to rehearse and get help with formulation to probing, evaluating and challenging the contributions of others and arguing one's own position convincingly.

B1	Can follow much of what is said that is related to their field, provided interlocutors avoid very idiomatic usage and articulate clearly. Can put over a point of view clearly, but has difficulty engaging in debate.
	Can take part in routine formal discussion of familiar subjects which is clearly articulated in the standard form of the language or a familiar variety and which involves the exchange of factual information, receiving instructions or the discussion of solutions to practical problems. Can follow argumentation and discussion on a familiar or predictable topic, provided the points are made in relatively simple language and/or repeated, and opportunity is given for clarification.
A2	Can generally follow changes of topic in formal discussion related to their field which is conducted slowly and clearly. Can exchange relevant information and give their opinion on practical problems when asked directly, provided they receive some help with formulation and can ask for repetition of key points if necessary.
	Can express what they think about things when addressed directly in a formal meeting, provided they can ask for repetition of key points if necessary.
A1	*No descriptors available*
Pre-A1	*No descriptors available*

Goal-oriented co-operation

- collaborative, task-focused work, which is a daily occurrence in real life, especially in professional contexts.
  - following the discussion: from understanding simple instructions explained directly to them to understanding detailed instructions reliably;
  - active contribution to the work: from simply asking for things and giving things to speculating about causes and consequences and organising the entire task.

B1	Can follow what is said, though they may occasionally have to ask for repetition or clarification if the discussion is rapid or extended.
	Can explain why something is a problem, discuss what to do next, and compare and contrast alternatives.
	Can give brief comments on the views of others.
	Can generally follow what is said and, when necessary, repeat back part of what someone has said to confirm mutual understanding.
	Can make their opinions and reactions understood as regards possible solutions or the question of what to do next, giving brief reasons and explanations.
	Can invite others to give their views on how to proceed.
A2	Can understand enough to manage simple, routine tasks without undue effort, asking very simply for repetition when they do not understand.
	Can discuss what to do next, making and responding to suggestions, and asking for and giving directions.
	Can indicate when they are following and can be made to understand what is necessary, if the interlocutor takes the trouble.
	Can communicate in simple and routine tasks using simple phrases to ask for and provide things, to get simple information and to discuss what to do next.
A1	Can understand questions and instructions addressed carefully and slowly to them and follow short, simple directions.
	Can act on basic instructions that involve times, locations, numbers, etc.
	Can ask people for things, and give people things.

Obtaining goods and services

- service encounters in work contexts and in restaurants, shops, banks, etc.
  - types of situation: from simple everyday transactions to disputes about responsibility and sensitive transactions in public, professional or academic life;
  - getting service: from asking for food and drink to asking detailed questions about more complex services;
  - demanding satisfaction: from making a complaint (B1) to negotiating a solution to a dispute or a sensitive transaction.

B1	Can deal with most transactions likely to arise while travelling, arranging travel or accommodation, or dealing with authorities during a foreign visit.
	Can ask in a shop for an explanation of the difference between two or more products serving the same purpose, in order to make a decision, posing follow-up questions as necessary.
	Can cope with less routine situations in shops, post offices, banks, e.g. returning an unsatisfactory purchase.
	Can make a complaint.
	Can deal with most situations likely to arise when making travel arrangements through an agent or when actually travelling, e.g. asking a passenger where to get off for an unfamiliar destination.
A2	Can deal with common aspects of everyday living such as travel, lodging, eating and shopping.
	Can interact in predictable everyday situations (e.g. post office, station, shop), using a wide range of simple expressions.
	Can get all the information needed from a tourist office, as long as it is of a straightforward, non-specialised nature.
	Can ask for and provide everyday goods and services.
	Can get simple information about travel, use public transport (e.g. buses, trains, taxis), ask and give directions, and buy tickets.
	Can ask about things and make simple transactions in shops, post offices or banks.
	Can give and receive information about quantities, numbers, prices, etc.
	Can make simple purchases by stating what is wanted and asking the price.
	Can order a meal.
	Can point out when something is wrong (e.g. "The food is cold" or "There is no light in my room").
	Can ask (face-to-face) for a medical appointment and understand the reply. Can indicate the nature of a problem to a health professional, perhaps using gestures and body language.
A1	Can ask people for things and give people things.
	Can ask for food and drink using basic expressions.
	Can handle numbers, quantities, cost and time.
Pre-A1	Can make simple purchases and/or order food or drink when pointing or other gesture can support the verbal reference.

Information exchange

- exchanging factual information
  - type of transaction: from simple questions, instructions and directions, through simple, routine exchanges, to exchanging information with other specialists;
  - type of information: from personal details, dates, prices, etc., through habits, routines, pastimes and straightforward factual information, to detailed and complex information or advice.

B1	Can exchange, check and confirm accumulated factual information on familiar routine and non-routine matters within their field with some confidence.
	Can summarise and give their opinion about a short story, article, talk, discussion, interview or documentary and answer further questions of detail.
	Can find out and pass on straightforward factual information.
	Can ask for and follow detailed directions.
	Can obtain more detailed information.
	Can offer advice on simple matters within their field of experience.
A2	Can understand enough to manage simple, routine exchanges without undue effort.
	Can deal with practical everyday demands: finding out and passing on straightforward factual information.
	Can ask and answer questions about habits and routines.
	Can ask and answer questions about pastimes and past activities.
	Can ask and answer questions about plans and intentions.
	Can give and follow simple directions and instructions, e.g. explain how to get somewhere.
	Can communicate in simple and routine tasks requiring a simple and direct exchange of information.
	Can exchange limited information on familiar and routine operational matters.
	Can ask and answer questions about what they do at work and in their free time.
	Can ask for and give directions referring to a map or plan.
	Can ask for and provide personal information.
	Can ask and answer simple questions about an event (e.g. ask where and when it took place, who was there and what it was like).
A1	Can understand questions and instructions addressed carefully and slowly to them and follow short, simple directions.
	Can ask and answer simple questions, initiate and respond to simple statements in areas of immediate need or on very familiar topics.
	Can ask and answer questions about themselves and other people, where they live, people they know, things they have.
	Can indicate time by lexicalised phrases like "next week", "last Friday", "in November", "3 o'clock".
	Can express numbers, quantities and cost in a limited way.
	Can name the colour of clothes or other familiar objects and can ask the colour of such objects.
Pre-A1	Can tell people their name and ask other people their names.
	Can use and understand simple numbers in everyday conversations.
	Can ask and tell what day, time of day and date it is.
	Can ask for and give a date of birth.
	Can ask for and give a phone number.
	Can tell people their age and ask people about their age.
	Can ask very simple questions for information, such as "What is this?" and understand one- or two-word/ sign answers.

Interviewing and being interviewed

- the specialised roles associated with appointments and job applications as well as other forms of examination, general performance, etc.
  - independence from the interlocutor: from requiring direct, slow, clear standard language to acting without any support, at no disadvantage to the other person(s);
  - taking the initiative: from bringing up new subjects (B1) to participating fully, developing a point fluently and handling interjections well;
  - conducting the actual interview: from using a prepared questionnaire (B1), through departing spontaneously from prepared questions and following up and probing interesting replies, to structuring the discourse and interacting authoritatively.

B1	Can provide concrete information required in an interview/consultation (e.g. describe symptoms to a doctor), but with limited precision.
	Can carry out a prepared interview, checking and confirming information, though they may occasionally have to ask for repetition if the other person's response is rapid or extended.
	Can take some initiative in an interview/consultation (e.g. to bring up a new subject) but is very dependent on the interviewer in the interaction.
	Can describe symptoms in a simple way and ask for advice when using health services, and can understand the answer, provided this is given clearly in everyday language.
	Can use a prepared questionnaire to carry out a structured interview, with some spontaneous follow-up questions.
A2	Can make themselves understood in an interview and communicate ideas and information on familiar topics, provided they can ask for clarification occasionally, and are given some help to express what they want to.
	Can describe to a doctor very basic symptoms and ailments such as a cold or the flu.
	Can answer simple questions and respond to simple statements in an interview.
	Can indicate in simple language the nature of a problem to a health professional, perhaps using gestures and body language.
A1	Can reply in an interview to simple direct questions, put very slowly and clearly in direct, non-idiomatic language, about personal details.
	Can state in simple language the nature of a problem to a health professional and answer simple questions such as "Does that hurt?" even though they have to rely on gestures and body language to reinforce the message.

Using telecommunications

- use of the phone and internet-based apps for remote communication
  - range of information and transactions involved: from simple messages and conversations on predictable topics like arrival times, routine messages and basic services to use for a variety of personal and professional purposes;
  - interlocutor: from a known person to unknown persons with less familiar accents;
  - length of exchange: from short, simple exchanges to extended casual conversation.

B1	Can use telecommunications for everyday personal or professional purposes, provided they can ask for clarification from time to time.
	Can give important details over the (video)phone concerning an unexpected incident (e.g. a problem in a hotel, with travel arrangements, with a hire car).
	Can use telecommunications to have relatively simple but extended conversations with people they know personally.
	Can use telecommunications for routine messages (e.g. arrangements for a meeting) and to obtain basic services (e.g. book a hotel room or make a medical appointment).
A2	Can use telecommunications with their friends to exchange simple news, make plans and arrange to meet.
	Can, given repetition and clarifications, participate in a short, simple phone conversation with a known person on a predictable topic, e.g. arrival times, arrangements to meet.
	Can understand a simple message (e.g. "My flight is late. I will arrive at 10 o'clock."), confirm details of the message and pass it on by phone to other people concerned.

Written interaction

Written interaction concerns interactive communication through the medium of script. The number of formal and informal video-recorded chats and message exchanges has been rising rapidly, most notably through WhatsApp. In some countries, signers can now send enquiries, comments and complaints to certain service providers through a dedicated web portal. Most interactive situations are tolerant of some error and confusion and have some contextual support. There is usually an opportunity to use interaction strategies like asking for clarification or asking for help with formulation and to repair misunderstandings. The requirement to produce carefully structured, accurate text is less of a priority.

B1	Can convey information and ideas on abstract as well as concrete topics, check information, and ask about or explain problems with reasonable precision.
	Can compose personal letters and notes asking for or conveying simple information of immediate relevance, getting across the point they feel to be important.
A2	Can compose short, simple formulaic notes relating to matters in areas of immediate need.
A1	Can ask for or pass on personal details.
Pre-A1	Can convey basic information (e.g. name, address, family) in short phrases on a form or in a note, with the use of a dictionary.

Correspondence

personal and formal correspondence, since this is an activity that some user/learners need to carry out.

- type of message: from simple, personal messages, to in-depth, personal and professional correspondence;
- type of language: from formulaic expressions to emotional, allusive and joking usage and writing with good expression in an appropriate tone and style.

B1	Can compose personal letters giving news and expressing thoughts about abstract or cultural topics such as music or film.
	Can compose letters expressing different opinions and giving detailed accounts of personal feelings and experiences.
	Can reply to an advertisement in writing and ask for further information on items that interest them.
	Can compose basic formal e-mails/letters (e.g. to make a complaint and request action).
	Can compose personal letters describing experiences, feelings and events in some detail.
	Can compose basic e-mails/letters of a factual nature (e.g. to request information or to ask for and give confirmation).
	Can compose a basic letter of application with limited supporting details.
A2	Can exchange information by text message, by e-mail or in short letters, responding to questions from the other person (e.g. about a new product or activity).
	Can convey personal information of a routine nature, for example in a short e-mail or letter introducing themselves.
	Can compose very simple personal letters expressing thanks and apology.
	Can compose short, simple notes, e-mails and text messages (e.g. to send or reply to an invitation, to confirm or change an arrangement).
	Can compose a short text in a greetings card (e.g. for someone's birthday or to wish them a Happy New Year).
A1	Can compose messages and online postings as a series of very short sentences about hobbies and likes/ dislikes, using simple words and formulaic expressions, with reference to a dictionary.
	Can compose a short, simple postcard.
	Can compose a short, very simple message (e.g. a text message) to friends to give them a piece of information or to ask them a question.
Pre-A1	Can convey basic personal information in short phrases and sentences, with reference to a dictionary.

Notes, messages and forms

This encompasses a range of transactional interactive writing. At the A levels it includes filling in forms with personal details. From A2 the focus is on taking or leaving messages and writing/signing short notes.

- filling in forms with personal details (Pre-A1 to A2);
- leaving and taking messages, from simple messages about time, through messages containing several points, to complex personal or professional messages;
- formulating notes: from short and simple to more developed notes to friends, service people, teachers, etc.

B1	Can take routine messages that are likely to occur in a personal, professional or academic context.
	Can take messages communicating enquiries and explaining problems.
	Can formulate notes conveying simple information of immediate relevance to friends, service people, teachers and others who feature in their everyday life, getting across comprehensibly the points they feel are important.
	Can take messages over the phone containing several points, provided the caller dictates these clearly and sympathetically.
A2	Can take a short, simple message provided they can ask for repetition and reformulation.
	Can formulate short, simple notes and messages relating to matters in areas of immediate need.
	Can fill in personal and other details on most everyday forms (e.g. to open a bank account, or to send a letter by recorded delivery).
A1	Can fill in numbers and dates, own name, nationality, address, age, date of birth or arrival in the country, etc., e.g. on a hotel registration form.
	Can leave a simple message giving information regarding for instance where they have gone, or what time they will be back (e.g. "Shopping: back at 5 p.m.").
Pre-A1	Can fill in very simple registration forms with basic personal details: name, address, nationality, marital status.

Online interaction

Online communication is always mediated through a machine, which implies that it is unlikely ever to be exactly the same as face-to-face interaction. There are emergent properties of group interaction online that are almost impossible to capture in traditional competence scales focusing on the individual's behaviour in speech, signing or in writing. For instance, there is an availability of resources shared in real time. On the other hand, there may be misunderstandings that are not spotted (and corrected) immediately, as is often easier with face-to-face communication.

Some requirements for successful communication are:
- the need for more redundancy in messages;
- the need to check that the message has been correctly understood;
- ability to reformulate in order to help comprehension and deal with misunderstandings;
- ability to handle emotional reactions.

Online conversation and discussion

- conversation and discussion online as a multimodal phenomenon, with an emphasis on how interlocutors communicate online to handle both serious issues and social exchanges in an open-ended way.
    - o instances of simultaneous (real-time) and consecutive interaction, the latter allowing time to prepare a draft and/or consult aids;
    - o participation in sustained interaction with one or more interlocutors;
    - o composing posts and contributions for others to respond to;
    - o comments (for example, evaluative) on the posts, comments and contributions of others;
    - o reactions to embedded media;
    - o the ability to include symbols, images and other codes to make the message convey tone, stress and prosody, but also the affective/emotional side, irony, etc.

B1	Can engage in real-time online exchanges with more than one participant, recognising the communicative intentions of each contributor, but may not understand details or implications without further explanation.
	Can post online accounts of social events, experiences and activities referring to embedded links and media and sharing personal feelings.
	Can post a comprehensible contribution in an online discussion on a familiar topic of interest, provided they can prepare the text beforehand and use online tools to fill gaps in language and check accuracy.
	Can make personal online postings about experiences, feelings and events and respond individually to the comments of others in some detail, though lexical limitations sometimes cause repetition and inappropriate formulation.
A2+	Can introduce themselves and manage simple exchanges online, asking and answering questions and exchanging ideas on predictable everyday topics, provided enough time is allowed to formulate responses, and that they interact with one interlocutor at a time.
	Can make short descriptive online postings about everyday matters, social activities and feelings, with simple key details.
	Can comment on other people's online postings, provided they are written/signed in simple language, reacting to embedded media by expressing feelings of surprise, interest and indifference in a simple way.
A2	Can engage in basic social communication online (e.g. a simple message on a virtual card for special occasions, sharing news and making/confirming arrangements to meet).
	Can make brief positive or negative comments online about embedded links and media using a repertoire of basic language, though they will generally have to refer to an online translation tool and other resources.
A1	Can formulate very simple messages and personal online postings as a series of very short sentences about hobbies, likes/dislikes, etc., relying on the aid of a translation tool.
	Can use formulaic expressions and combinations of simple words/signs to post short positive and negative reactions to simple online postings and their embedded links and media, and can respond to further comments with standard expressions of thanks and apology.
Pre-A1	Can post simple online greetings, using basic formulaic expressions and emoticons.
	Can post online short simple statements about themselves (e.g. relationship status, nationality, occupation), provided they can select them from a menu and/or refer to an online translation tool.

A user/learner will struggle to interact successfully in an online meeting until they reach the B levels, will be able to interact in a virtual "classroom" at A2 only if carefully guided, and maybe can communicate only very superficially at A1 when posting and chatting in the "cafe".

Goal-oriented online transactions and collaborations

- potentially collaborative nature of online interaction and transactions that have specific goals, as a regular feature of contemporary life.

B1	Can engage in online transactions that require an extended exchange of information, provided the interlocutor(s) avoid complex language and are willing to repeat and reformulate when necessary.
	Can interact online with a group that is working on a project, following straightforward instructions, seeking clarification and helping to accomplish the shared tasks.
	Can engage in online collaborative or transactional exchanges that require simple clarification or explanation of relevant details, such as registering for a course, tour or event, or applying for membership.
	Can interact online with a partner or small group working on a project, provided there are visual aids such as images, statistics and graphs to clarify more complex concepts.
	Can respond to instructions and ask questions or request clarifications in order to accomplish a shared task online.
A2	Can use formulaic language to respond to routine problems arising in online transactions (e.g. concerning availability of models and special offers, delivery dates, addresses).
	Can interact online with a supportive partner in a simple collaborative task, responding to basic instructions and seeking clarification, provided there are visual aids such as images, statistics or graphs to clarify the concepts involved.
	Can make simple online transactions (e.g. ordering goods or enrolling in a course) by filling in an online form or questionnaire, providing personal details and confirming acceptance of terms and conditions, declining extra services, etc.
	Can ask basic questions about the availability of a product or feature.
	Can respond to simple instructions and ask simple questions in order to accomplish a shared task online with the help of a supportive interlocutor.
A1	Can complete a very simple online purchase or application, providing basic personal information (e.g. name, e-mail or telephone number).
Pre-A1	Can make selections (e.g. choosing a product, size, colour) in a simple online purchase or application form, provided there is visual support.

The move towards higher levels expands from basic transactions and information exchange at the A levels towards more sophisticated collaborative project work that is goal-oriented. This can be seen as a progression from filling in predictable online forms at Pre-A1, to solving various problems in order for the transaction to take place at the B levels. Simple collaborative tasks appear at A2+, with a co-operative interlocutor, or with small group project work from B1.

Interaction strategies

Interaction strategies are linked to developing pragmatic competences. They include: "Taking the floor" ("Turntaking"), "Co-operating" and "Asking for clarification".

They are also introduced at higher levels that A1.

Asking for clarification (can be first introduced)

A1
- Can indicate with simple words/signs, intonation and gestures that they do not understand.
- Can express in a simple way that they do not understand.

A2
- Can ask very simply for repetition when they do not understand.
- Can ask for clarification about key words/signs or phrases not understood, using stock phrases.
- Can indicate that they did not follow.
- Can signal non-understanding and ask for a word/sign to be spelt out.

B1
- Can ask for further details and clarifications from other group members in order to move a discussion forward.
- Can ask someone to clarify or elaborate what they have just said.

Taking the floor

A2
- Can use simple techniques to start, maintain or end a short conversation.
- Can initiate, maintain and close simple, face-to-face conversation.
- Can ask for attention.

B1
- Can intervene in a discussion on a familiar topic, using a suitable phrase to get the floor.
- Can initiate, maintain and close simple, face-to-face conversation on topics that are familiar or of personal interest.

Co-operating

A2

- Can indicate when they are following.

B1

- Can repeat back part of what someone has said to confirm mutual understanding and help keep the development of ideas on course.
- Can invite others into the discussion.

Additional suggestions:

Application of the VAK model

Activities can be a major contribution to the success of a class. In addition to reinforcing and consolidating grammar rules and vocabulary, and encouraging learners to speak freely, activities can be a tool for reaching different learner types. When we create activities, we need to keep in mind the diversity of our classrooms.

Real learning occurs when we address our learners' needs and preferences, helping to create the motivation for them to participate in the activities which we offer them. They need to develop a sense of personal accountability making them responsible for their own learning. In order to do this, they need to become involved in the learning process as well as the material to be learned. By recognising our learners as individuals and helping them to reach their objectives in learning a foreign language, we provide them with the basics of a learning atmosphere which puts them into a learning state. Students who are confronted with new material as well as adults who have been working hard outside the classroom are grateful for activities which are varied, interesting and fun.

The VAK model uses materials which allow different types of learners (visual, auditory, and kinaesthetic motoric and kinaesthetic emotional learners) to perceive, process and recall information through one of these sensory channels. By creating

- activities which include pictures, words, and movement;
- activities which can be done in group work by communicating with others, or alone by thinking and reflecting;
- activities which are to be approached systematically or in a more random style,

the chances of reaching learners of all types are greatly increased. The activities also help us to create both a supportive and energetic atmosphere in the classroom.

These visual, auditory and kinaesthetic channels are often seen as filters which help us to perceive the world around us. They refer to the way we take in, store and recall information.

Here is how the benefit for the different types of learners is explained in the introduction of *Communicative Business English Activities*, by Marjorie Rosenberg, Express Publishing, 2018. The book applies this method and provides a number of appropriate relevant activities to perform in class in all grades.

Visual learners like to see things written down. They enjoy activities with pictures or words they can see and enjoy putting things into categories. They may remember where they have seen something so activities which make use of putting things in a different order can help them to remember better later.

Auditory learners need to listen or speak. They enjoy activities where they can exchange information orally with a partner or in a group. As they tend to learn sequentially, it is helpful for them to change the order of what they have learned, an element built into these activities.

Kinaesthetic motoric learners need to try things out for themselves. They learn by doing and through real-life experiences. They also enjoy activities using flashcards, role plays and board games. They often learn by moving about so having activities which combine movement and words can help them to recall the material later when they need it.

Kinaesthetic emotional learners rely on their feelings and need to connect what they learn with both positive and personal experiences. They like to be creative and imaginative, important aspects of these flexible activities. As they may need to separate themselves from their emotions, taking on a new role and observing themselves from outside the situation can be helpful for them in the learning process.

Teacher's Guides to the Express Publishing Textbooks include specially designed activities for communication and interaction under the rubric Ending the class/Rounding up. For example: Activities with a focus on vocabulary involving communicative activities among students (moving, talking, collaborating, word hunt, guessing, etc.)

Review the unit vocabulary
- Write down the vocabulary on separate pieces of paper. Keep the words in one pile. Write the definitions of the vocabulary on separate pieces of paper. Keep the definitions in another pile. Give each student one of the words and one of the definitions. Make sure that the two do not match up. Tell students not to read the definitions that they have to the other students. Instead they should ask for the words for their definitions. Do not allow students to show each other the slips of paper that they have. If a student has the word that the other students is looking for, he/she give the word to the student. Continue until all of the students have found the words for their definitions. Then have each student read his/her word and definition. As a class, decide if the word and the definitions are a match. Invite a volunteer to make a sentence using the vocabulary word. Continue until all of the students have read their words and definitions. (examples of the activity Electrician, Express Publishing, Book 1 Unit 1, Rounding up after Exercise 9 Writing)
- Write the unit vocabulary on separate pieces of paper. Give each student one of the words. Have students stand in a circle. Say a sentence to start a story. Instruct the student standing next to you to make up the next sentence in a story. Tell the student that he/she must use the word in a sentence. Continue this around the circle until each of the students has added a sentence using the work he/she has. If a student uses a word incorrectly, the student before this student will repeat what they have already said, and the student who made the mistake will try again. When all of the students have correctly used their words, you should end the study with a final sentence. (examples of the activity Electrician, Express Publishing Book 1 Unit 2 Rounding up after Exercise 9 Writing)
- Draw a pyramid on the board. Make sure that the pyramid has the same number of squares as there are words in the unit. Number the squares on the pyramid on the board. Split students into pairs. Tell both students to copy down the pyramid. Have Student A write down one word in each square. Instruct Student A not to show Student B his/her pyramid. Student A should describe each of the words without saying the word. Student B should write down the word he/she thinks Student A is describing in the corresponding square. Tell students that they have two minutes to write down as many of the words as possible. When students have finished, have them compare the pyramids. Then have students switch roles and repeat. When all of the pairs have finished, invite volunteers to share their pyramids with the class. (examples

of the activity Electrician, Express Publishing, Book 1 Unit 3 Rounding up after Exercise 9 Writing)

- Write a numbered list of vocabulary on the board. Make sure that the words are numbered 1-12. Split students into two teams. Invite one player from each team to the front of the room. Roll a set of dice. The two players at the front of the room must draw a picture to represent the corresponding word. The first team to guess the word and correctly use it in a sentence gets a point. Repeat having different students at the board. Continue until all of the vocabulary has been reviewed. The team with most points wins. (example of the activity Electrician, Express Publishing, Book 1 Unit 4 Rounding up after Exercise 9 Writing)

- Split the students into groups of three or four. Invite one member from each group to the board. Tell them a word. Instruct the students at the board to each write a sentence using the word. Remind students that the sentence must show that they understand the meaning of the word. When the students have finished writing their sentences, they must sit down. Then their teammates have the chance to correct the sentence or approve it. After one of the teams approves the sentence, all of the teams must stop working. As a class, check each of the teams' sentences. Each team that uses the word correctly gets a point. Repeat with different students at the board. Continue until all of the vocabulary has been reviewed. The team with the most points wins. (example of the activity Electrician, Express Publishing, Book 1 Unit 5 Rounding up after Exercise 9 Writing)

- Split the class into two teams. Invite one player from each team to the front of the room. Secretly show the two players a word. Tell players that they must silently draw an image to represent the word. Their classmates must guess what the word is. The team that guesses the work correctly gets a point. The player on the team that guessed the correct word must choose a team mate to spell the word. If his/her teammate spells the word correctly, then his/her team gets another point. If his/her teammate spells the word incorrectly, then the other team gets the opportunity to spell the word and steal the point. The player who spells the word correctly must then choose someone else on his/her team to say the definition of the word. If his/her teammate gets the definition correct, then his/her team gets a point. If his/her teammate gets the definition incorrect, then the other team gets the opportunity to say the definition of the word and steal the point. The player who defines the word correctly must them choose another teammate to use the word in a sentence, If his/her teammate uses the word in a sentence correctly, then his/her team gets a point. If his/her teammate does not use the word in a sentence correctly, then the other team gets the opportunity to use the word in a sentence and steal the point. Repeat from the beginning using different words. Continue until all the vocabulary has been reviewed. The team with the most point wins. (example of the activity Electrician, Express Publishing, Book 1 Unit 6 Rounding up after Exercise 9 Writing)

- Write the definitions of the vocabulary on separate pieces of paper. Make two sets of definitions. Split the class into two teams. Put one set of definitions face down in front of each team. Have the students in each team line up one behind the other. Write one list of words on the board in front of each team. The first person on each team should pick up a definition from his/her team's pile and tape it next to the correct word on the board. He/She should then run to the end of his/her line. The next student on the team should do the same. Continue until one of the teams has finished. Then check

the words and definitions. If the team matches the words and definitions correctly, it is the winner. If not, continue until one of the teams matches all the words and definitions correctly. (example of the activity Electrician, Express Publishing, Book 1 Unit 8 Rounding up after Exercise 9 Writing)

- Assign each of the students a vocabulary word. Repeat words if you need to. Split the students into groups. Have one group of students make Circle A. The other group of students should make Circle B outside of Circle A. Make sure that the students are facing each other. Tell the students in Circle A that they must ask the students that they are facing in Circle B to define the word that they are assigned. The students in Circle B have 20 seconds to define the word. After the 20 seconds, the students in Circle B should move to the left so that they are facing a new partner. Continue until all of the students in Circles A and B have spoken to each other. Repeat, having the students in Circle B asking for the definitions and the students in Circle A moving to the left. When all of the students have spoken to each other, review the vocabulary as a class. (example of the activity Electrician, Express Publishing, Book 1 Unit 9 Rounding up after Exercise 9 Writing).

- Divide the students into two teams. Have one student from each team come to the front of the room. Call out one of the vocabulary words. The first student who slaps the desk gets the opportunity to say the definition of the word. If the student gets the definition correct, his/her team gets a point. If he/she gets the definition incorrect, his/her team loses a point and the other team gets the chance to define the word a steal a point. The player that defines the word gets the opportunity to get a bonus point using the word in a sentence correctly. Switch players that are at the front of the room. Repeat until all of the vocabulary words have been reviewed. The team with the most points wins. (example of the activity Electrician, Express Publishing, Book 1 Unit 10 Rounding up after Exercise 9 Writing)

- Have students stand in a circle. Play music and have the students throw a paper ball around the circle. Pause the music and call out a word. The students that is holding the ball must define the word. If he/she defines the word correctly, he/she should continue standing in the circle. If he/she defines the word incorrectly, he/she must sit down. Continue until all the vocabulary has been defined correctly. Alternatively, you may have students use the words in sentences instead of defining them. (example of the activity Electircian, Express Publishing, Book 1 Unit 11 Rounding up after Exercise 9 Writing)

For more examples for Review of unit vocabulary activities consult the relevant Teacher's Guide

GLOSSARY

Industrial Assembly, Express Publishing, 2022, Book 1

- **acrylic**
[N-COUNT-U4] An **acrylic** is a lightweight synthetic material that is used in the manufacture of clothing, paints, and many other products.

- **adhesive**
[N-COUNT-U7] An **adhesive** is a product that holds two materials together, such as a glue or sealant.

- **air compressor**
[N-COUNT-U9] An **air compressor** is a type of generator that creates power by applying pressure to air.

- **alloy**
[N-COUNT-U3] An **alloy** is mixture of two metals, or a mixture of a metal and a non-metal.

- **aluminum**
[N-UNCOUNT-U3] **Aluminum** is a strong, lightweight metal that is used to make cans and many other products.

- **assembly**
[N-UNCOUNT-U15] **Assembly** is the process of putting together the parts of something.

- **assembly line**
[N-COUNT-U1] An **assembly line** is a system for making products in which each machine or worker adds or checks a particular part.

- **automated**
[ADJ-U15] If something is **automated**, it is performed by machines instead of by people directly.

- **automobile**
[N-COUNT-U2] An **automobile** is a machine, such as a car or truck, that is used for transportation and is usually powered by an engine.

- **band saw**
[N-COUNT-U8] A **band saw** is a machine tool with steel blade that runs over wheels, and is used to cut various materials.

- **bearing**
[N-COUNT-U11] A **bearing** is a part of a machine that holds a moving or rotating part.

- **belt**
[N-COUNT-U10] A **belt** is a part of a machine with a flexible surface that moves along wheels, and is used to transport or move something else.

- **blend**
[N-COUNT-U4] A **blend** is something that is made from two or more materials.

- **boiler**
[N-COUNT-U9] A **boiler** is a device that produces power by applying heat to water, creating steam.

- **bolt**
[N-COUNT-U7] A **bolt** is a round piece of metal with a ridge wrapping around it in a spiral, and is often used with a nut to hold two things together.

- **bond**
[V-T-U14] To **bond** two things is to hold them together with a glue or sealant.

- **bore**
[V-T-U14] To **bore** something is to create a hole in it with a tool.

- **break room**
[N-COUNT-U1] A **break room** is a room in a factory or other workplace where employees may relax and eat meals when they are not working.

- **brittle**
[ADJ-U5] If something is **brittle**, it breaks or cracks easily when it is bent or stretched.

- **button**
[N-COUNT-U10] A **button** is a part of a machine that an operator presses in order to start or stop a process.

- **calibrate**
[V-T-U10] To **calibrate** something is to adjust it so that it functions at a particular rate or in a precise way.

- **caliper**
[N-COUNT-U6] A **caliper** is a device that measures the distance from one side of an object to the opposite side.

- **cam**
[N-COUNT-U11] A **cam** is a machine part that converts movement traveling in a circle into movement traveling in another direction.

- **Celsius**
[ADJ-U13] If a measurement is **Celsius**, it uses the temperature scale in which water boils at 100 degrees and freezes at 0 degrees.

- **centimeter**
[N-COUNT-U12] A **centimeter** is a metric unit of length or distance equal to 1/100 of a meter or about 0.40 inches.

- **chainsaw**

[N-COUNT-U8] A **chainsaw** is a handheld machine tool with a toothed chain that moves rapidly in a circular motion, and is used to cut various materials.

- **clamp**

[N-COUNT-U6] A **clamp** is a device that locks around something in order to hold it firmly in a particular place or position.

- **CNC**

[ADJ-U9] If a machine is **CNC** (computer numerically controlled), the user operates it through an interface on a computer.

- **compensate**

[V-I-U15] To **compensate** is to make adjustments to something in order to balance or offset changing conditions.

- **component**

[N-COUNT-U10] A **component** is one part of a larger machine or process.

- **concrete**

[N-UNCOUNT-U3] **Concrete** is a hard material that is common in construction, and is made from a mixture of cement, gravel, water, and sand.

- **conductor**

[N-COUNT-U5] A **conductor** is a material that allows electricity to flow through it easily.

- **construction**

[N-UNCOUNT-U2] **Construction** is the process of designing and creating buildings or other structures.

- **control room**

[N-COUNT-U1] A **control room** is an area of factory or other industrial facility that contains operating equipment, and is used to monitor employee activity.

- **convert**

[V-T-U13] To **convert** something is to change it into a different form or system.

- **coolant**

[N-COUNT-U11] A **coolant** is a liquid that is used to keep a machine cool.

- **copper**

[N-UNCOUNT-U3] **Copper** is a red-colored metal that conducts electricity very well, and is often used to make electrical products.

- **cotton**

[N-UNCOUNT-U4] **Cotton** is a soft material that comes from a plant and is used to make clothing and many other products.

- **cubic centimeter**

[N-COUNT-U13] A **cubic centimeter**, also called a milliliter, is a metric unit of volume equal to 1/1,000 of a liter or about 0.03 fluid ounces.

- **cut**

[V-T-U14] To **cut** something is to use a sharp edge to separate or open it.

- **cutters**

[N-COUNT-U6] **Cutters** are a hand tool with two parts connected by a hinge, and are used for cutting through thin materials such as wire.

- **degree**

[N-COUNT-U13] A **degree** is a unit of temperature, and may refer to different quantities depending on the temperature scale being used.

- **diameter**

[N-COUNT-U12] A **diameter** is the distance from one side of a circle to the other, crossing through the center.

- **die**

[N-COUNT-U10] A **die** is a part of a machine that is specially designed to cut or shape materials in a particular way.

- **drill**

[N-COUNT-U8] A **drill** is a handheld machine tool with rotating metal rod that is used to make holes in something.

- **drill press**

[N-COUNT-U8] A **drill press** is a machine tool with a drill mounted over a surface that is used to make holes in something.

- **dry**

[V-T-U14] To **dry** something is to remove the moisture from it.

- **dryer**

[N-COUNT-U9] A **dryer** is a device that is used to remove the moisture from something, usually with heat, air movement, or both.

- **ductile**

[ADJ-U5] If something is **ductile**, it is able to change shape when it is bent or stretched.

- **edgebander**

[N-COUNT-U8] An **edgebander** is a machine tool that is used to attach strips of material to the exposed edges of a piece of plywood, particle board, or other material.

- **electronics**

[N-COUNT-U2] **Electronics** are products that use electricity to perform a particular function, including computers, cell phones, televisions, and many other devices.

- **engine**

[N-COUNT-U11] An **engine**, or motor, is a machine that converts fuel into power, and is often built into another machine as a power source.

- **factory**

[N-COUNT-U1] A **factory**, or plant, is a building or group of buildings where products are manufactured.

- **factory farming**

[N-UNCOUNT-U2] **Factory farming** is the process of raising large numbers of animals in a factory setting for the purpose of food production.

- **factory floor**

[N-COUNT-U1] The **factory floor** is the area of a factory where goods are produced.

- **Fahrenheit**

[ADJ-U13] If a measurement is **Fahrenheit**, is uses the temperature scale in which water boils at 212 degrees and freezes at 32 degrees.

- **fastener**

[N-COUNT-U7] A **fastener** is an object or device that attaches two things together.

- **feed**

[V-T-U14] To **feed** something into a machine is to place it in a designated place so that the machine can receive it and use it to perform a function.

- **feeder**

[N-COUNT-U11] A **feeder** is a part of a machine where raw materials are placed into the machine.

- **fiber**

[N-COUNT-U4] A **fiber** is a material in the form of thin strips or threads, and is used to make textiles.

- **fit**

[V-T-U14] To **fit** two things is to place one thing securely into another thing.

- **fluid ounce**

[N-COUNT-U13] A **fluid ounce** is an imperial unit of volume equal to 1/128 gallon or about 29.57 milliliters.

- **foot**

[N-COUNT-U12] A **foot** is an imperial unit of length equal to 12 inches or about 0.30 meters.

- **forklift**

[N-COUNT-U9] A **forklift** is a vehicle with a platform that can be raised or lowered to lift and transport materials.

- **fuel**

[N-COUNT-U11] A **fuel** is a substance that is burned or consumed in order to produce power.

- **gallon**

[N-COUNT-U13] A **gallon** is an imperial unit of volume equal to about 3.79 liters.

- **gasket**

[N-COUNT-U11] A **gasket** is a ring made of metal, plastic, or rubber that is placed at the joint of two parts to prevent liquid or gas from escaping between the parts.

- **gear**

[N-COUNT-U10] A **gear** is a part of a machine that rotates in order to drive a process.

- **generator**

[N-COUNT-U9] A **generator** is a machine that produces power by converting mechanical energy into electricity.

- **glass**

[N-UNCOUNT-U3] **Glass** is a hard material that people can see through, and is used to make windows, containers, and many other products.

- **hammer**

[N-COUNT-U6] A **hammer** is a hand tool that is used to strike something forcefully, often to attach a fastener or deform the shape of something.

- **hand tool**

[N-COUNT-U6] A **hand tool** is a device that someone uses to perform a task, which is solely controlled by the user's hands rather than an electrical process.

- **hardness**

[N-UNCOUNT-U5] **Hardness** is a measure of how well an object maintains its shape under stress.

- **heat sink**

[N-COUNT-U9] A **heat sink** is a device that cools a machine by transferring heat away from it.

- **honing machine**

[N-COUNT-U8] A **honing machine** is a machine tool with an abrasive component that rotates to creates a smooth surface on metal.

- **housing**

[N-COUNT-U10] A **housing** is the exterior part of a machine that covers and protects the functioning parts of it.

- **imperial**

[ADJ-U12] If a measurement is **imperial**, it uses the system that is based on the ounce and the gallon.

- **inch**

[N-COUNT-U12] An **inch** is an imperial unit of length equal to 1/12 of an inch or about 2.54 centimeters.

- **industry**

[N-COUNT-U2] An **industry** is an area of business that produces or provides a particular type of product.

- **insulator**

[N-COUNT-U5] An **insulator** is a material that does not allow electricity to flow through it easily.

- **intake**

[N-COUNT-U11] An **intake** is a part of a machine where something, such as fuel, enters it.

- **jam**

[V-I-U15] To **jam** is to become stuck and unable to move properly.

- **join**

[V-T-U14] To **join** two things is to attach or combine them with each other.

- **kiln**

[N-COUNT-U9] A **kiln** is a chamber that can be heated to a very high temperature, and is used to dry, harden, or otherwise alter something.

- **kilogram**

[N-COUNT-U12] A **kilogram** is a metric unit of weight equal to 1,000 grams or about 2.20 pounds.

- **lathe**

[N-COUNT-U8] A **lathe** is a machine tool that rotates a piece of material while shaping it with a sharp edge.

- **length**

[N-COUNT-U12] A **length** is a measurement of the distance along the edge of something.

- **liter**

[N-COUNT-U13] A **liter** is a metric unit of volume equal to 1,000 milliliters or about 0.26 gallons.

- **loading dock**

[N-COUNT-U1] The **loading dock** is an area outside of a factory where goods are loaded into and unloaded from vehicles.

- **locker room**

[N-COUNT-U1] A **locker room** is a room where employees change their clothes and store personal belongings.

- **lumber**

[N-UNCOUNT-U3] **Lumber** is wood from trees that is cut into strips, and is commonly used in construction.

- **luster**

[N-COUNT-U5] **Luster** is a measure of how something reflects light, which determines whether it is dull or shiny.

- **machine tool**

[N-COUNT-U8] A **machine tool** is a device that is powered by electricity, gas, or another power source, and is able to cut, shape, or otherwise alter various materials.

- **malleable**

[ADJ-U5] If something is **malleable**, it is able to change shape when it is under stress.

- **manual**

[ADJ-U15] If something is **manual**, someone does it with his/her hands instead of with a machine.

- **manufacturing**

[N-UNCOUNT-U2] **Manufacturing** is the process of making products, usually in large quantities at once.

- **mass produce**

[V-T-U15] To **mass produce** something is to make large quantities of identical units.

- **mechanism**

[N-COUNT-U10] A **mechanism** is a set of parts that act together to perform a function.

- **medical**

[ADJ-U2] If something is **medical**, it is related to the treatment of illnesses and injuries.

- **metal**

[N-COUNT-U3] A **metal** is a hard, shiny material that is derived from minerals beneath the Earth's surface.

- **metalworking**

[N-UNCOUNT-U2] **Metalworking** is the process of using metal to make products.

- **meter**

[N-COUNT-U12] A **meter** is a metric unit of length or distance equal to 100 centimeters or about 3.28 feet.

- **metric**

[ADJ-U12] If a measurement is **metric**, it is uses the system that is based on the gram and the liter.

- **mill**

[N-COUNT-U9] A **mill** is a machine tool with a surface, rod, or other component that is used to shape something.

- **milliliter**

[N-COUNT-U13] A **milliliter**, also called a cubic centimeter, is a metric unit of volume equal to 1/1,000 of a liter or about 0.03 fluid ounces.

- **misalignment**

[N-UNCOUNT-U15] **Misalignment** is the state of being in the wrong position in relation to something else.

- **mixer**

[N-COUNT-U9] A **mixer** is a device that is used to blend soft or liquid substances together.

- **monitor**

[V-T-U14] To **monitor** something is to check its progress or quality over time.

- **motor**

[N-COUNT-U11] A **motor**, or engine, is a machine that converts fuel into power, and is often built into another machine as a power source.

- **nail**

[N-COUNT-U7] A **nail** is a round, narrow piece of metal with a sharp point. A nail is driven into something in order to attach it to something else.

- **natural**

[ADJ-U5] If something is **natural**, it occurs in nature, and is not created by humans.

- **nut**

[N-COUNT-U7] A **nut** is a round piece of metal with a hole in the middle that is twisted around a bolt or screw to hold it in place.

- **nylon**

[N-UNCOUNT-U4] **Nylon** is a very strong, synthetic material that is used to make clothing, rope, and many other products.

- **office**

[N-COUNT-U1] An **office** is a room or building in which employees perform professional tasks.

- **particle board**

[N-UNCOUNT-U3] **Particle board** is a material that is made from compressed flakes or shavings of wood, and is often used to make furniture.

- **plant**

[N-COUNT-U1] A **plant**, or factory, is a building or group of buildings where products are manufactured.

- **plastic**

[N-COUNT-U4] A **plastic** is a strong material manufactured from chemicals, and is used to make a wide variety of products.

- **pliers**

[N-COUNT-U6] **Pliers** are a tool with two parts connected by a hinge, and are used for gripping objects or bending wire.

- **polyester**

[N-UNCOUNT-U4] **Polyester** is a synthetic fabric that is used to make clothing and many other products.

- **pound**

[N-COUNT-U12] A **pound** is an imperial unit of weight equal to 16 ounces or about 0.45 kilograms.

- **power nut runner**

[N-COUNT-U8] A **power nut runner** is a handheld machine tool that twists a nut in order to tighten it.

- **product**

[N-COUNT-U2] A **product** is something that a company makes and sells to customers.

- **production line**

[N-COUNT-U1] A **production line** is any system of machines or workers that contributes to the manufacture of a product.

- **regulator**

[N-COUNT-U10] A **regulator** is a part of a machine that controls the way a process occurs, often by ensuring a consistent amount, degree, or speed of something.

- **rivet**

[N-COUNT-U7 A **rivet** is a metal pin that is used to permanently join pieces of metal together.

- **rubber**

[N-UNCOUNT-U3] **Rubber** is a material that bends or stretches easily, and is used to make tires, shoes, and many other products.

- **sander**

[N-COUNT-U8] A **sander** is a machine tool with a flat, abrasive surface that vibrates to create a smooth surface on something.

- **saw**

[N-COUNT-U6] A **saw** is a hand tool with a sharp edge that is used to cut through materials.

- **screw**

[N-COUNT-U7] A **screw** is a round piece of metal with a ridge wrapping around it in a spiral and a point at one end. A screw is twisted into something in order to attach it to something else.

- **screwdriver**

[N-COUNT-U6] A **screwdriver** is a hand tool with a long, narrow piece that fits into the head of a screw, and is twisted to move the screw in or out of a position.

- **sealant**

[N-COUNT-U7] A **sealant** is a substance that joins objects or fills holes, often by being applied in a liquid form and then drying into a hard state.

- **shipping and receiving**

[N-UNCOUNT-U1] **Shipping and receiving** is the act of sending and accepting goods by mail or another system of transport.

- **silicone**

[N-UNCOUNT-U4] **Silicone** is a type of plastic that bends and stretches very easily, and is used in the manufacture of sealants, electronics, and many other products.

- **silk**

[N-UNCOUNT-U4] **Silk** is a soft, smooth fabric that is made from threads produced by a particular type of worm.

- **soldering iron**

[N-COUNT-U8] A **soldering iron** is a handheld machine tool that produces heat in order to secure parts together with a liquid metal substance called solder.

- **sort**

[V-T-U14] To **sort** things is to organize them into different groups.

- **special-purpose machine**

[N-COUNT-U15] A **special-purpose machine** is a machine that performs one very specific task.

- **sprocket**

[N-COUNT-U11] A **sprocket** is a wheel with a series of teeth around the edge that moves a chain as it rotates.

- **stamp**

[V-T-U14] To **stamp** something is to create a mark or imprint on it with a particular tool.

- **staple**

[N-COUNT-U7] A **staple** is a thin, U-shaped strip of metal with sharp points on each end that is used to attach two things.

- **steel**

[N-UNCOUNT-U3] **Steel** is an extremely strong metal that is manufactured from iron, and is commonly used in construction and the manufacture of large machinery.

- **stone**

[N-UNCOUNT-U3] **Stone** is a hard material that consists of natural rock, and is often used in construction.

- **switch**

[N-COUNT-U10] A **switch** is a part of a machine that an operator moves into a particular position in order to start or stop a process.

- **synthetic**

[ADJ-U5] If something is **synthetic**, it is created by humans.

- **temperature**

[N-COUNT-U13] A **temperature** is a measure of how hot or cold something is.

- **tensile**

[ADJ-U5] If something is **tensile**, it measures the ability of a material to bend without breaking.

- **textile**

[N-COUNT-U2] A **textile** is a fabric that is created by knitting or weaving fibers together.

- **ton**

[N-COUNT-U12] A **ton** is an imperial unit of weight equal to 2,000 pounds, or about 0.91 tonne. It is important to note that ton and tonne are pronounced the same way, but they represent different values.

- **tonne**

[N-COUNT-U12] A **tonne** is a metric unit of weight equal to 1,000 kilograms, or about 1.10 tons. It is important to note that tonne and ton are pronounced the same way, but they represent different values.

- **tool crib**

[N-COUNT-U6] A **tool crib** is a collection of all the different tools that are required to perform a particular task or set of tasks.

- **tooth**

[N-COUNT-U11] A **tooth** is a small, pointed part on a machine part such as a gear or sprocket, and allows the part to grab other materials.

- **valve**

[N-COUNT-U10] A **valve** is a part of a machine that controls the flow of something through an opening, and may allow or block the flow.

- **variation**

[N-COUNT-U15] A **variation** is a slight difference between two things, so that they are still mostly similar but not exactly the same.

- **volume**

[N-COUNT-U13] A **volume** is a measure of how much three-dimensional space something occupies.

- **washer**

[N-COUNT-U7] A **washer** is a ring, often made of metal or plastic, that is placed around a fastener to make it fit more tightly.

- **weight**

[N-UNCOUNT-U12] **Weight** is a measurement of how heavy something is.

- **wheel**

[N-COUNT-U11] A **wheel** is a round part of a machine that rotates in order to perform a function.

- **wire**

[V-T-U14] To **wire** something is to install electrical components inside it so that it can perform an electronic function.

- **woodworking**

[N-UNCOUNT-U2] **Woodworking** is the process of using wood to make products.

- **wool**

[N-UNCOUNT-U4] **Wool** is a soft, thick hair that grows on a sheep or other animal, and is used to make clothing and many other products.

- **workstation**

[N-COUNT-U15] A **workstation** is an area where a worker performs a particular task.

- **wrench**

[N-COUNT-U6] A **wrench** is a hand tool that is designed to twist or turn an object, usually a fastener, by grasping it from opposite sides.

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- **2-D**
[ADJ-U13] If an image is **2-D**, or two-dimensional, it is displayed on a flat surface, like a piece of paper or a computer screen.

- **3-D**
[ADJ-U13] If an image is **3-D**, or three-dimensional, it has or appears to have height, width, and depth.

- **acceptability**
[N-UNCOUNT-U5] **Acceptability** is a determination about whether a product meets the standards for distribution or sale.

- **acceptance testing**
[N-UNCOUNT-U6] **Acceptance testing** is the act of testing incoming materials to determine whether they are suitable for use in the manufacturing process.

- **accounting**
[N-UNCOUNT-U15] **Accounting** is a department that maintains a company's financial records.

- **activity-based system**
[N-COUNT-U9] An **activity-based system** is a type of PMTS that includes models for the sequences of actions required to move something from one location to another.

- **actuator**
[N-COUNT-U12] An **actuator** is a device that supplies power to a robotic manipulator.

- **advancement**
[N-UNCOUNT-U14] **Advancement** is the process of moving to a higher level of responsibility or authority within a company.

- **alert**
[V-T-U3] To **alert** someone is to provide him or her with important information about an urgent situation.

- **allocate**
[V-T-U10] To **allocate** something is to split its parts in a particular way and designate them for particular people or purposes.

- **amputate**
[V-T-U3] To **amputate** a limb is to completely remove it from a person's body.

- **analyst**
[N-COUNT-U15] An **analyst** is someone who assesses the processes in a work environment and identifies ways to improve them.

- **apron**
[N-COUNT-U1] An **apron** is a protective garment that covers the front of a person's body and is worn over the clothes.

- **assembler**
[N-COUNT-U15] An **assembler** is a worker who attaches parts in order to build a product.

- **bench inspection**
[N-COUNT-U6] A **bench inspection** is the act of examining products when they reach a certain point along the production line, and is generally conducted at a designated inspection station.

- **blind**
[V-T-U3] To **blind** someone is to prevent him or her from seeing, usually by damaging his/her eyes.

- **burn**
[N-COUNT-U3] A **burn** is an injury, usually resulting in a discoloration of the skin, that is caused by direct contact with fire, heat, acid, or oil.

- **business attire**
[N-UNCOUNT-U1] **Business attire** is a type of clothing that is typical in offices, and often refers to suits and ties for men, and blouses and skirts or trousers for women.

- **buyer**
[N-COUNT-U15] A **buyer**, also known as a purchasing manager, is someone who finds and purchases raw materials for a factory.

- **CAD**
[ABBREV-U13] **CAD** (computer-aided design) is the process of using a computer to design the features and functions of something.

- **capacity**
[N-COUNT-U7] A **capacity** is the maximum amount of work that a factory can complete at a time, based on the available space, equipment, and staff.

- **CAPP**
[ABBREV-U13] **CAPP** (computer-aided process planning) is the act of using software to create a detailed, organized set of instructions for creating a particular product.

- **certification**
[N-UNCOUNT-U14] **Certification** is the process of becoming officially qualified or allowed to do something.

- **chemical**
[N-COUNT-U2] A **chemical** is a substance with particular properties or behaviors, and may be dangerous under certain conditions.

- **CIM**
[ABBREV-U13] **CIM** (computer-integrated manufacturing) is the process of using computers throughout the different stages of manufacturing, including product design, work planning, implementation, and distribution.

- **cleanup**
[N-UNCOUNT-U2] **Cleanup** is the process of removing dirt and waste from something.

- **clerical**

[ADJ-U15] If something is **clerical**, it involves general office duties such as maintaining records, sending communications, and managing schedules.

- **CNC operator**

[N-COUNT-U15] A **CNC** (computer numerical control) **operator** is a machine operator who runs his/her equipment from a computer.

- **comfortable**

[ADJ-U1] If someone is **comfortable**, he/she feels physically good.

- **conformance**

[N-UNCOUNT-U5] **Conformance** is a measurement of how closely the qualities of something match its specifications.

- **continuous flow manufacturing**

[N-UNCOUNT-U7] **Continuous flow manufacturing** is a type of factory organization in which multiple products are constantly being produced from a single raw material.

- **continuous**

[ADJ-U8] If something is **continuous**, it occurs constantly, without stopping.

- **cost-effective**

[ADJ-U11] If something is **cost-effective**, it has a desirable result without costing an excessive amount of money.

- **coveralls**

[N-COUNT-U1] **Coveralls** are a protective garment that a worker wears over his/her whole body, often with regular clothes underneath.

- **cross-train**

[V-T-U8] To **cross-train** a worker is to teach him or her the skills for multiple jobs.

- **crush**

[VT-U3] To **crush** something is to press or squeeze it until it breaks.

- **deployment**

[N-UNCOUNT-U7] **Deployment** is the process of distributing something in a planned, organized way.

- **design**

[V-T-U11] To **design** something is to plan how it will be built and how it will function.

- **designated**

[ADJ-U2] If something is **designated** for a particular purpose, it is intended to be used only for that purpose and not for any other purpose.

- **dexterity**

[N-UNCOUNT-U12] **Dexterity** is the ability to move and control something with hands or hand-like components.

- **do**

[EXPRESSION-U8] "**Do**" refers to the time required to complete actual work.

- **document**

[V-T-U4] To **document** something is to record details about something in an official manner.

- **drafting**

[N-UNCOUNT-U11] **Drafting** is a technical skill that involves making very detailed, precise drawings of machines and systems.

- **dress code**

[N-COUNT-U1] A **dress code** is a list of rules or guidelines regarding the clothing that people must wear when in a particular place.

- **efficiency**

[N-UNCOUNT-U8] **Efficiency** it is the state of accomplishing something with the least possible time, effort, and waste.

- **element-based system**

[N-COUNT-U9] An **element-based system** is a version of a motion-based system for certain applications, and includes time predictions for specific sets of tasks.

- **eliminate**

[V-T-U5] To **eliminate** something is to completely stop or remove it.

- **emergency procedure**

[N-COUNT-U3] An **emergency procedure** is a set of actions that people must follow during emergencies.

- **emergency shutdown**

[N-COUNT-U3] An **emergency shutdown** is a procedure in which all the functions of a factory are stopped suddenly because of an emergency situation.

- **enabling device**

[N-COUNT-U12] An **enabling device** is a mechanism that allows motion when it is engaged and immediately stops motion when disengaged.

- **end-effector**

[N-COUNT-U12] An **end-effector** is a gripping tool or other device at the end of a manipulator.

- **enforce**

[V-T-U1] To **enforce** a rule or law is to make sure that people follow it.

- **engineered standard**

[N-COUNT-U9] An **engineered standard** is a method for determining something that is based on precise, measurable factors.

- **entry-level**

[ADJ-U14] If a job is **entry-level**, it may require some skills or education, but is suitable for someone who is new to the industry.

- **equipment procedures**

[N-COUNT-U14] **Equipment procedures** are instructions for operating and maintaining the machines in a facility.

- **estimate**

[N-COUNT-U9] An **estimate** is a general prediction about something based on historical data or other information.

- **experienced**

[ADJ-U14] If someone is **experienced**, he/she has done something for a long time and is confident doing it.

- **exploded view**

[N-COUNT-U13] An **exploded view** is a diagram that shows the parts of something slightly separated from each other so that each component is displayed clearly.

- **fabricator**

[N-COUNT-U15] A **fabricator** is a person or company that builds parts for use in other areas of manufacturing or construction.

- **final acceptance inspection**

[N-COUNT-U6] A **final acceptance inspection** is the act of examining and testing the complete assembly of a product.

- **first aid**

[N-UNCOUNT-U3] **First aid** is medical treatment that is applied immediately after an accident or injury.

- **first article inspection**

[N-COUNT-U6] A **first article inspection** is the act of examining the first unit or batch in a manufacturing process, conducted in order to identify and fix problems before manufacturing further units.

- **fit**

[V-I-U1] To **fit** is to be an appropriate size or shape for someone's body, and generally refers to clothing or accessories.

- **flow line**

[N-COUNT-U12] A **flow line** is a sequence of machines that are arranged to perform a series of operations in a particular order.

- **foreperson**

[N-COUNT-U15] A **foreperson** is someone who oversees a team of workers.

- **get caught in**

[PHRASE-U3] To **get caught in** something is to become entangled or trapped in it.

- **glove**

[N-COUNT-U1] A **glove** is a piece of protective equipment that is worn to protect the hands.

- **goal**

[N-COUNT-U7] A **goal** is something that someone is trying to achieve or reach.

- **goggles**

[N-COUNT-U1] **Goggles** are a clear, protective covering for a person's eyes.

- **guarding**

[N-UNCOUNT-U3] **Guarding** is something that acts as a barrier between people and the moving parts of machines to prevent injury or damage.

- **guess**

[N-COUNT-U9] A **guess** is a prediction about something that is based on little or no definite data.

- **hairnet**

[N-COUNT-U1] A **hairnet** is a covering for a person's head that is designed to contain loose hairs.

- **handle**

[V-T-U2] To **handle** something is to control it or have contact with it.

- **hazardous**

[ADJ-U2] If something is **hazardous**, it is able or likely to harm someone.

- **historical data**

[N-COUNT-U9] **Historical data** are facts about something from a previous time.

- **hood**

[N-COUNT-U1] A **hood** is a protective covering that is worn over the head, and may have a clear panel over the face that the wearer can see through.

- **HR**

[N-ABBREV-U15] **HR** (human resources) is a department within a company that is responsible for hiring new employees, as well as managing payroll and ongoing concerns of current employees.

- **HVAC**

[ABBREV-U11] **HVAC** (heating, ventilation, and air conditioning) is an area of technology that deals with the control of indoor temperatures and airflow.

- **hydraulic**

[ADJ-U12] If something is **hydraulic**, it creates power with the movement of a fluid, such as water.

- **incoming inspection**

[N-COUNT-U6] An **incoming inspection** is the act of examining any raw materials or subassemblies when they arrive at a factory.

- **infrastructural**

[ADJ-U10] If a decision is **infrastructural**, it relates to resources other than physical equipment, including personnel, policies, and processes.

- **interface**

[N-COUNT-U13] An **interface** is a system that allows a user to interact with a computer or other device, and includes the arrangement of keys or screen features that a user must navigate and select.

- **JIT**

[ABBREV-U8] **JIT** (just-in-time), also called lean manufacturing, is a philosophy of efficient manufacturing in which manufacturers have only an essential amount of inventory at a particular time, strive to improve quality to zero defects, and try to reduce unnecessary delays throughout the manufacturing process.

- **job shop**

[N-COUNT-U7] A **job shop** is a type of factory organization in which products are manufactured in small batches, or by one unit at a time.

- **joint**

[N-COUNT-U12] A **joint** is a place where two things are connected in a way that allows them to turn or twist in different directions.

- **label**

[N-COUNT-U2] A **label** is a piece of printed information that is attached to something.

- **lag strategy**

[N-COUNT-U10] A **lag strategy** is a type of production strategy in which a company waits until an increased demand exists before acquiring the resources to accommodate it.

- **latent defect**

[N-COUNT-U5] A **latent defect** is a problem with a product that is not apparent during quality control, but rather occurs later during use by the consumer.

- **lead strategy**

[N-COUNT-U10] A **lead strategy** is a type of production strategy in which a company anticipates an increased demand, and acquires resources before they are needed.

- **lead time**

[N-COUNT-U8] **Lead time** is the amount of time between the initial intent to complete a task and the actual completion of the task.

- **lean manufacturing**

[N-UNCOUNT-U8] **Lean manufacturing**, also called JIT, is a philosophy of efficient manufacturing in which manufacturers have only an essential amount of inventory at a particular time, strive to improve quality to zero defects, and try to reduce unnecessary delays throughout the manufacturing process.

- **line worker**

[N-COUNT-U15] A **line worker** is someone who performs one particular task along an assembly line.

- **loose**

[ADJ-U1] If clothing is **loose**, it is large and does not fit tightly around the body.

- **lubricate**

[V-T-U4] To **lubricate** something is to apply a liquid to it, usually to prevent moving parts from scraping each other roughly.

- **machine operator**

[N-COUNT-U15] A **machine operator** is someone who uses a machine to perform his/her task along a production line

- **maintain**

[V-T-U4] To **maintain** something is to inspect, clean, and repair it regularly to ensure it remains in good condition.

- **major activity planning**

[N-UNCOUNT-U7] **Major activity planning** is the process of ensuring that many different processes work smoothly together as one.

- **make-ready**

[EXPRESSION-U8] "**Make-ready**" refers to the setup or preparation time needed before a task can be completed.

- **manifest**

[V-I-U5] To **manifest** is to become real or apparent.

- **manipulator**

[N-COUNT-U12] A **manipulator** is a part of a robot that acts as an arm and controls the movement of something.

- **manufacturing engineer**

[N-COUNT-U11] A **manufacturing engineer** is a person who designs facilities, equipment, systems, and processes that are used in factories.

- **material requirements planning**

[N-UNCOUNT-U11] **Material requirements planning** is the process of determining the types and quantities of materials that a factory will need.

- **mathematics**

[N-UNCOUNT-U11] **Mathematics** is a scientific subject that deals with numbers, equations, and calculations.

- **mechanics**

[N-UNCOUNT-U11] **Mechanics** is a scientific subject that addresses how machines function.

- **metrics**

[N-COUNT-U9] **Metrics** are sets of data that are used to determine how productive or effective a process is.

- **middle management**

[N-UNCOUNT-U10] **Middle management** is the group of people within an organization who manage daily operations, and make specific decisions about how tasks get accomplished.

- **minimize**

[V-T-U5] To **minimize** something is to reduce it as much as possible.

- **model**

[N-COUNT-U13] A **model** is a small or non-functional version of an object or system that has the same features and relationships between parts as the real version.

- **modify**

[V-T-U13] To **modify** something is to change part of it, but not all of it.

- **motion-based system**

[N-COUNT-U9] A **motion-based system** is a type of PMTS that uses the durations of simple human actions to determine how long a process should take.

- **moving part**

[N-COUNT-U3] A **moving part** is a component on or in a machine that changes position in relation to other parts.

- **MPS**

[ABBREV-U7] **MPS** (master production scheduling) is an outline of the quantity of products that a company plans to produce and when the work should be completed.

- **MSDS**

[ABBREV-U2] **MSDS** (material safety data sheet) is a document that provides information about toxic chemicals present in a certain environment.

- **multimedia**

[ADJ-U11] If something is **multimedia**, it uses various technologies and methods of communication to express something.

- **nondestructive inspection**

[N-COUNT-U6] A **nondestructive inspection** is the act of examining or testing something without straining or damaging it parts.

- **non-engineered standard**

[N-COUNT-U9] A **non-engineered standar**d is a method for determining something that is not based on precise, measurable factors.

- **nonproductive**

[ADJ-U8] If something is **nonproductive**, it does not directly create or complete anything.

- **objective**

[N-COUNT-U10] An **objective**, or goal, is something that someone is trying to achieve or reach.

- **on-the-job**

[ADJ-U14] If something is **on-the-job**, it occurs while an employee is actively performing his/her work tasks.

- **operating system**

[N-COUNT-U13] An **operating system** is software that allows a user to control a computer or other machine.

- **operations manager**

[N-COUNT-U15] An **operations manager** is someone who oversees and directs all activities in a factory.

- **order winner**

[N-COUNT-U10] An **order winner** is an aspect of the manufacturing process that is identified as especially successful or competitive, which the management then chooses to reinforce by allocating further resources for that particular factor.

- **overestimate**

[V-T-U9] To **overestimate** something is to make a prediction about it that assumes it will be greater than it actually will be.

- **payload**

[N-COUNT-U12] A **payload** is the size or weight of material that a robot is capable of manipulating.

- **pendant**

[N-COUNT-U12] A **pendant** is a device that sends an operator's commands to a robot's control system.

- **people issues**

[N-COUNT-U8] **People issues** are the concerns of a business that are related to the needs and expectations of the employees.

- **performance evaluation**

[N-COUNT-U14] A **performance evaluation** is the process of assessing how well an employee is doing his/her job, and identifying ways to improve.

- **photorealistic rendering**

[N-COUNT-U13] A **photorealistic rendering** is an image that shows an extremely accurate representation of an object or system, and may be a still image or a moving image.

- **physics**

[N-UNCOUNT-U11] **Physics** is a scientific subject that addresses the behavior of objects and energy.

- **PMTS**

[ABBREV-U9] A **PMTS** (predetermined motion-time system) is an engineered standard for measuring work in which a process is broken down into a sequence of individual steps or actions.

- **pneumatic**

[ADJ-U12] If machinery is **pneumatic**, it uses pressurized gas to control mechanical motion.

- **policy**

[N-COUNT-U7] A **policy** is a set of practices or guidelines that employees of a company follow.

- **power surge**

[N-COUNT-U3] A **power surge** is an event during which the voltage, current, or energy of an electrical circuit suddenly increases, often causing damage to an electrical system.

- **PPE**

[ABBREV-U1] **PPE** (personal protective equipment) is any type of safety gear worn by workers to protect them from heat, chemicals, or other hazards.

- **probationary period**

[N-COUNT-U14] A **probationary period** is a time when management watches an employee closely to determine whether he/she is performing satisfactorily, and whether he/she should remain in the position.

- **process focus**

[N-COUNT-U10] A **process focus** is a manufacturing setup in which a plant is designed to perform just one particular process, but may produce multiple products.

- **process inspection**

[N-COUNT-U6] A **process inspection** is the act of examining one particular step in the production process.

- **process plan**

[N-COUNT-U11] A **process plan** is a document including a complete set of information and instructions about how a product will be manufactured.

- **product focus**

[N-COUNT-U10] A **product focus** is a manufacturing setup in which a plant contains all of the processes that are necessary to produce just one particular product.

- **product variety**

[N-COUNT-U7] A **product variety** is a measure of the number of different products that a company produces.

- **product volume**

[N-COUNT-U7] A **product volume** is the quantity of products that a manufacturer intends to produce within a particular amount of time.

- **put-away**

[EXPRESSION-U8] "**Put-away**" refers to the process of cleaning up a workspace after a task is complete.

- **qualified**

[ADJ-U4] If someone is **qualified**, he/she has the necessary knowledge or training to do something.

- **quality control**

[N-UNCOUNT-U5] **Quality control** is the process of testing products to ensure that they meet particular standards before allowing them to be distributed or sold.

- **quality controller**

[N-COUNT-U15] A **quality controller** is someone who oversees testing and inspection to make sure that products meet particular standards.

- **R&D**

[N-ABBREV-U15] **R&D** (research and development) is a department that develops new technology and improves existing technology.

- **react**

[V-I-U3] To **react** is to behave or act in a certain way in response to something.

- **reaction**

[N-COUNT-U2] A **reaction** is a process in which multiple substances are combined and create a change.

- **regular**

[ADJ-U4] If something is **regular**, it occurs repeatedly at the same times or in the same manner.

- **reliability**

[N-UNCOUNT-U5] **Reliability** is a measurement of how likely something is to function correctly.

- **repair**

[V-T-U4] To **repair** something is to fix parts of it that are not functioning correctly.

- **repetitive manufacturing**

[N-UNCOUNT-U7] **Repetitive manufacturing** is a type of factory organization in which products are manufactured in stages, and each stage is responsible for one particular part or process.

- **replace**

[V-T-U4] To **replace** something is to remove it and put something else in its place.

- **report**

[N-COUNT-U4] A **report** is a document that provides formal information about something.

- **resource**

[N-COUNT-U10] A **resource** is something, such as a material or location, that is useful in some way.

- **retrieve**

[V-T-U13] To **retrieve** something is to bring it from the place where it is kept to a place where it is needed.

- **risk**

[N-COUNT-U5] A **risk** is a possibility or likelihood that something bad will occur.

- **robotics**

[N-PLURAL-U12] **Robotics** is the science of designing and manufacturing robots.

- **roving inspection**

[N-COUNT-U6] A **roving inspection** is the act of moving around the production floor and examining products at different stations.

- **sales**

[N-UNCOUNT-U15] **Sales** is a department that is responsible for finding clients or customers to buy a company's products.

- **sampling**

[N-UNCOUNT-U6] **Sampling** is the act of testing a small number of items to determine the likely qualities of a larger batch.

- **sanitize**

[V-T-U4] To **sanitize** something is to clean it thoroughly, removing all unwanted materials from it.

- **self-check**

[N-COUNT-U6] A **self-check** is an inspection that an individual worker performs on his/her own work.

- **self-reporting**

[N-UNCOUNT-U9] **Self-reporting** is a process in which work measurements are based on a particular operator's assessment of his/her own performance.

- **serial robot**

[N-COUNT-U12] A **serial robot** is a robot that consists of a series of parts connected by joints.

- **setup inspection**

[N-COUNT-U6] A **setup inspection** is the act of examining the machines and workspaces that will be used during manufacturing.

- **shadow**

[V-T-U14] To **shadow** someone is to follow him or her and watch his/her activities closely, in order to learn from them.

- **sharpen**

[V-T-U4] To **sharpen** something is to make its edge thinner so that it can cut things more easily.

- **shipping inspection**

[N-COUNT-U6] A **shipping inspection** is the act of examining the packaging that a product will be shipped in.

- **skilled**

[ADJ-U14] If a job is **skilled**, it must be performed by workers with a particular background or education.

- **specification**

[N-COUNT-U5] A **specification** is one particular quality or measurement.

- **spill**

[N-COUNT-U2] A **spill** is an accident in which liquid drops onto the floor or over another surface.

- **sterilize**

[V-T-U2] To **sterilize** something is to clean it very thoroughly so that it does not contain any bacteria.

- **strategy**

[N-COUNT-U10] A **strategy** is a planned method or system for reaching a goal.

- **structural**

[ADJ-U10] If a decision is **structural**, it relates to the physical aspects of a company's facilities, equipment, and technology.

- **synchronized**

[ADJ-U7] If two things are **synchronized**, they are planned to occur at the same time, or in a particular order so that they work together.

- **technician**

[N-COUNT-U4] A **technician** is someone with special training to repair and maintain particular machines or systems.

- **test planning**

[N-UNCOUNT-U5] **Test planning** is the process of developing a reliable way to determine the acceptability of a product.

- **testing**

[N-UNCOUNT-U5] **Testing** is the process of observing something in order to assess its condition or function.

- **thermodynamics**

[N-UNCOUNT-U11] **Thermodynamics** is a scientific subject that addresses the behavior of heat.

- **tight**

[ADJ-U5] If the tolerance of a product is **tight**, it varies very little from one unit to the next.

- **tolerance**

[N-COUNT-U5] A **tolerance** is a measurement of the amount of variation in a unit of a product, and may only reach a certain level before the item is no longer functional or acceptable.

- **toxic**

[ADJ-U2] If something is **toxic**, it contains materials that can make someone sick.

- **tracking strategy**

[N-COUNT-U10] A **tracking strategy** is a type of production strategy in which a company seeks a balance between lead strategy and lag strategy, and makes frequent adjustments to accommodate changing demand.

- **training**

[N-UNCOUNT-U3] **Training** is the process of teaching people how to do something.

- **translate**

[V-T-U13] To **translate** data is to change them from one form into another, so that a computer and a user can read the same information in different formats.

- **uniform**

[N-COUNT-U1] A **uniform** is a standard type of clothing that is worn by people within an organization, company, or group.

- **unskilled**

[ADJ-U14] If a job is **unskilled**, it can be performed by workers who do not have a particular background or education.

- **upper management**

[N-UNCOUNT-U10] **Upper management** is the group of people within an organization with the highest level of control, and usually make general decisions about the goals and philosophy of the company.

- **versatile**

[ADJ-U14] If something is **versatile**, it includes a range of different qualities or abilities.

- **volatile**

[ADJ-U2] If something is **volatile**, it is likely to behave in a dangerous and unpredictable manner.

- **waste hopper**

[N-COUNT-U2] A **waste hopper** is a large container that is used to collect and dispose of unwanted materials.

- **waste**

[N-UNCOUNT-U8] **Waste** is time or material that is not useful or productive.

- **work envelope**

[N-COUNT-U12] A **work envelope** is the area that can be reached by a robot's end-effector.

- **work measurement**

[N-UNCOUNT-U9] **Work measurement** is the process of determining how productive a work process is, and includes all the time, material, and any other cost-inducing factors in the process.

- **work sampling**

[N-UNCOUNT-U9] **Work sampling** is the process of observing a small number of workers to form a conclusion about the performance of a larger group.

- **workmanship standards**

[N-COUNT-U14] **Workmanship standards** are a set of guidelines or expectations about the quality of a product that employees of a company must follow.

- **worn out**

[ADJ-U4] If something is **worn out**, it is weak or damaged as a result of heavy use.

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- **address book**

[N-COUNT-U12] An **address book** is an organized list of email contacts.

- **all-in-one**

[ADJ-U8] An **all-in-one** machine is a single machine that combines printing, scanning, copying and faxing.

- **Alt key**

[N-COUNT-U3] The **Alt key** is a key that gives another key an alternative function when both keys are pressed at the same time.

- **app**

[N-COUNT-U10] An **app**, short for 'application', is a program designed for a specific use that can be purchased and downloaded wirelessly to a smartphone.

- **aspect ratio**

[N-COUNT-U2] The **aspect ratio** of a computer display is the ratio of its long side to its short side.

- **attach**

[V-T-U13] To **attach** is to include a downloadable document within an email.

- **attachment**

[N-COUNT-U14] An **attachment** is a file added to an email and sent along with it.

- **automatic document feeder**

[N-COUNT-U8] An **automatic document feeder** is a mechanized device that sends paper from a stack through a scanner or printer.

- **available**

[ADJ-U15] If you are **available**, you are online and capable of chatting on IM.

- **ball mouse**

[N-COUNT-U4] A **ball mouse**, also called a mechanical mouse, uses a rubber ball to track hand movements.

- **Bcc**

[ABBREV-U13] A **Bcc** (Blind carbon copy) is a copy of an email sent to someone in which the identities of other recipients is hidden.

- **bounce back**

[V-I-U14] To **bounce back** is to return an email to the sender without it being delivered.

- **built-in**

[ADJ-U10] A **built-in** feature of a product is a feature the product already has at the time of purchase.

- **busy**

[ADJ-U15] If you are **busy**, you are away from your computer or otherwise unavailable to chat.

- **button**

[N-COUNT-U4] A **button** is the part of a mouse that is pushed to select items on the computer screen.

- **capacity**

[N-UNCOUNT-U6] **Capacity** is the amount of storage space on a disk.

- **Caps Lock**

[N-UNCOUNT-U3] The **Caps Lock** is a key on the keyboard that is used for typing all capital letters when it is pressed.

- **cartridge**

[N-COUNT-U7] A **cartridge** is a device that holds ink or toner in a printer and can be replaced.

- **case**

[N-COUNT-U5] A **case** is the outer protective enclosure that contains computer parts.

- **Cc**

[ABBREV-U13] A **Cc** (Carbon copy) is a duplicate of an email that has been sent to another person.

- **cell phone**

[N-COUNT-U10] A **cell phone**, also known as a mobile phone, is a wireless device that can make and receive phone calls.

- **chat**

[N-COUNT-U15] A **chat** is the act of communicating with instant messages.

- **click**

[V-T-U4] To **click** an item on the screen is to place the cursor on it and press the mouse button.

- **color depth**

[N-COUNT-U8] **Color depth** is the number of different colors that a scanner can represent.

- **compression**

[N-UNCOUNT-U9] **Compression** is the process of reducing the size of digital photos by changing the way data is encoded.

- **computer**

[N-COUNT-U1] A **computer** is an electronic instrument for storing and operating on data.

- **configure**

[V-T-U14] To **configure** a program is to prepare it so that it is ready for a specific task.

- **contact list**

[N-COUNT-U15] A **contact list** is a list of screen names in an IM/email program showing which of your contacts are available, busy, or offline.

- **contrast**

[N-UNCOUNT-U2] **Contrast** is the difference in level between black and white on a computer screen.

- **Control key**

[N-COUNT-U3] The **Control key** is a key that gives another key an alternative function when both keys are pressed at the same time.

- **copy**

[V-T-U8] To **copy** is to reproduce an object on paper.

- **cordless**

[ADJ-U4] If a mouse is **cordless**, it transmits information to a computer without using a cord or wire.

- **coverage**

[N-UNCOUNT-U10] **Coverage** is the extent to which something is covered.

- **CPU**

[ABBREV-U5] The **CPU** (Central Processing Unit) is the central processor of a computer.

- **create**

[V-T-U13] To **create** is to open a new email document.

- **cursor**

[N-COUNT-U11] A **cursor** is a movable icon on a computer screen, indicating the point that will be affected by input from the user.

- **desktop computer**

[N-COUNT-U1] A **desktop computer** is a computer for use in a single location such as at home or at an office.

- **desktop**

[N-COUNT-U11] A **desktop** is the working area of a computer screen containing icons that typically represent files, programs, and a wastebasket.

- **diacritical mark**

[N-COUNT-U3] A **diacritical mark** is a symbol that is added to a letter to denote a special pronunciation.

- **digital camera**

[N-COUNT-U9] A **digital camera** is a camera that stores and records digital images.

- **digital zoom**

[N-UNCOUNT-U9] **Digital zoom** is a method of cropping and magnifying the center of an image without the movement of lenses.

- **disk drive**

[N-COUNT-U5] A **disk drive** is a computer part that allows data to be read from and copied to a disk.

- **display**

[N-COUNT-U2] A **display** is the image on a monitor screen.

- **domain name**

[N-COUNT-U14] A **domain name** is used to label webpages and is part of an email address.

- **dpi (dots per inch)**

[ABBREV-U7] **Dpi (dots per inch)** is a measure of the density of dots used to print a digital image or text.

- **drafts folder**

[N-COUNT-U12] A **drafts folder** is a location for storing incomplete or unsent emails for later review.

- **dropdown menu**

[N-COUNT-U11] A **dropdown menu** is a menu of options that appears below an item when it is clicked on by a user.

- **email**

[N-COUNT-U12] An **email** is a message sent electronically over a computer network.

- **email address**

[N-COUNT-U12] An **email address** is the specific location where electronic mail is received.

- **email client**

[N-COUNT-U12] An **email client** is the program that allows a user to send, receive, store, and organize emails.

- **exceed**

[V-T-U14] To **exceed** is to go above a predetermined limit.

- **fan**

[N-COUNT-U5] A **fan** is a mechanical device used to move air rapidly in order to cool the inside of a computer.

- **feature**

[N-COUNT-U10] A **feature** is a characteristic or ability of a device that is outstanding and often desirable.

- **file transfer**

[N-UNCOUNT-U15] A **file transfer** is the act of transmitting files over the Internet or computer network.

- **flash drive**

[N-COUNT-U6] A **flash drive** is a data storage device containing flash memory.

- **flatbed**

[N-COUNT-U8] A **flatbed** is a type of scanner with a large horizontal piece of glass and a lid.

- **folder**

[N-COUNT-U11] A **folder** is an icon on a computer screen that can be used to access related files.

- **forward**

[V-T-U13] To **forward** an email is to send an exact copy of the email to another person.

- **function key**

[N-COUNT-U3] A **function key** is a key which is given a particular function by a piece of software.

- **GB**

[ABBREV-U6] A **GB** (gigabyte) is a unit of memory equal to one billion bytes.

- **GPS**

[ABBREV-U10] **GPS** (Global Positioning System) is a navigation or mapping system run by satellite, used to find exact locations.

- **GUI (Graphical User Interface)**

[ABBREV-U11] A **GUI (Graphical User Interface)** is a visual way of interacting with a computer using menus, icons and windows.

- **hard drive**

[N-COUNT-U5] A **hard drive** is the main device in a computer that stores data.

- **HD**

[ABBREV-U2] **HD** (High Definition) is a video system with a high resolution, resulting in clearer and more detailed images.

- **heat sink**

[N-COUNT-U5] A **heat sink** is a computer part that transfers heat to the air.

- **icon**

[N-COUNT-U11] An **icon** is a graphic symbol that denotes a file or program.

- **IM (Instant Messaging)**

[ABBREV-U15] **IM (Instant Messaging)** is a form of text-based communication between two or more people using computers or other devices.

- **inbox**

[N-COUNT-U12] An **inbox** is the location where emails are received.

- **ink**

[N-UNCOUNT-U7] **Ink** is a pigmented liquid that is used in inkjet printers.

- **inkjet printer**

[N-COUNT-U7] An **inkjet printer** is a printer that sprays ink to create a printed page.

- **JPEG**

[ABBREV-U9] **JPEG** (Joint Photographic Experts Group) is a format for compressing images.

- **junk mail**

[N-UNCOUNT-U12] **Junk mail** is unsolicited, impersonal mail, often sent to many people at once.

- **keyboard**

[N-COUNT-U3] A **keyboard** is a panel of keys for entering data into a computer.

- **laptop**

[N-COUNT-U1] A **laptop** is a small computer that can be carried and used in many locations.

- **laser mouse**

[N-COUNT-U4] A **laser mouse** uses laser light to track hand movements.

- **laser printer**

[N-COUNT-U7] A **laser printer** is a printer that prints using a laser beam and toner.

- **LCD**

[ABBREV-U2] A **LCD** (Liquid Crystal Display) is a display that uses liquid crystals to show output on a computer screen.

- **LED**

[ABBREV-U2] **LED** (Light Emitting Diode) is a display that uses diodes to show output on a computerscreen.

- **LED mouse**

[N-COUNT-U4] An **LED** (Light Emitting Diode) **mouse** uses light emitting diodes to track hand movements relative to an underlying surface.

- **maximum**

[ADJ-U14] **Maximum** refers to the highest level or value of something.

- **megapixel**

[N-COUNT-U9] A **megapixel** is one million pixels.

- **memory**

[N-UNCOUNT-U6] **Memory** is the part of a computer used for storage of data or program instructions.

- **monitor**

[N-COUNT-U2] A **monitor** is an electronic device that is used to display computer signals.

- **motherboard**

[N-COUNT-U5] A **motherboard** is the central circuit board of a computer.

- **mouse**

[N-COUNT-U4] A **mouse** is a device used to track hand movements and make selections on a computer screen.

- **MP3 player**

[N-COUNT-U10] An **MP3 player** is a device that plays music from digital files.

- **notebook**

[N-COUNT-U1] A **notebook** is a mobile computer for use in many places.

- **numeric keypad**

[N-COUNT-U3] A **numeric keypad** is a small keypad, located on the right-hand side of a standard keyboard, that features digits 0-9.

- **one-to-one**

[ADJ-U15] If a chat is **one-to-one**, it is between two individuals and conducted through instant messaging.

- **optical resolution**

[N-UNCOUNT-U8] **Optical resolution** is the built-in ability of a scanner to render detail.

- **optical drive**

[N-COUNT-U5] An **optical drive** is an obsolete type of drive that used CDs and DVDs to transfer and store data on a computer.

- **optical zoom**

[N-UNCOUNT-U9] **Optical zoom** is a method of changing the field of view of a camera by physically moving lenses.

- **organize**

[V-T-U11] To **organize** is to arrange icons or files into a logical order.

- **personal computer**

[N-COUNT-U1] A **personal computer** (PC) is a computer for individual use.

- **pixel count**

[N-UNCOUNT-U9] A **pixel count** is the number of pixels in each image.

- **POP 3 server**

[N-COUNT-U14] A **POP 3 server** is a server using the Post Office Protocol to download/receive email.

- **port**

[N-COUNT-U5] A **port** is an outlet on a computer that allows it to communicate with other devices by means of a plug or cable.

- **portable**

[ADJ-U1] If a computer is **portable**, a person can carry or move it.

- **portable hard drive**

[N- COUNT-U6] A **portable hard drive** is a magnetic disk drive for data storage that a person can carry or move.

- **power supply**

[N-COUNT-U5] A **power supply** is a device that provides energy to a computer.

- **ppi (pixels per inch)**

[ABBREV-U8] **ppi (pixels per inch)** measures the density of pixels contained in an image.

- **ppm (pages per minute)**

[ABBREV-U7] **ppm (pages per minute)** is a measure of how fast a printer prints.

- **print**

[V-T-U7] To **print** a document is to mark the surface of a piece of paper with ink to form words or images.

- **printer**

[N-COUNT-U7] A **printer** is a machine that prints digital images and text onto paper.

- **processing power**

[N-UNCOUNT-U1] **Processing power** is a measure or description of how fast a computer can complete instructions.

- **processor**

[N-COUNT-U5] A **processor** is a computer part that allows programs to be interpreted and run.

- **provider**

[N-COUNT-U15] A **provider** is a service or company that provides a chat program.

- **QWERTY**

[ABBREV-U3] A **QWERTY** keyboard uses the standard layout for English-language keyboards, with Q, W, E, R, T, and Y as the first keys from the left in the top row of letters.

- **real-time**

[ADJ-U15] A **real-time** text conversation is a conversation that is not delayed as in email.

- **recipient**

[N-COUNT-U13] A **recipient** is the person to whom an email is sent.

- **removable drive**

[N-COUNT-U5] A **removable drive** is a storage device that can be connected or disconnected from a computer easily.

- **reply**

[V-T-U13] To **reply** is to send an email in response to an email you have received.

- **reply all**

[PHRASE-U13] To **reply all** is to send an email to a group of people in response to an email you have received.

- **resolution**

[N-UNCOUNT-U2] **Resolution** is the sharpness or definition of a display, measured in pixels.

- **response time**

[N-COUNT-U2] **Response time** is the time it takes (in milliseconds) for a pixel to go from white (active) to black (inactive) and back again.

- **right-click**

[V-T-U11] To **right-click** is to bring up alternate options or operations by clicking with the button on the right-hand side of the mouse.

- **scan**

[V-T-U8] To **scan** is to encode a document, image or object and reproduce it digitally.

- **scan area**

[N-COUNT-U8] A **scan area** is the measurement of the total area that can be captured from a scanner's surface.

- **scanner**

[N-COUNT-U8] A **scanner** is a machine that captures documents or images and converts them to a digital form.

- **screen**

[N-COUNT-U2] A **screen** is the surface part of a monitor that displays a computer's output.

- **screen name**

[N-COUNT-U15] A **screen name** is a name used for chatting or instant messaging.

- **scroll wheel**

[N-COUNT-U4] A **scroll wheel** is a device on a mouse that allows the user to scroll.

- **scrolling**

[N-UNCOUNT-U4] **Scrolling** is the act of moving information in a certain direction across a computer screen for viewing.

- **SD card**

[N-COUNT-U9] An **SD card** is a card that expands the available storage memory of a phone or camera.

- **select**

[V-T-U11] To **select** is to use keystrokes or a mouse to mark something on a computer screen for a particular operation.

- **sent folder**

[N-COUNT-U12] A **sent folder** is a location where copies of emails sent to others are stored.

- **server**

[N-COUNT-U1] A **server** is a central computer that provides services or stores data for many other computers.

- **Shift key**

[N-COUNT-U3] The **Shift key** is a key used for typing upper-case letters or symbols when it is pressed at the same time as another key.

- **smartphone**

[N-COUNT-U10] A **smartphone** is a type of cellphone that has a more advanced computing and operating system that allows the user to access more information more quickly.

- **SMTP server**

[N-COUNT-U14] An **SMTP server** uses the Simple Mail Transfer Protocol to send email.

- **SSD (Solid State Drive)**

[N-COUNT-U6] An **SSD (Solid State Drive)** is a storage device that uses integrated circuit assemblies to store data typically using flash memory.

- **spam**

[N-UNCOUNT-U14] **Spam** is unwanted email, usually sent in bulk, and advertising products.

- **subject**

[N-COUNT-U13] A **subject** is a heading at the top of an email that identifies what the email is in regards to.

- **sync**

[V-T-U10] To **sync** two devices, like a smartphone and computer, is to connect them with a cable in order to transfer information from one to the other.

- **tablet**

[N-COUNT-U1] A **tablet** is a portable computer with a flat touch screen. A tablet is smaller than a laptop but larger than a cellphone.

- **time out**

[PHRASAL V-U14] To **time out** is to stop waiting for a response from a program after not having received any input for some period of time.

- **TB**

[ABBREV-U6] A **TB** (Terrabyte) is a unit of memory roughly equal to one trillion bytes.

- **thumb drive**

[N-COUNT-U5] A **thumb drive** is a type of solid state drive that is also a removable drive that can store and transfer data from a computer.

- **toner**

[N-UNCOUNT-U7] **Toner** is a powdered ink that is used in laser printers.

- **touchscreen**

[N-COUNT-U10] A **touchscreen** displays information which is accessed by simply touching icons viewed directly on the screen.

- **trash folder**

[N-COUNT-U12] A **trash folder** is a location where discarded emails are stored.

- **two-sided**

[ADJ-U7] If a printer has **two-sided** printing, it is able to print on both sides of a piece of paper automatically.

- **type**

[V-T-U3] To **type** data is to enter it into a computer using the keyboard.

- **typo**

[N-COUNT-U14] A **typo** is a mistake made when typing on the computer.

- **USB**

[ABBREV-U4] A **USB** device can connect to a port in a computer using Universal Serial Bus technology.

- **USB port**

[N-COUNT-U5] A **USB port** is a connection point on a computer for flash devices and other peripherals.

- **user**

[N-COUNT-U11] A **user** is a person operating a computer.

- **webmail**

[N-UNCOUNT-U12] **Webmail** is a program for accessing and creating email using the Web.

- **white balance**

[N-UNCOUNT-U9] **White balance** is the control of how light-colored objects appear on a digital camera.

- **workstation**

[N-COUNT-U1] A **workstation** is a powerful computer for processing difficult tasks.

Audio Files for Occupations Metal Technologies / Machine Technologies

All audio files accompanying the resources proposed for application for teaching foreign language for the occupations "Metal Technologies" and "Machine Technologies" are freely available at the Resource centres equipped under the *Curriculum Development in Vocational Education and Training Schools* Project.