The Government of the Republic of the Union of Myanmar

Ministry of Education

Year 1 Semester 1

EDU1109
Curriculum and Pedagogy Studies: Information and Communication Technology

Student Teacher Textbook

PREFACE

The Myanmar Ministry of Education developed the four-year Education College curriculum, in line with the pre-service teacher education reform as specified in the 'National Education Strategic Plan' (NESP) 2016-2021.

The Myanmar Education College curriculum consists of several components: the curriculum framework, syllabi, Student Teacher Textbooks, and Teacher Educator Guides. This curriculum for the four-year Education College was designed and structured to align with the Basic Education Curriculum and to equip student teachers with the competencies needed to teach effectively in Myanmar's primary and middle school classrooms. It is based on a Teacher Competency Standards Framework (TCSF) which articulates the expectations for what a teacher should know and be able to do in the classroom.

The curriculum follows a spiral curriculum approach, which means that throughout the four years student teachers return to familiar concepts, each time deepening their knowledge and understanding. To achieve this, the four-year Education College programme is divided into two cycles. The first cycle (Years 1 and 2) is repeated at a deeper level in the second cycle (Years 3 and 4) to enable student teachers to return to ideas, experiment with them, and share with their peers a wider range of practices in the classroom, with the option to follow up on specific aspects of their teaching at a deeper level.

The curriculum structure provides an integrated approach, where teaching of subject knowledge and understanding educational theories are learnt through a supportive learning process of relevant preparation and practical application and experience. The focus is, therefore, not just on subject content, but also on the skills and attitudes needed to effectively apply their knowledge, skills, and attitudes in teaching and learning situations, with specific age groups. As the focus is on all components of a 'competency' – knowledge, skills, attitudes and their effective application – it is referred to as a competency-based curriculum.

Accordingly, a competency-based curriculum is learner-centred and adaptive to the changing needs of students, teachers and society. Where new concepts are learnt, they are then applied and reflected on:

1. Learn (plan what and how to teach);
2. Apply (practise teaching and learning behaviours); and
3. Reflect (evaluate teaching practice).

Beyond the Education College curriculum, it is intended that student teacher graduates will be able to take and apply this cycle of 'learn, apply and reflect' to their own teaching to effectively facilitate the learning and development of Myanmar's next generation.

The Myanmar Education College curriculum was developed by a curriculum core team, which is a Ministry of Education-appointed team of Myanmar Education College teacher educators supported by the Ministry of Education, resource persons from the Universities of Education, University for the Development of National Races of the Union and a team of national and international experts. Overall guidance of the work was provided by the Department of Higher Education, Ministry of Education.

The curriculum development was also supported by the Strengthening Pre-Service Teacher Education in Myanmar project, with technical assistance from the United Nations Educational, Scientific and Cultural Organization (UNESCO) and financial contributions from Australia, Finland, and UK Governments. Substantial input to the drafting process was also provided by Japan International Cooperation Agency and the primary education curriculum development team through the Project for Curriculum Reform at Primary Level of Basic Education (CREATE) team.

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HOW TO USE THIS TEXTBOOK

Who will use this ICT Student Teacher Textbook?

This Student Teacher Textbook has been designed to guide you, as a student teacher, through Year 1 of the Information and Communication Technology (ICT) subject. In this Student Teacher Textbook, you will find foundational information about ICT. The Student Teacher Textbook also includes learning activities and additional resources to help you develop the knowledge, skills and attitudes you need to be an effective teacher in Myanmar. You will use the textbook as a key resource in class; you can also use the textbook for independent self-study.

While the content in the textbook is addressed to you, as a student teacher, it is also a resource for your teacher educators, who will serve as your facilitators and mentors as you develop key competencies in ICT. Throughout this course, you and your teacher educator will work together, using this textbook as a tool for learning.

When and where does ICT take place?

The ICT subject has been allotted 24 periods of teaching for Year 1 of the four-year Education College degree programme. Classes will be held on your Education College campus.

What is included in the Year 1 ICT textbook?

The textbook organisation and content align with the syllabus of the four-year Education College curriculum on ICT.

This textbook contains the following topics for Year 1 ICT:

- Computer system fundamentals;
- Media and Information Literacy;
- Internet safety and security;
- Basic troubleshooting;
- Word processing;
- Presentation;

- Introduction to Internet;
- Asynchronous conferencing; and
- Introduction to ICT in education.

For each unit, you will be working through learning activities, both individually and with your peers as well as teacher educator, to deepen your knowledge, skills and attitudes on the topic. The Content Map below, highlights the expected learning outcomes and time allocations for each unit in this textbook.

Content Map

Table A. Year 1, Semester 1, ICT Content Map

Units	Sub-units	Lessons	Learning outcomes	TCSF	Periods
1. Introduction	1.1. Objective of Teaching ICT	1.1.1. Understanding ICT in Myanmar primary schools and classrooms	• Explain what ICT (beyond computers) is and why it is important for a teacher (including but not limited to teaching) in primary school; • Understand the importance and describe the roles of ICT in Myanmar primary schools and classrooms	A5	2
	1.2. Teacher Education Curriculum Relating to ICT	1.2.1. Understanding ICT Teacher Education Curriculum and its linkage with other subjects/ learning areas	• Describe the five main strands (basic ICT concepts, media and information literacy and digital citizenship, computer applications, Internet and communication, ICT in education) in the Teacher Education Curriculum • Explain linkages between ICT and other subjects/learning areas such as ICT across curriculum, Reflective Practice and Essential Skills, and Practicum for primary school teachers.	A5	

Units	Sub-units	Lessons	Learning outcomes	TCSF	Periods
2. Basic ICT Concepts	2.1. Computer System Fundamentals	2.1.1. Structures and functions of hardware within a computer system	• Describe the structures and functions of hardware within a computer system (input, central processing unit, output and storage); • Describe the features, advantages, disadvantages and examples of input and output devices and select the appropriate use of devices in various scenarios;	A5, B1	3
		2.1.2. Developments in computer systems	• Outline the developments in computer systems; • Compare the characteristics of various types of computers;	A2, A2.2.1, A2.3.1	
		2.1.3. Understanding System Software, Types of Computers and File/Folder Management	• Understand functions of system software and application software and describe the basic functions of an Operating System such as Windows; • Describe the functional characteristics of storage devices in terms of random or sequential access, volatile or non-volatile, data transfer rate and storage capacity • Understand file and folder management.	A2, A2.2.1, A2.3.1,	
3. Computer Application (Word Processing)	3.1. Basic Function and Troubleshooting	3.1.1. Performing Windows basic functions	• Perform basic functions on an Operating System such as Windows;	A5, B1	5
		3.1.2. Installing fonts onto an Operating System	• Install fonts onto the system and demonstrate typing	A5, B1	
	3.2. Word Processing	3.2.1. Basic functions of word processing 1	• Describe the basic features of a word processing application • Create, open, view, save and close a new document • Type Myanmar font (Zawgyi and Unicode) in word document.	A2, A2.3.2	

Units	Sub-units	Lessons	Learning outcomes	TCSF	Periods
		3.2.2. Basic functions of word processing 2	• Do text, paragraph and table formatting • Create document designs and layout • Print a document	A2, A2.3.2	
		3.2.3. Basic functions of word processing 3	• Describe and practise the basic functions of word processing such as Microsoft Word (typing in Myanmar font) (Zawgyi and Unicode), page setup, saving, formatting, printing, header and footer, bullets and numbering; creating tables, inserting pictures and charts).	A2, A2.3.2	
4. Media and Information Literacy and Digital Citizenship	4.1. Media and Information Literacy (MIL)	4.1.1. Understanding the principles of Media and Information Literacy	• Explain what Media and Information Literacy is and why it is important for a teacher (including but not limited to teaching) in primary school	A5	2
		4.1.2. The roles and functions of Media and Information providers	• Understand the difference between types of information providers and types of media • Understand the functions of the different media and information providers and the role they play in a democratic society.	A5	
Total number of Periods					**12**

This course prepares student teachers in Education Colleges to learn ICT under the learning area Curriculum and Pedagogical Studies, Course 2.1. Teaching the Basic Education Curriculum and Course 2.2. Mastering teaching as described in the Education College Curriculum Framework.

While there is an ICT subject in middle schools, there is no single ICT subject in the primary schools but primary schools in different regions and states in Myanmar may adopt a local curriculum which may include some elements of ICT, depending on the context in the relevant regions and states.

The purpose of this course is to provide student teachers with basic knowledge of ICT-related concepts and using ICT for teaching, learning and professional development and to prepare them to teach ICT in middle schools and in primary schools (the latter applies if ICT is included in the Local Curriculum). Student teachers will learn about the objectives of teaching ICT, the ICT curriculum in basic education and teacher education and other strands including basic ICT concepts, Media and Information Literacy and digital citizenship, computer applications, internet and communication and ICT in Education. The course contains learning activities that will help student teachers to remember and gain a deeper understanding of the content and apply ICT tools in their teaching and learning context.

Basic Education Curriculum Objectives

The aims of the Basic Education Curriculum are as follows:

After the completion of basic education, students will be able to:

a) Attend the school until the completion of basic education;
b) Develop 'union spirit' and appreciate, maintain and disseminate languages and literatures, cultures, arts and traditional customs of all national groups;
c) Become good citizens with well-developed five strengths including critical thinking skills, communication skills and social skills;
d) Apply their civic and democratic in daily lives, and become good citizens who abide by laws;
e) Be competent in Myanmar language which is the official language of the Republic of the Union of Myanmar and develop their skills in respective ethnic language and English;
f) Develop foundational knowledge and skills for higher learning and technical and vocational education;
g) Develop sound body and sportsmanship through participation in Physical Education activities and school health activities, and apply health knowledge in daily lives;
h) Appreciate and maintain natural environment and materialise its sustainability;
i) Become global citizens with awareness and appreciation of human diversity and abilities to practise basic knowledge of peace in their daily lives; and
j) Take pride in being a citizen of the Union of Myanmar.

Note: According to the Basic Education Law, the aims of basic education will be mentioned.

Teacher Competencies in Focus

The content of this textbook is based on the Myanmar Teacher Competency Standards Framework (TCSF), which articulates the expectations for what you should know and be able to do in the classroom. The teacher competencies in focus for ICT include:

Table B. ICT Teacher Competencies in Focus

Competency standard	Minimum requirement	Indicator(s)
A2. Know available instructional technology	A2.2. Demonstrate understanding of appropriate use of Information and Communication Technology (ICT) in teaching and learning	A2.2.1. Describe the function and purpose of online and offline educational tools and resources to support the teaching-learning process A2.2.2. Evaluate and match available online and offline ICT tools and resources to curriculum content and pedagogical strategies including online and offline ICTs A2.2.3. Describe and demonstrate the understanding of basic concepts and principles of Media and Information Literacy
A5. Know the subject content	A5.2. Demonstrate understanding of how to vary delivery of subject content to meet students' learning needs and the learning context.	A5.2.1. Describe ways to contextualise content, learning activities for the age, language, ability and culture of students to develop understanding of subject related principles, ideas and concepts.
B1. Teach curriculum content using various teaching strategies	B1.2. Demonstrate capacity to apply educational technologies and different strategies for teaching and learning	B1.2.1. Use teaching methods and learning strategies appropriate for the class – culture, size and type
B2. Assess, monitor, and report on students' learning	B2.1. Demonstrate capacity to monitor and assess student learning	B2.1.2. Use assessment information to plan lessons
B4. Work together with other teachers, parents, and community	B4.1. Demonstrate strategies for working together with other teachers, parents, and the local community to improve the learning environment for students	B4.1.1. Speak positively to others about school culture and the primary curriculum to promote understanding among parents B4.1.2. Describe strategies to promote parents' involvement in their child's learning at school, at home and in the community
C1. Service to Profession	C1.4. Demonstrate responsibility and accountability for the use of education resources,	C1.4.1. Use school supplies and resources appropriately

Competency standard	Minimum requirement	Indicator(s)
D2. Engage with colleagues in improving teaching practice	D2.1. Improve own teaching practice through learning from other teachers and professional development opportunities	D2.1.3. Establish goals for own professional development as a teacher
D3. Participate in professional learning to improve teaching practice	D3.1. Demonstrate understanding of the importance of inquiry and research-based learning to improve teaching practice	D3.1.2. Search and analyse online or offline information on current trends and research-based practices in primary education and for specific subjects taught to improve one's own content knowledge and teaching practice

Source: Myanmar Teacher Competency Standards Framework (TCSF), Beginning Teachers, Draft Version 3.2. (May 2019) (pp 30 – 36)

How do I use this textbook?

You can use this textbook both for your own self-study and as an in-class resource for learning activities facilitated by your teacher educator. Each unit in the textbook includes:

Expected Learning Outcomes: These are listed at the beginning of each unit and at the beginning of each lesson. The expected learning outcomes indicate what you should know and be able to do by the end of the lesson or unit.

Learning Content: The learning content for each unit is broken down into units and lessons that cover subject content knowledge that is important for you to know.

Learning Activities: The learning activities included in the textbook are individual activities that you can do to help reinforce and deepen your knowledge and understanding of a topic. Your teacher educator will also facilitate learning activities during class. These may be individual, partner, small group, or whole class activities designed to help you achieve the learning outcomes for each lesson.

Unit Summary: At the end of the unit, there is a brief summary of the main points of the unit to help you review and remember the most important information.

Review Questions: You can use the unit review questions to test your own understanding of the unit content, or to help you study for an exam.

Further Reading: Each unit lists suggestions of additional resources on the topic. You can look these up in the library, on the internet, or in your Education College's online learning portal to learn more about the topic.

Unit Reflection: Taking the time to deliberately think about, or reflect, on what you have learned will help you remember and apply that learning, and make connections with other subject areas and real-life. Each unit ends with some suggestions on how you can reflect and follow-up on what you have learned in the unit.

At the end of this textbook, you will find a **Glossary** with the definitions of words found throughout the textbook that might be new to you. These words are listed in alphabetical order. You will also find a list of all the **Bibliography**, which are the original sources of information used throughout the textbook.

Remember, your teacher educator is there to help facilitate your learning in this course. If there is material you do not understand in the textbook, be sure to ask your teacher educator, or your classmates, for help. As a student teacher, you are part of a community of collaborative learning within your Education College as you work – together with your peers and guided by your teacher educator.

Unit 1

Introduction

In this unit, you will have an overview of the Information and Communication Technology (ICT) subject in Education College degree programme.

Expected learning outcomes

By the end of this unit, you will be able to:

- Explain what ICT (beyond computers) is and why it is important for a teacher (including but not limited to teaching) in primary school;
- Understand the importance and describe the roles of ICT in Myanmar primary schools and classrooms;
- Describe the five main strands (basic ICT concepts, media and information literacy and digital citizenship, computer applications, Internet and communication, ICT in education) in the Teacher Education Curriculum; and
- Explain linkages between ICT and other subjects/learning areas such as ICT across curriculum, Reflective Practice and Essential Skills and Practicum for primary school teachers.

1.1. Objectives of Teaching ICT

This sub-unit provides explanations what ICT is and its importance for teachers and aims at explaining the importance and roles of ICT in primary schools.

1.1.1. Understanding ICT in Myanmar primary schools and classrooms

Expected learning outcomes

By the end of the lesson, you will be able to:

- Explain what ICT (beyond computers) is and why it is important for a teacher (including but not limited to teaching) in primary school; and
- Understand the importance and describe the roles of ICT in Myanmar primary schools and classrooms.

What is ICT?

ICT is a short form of Information and Communication Technology and refers to a range of electronic tools for storing, processing, creating, displaying and exchanging information, and communicating.

Do you know?

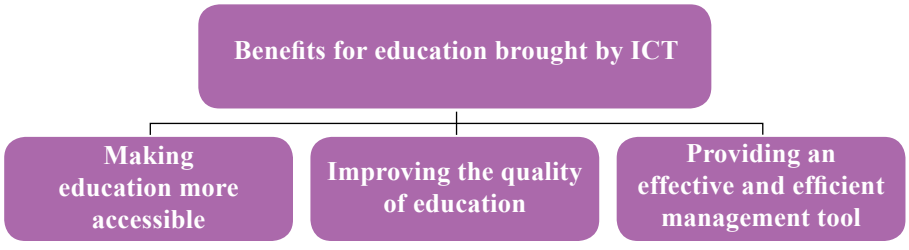
In some contexts, the acronym ICT is used to refer to the phrase Information and Communication Technologies. You may also see the acronym ICTs or ICTS, which refers to the same phrase. Other similar terms such as IT and information superhighway may also be used.

ICT refers to much more than simply computers and the Internet. It includes other devices, services and technologies such as telephone, television, radio, satellite system, video, video conferencing, DVDs and email. In some developing context where computers and access to the Internet are limited, the use of other electronic devices, services and technologies is critical because they can be easily accessed by many people and more affordable. For instance, radio may be a useful ICT device to disseminate messages to remote areas of Myanmar.

Development in ICT has changed the world dramatically, bringing about significant changes in society and in labour markets. ICT has changed the ways people communicate with one another. Countries that are using ICT extensively have become knowledge societies, which are reliant on creating, sharing and using electronically communicated knowledge for their prosperity.

Recognising that ICT tools make information exchange easier, faster and cheaper, it has become clear that ICT tools offer a range of benefits for education. In particular, ICT tools offer the potential to make education more accessible, improve the quality of education, and provide an effective and efficient management tool.

Figure 1.1. Benefits for education brought by ICT



In addition to recognising the value that ICT tools offer in terms of improving the reach and quality of education, many countries, including Myanmar, increasingly regard mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy.

These skills are required to enable citizens to function in a society in which ICT is a part of everyday life. Furthermore, these skills are vital in the modern workplace. Companies are increasingly seeking employees who have the ability to utilise ICT effectively in their everyday work and who have the skills to maximise the potential of ICT to enhance productivity in the workplace.

Making education more accessible

When used effectively, ICT can make education more accessible by improving access to information. ICT provides access to free radio and television programmes, educational DVDs, mobile phones, and internet-based storehouses of knowledge such as online encyclopedias, maps and geographical information, dictionaries and thesauri, curriculum materials and lessons and online learning portals such as e-libraries. ICT also increases access to human experts, peers and colleagues otherwise unreachable because of geographical barriers.

ICT can also reach people whose education has been limited for various reasons, perhaps social or cultural, or because of geographic factors, or maybe from a lack of time to attend classes or a shortage of teachers. ICT can help overcome geographic barriers by facilitating distance learning, and so bring education to people living in areas that are difficult to reach through radio, television, Internet and community telecenters, that is, public places, such as libraries where community members can access various ICT.

ICT can provide affordable learning anywhere and anytime. Users do not need to be gathered together in one place and at the same time but may access learning materials and resources wherever and whenever it is convenient through telephone, DVDs, computers, Internet, podcasts and vodcasts. Podcasts is a contraction of iPod and broadcast, referring to an audio file, such as a radio programme, which can be downloaded from the Internet to computers or portable devices like iPods and MP3 players. Vodcasts is a contraction of video podcast, which is a video file, such as a television programme, which can be downloaded from the Internet to computers.

The last but not the least, ICT can provide sustainable lifelong learning as it provides learning spaces and opportunities for learning beyond classrooms such as online courses and open universities, which allow students to do much of their coursework at home by distance learning.

Improving the quality of education

ICT can improve the quality of education by improving students' motivation, personalising student learning, enhancing student learning, giving feedback and reinforcement, enhancing the quality of teaching and improving teacher education.

The use of sound, images, video and animation in video materials and computer software engages students and holds their attention, helping make learning more interesting. For example, it allows animations and simulation of processes that would not otherwise be available in the classroom. These might include an animation of the heart pumping blood through the body or a simulation of the dissection of a frog through virtual reality or augmented reality.

By tailoring the level of activity to meet each student's requirements, ICT can personalise learning for all students, allowing students to learn at their own pace. For instance, computer-based learning may provide fast learners with more challenging questions while learners who need more help can go through the content at a slower pace.

With ICT, students can learn better by doing and interacting. ICT can enhance student learning through making learning an active process. ICT can allow students more control over what they can do and what they learn. With ICT, students have more opportunities to share ideas and work in groups, thereby improving their teamwork and communication skills.

ICT can be used to quantify learning process, often as a percentage score, or sometimes by showing students where or why they went wrong. Students report that through ICT-based feedback and reinforcement, they can assess their learning independently of teachers in a judgment-free environment, and more easily see where improvements are needed. These can be done through online quizzes.

ICT accompanied with sound pedagogical training can help teachers prepare and deliver lessons more student-centred. In addition, ICT can improve the speed and efficiency of administrative tasks, enabling teachers to give more time and energy to teaching their students. There are a lot of Internet resources for teachers, which can be accessible through online e-library, web-based software and productivity software that can help teachers identify and customise locally appropriate teaching materials.

ICT can also be used to enhance learning among student teachers like you and in-service teachers, thereby improving teacher education. This can be done through access to a wide variety of multimedia resources such as training video showing good practices in teaching.

Providing an effective and efficient management tool

ICT provides an effective and efficient management tool that can be used for improving the efficiency of education planning and delivery and facilitating policy making and management.

ICT has the potential to facilitate the compilation of educational statistics at the system and the school levels. ICT can also facilitate the rapid and cost-effective creation and distribution of socially, culturally and linguistically appropriate learning content.

Do you know?

Myanmar is using an Education Management Information System (EMIS) to collect school data, which are useful for understanding teacher need at the regional level and for education planning for teacher deployment. Furthermore, it can aid communication through email, SMS (short message service) and social media applications between schools, parents and central decision-makers.

ICT can additionally aid schools, principals and education officers at different levels in monitoring performance and improving the utilisation of physical and human resources such as through the use of an Education Management Information System.

Learning activity 1

After reading the text above, write a list of questions required to be clarified during the class.

Learning activity 2

The text below is a step-by-step guide for this activity. While following the teacher educator's guidance, please use the text below to complete the tasks.

Using Google Search on Web Browser

Google is a website which is a web search engine developed by Google LLC. There are millions of websites on the Internet, and it is not easy to use without a search engine. Using Google, you can get many search results by entering the keywords you want to search.

Step 1: Open Web Browser.
Step 2: Type www.google.com.

Figure 1.2.

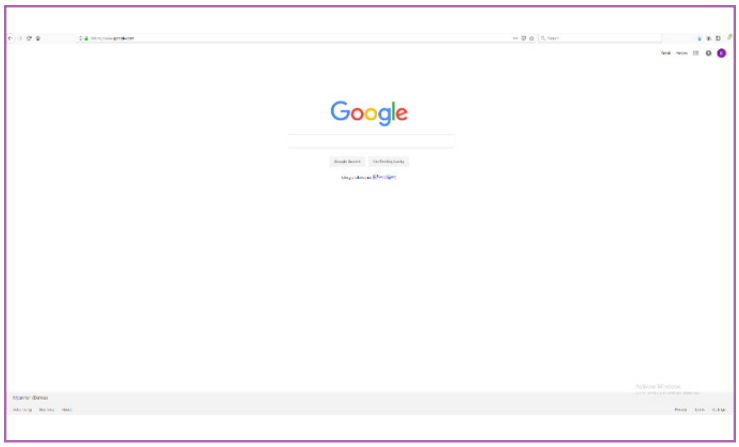
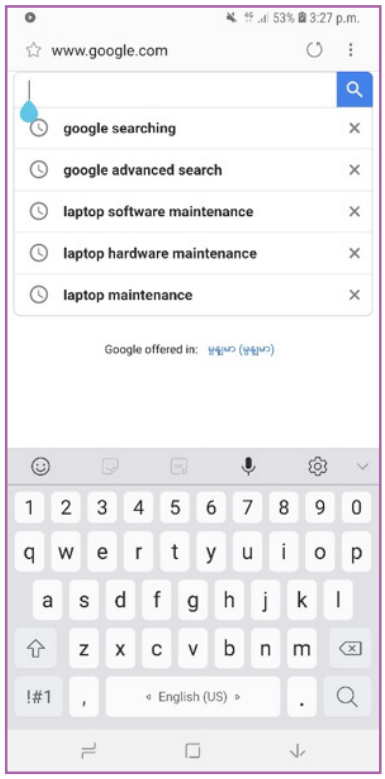
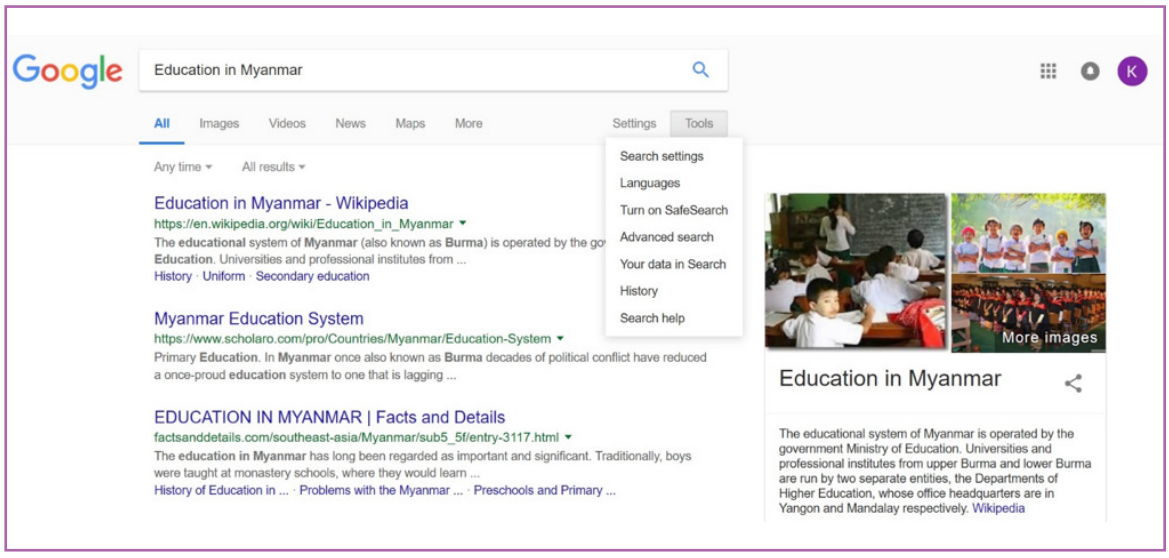


Figure 1.3.



Step 3: Type the keyword/s you want to search.
Step 4: Search result will be shown, in All. You can filter to show only Images, Videos, News, Maps or other options.

Figure 1.4.



Using Google Search on Android

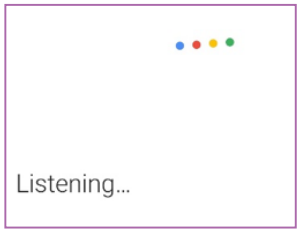
Using your Android device (Android smartphone, tablet, and so on), you can search on the Internet by using Google Search in many ways. You can use Web Browser on your Android device. You can also use Google Bar to search on the Internet by entering text and also using voice command.

Google Bar: Voice Command

Step 1: Tap on the Microphone icon.

Figure 1.5.

Figure 1.6.

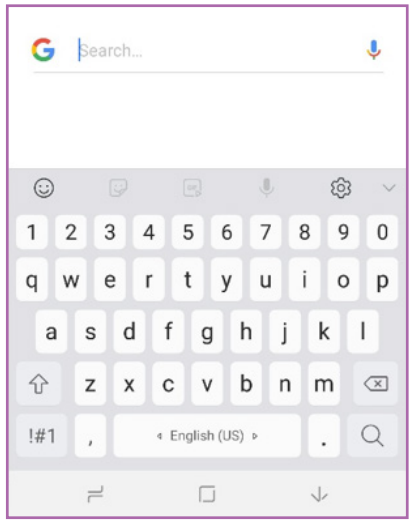


Step 2: Speak the word/s you want to search while Google Assistant is listening.

Google Bar: Text

Step 1: Tap on the Google Bar.
Step 2: Type the keyword/s you want to search.

Figure 1.7.



Advanced Google Web Search and Strategic Searching Strategies

1. Every keyword is important in the searching. For example, search results are not the same for the keyword ‘ICT’, ‘An ICT’ and ‘The ICT’.

2. Keyword placing can get you different results. For example, you will see different results when searching ‘Education College Myanmar’ and ‘Myanmar Education College’.

3. You can exclude a word using a Minus Sign ‘-’ before the word you do not want to include.

4. Pay attention to URL domains. URL domain tells people what kind of organisation created the website. Companies sell products, while organisation, educational institutions, and government entities usually aim to share knowledge and improve communities.

   - .com = company (commercial)
   - .gov = government
   - .edu = educational institution
   - .org = organisation

Now is your turn to try to search the following using Google. Write down the number of search results and explain whether you think you can get good and useful results from the first page of the search results.

1. ICT
2. ICT in Education
3. ICT in Education in Myanmar
4. 'ICT in Education in Myanmar'
5. ICT in Education -Myanmar

Search keyword	*Number of search results*	*Do you think the results are good and useful?*
ICT		
ICT in Education		
ICT in Education in Myanmar		
'ICT in Education in Myanmar'		
ICT in Education -Myanmar		

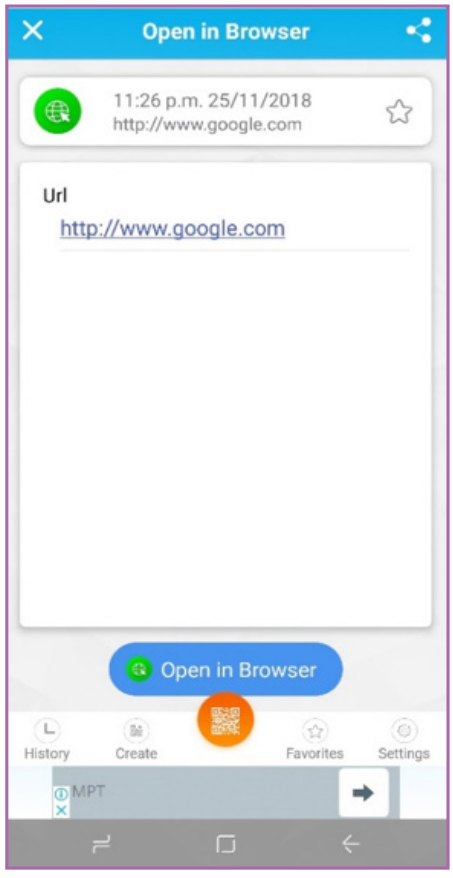
QR Codes

Quick Response Code, abbreviated to QR Code, is a type of two-dimensional barcode. See the following steps on how to use QR codes to access website link.

Step 1: Install a QR code scanner application into your smartphone.
Step 2: Open QR code scanner application.
Step 3: Scan the QR code using the application.
Step 4: You can go to the website link by simply tapping the link.

Figure 1.8.

Figure 1.9.



Learning activity 3

Test your understanding

There is a lot of confusion about ICT. Misunderstandings may occur when people are afraid or unsure about ICT. Identify which statements are true and which are false below.

1. As there is the increasing use of ICT, there will be less demand for teachers.
2. Placing ICT in schools will automatically improve the quality of education that students receive.
3. The Internet is unsafe for students to use because there are so many dangerous materials available on it.

4. I can implement ICT in my future basic education school and improve education without using computers and the Internet.
5. Towns and villages which are currently without stable supply of power or phone lines may still be able to utilise ICT in teaching.

Think individually about the following questions. Choose the most appropriate answer.

6. Identify which of the following technologies are part of ICT. (Check all that apply)

Email	Radio	Fixed-line phone	Social media	CDs	Fax machine	Whiteboard
A	B	C	D	E	F	G
						

7. You have developed a course named 'Basic ICT literacy' that you want to make it available to people at different locations. Individuals can take the course at any time that is convenient for them. You also want to the course to be available throughout the year, allowing students to review the materials after they have taken the course. Which technologies might you use in this situation? (Check all that apply)

Radio	Internet	Television	CDs or DVDs	Computer networks
A	B	C	D	E
				

8. Rather than using computers and the Internet, the use of television and radio and other low cost technologies is important to countries such as Myanmar because … (Choose the best three answers)

A. They are as effective in achieving educational goals.
B. They can be used without knowing how to read and write.
C. They require less electricity.
D. They are still accessible to many people.
E. They are still affordable compared to more sophisticated technologies.

9. Write down AT LEAST TWO personal goals that you want to achieve after learning this ICT subject at Education College. For EACH of the goals, suggest a way to help you achieve your goals. You may follow the following template below:

	Personal goal	*Way to achieve your goal*
1		
2		

Review questions

1. Reflect on what you have learnt in the lessons under this unit, and assess your understanding of the subject.

	Yes	No	Not sure
Lesson 1.1.1.			
I can explain what ICT (beyond computers) is and why it is important for a teacher (including but not limited to teaching) in primary school.			
I understand the importance and can describe the roles of ICT in Myanmar primary schools and classrooms.			

2. Use your words to explain to your peers why ICT is important in Myanmar primary schools and classrooms.

1.2. Teacher Education Curriculum Relating to ICT

ICT is not just a subject in Education College that prepares you to teach ICT in basic education schools. It is also a subject to equip you with necessary competencies to utilise ICT effectively across different subjects/learning areas. In this unit, you will have an overview of the main strands of the teacher education curriculum relating to ICT and its linkages across subjects/learning areas.

1.2.1. Understanding ICT Teacher Education Curriculum and its linkage with other subjects/learning areas

Expected learning outcomes

By the end of the lesson, you will be able to:

- Describe the five main strands (basic ICT concepts, media and information literacy and digital citizenship, computer applications, Internet and communication, ICT in education) in the Teacher Education Curriculum; and
- Explain linkages between ICT and other subjects/learning areas such as ICT across curriculum, Reflective Practice and Essential Skills and Practicum for primary school teachers.

Over the four years of the Education College degree programme, all student teachers including you are required to take ICT as a compulsory subject. You will learn basic knowledge of ICT-related concepts and using ICT in education. The curriculum will prepare you to teach ICT in middle schools and in primary schools (the latter applies if ICT is included in the Local Curriculum) and to effectively use ICT in education.

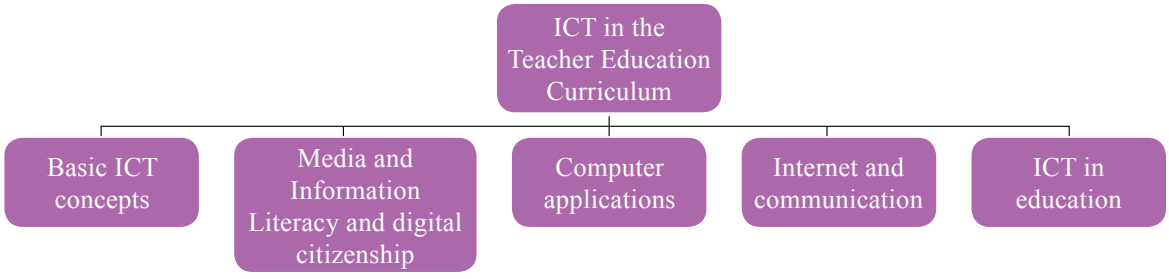
The ICT subject is designed as a spiral curriculum, which means throughout the four years, you return to familiar concepts, each time deepening your knowledge and understanding. For instance, after learning basic computer applications skills in Year 1, you will revisit the skills and learn more in-depth the skills in later years of your degree programme. To achieve this, the course is divided into two cycles. The first cycle (Years 1 and 2) is repeated at a deeper level in the second cycle (Years 3 and 4) to enable you to return to ideas, experiment with them, and share with a wider range of practices in the classroom.

This ICT subject provides the opportunity for you to integrate educational theory and psychologies, subject knowledge and knowledge of pedagogies. It provides you with the opportunity to develop your confidence in ICT subject matter knowledge and learn how to translate this knowledge in a way that students will be able to understand (pedagogical content knowledge). It allows you to learn, explore and practise ICT subject matter knowledge and see how you can adjust subject matter content and delivery to meet the needs of the students in your classes.

ICT in Teacher Education Curriculum

This ICT subject in the Teacher Education Curriculum comprises five strands or thematic areas, namely basic ICT concepts, Media and Information Literacy and digital citizenship, computer applications, Internet and communication, ICT in education.

Figure 1.10. ICT in the Teacher Education Curriculum.



Under basic ICT concepts, you will learn about the structures and functions of hardware within a computer system, the developments in computer systems, basic operation of system software and application software and characteristics of various types of computers.

Media and Information Literacy is defined as a set of competencies that empower citizens to access, retrieve, understand, evaluate and use, create, as well as share information and media content in all formats, using various tools, in a critical, ethical and effective way in order to participate and engage in personal, professional and societal activities. Digital citizenship has a broader meaning than Media and Information Literacy by going beyond media-related skills and is defined as being able to find, access, use and create information effectively; engage with other users and with content in an active, critical, sensitive and ethical manner; and navigate the online and ICT environment safely and responsibly, while being aware of one's own rights. Some topics such as Internet safety and security, intellectual property rights and health and work issues are included. The Teacher Education Curriculum will enrich your knowledge on these concepts and strengthen your understanding about the importance of these concepts in education.

In addition to concepts and theories, one of the important elements of the ICT subject is to train you on how to use ICT particularly the common computer applications, such as basic functions and troubleshooting, word processing, spreadsheet, presentation, information management and basic multi-media editing. These computer applications are useful not only in education but also for your daily life.

Internet has become an inseparable part of your life as most of you should have accessed to the Internet either at your home or at the Education College. Another strand you will learn is the basic knowledge about Internet such as how it functions and what the common services available in a networked environment are. Furthermore, you will learn asynchronous and synchronous conferencing applications which you can use via the Internet for communication.

At the last but not the least, you will be able to apply what you learn about the effective use of ICT in education for various purposes including but not limited to teaching preparation and collaboration, active teaching and learning, assessment, professional development and education management. This is particularly important as ICT skills is one of the essential skills that a 21st century teacher should be equipped with.

Linkages with other subjects/learning areas

As a cross-cutting subject, ICT is not only useful for those who are going to teach ICT in basic education but also important for all teachers who are specialised in various subjects. For example, a Geography teacher may use ICT to show maps and satellite images to train map reading skills of students and to explain real life examples to students; an English teacher may show a short audio and/or video clip of a poem to help students understand the pronunciation and context of the poem. There are more examples of how ICT can be used in a primary classroom as what you discussed in the previous lesson.

Do you know?

An online e-library is to be available for all Education Colleges in the new Teacher Education Curriculum. All student teachers are provided with an account to access its e-library to search and share teaching and learning materials and to make use of its e-learning platform to do online self-learning, to keep a learning portfolio in an organised way and to record progress in achieving teacher standards and Praticum.

Apart from this ICT subject, you will have chances to learn more about and apply ICT skills in learning areas including Reflective Practice and Essential Skills and Practicum. In the former, you will have a chance to understand your ICT competencies/skills and learn about ways to strengthen the competencies/skills. In the latter, you will make use of ICT in your teaching practice and professional development.

Learning activity 1

After reading the text above, write a list of questions required to be clarified during the class.

Learning activity 2

Imagine you became a primary school teacher after you graduate from the teacher education degree four years later. What kinds of ICT competencies do you need to be equipped with in order for you to fully utilise the potential of ICT use in Myanmar primary school classrooms? Write down AT LEAST THREE ICT competencies you can think of below.

	ICT competency
1	
2	
3	

Learning activity 3

Divide yourself in groups and share your answers from Learning activity 2. Group similar ICT competencies together and classify different ICT competencies suggested by your group members. Leave the last column 'Self-reflection' blank as you will be asked to complete this column under Learning activity 4.

Classification	*ICT competency*	*Self-reflection (1=least competent; 5=most competent)*

Learning activity 4

For each type of the ICT competencies discussed in Learning activity 3, evaluate your own current level of competency by putting 1 as least competent and 5 as most competent in the last column of Learning activity 3. For instance, if you think you have not acquired the relevant ICT competency, you may put 1. If you think you know a little about the relevant ICT competency but you are not good at it, you may put 3. If you think you know well about and have acquired the relevant ICT competency, you may put 5.

Review questions

1. Reflect on what you have learned in the lessons under this unit and assess your understanding of the subject.

	Yes	No	Not sure
Lesson 1.1.2.			
I can describe the five main strands (basic ICT concepts, media and information literacy and digital citizenship, computer applications, Internet and communication, ICT in education) in the Teacher Education Curriculum.			
I can explain linkages between ICT and other subjects/learning areas such as ICT across curriculum, Reflective Practice and Essential Skills, and Practicum for primary school teachers.			

2. What are the main strands of ICT subject in teacher education? How do you see the importance of each main strand in teaching Myanmar primary schools and classrooms?

3. What are the linkages between ICT and other subjects/learning areas?

Unit Summary

Key messages

- ICT is a short form of Information and Communication Technology and refers to a range of electronic tools for storing, processing, creating, displaying and exchanging information and communicating, not limited to simply computers and the Internet.

- Countries that are using ICT extensively have become knowledge societies which are reliant on creating, sharing and using electronically communicated knowledge for their prosperity.

- ICT tools offer a range of benefits for education. In particular, ICT tools offer the potential to make education more accessible, improve the quality of education and provide an effective and efficient management tool.

- Professional development for teachers are important in successfully integrating ICT in education. Teachers like you need training to use ICT so that you can be at ease with ICT, adapt your pedagogical approaches and your roles to use ICT effectively.

- This ICT subject in the teacher education curriculum comprises five strands or thematic areas, namely basic ICT concepts, media and information literacy and digital citizenship, computer applications, Internet and communication, ICT in education.

- There are close linkages between this ICT subject and other subjects/learning areas. ICT are not only used in this ICT subject but also in other subjects and learning areas including Reflective Practice and Essential Skills and Practicum.

- A teacher in the 21st century should be equipped with ICT competencies.

Unit reflection

1. How do you think the competencies gained from this ICT subject is helpful for you as a student teacher while you are in your Education College?

2. How will integrating ICT into other learning areas and subjects support accelerating learning process? How can you use ICT competencies to foster learning of your students in classrooms?

Further reading

1.1.

UNESCO. E-learning Series on ICT in Education.http://archive1.unescobkk.org/fileadmin/user_upload/ict/Teacher_Training_Workshops/UNESCObkkE-LearningSeriseOnICTInEducation.zip

Unit 2

Basic Information and Communication Technology (ICT) Concepts

In this unit, you will be introduced the structures and functions of hardware within a computer system, the developments in computer systems, basic functions of an Operating System, computer storage and file/folder management.

Expected learning outcomes

By the end of this unit, you will be able to:

- Describe the structures and functions of hardware within a computer system (input, central processing unit, output and storage);
- Describe the features, advantages, disadvantages and examples of input and output devices and select the appropriate use of devices in various scenarios;
- Outline the developments in computer systems;
- Compare the characteristics of various types of computers;
- Understand functions of system software and application software and describe the basic functions of an Operating System such as Windows;
- Describe the functional characteristics of storage devices in terms of random or sequential access, volatile or non-volatile, data transfer rate and storage capacity; and
- Understand file and folder management.

2.1. Computer System Fundamentals

Computers have become more prevalent in our daily life. A computer is an electronic device which is capable of receiving data and processing data in order to produce results which are useful for us. In computing, data are translated into a form that is efficient for processing.

In history, computers were only formed as calculating devices, from a simple manual device such as abacus to digital calculator, used in doing calculations. As the time passed, the development process of the machine occurred from 1940s and to the present.

2.1.1. Structures and functions of hardware within a computer system

Expected learning outcomes

By the end of the lesson, you will be able to:

- Describe the structures and functions of hardware within a computer system (input, central processing unit, output and storage); and
- Describe the features, advantages, disadvantages and examples of input and output devices and select the appropriate use of devices in various scenarios.

Computers

A computer may be divided into several fundamental units: input, central processing unit and output. An **input device** is any device that enters information into a computer from an external source. A **processing device** is any electronics that process or transform information provided as an input to a computer to an output. An **output device** translates the computer output into a form understood by human beings.

CPU, Memory, Input & Output

https://www.khanacademy.org/computing/computer-science/how-computers-work2/v/khan-academy-and-codeorg-cpu-memory-input-output

Input device

Different devices are used to read data and to input the data into a machine. These devices are called input devices. The input devices read the necessary data into the machine and translate all data into electronic pulses so that computers can understand it. A computer cannot deal with data unless in a language it understands. Some examples of common input devices are keyboard, mouse, scanner and bar code reader.

Processing device

The Central Processing Unit (CPU) is the main part of a computer in which all processing is carried out. It also controls the activities of the whole computer configuration. CPU speed determines how fast the computer can perform tasks. It comprises an arithmetic and logic unit (ALU), a control unit (CU) and memory. The CPU is used for storing data as well as instructions, issuing commands to all parts of a computer system and carrying out data processing and sending results to output.

Misconception

When a computer is running slow, there are different reasons for it and the CPU is probably only one of them. Other reasons may include insufficient memory or poorly coded software that constantly takes up a lot of memory and system resources.

Figure 2.1. CPU (Central Processing Unit)

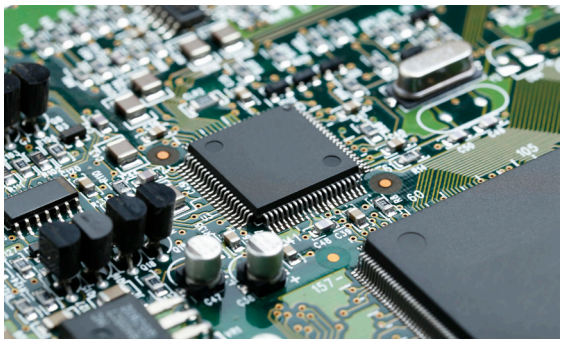
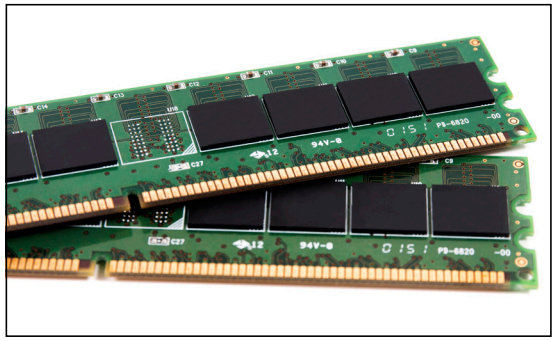


Figure 2.2. RAM (Memory)

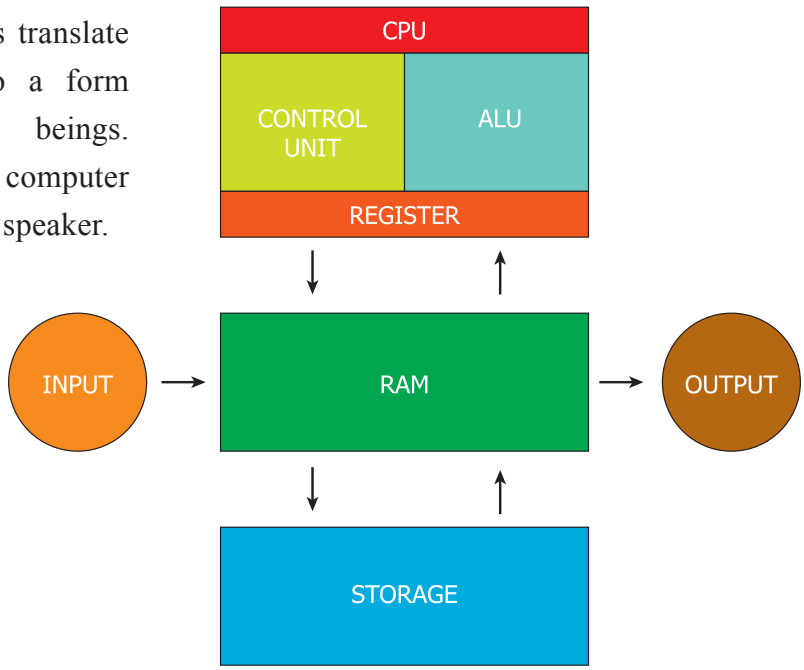


An arithmetic and logic unit carries out arithmetic operations like addition, subtraction, multiplication and division and other logical actions such as AND and OR functions and operates on data available in the main memory and send them back after processing. A control unit directs all operations inside a computer and can be known as the heart of the computer because it controls and coordinates all hardware operations including the CPU, input and output devices. The memory is also called the computer's main memory or primary memory as it is able to store information, which can be recalled and accessed when required.

Output device

The results of any computer processing have to be communicated to the user. Output devices translate the computer output into a form understood by human beings. Common output devices are computer monitor screen, printer and speaker.

Figure 2.3. Block diagram of a computer



The input unit is provided to translate all data into electronic signals so that computer can understand it. For instance, the barcode reader reads the barcode (data) and then search information about the goods (for example, items, prices, and so on.) in the point of sale system (machine). The barcode reader translates the barcode so that the point of sale system can understand it.

Another example is that to access a website, the user opens an internet browser and, using the keyboard, enters a web address into the browser (input). The computer then uses that information to locate the correct website (data/information processing) and the content of the desired site is displayed in the web browser (output).

Learning activity 1

Have you ever seen these devices in daily life? What is the name of each of the device? Where do you usually see these devices? Complete the following table based on your knowledge.

Figure 2.4. Devices in daily life

A	B	C	D	E
				
F	**G**	**H**	**I**	**J**
				

Item	Have you seen the item in daily life?	What is the name of the item?	Where do you usually see the item?
A	Yes / No		
B	Yes / No		
C	Yes / No		
D	Yes / No		
E	Yes / No		
F	Yes / No		
G	Yes / No		
H	Yes / No		
I	Yes / No		
J	Yes / No		

Learning activity 2

Identify the items in Learning activity 1 and whether each item is considered to be input, processing and/or output device and describe the main function of each item. You may discuss with your classmates on the answers.

Item	*Is it an input, processing and/or output device?*	*Main function*
A	Input / Processing / Output	
B	Input / Processing / Output	
C	Input / Processing / Output	
D	Input / Processing / Output	
E	Input / Processing / Output	
F	Input / Processing / Output	
G	Input / Processing / Output	
H	Input / Processing / Output	
I	Input / Processing / Output	
J	Input / Processing / Output	

Learning activity 3

Choose **ONE** of the following scenarios which ICT may be used to facilitate the tasks and answer the following questions in groups.

Scenario A: You are a teacher drafting an examination paper for your class.
Scenario B: You are a waiter of a restaurant who takes food order from customers.
Scenario C: You are an administrative assistant in an office who keeps personnel records including photos and personal information of the staff.
Scenario D: You are a cashier of a department store who collects payments from customers based on the items they purchase.

1. What input device(s) do you use?
2. What output device(s) do you use?
3. Describe the main function of the device(s) you choose.
4. Explain why the devices are suitable in the scenario.

Some examples of input and output devices are provided for you to choose. In your discussion, you should consider pros and cons of using different devices and come up with a decision on which devices are the most suitable in the scenario.

Mouse	Monitor	Photocopier	Keyboard
Speaker	Modem	Flash drive	Memory card reader
Printer	Scanner	CD-ROM	CD-ROM drive
Laptop	Desktop	Tablet	Smartphone
Voice recognition	Digital camera	Projector	Microphone
Joystick	Digital video recorder	Optical character recognition	Headphone

Review questions

1. What is the main new thing you have learnt from this lesson?
2. Is there anything from this lesson unclear to you? If so, write it down and discuss with your peers or teacher educators to try to clarify it.
3. Is there any challenge for you to understand this lesson? If so, write down the challenge that you have faced and explain how you tackle the challenge.
4. Highlight the new keywords that you have learnt from this lesson. Make sure that you understand the new keywords and their definitions.
5. If you are asked to teach this lesson to basic education students, do you find the activities relevant and useful? Please explain.

2.1.2. Developments in computer systems

Expected learning outcomes

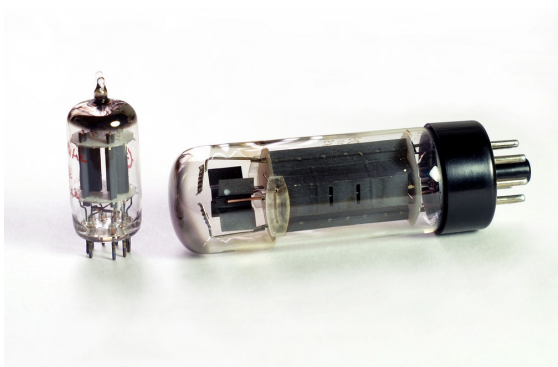
By the end of the lesson, you will be able to:

- Outline the developments in computer systems; and
- Compare the characteristics of various types of computers.

Six generations of computers

There are six generations of computers. Computer generation is a term related to the evolution and adaptation of technology. A generation indicates a major breakthrough, such as reducing the size of processors as well as increasing capacity and speed.

First Generation: The first computer systems were used vacuum tubes and magnetic drums and the sizes were large as an entire room. Examples of first-generation computers are UNIVAC and ENIAC computers.

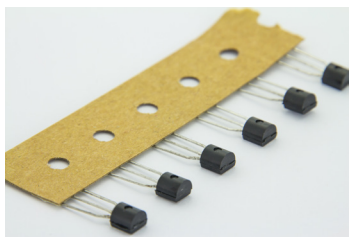


History of computers – A timeline

https://www.youtube.com/watch?v=pBiVyEfZVUU

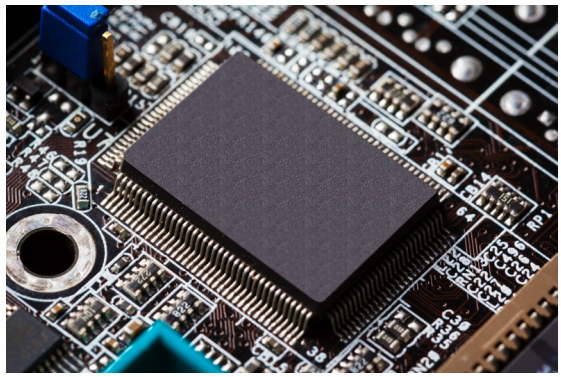
Do you know?

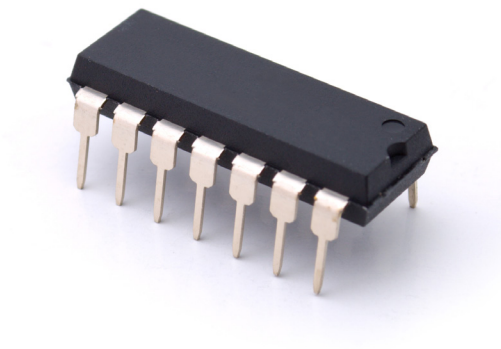
Charles Babbage was recognised to be the father of computing after his invention of Analytical Engine in 1837.



Second Generation: The use of transistors which are made from semiconductors by replacing the vacuum tubes in computers was called second generation in computer history. The advantages from previous generation are, reducing heat, decreasing in size and increasing in the storage capacity.

Third Generation: As the development of Integrated Circuits (IC) in the circuitry, which is equivalent to tens of transistors on a single chip of semiconductor, the use of IC in computer systems increased the speed and efficiency of the computers, and became the third generation of computer systems.





Fourth Generation: Development of the Microprocessor, a single silicon chip built up with thousands of integrated circuits, makes the fourth generation of computers to become faster and more powerful than earlier computers. Size of personal computers (PCs) is reduced to the size of desktops and laptops nowadays. Fourth generation computers are still in use at present.

Computer history

https://www.youtube.com/watch?v=HEmFqohbQCI

Fifth Generation: Computers having Artificial Intelligence (AI) is said to be the fifth generation of computer systems. The computers become extremely fast and the size is reduced dramatically so that a computer can even fit in the pocket (for example: smartphone). AI makes it possible for computers to learn from experience, process large amount of data to identify patterns and perform tasks similar to what human beings can do. Intelligent assistance including voice recognition technology such as, Google's Assistant, Apple's Siri and Microsoft's Cortana are the examples of AI technology.

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Sixth Generation: Further development of robotic technology is called sixth generation of computer systems. As the technology improves, the price decreases. Computers will even be able to think and make decisions, just like human beings do. The sixth generation of computers is said to have a good resemblance with the human brain. They are able to understand feelings and emotions and people can control them physically.

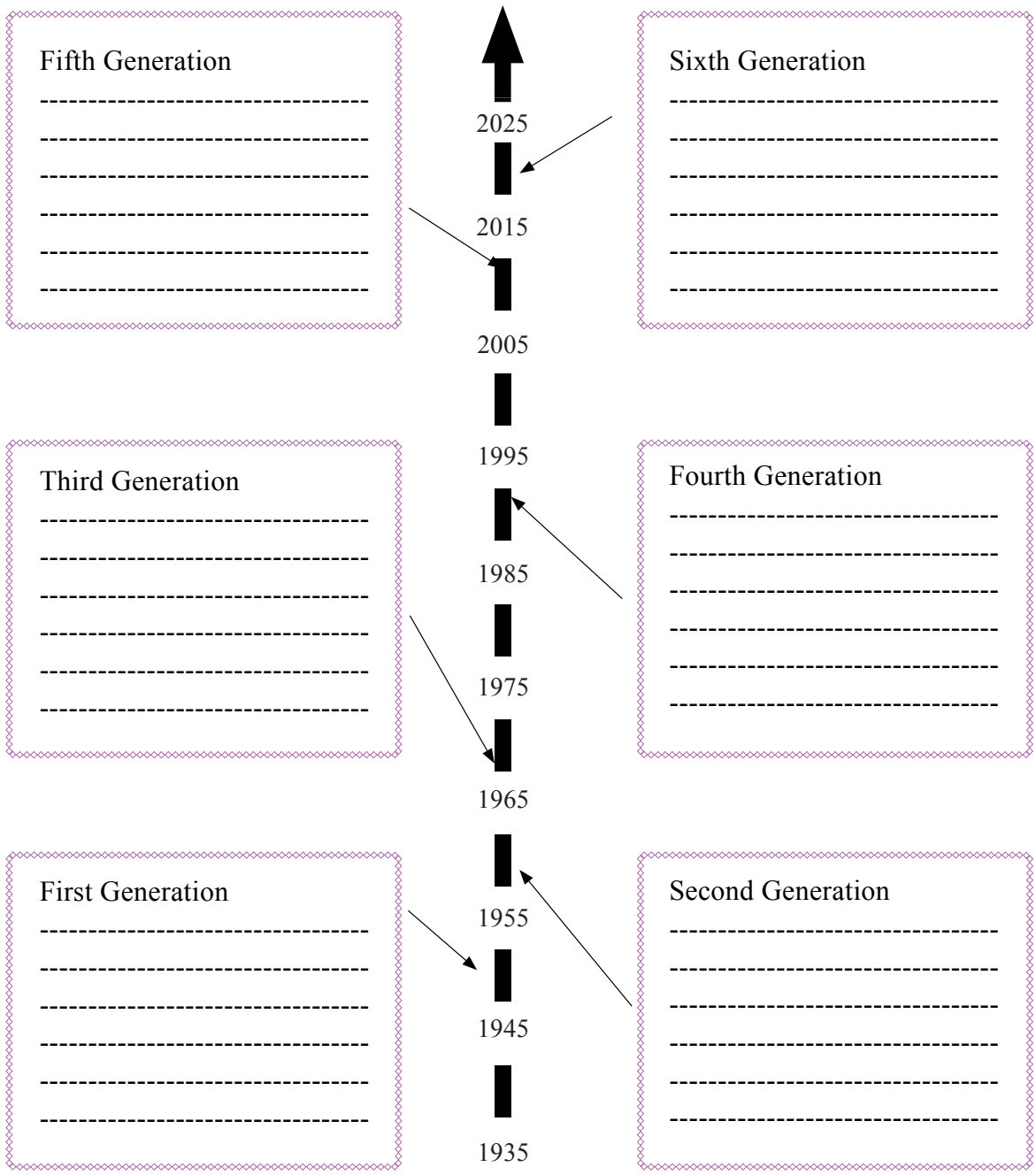
Classification of computers

Table 2.1.

Type	*Characteristics*	*Usage*	*Remarks*
Supercomputers	Most powerful large sized computers in term of speed and accuracy.	Science Research, Military, Weather Forecast, Movie Computer-generated imagery, and so on.	Large rack-type computers
Mainframe computers	Powerful large sized computer types which can handle massive amounts of data and thousands of users can access data simultaneously.	Banking industry, Cloud storage, Hospitals, Airline companies, and so on.	Large rack-type computers
Minicomputers	Mid-range computers with lesser computing power, cost and space needed than mainframe computers.	File and database server, Print server, FTP server, and so on. in LAN size networks.	Small rack-type or tower-type computers
Microcomputers and mobile computers	Smallest sized personal computers, such as Desktops, Laptops, Smartphones and Tablets	Multipurpose single user computers.	From desktop type to smartphone, varies in size.

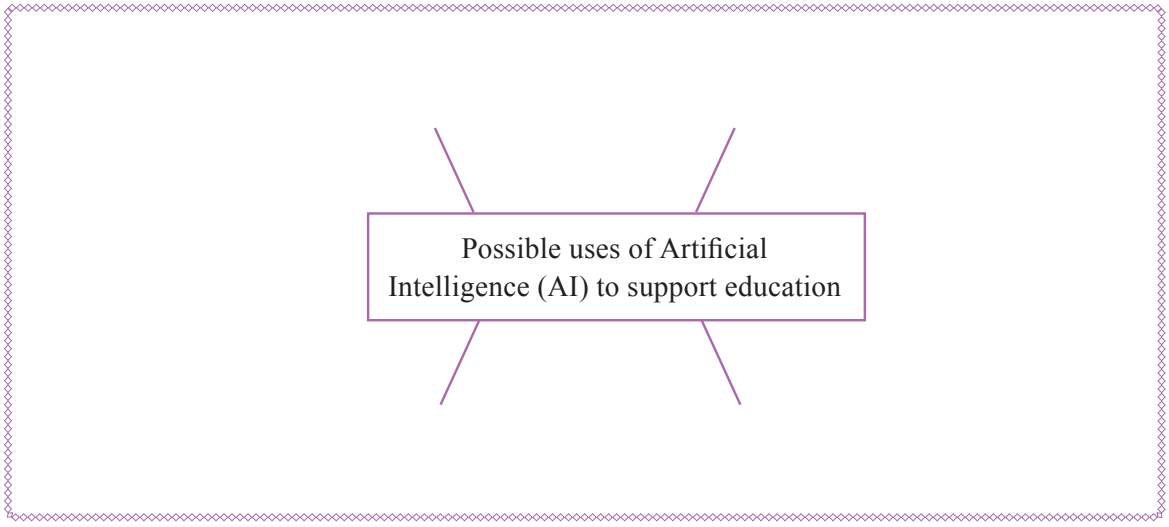
Learning activity 1

Write down the main characteristics of the computers in each generation in the following timeline.



Learning activity 2

In the fifth generation of computers, Artificial Intelligence (AI) is considered to be the trend of ICT development. How do you envision AI can be beneficial to education? Write down what the possible uses of AI are to support teaching and learning.



Learning activity 3

In the following education scenarios, identify what type of computers is the most appropriate for use. Circle A, B, C or D in each education scenario and justify your answers.

A. supercomputers
B. mainframe computers
C. minicomputers
D. microcomputers and mobile computers

No.	*Scenario*	*Type of computers*	*Justification*
1	Downloading some pictures from the Internet and showing them in class	A B C D	
2	Storing digital files and printing those files within the Education College campus	A B C D	
3	Editing a short video clip about Myanmar poems	A B C D	
4	Managing the Education Management Information System (EMIS) at the national level	A B C D	

2.1.3. Understanding system software, types of computers and file/ folder management

Expected learning outcomes

By the end of the lesson, you will be able to:

- Understand functions of system software and application software and describe the basic functions of an Operating System such as Windows;
- Describe the functional characteristics of storage devices in terms of random or sequential access, volatile or non-volatile, data transfer rate and storage capacity; and
- Understand file and folder management.

Computer system

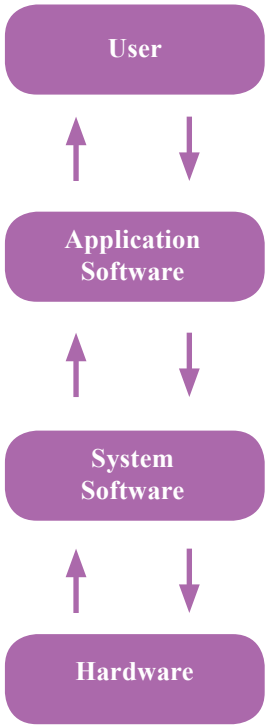
A computer system is a basic, complete and functional computer, including all hardware and software required to make it functional for any user. It should have the ability to receive user input, process data and with the processed data, create information for future storage and/or output.

From an organisational point of view, a computer system consists of hardware (equipment) and software (programs) and sound. From a functional point of view, a computer is an information processing system capable of storing and manipulating numbers, words and pictures. From a user point of view, a computer may be a teaching machine, a source of reference materials such as dictionaries and encyclopedias, a companion for playing games and tool for problem solving.

To summarise the three points of view, a computer can be defined as a collection of hardware and software for data processing (for example, calculation), information processing (for example, database) and knowledge processing (for example, AI).

Hardware is a physical part of the computer system, such as the system unit, video monitor, printer, keyboard, mouse, scanner and other peripheral devices. Software is the name given to any kind of program which tells the hardware what to do. The hardware is visible and tangible and the software can be regarded as the soul of the computer. A computer without software is like a car without gasoline, a smartphone without SIM card and a camera without film.

Figure 2.5. Computer system



Understanding system software and application software

Operating Systems

https://www.youtube.com/watch?v=pTdSs8kQqSA&vl=en

System software is a type of software or computer program that is designed to operate the hardware and application software. Some examples of object-oriented programming languages to develop system software are JAVA and C++. There are three components in system software: the Operating System, utility programs and language processors.

The Operating System tells the computer to perform functions such as how to load, store and execute programs, how to manage resources available. Utility programs are designed to perform functions that are not available in application software, such as formatting a disk and creating a directory. The most well-known system software is the Operating System (OS), and the examples are Microsoft's Windows OS, Apple's iOS, Ubuntu OS and Google's Android OS.

Application software is a type of software designed for end-users to perform specific user's task. It is also called applications or Apps for short. Application software allows a user to prepare a document, design a financial worksheet or create a useful database. Some examples of the application software are Microsoft Word (which is included in Microsoft Office), media players, Google Chrome, Zapya, Viber and PDF reader.

Operating System and its basic functions

Operating System (OS) is the most well-known system software which can operate hardware and acts as the platform for end-users' application software.

Basic Functions of an OS

https://www.youtube.com/watch?v=BhuU7eNRojs

The basic functions of the OS are:

- Hardware Management;
- System Resource Management;
- File and Folder Management / Data Management; and
- Provide environment for Application Software.

Microsoft Windows

Microsoft Windows is the one of the most commonly used Operating System in the market. Over 90% of Persona Computer (PC) is using Microsoft Windows. It is developed and sold by Microsoft Corporation. Its basic functions/features are as follows:

Microsoft Windows History

https://www.youtube.com/watch?v=m9gcDoVuvmg

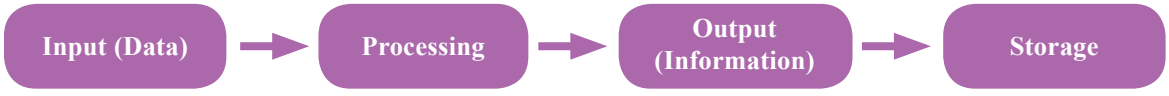
- Provide Graphical User Interface (GUI), which allows users to interact with the system and applications through graphical icons instead of text-based user interfaces;
- Monitor application software and tasks running using Task Manager program. It also provides information about computer performance which includes running processes, CPU load, and Windows services;
- Manage, repair and optimise the performance and data of the computer system using a set of program called utilities programs; and
- Include basic features of the Windows OS, such as Desktop, Icons, Taskbar, Start menu and Shortcuts.

You will learn more about the operations of Windows in Unit 3.

Computers as storage devices

The basic flow of a computer system includes data (input, processing, information (output and storage. It is important that computers can serve the purpose of storing information.

Figure 2.6. Basic flow of a computer system



There are two main types of storage devices, namely primary and secondary storage devices. Primary storage devices are generally small in size and it is used for storing data for a temporary period. Most of them are installed in a computer and allow faster access to data. An example is RAM (Random Access Memory) in a computer. Secondary storage devices are of larger storage capacity and can store data for a longer period of time. These devices can be either external or internal to a computer. Examples are HDD (Hard Disk Drive), DVD and USB flash drive.

Some concepts of storage are as follows.

Random Access: It refers to the feature of accessing data randomly. This method can read or write information anywhere on the media/storage device. By using indexing, this type of operation directly accesses data, so it is also called direct access. An example of Random Access is RAM (Random Access Memory) in a computer.

Sequential Access: It means that the data on the computer system can be accessed sequentially. This method can read or write the information from the beginning of the file. Examples of Sequential Access are the Backup Tapes and Tape Drives.

When it comes to speed, Random Access can be a lot faster to access large databases. When it comes to data backup, Sequential Access is still in use because of its efficient storage method.

Volatile: In computer storage, volatile memory is a device which can store data only when it is powered. An example of Volatile Memory is RAM (Random Access Memory) in a computer.

Non-volatile: Opposite to Volatile, Non-volatile memory is the method of storing data permanently. It means, even if the computer is powered off, the data remain stored. An example of Non-volatile Memory is HDD (Hard Disk Drive) or SSD (Solid State Drive) in a computer. HDD is a mechanical device and it uses moving parts inside the device to read and write data. There is some friction loss when the moving parts operate, producing some noise when it is running. SSD does not have any moving parts so there is no data loss problem or drive corrupt problem. As such, SSD can read and write data without producing noise and can be more durable. In general, the read and write speed of SSD is higher than HDD; however, the former is usually more expensive than the latter.

In computer technology, volatile memory such as RAM is a lot faster to read and write than non-volatile memory such as HDD. In reality, data stored permanently in HDD are loaded to RAM for processing while the computer is running, for faster response in communicating with CPU (Central Processing Unit), as necessary. After the computer is turned off, the data will not remain in RAM. If one would like to keep the data, the data should be stored in HDD before having the computer turned off.

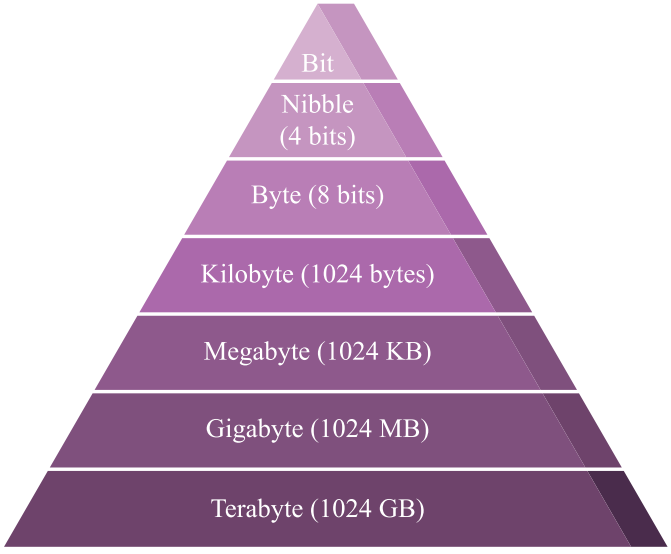
Data Transfer Rate and Storage Capacity: In computer history, there are numerous types of storage technologies. In the early times, Vacuum Tubes were used. Nowadays, cloud storage technology is common. Over the time, the size and read/write speed of storage have dramatically increased.

Data Transfer Rate (DTR): Data transfer rate is the speed that data can be copied/moved from one location to another. It can be measured in bit per second (bps) and Byte per second (Bps).

Storage Capacity: Storage capacity is the size of how much data can be stored. It can be measure in bit or Byte.

1 Byte = 8 bits
1 Kilobyte = 210 Bytes = 1024 Bytes ≈ 1000 Bytes
1 Megabyte = 1,024 Kilobytes (or) roughly 1 Million Bytes
1 Gigabyte = 1,024 Megabytes (or) roughly 1 Billion Bytes
1 Terabyte = 1,024 Gigabytes (or) roughly 1 Trillion Bytes
Kbps = Kilobits per second / KBps = Kilobytes per second
Mbps = Megabits per second / MBps = Megabytes per second
Gbps = Gigabits per second / GBps = Gigabytes per second

Figure 2.7. Storage capacity of data



Some types of storage media are shown below, indicating the differences in data transfer rate and storage capacity.

Table 2.2.

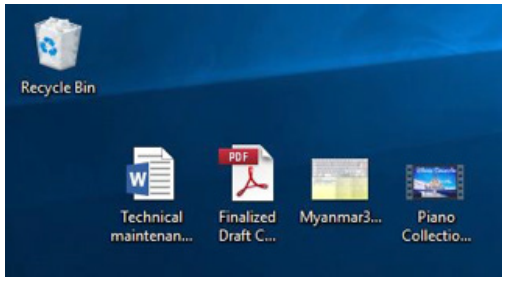
Technology	*Data transfer rate*	*Storage capacity*	*Remarks*
Selectron Tube	N/A	256 to 4096 bits	Vacuum Tube Technology
CD	150 KBps to 6 MBps	700 MB	Optical Storage Technology
DVD	1.32 MBps to 21.13 MBps	4.7 GB to 17.08 GB	Optical Storage Technology
HDD (3.5")	50 MBps to 140 MBps	4 TB maximum (still improving)	Magnetic Storage Technology
HDD (2.5")	50 MBps to 140 MBps	2 TB maximum (still improving)	Magnetic Storage Technology
SSD	200 MBps to 700 MBps	1 TB maximum (still improving)	Integrated Circuit Storage Technology

Files and folders management

Understanding files and folders management is important in using a computer.

Files: Digital version of resource or data stored in the computer system. There are different types of computer files, such as Microsoft Word documents, picture files, music / video files or computer program files. There are different applications software / computer programs to open these file types.

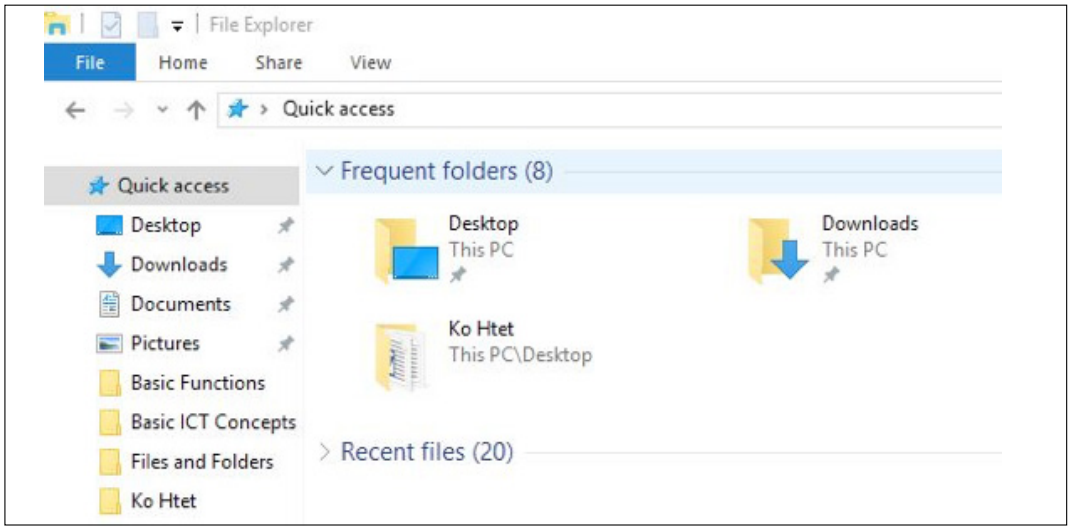
Some common file types are as follows:

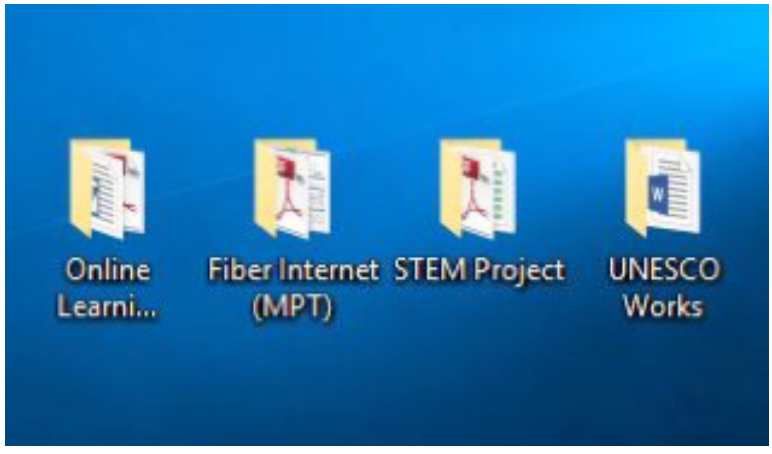


- Images: .jpg, .jpeg, .png, .gif, .bmp, .tif, .tiff;
- Audio: .mid, .midi, .mpa, .mp3, .wav, .wma;
- Video: .mp4, .mpg, .mpeg, .wmv, .avi, .mov;
- Word processing: .txt, .doc, .docx, .odt, .pdf;
- Spreadsheet and data: .xls, .xlsx, .ods, .mdb;
- Presentation: .ppt, .pptx, .pps, .odp;
- Compressed files: .zip, .rar, .7z;
- Executable files: .exe, .apk;
- Internet: .htm, .html, .xhtml; and
- E-books: .epub, .mobi.

Folders: Cataloging structure of a directory in a file system which can put files inside. When a directory is inside another directory, it is called sub-directory.

Figure 2.8.



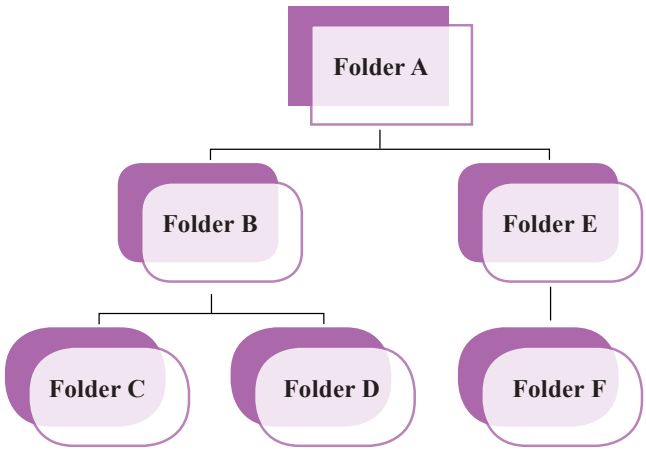


In below figure (Figure 2.9.), Folder A is called **Root** Folder or Directory. The others are sub-directories. Folder B is called **Parent** folder for Folder C and Folder D while they are the Child folders. Similarly, Folder E is the **Parent** folder for Folder F.

You can imagine that when there are a lot of files and folders in your computer, it may not be easy for you to locate the files or folders you want. As such, you should name the files and folders in a consistent, organised and descriptive way. Some more tips of naming files and folders are as follows:

- Ensure that the names can provide meaning for you to understand what is contained in the files/folders;
- Keep the names not too long because long names may not work well with some types of software;
- Use only letters and numbers and avoid using special characters such as @, #, $, %, ! ,
- \, >, *, :, " because these may not be readable by some types of software. No blank space ( ) should be used for the names either;
- Use lowercase letters only or use capital letters only for the first letter of words if possible for consistency purpose;
- If there is a need to indicate a date in the name, follow the format YYYYMMDD (Y refers to Year; M refers to Month; D refers to Date) so that the files and folders can be sorted in chronological order easily; and
- Use leading zeros (0) in the name if you number the files and folders in sequential order. For instance, use 001, 002, 011, 012 instead of 1, 2, 11 and 12.

Figure 2.9. Folder structure



Learning activity 1

For each description about system software and application software, put a tick in the appropriate box to indicate whether the description is true or not. If needed, you can discuss your answers with your peers.

No.	*Description*	*True*	*False*
1	System software can function independent of application software while application software cannot run without system software.		
2	There are much fewer system software as compared to application software.		
3	The programming of system software is relatively complex as it requires the knowledge of the working of the underlying hardware while the programming of application software is relatively easier as it requires only the knowledge of the underlying system software.		
4	Application software executes continuously as long as the computer is in operation while system software executes only when the end user requires.		
5	System software runs in the background and the end users usually do not interact with it directly; however, application software runs in the foreground with frequent interaction with the end users to satisfy their computing needs.		
6	Examples of system software include Windows OS, Mac OS and Linux, Microsoft Word while examples of application software include Windows Media Player and Adobe Photoshop.		

Learning activity 2

For each scenario below, choose a more appropriate storage medium to be used by ticking the corresponding box and justify the use of one storage medium over the others. If you think there is another storage medium which is more appropriate, please write it down under the 'Others' option in the 'Selected storage medium' column.

1. I use a public computer in the library to prepare my lesson plan by creating word processing files. Should I save my files using HDD in the public computer or a USB flash drive?

Selected storage medium	*Justification of selection*
☐ HDD in the public computer ☐ USB flash drive ☐ Others: _____	

2. I need to save some important files containing student teachers' final examination scores in a safe place. Should I save the files using HDD in the head of administration's office laptop or a USB flash drive?

Selected storage medium	*Justification of selection*
☐ HDD in the head of administration's office laptop ☐ USB flash drive ☐ Others: _____	

3. The Ministry of Education at the central level requests our college to save student teachers' personal information in a storage medium and to deliver the storage medium to Nay Pyi Taw. Should I save the files using CD or DVD or a USB flash drive?

Selected storage medium	*Justification of selection*
☐ CD ☐ DVD ☐ USB flash drive ☐ Others: _____	

4. I want to purchase a laptop which I can carry around between my home and the school. I will also need to bring it along with me when I travel to other places in Myanmar. Should I choose a laptop with HDD or SSD?

Selected storage medium	*Justification of selection*
☐ HDD ☐ SSD	

Learning activity 3

Comment on whether the following file names are acceptable following the tips you have learnt in Learning activity 1 by circling your choice. For those file names which you think not acceptable, suggest a better one.

No.	*File name*	*Acceptable or not?*	*If it is not acceptable, suggest another file name.*
1	myfile.doc	Acceptable / Not acceptable	
2	20191203year1testscore.xls	Acceptable / Not acceptable	
3	mYaNmArSoNg.wmv	Acceptable / Not acceptable	
4	English-grammar-class-2.docx	Acceptable / Not acceptable	
5	LessonPlanMaths@Year1.txt	Acceptable / Not acceptable	
6	photo.jpg	Acceptable / Not acceptable	
7	PRACTICUM_RECORD.odt	Acceptable / Not acceptable	
8	Year_1_Semester_1_Reflective_ Practice_and_Essential_Skills_ Assignment_3_December_2019.ppt	Acceptable / Not acceptable	
9	ict textbook copy.pdf	Acceptable / Not acceptable	
10	science-homework-final4-revised.html	Acceptable / Not acceptable	

Review questions

1. Reflect on what you have learnt in the lessons under this unit and assess your understanding of the subject.

	Yes	No	Not sure
2.1.1.			
I can describe the structures and functions of hardware within a computer system (input, Central Processing Unit, output and storage).			
I can describe the features, advantages, disadvantages and examples of input and output devices and select the appropriate use of devices in various scenarios.			
2.1.2.			
I can outline the developments in computer systems.			
I can compare the characteristics of various types of computers.			
2.1.3.			
I understand functions of system software and applications software and describe the basic functions of an Operating System such as Windows.			
I can describe the functional characteristics of storage devices in terms of random or sequential access, volatile or non-volatile, data transfer rate and storage capacity.			
I understand file and folder management.			

2. What are the input and output devices that you think are useful for teaching and learning in basic education schools?
3. Which type of computers would be useful in basic education schools? Please justify your answer.
4. Why is file and folder management important? Give AT LEAST TWO examples showing what you can do to ensure the management of proper records of files and folders.

Unit Summary

Key messages

- A computer may be divided into several fundamental units: input, Central Processing Unit and output.
- There are six generations of computers with recent development on Artificial Intelligence and robotic technology. A generation indicates a major breakthrough, such as reducing the size of processors as well as increasing capacity and speed.
- There are four types of computers, namely supercomputers, mainframe computers, minicomputers, microcomputers and mobile computers. In our daily life, microcomputers and mobile computers are commonly used in Education Colleges.
- Application software is a type of software designed for end-users to perform specific user's task, including those to support teaching and learning.
- It is important to understand what input, output and storage devices should be used based on the need and purpose of the tasks.
- Proper file and folder management allows end-users to locate files or folders in the computer easily.

Unit reflection

1. How do you describe computers in your daily life?

2. How do you compare the various types of computers?

3. How can you do to ensure effective management of proper records of files and folders on the computers?

Further reading

2.1.

Types of input devices with explanations: https://www.tutorialspoint.com/computer_fundamentals/computer_input_devices.htm

Types of output devices with explanations: https://www.computerhope.com/jargon/o/outputde.htm

The Evolution of Computers: https://www.nortonsecurityonline.com/security-center/evolution-of-computers.html

Data Transfer Rate: https://searchunifiedcommunications.techtarget.com/definition/data-transfer-rate

Size / Bandwidth Calculator: http://www.stardot.com/bandwidth-and-storage-calculator

Basic Functions of an Operating System: https://www.techwalla.com/articles/what-are-system-interrupts

Different types of computers: http://www.vidyagyaan.com/computer-knowledge/different-types-of-computer/

Basic ICT Literacy Training Manual: Developed by UNESCO, is available in E-Library.

Unit 3

Computer Application (Word processing)

In previous unit, you have learned the development of computer systems, functions of hardware within a computer system and functions of the system software such as Operating System. In this unit, you will be able to learn the basic functions of the Operating System such as Windows and practise the basic functions of word processing application such as Microsoft Word including typing in Myanmar fonts (Zawgyi and Unicode).

Expected learning outcomes

By the end of this unit, you will be able to:

- Perform basic functions on an Operating System such as Windows;
- Install fonts onto the system and demonstrate typing; and
- Describe and practise the basic functions of word processing such as Microsoft Word (typing in Myanmar font (Zawgyi and Unicode), page setup, saving, formatting, printing, header and footer, bullets and numbering; creating tables, inserting pictures and charts).

3.1. Basic Functions and Troubleshooting

In this sub-unit, you will learn how to perform basic functions of an Operating System and installing fonts onto the system and demonstrating typing.

3.1.1. Performing Windows basic functions

Expected learning outcomes

By the end of the lesson, you will be able to:

- Perform basic functions on an Operating System such as Windows.

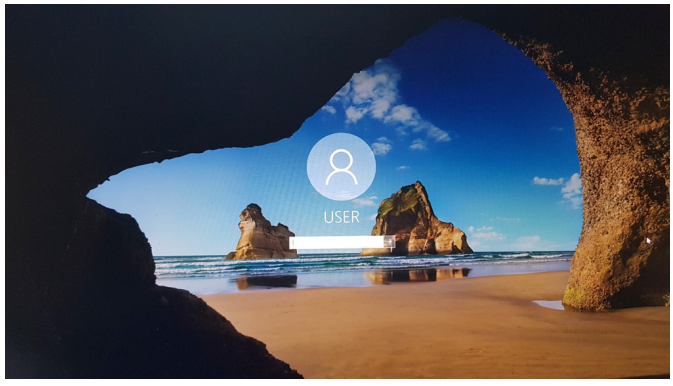
Mouse clicking in Windows Operating System

Mouse has two buttons (Left and Right), which has different functions, and in the middle there is usually a scroll wheel which can go up and down to control the menu/scroll bar.

Left Click: By default, it is used to select one item by pointing and clicking. You may also select many items by holding the left button and drag the pointer. It is generally used more frequently than the Right Click button and sometime it is used for performing other functions on an application software, such as placing the cursor in a Word Processing software.

Right Click: By default, it is used to show a pull-down menu with a list of the functions for you to click and select.

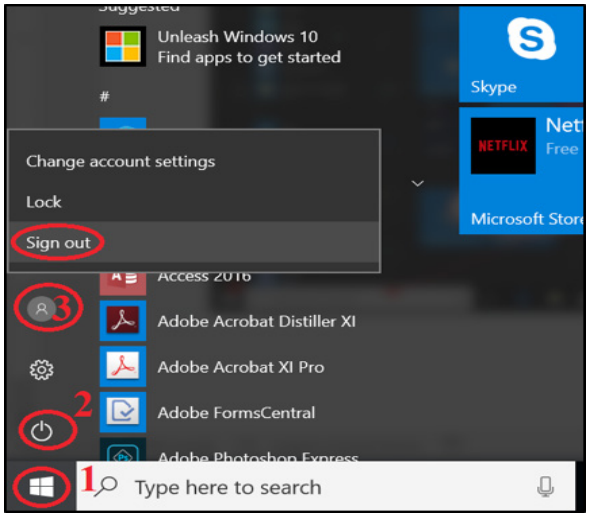
Figure 3.1. Login screen



Logging in

You will see the welcome screen as soon as you open a computer which has Windows installed. Click on the user account to log into the Windows. You might need to enter password if the user account was set with a password.

Figure 3.2. How to sign out on Windows



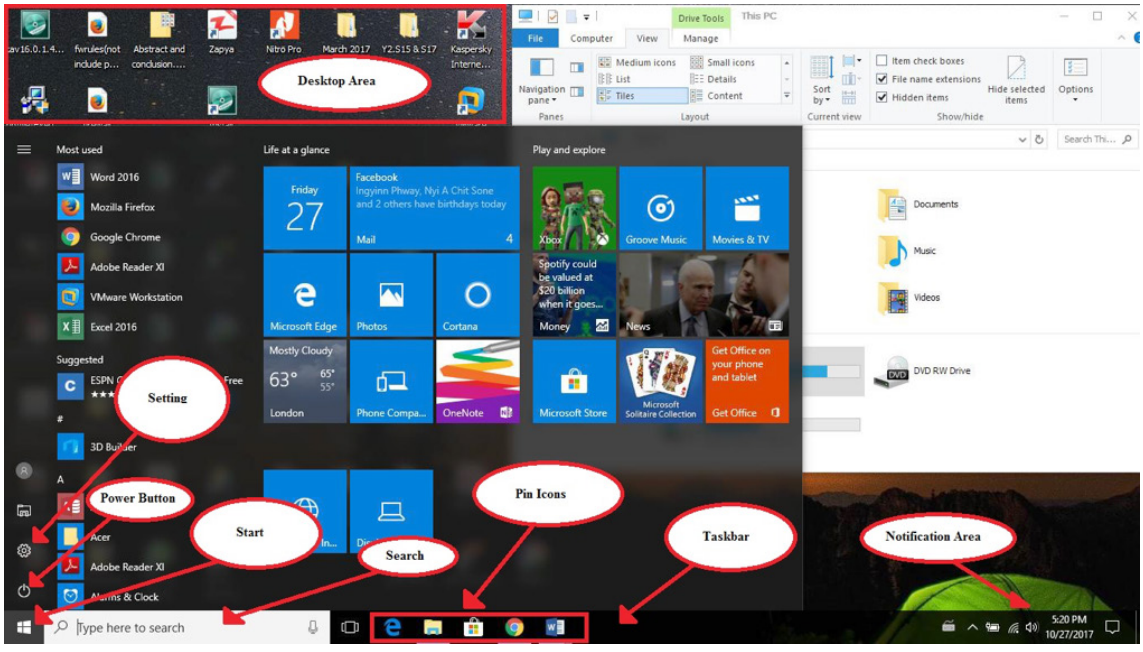
Logging off

You can log off from an account by clicking Sign Out button as shown in the below figure so that you can log in to another user account.

Interface of the Windows Operating System

Below is the Windows desktop you see will after logging in. One of the most important parts of your Desktop is the **Taskbar** and **Pin Icons** to it. By default, it is located at the bottom of your screen giving you access to the **Start** Menu which include Power Button and Setting, several application icons, Search and the **Notification Area**.

Figure 3.3. Windows desktop



When you open an application, the windows of the application will pop up and you will always see three buttons at the upper right corner. They are Minimize, Maximize and Close buttons.

1. Minimize button is to hide the windows in the Taskbar.
2. Maximize button is to view the windows in full-screen size.
   Restore down button is to restore the windows the state before changing full-screen size.
3. Close button is to close the currently opened windows.

Figure 3.4.

You can move the windows by clicking on its title bar on the upper side, drag and drop it in a new place. Moreover, you can resize the windows by pointing your mouse at any corner of the windows until a double-sided arrow appear, click and drag until you get your preferable size.

Below show the desktop icons which are a graphic representation of an application or a file. You can rearrange and resize the icons by **right click on the desktop > New> choose the options (large icons, Medium icons, small icons, Auto arrange icons, Align icons to grid**. You can also hide the desktop icon by **clicking (uncheck) Show desktop icons**.

Creating shortcuts

Shortcuts can be created by the following steps:

Step 1: Right click over an empty space and right-click on desktop.

Step 2: In the menu, select **New** and then click **Shortcut**.

Step 3: On the Create Shortcut window, you can either **Browse** or type the location of the item you want to access. Then, select the location and click **OK**.

Figure 3.5.

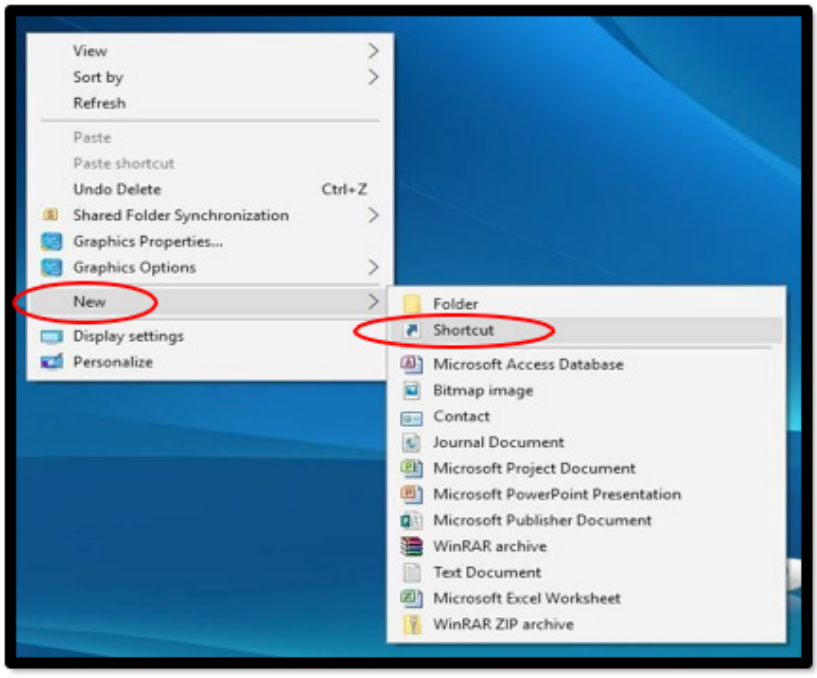
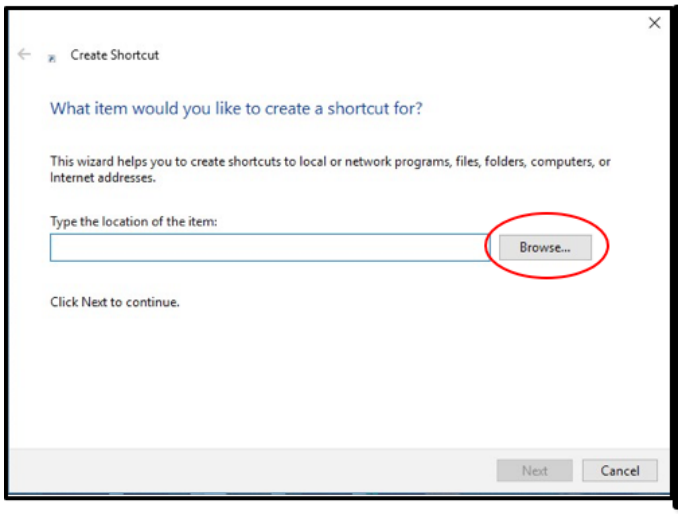
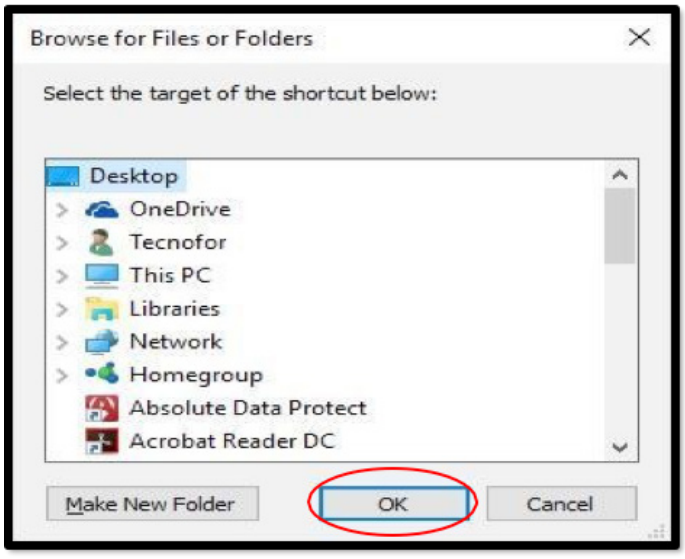


Figure 3.6.





Step 4: After choosing it, you can assign or change the name with which the shortcut will be identified. After making any changes, click **Finish**.

Step 5: After clicking Finish, you will then see the shortcut icon in your Desktop.

Start menu

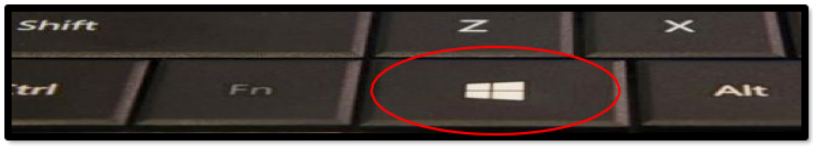
The Start Menu is the main point of access to your applications. There are three common ways to open it:

Method 1: Use your mouse to click Windows icon in the lower-left corner of the taskbar.

Figure 3.7.

Method 2: Press the **Windows key** on your keyboard.

Figure 3.8.

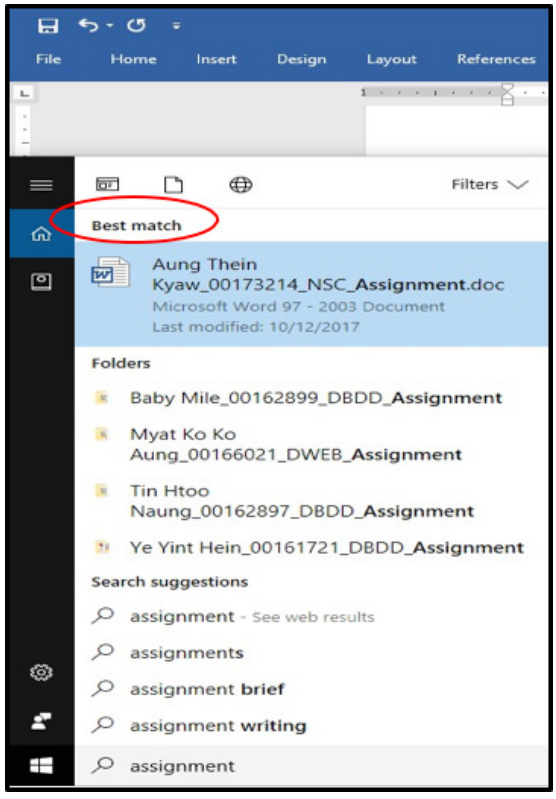


Method 3: Press Ctrl + Esc keys on your keyboard.

Search

The Search box on the Taskbar will allow you to search within your documents and files or on the Web for anything you write. The initial results will appear within the Start Menu itself. The results will be grouped according to the closest match (or matches) labeled **Best match** at the top of the list.

Figure 3.9.



Shortcuts and Keyboard Shortcuts

A shortcut is simply an icon that directs you to an item (a document, application, or picture) that is located somewhere else in your computer. Like most Windows applications, there are several keyboard shortcuts you can use to make it easier or faster for some to perform certain tasks. Most of the new Windows shortcuts use the Windows key ( ) combined with other keys to perform several actions. The following are some of the useful shortcuts.

Table 3.1.

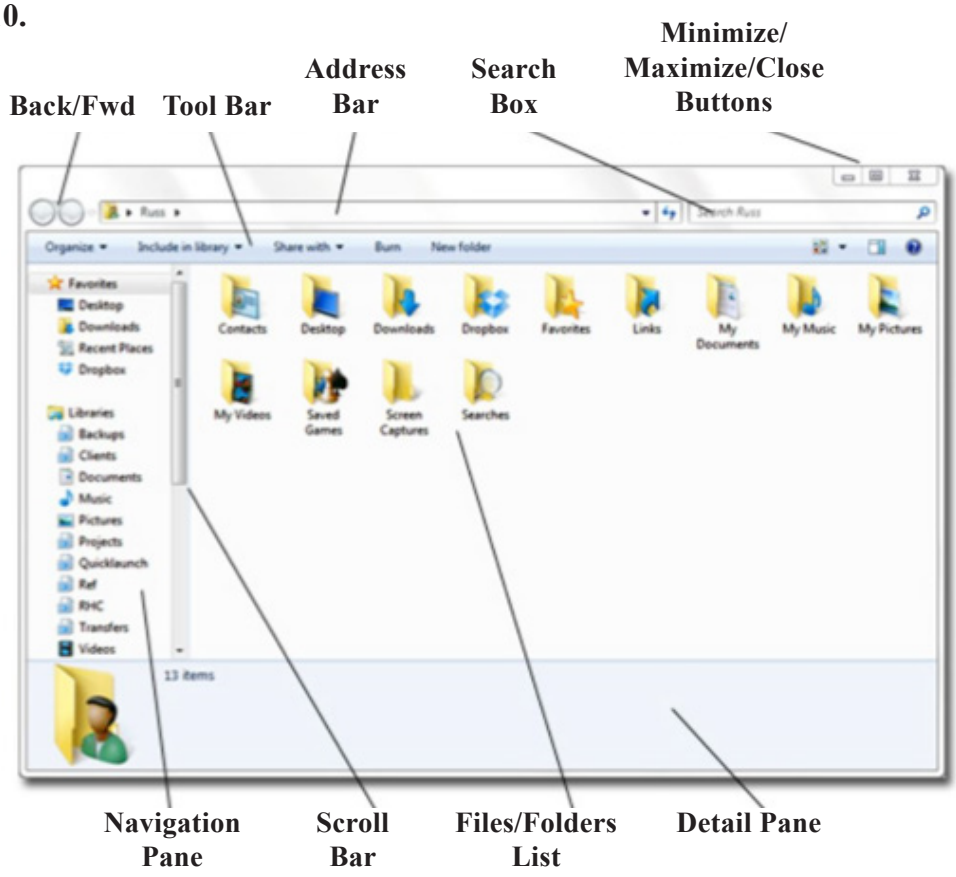
Shortcut	Action
Windows key	Open the Start menu
Windows key + S	Open the Windows Search
Windows key + C	Open Cortana
Windows key + Tab	Open Task View
Windows key + D	Show or Hide the Desktop
Windows key + L	Lock your account
Windows key + A	Open the Action Center sidebar
Windows key + I	Open the Settings window
Windows key + E	Open the File Explorer window
Windows key + Print Screen	Takes a screenshot of your whole display and stores it in Pictures > Screenshots
Windows key + space bar	Open language bar
Windows key + R	Open run box
Windows key + P	Open display switcher
Windows key + K	Open Wireless Connection

Basic management of files and folders using Microsoft Windows

You can view and organise files and folders. This can be done using Explorer (which is also called File Explorer or Windows Explorer).

Opening a file or folder is simply double-clicking the file or Right click and select Open. Right click and select Rename from the menu, to rename a file or folder.

Figure 3.10.



You can create New Folder by Right click on the Explorer or Desktop and on the menu appeared, Select **New -> Folder**. Or on the File Explorer, select the New Folder button.

If you want to create New File, Right click on the Explorer or Desktop and on the menu appeared, Select **New -> Select the file type you want to create (For example, Microsoft Word Document).**

Moving a file into folder or moving a folder into another folder is easy. You just need to Click and Hold (left button of the mouse) onto the desire file / folder, drag it to the desire location.

If you want to delete a file or folder, you can do one of the following instructions.

- Select the file or folder, and press delete key from the keyboard.
- Select the file or folder, Right click and select Delete from the menu appeared.
- Click and Hold (left button of the mouse) onto the desire file / folder, drag it to the Recycle Bin.

By doing one of the above instructions, the file or folder deleted will be moved to Recycle Bin and you can restore the files to the original location by opening Recycle Bin, Select the desire file or folder to restore, Right click and choose Restore.

If you want to delete the files / folders from the Recycle Bin permanently, you can Right click the Recycle Bin and select Empty Recycle Bin. Please note that, you can delete a file or folder permanently without moving to the Recycle Bin by selecting the item, press holding the Shift key and press Delete key from the Keyboard. It will delete the file or folder permanently.

Learning activity 1

You are supposed to finish reading about the lesson and do individual practice for class. This activity is to be completed in class by completing the following step by step instructions. Consult your teacher educator if you find any difficulties.

Task 1

Practise to answer and perform the following tasks on a computer.

1. How to show and hide desktop icons?
2. Which shortcut key can be used to open the **'Start Menu'**?
3. Pin Microsoft Word and Microsoft Excel in the taskbar.
4. Unpin Microsoft Excel from the taskbar.
5. Which shortcut key can be used to lock your account?
6. Create a shortcut file with your name on desktop.
7. Open an application, minimise the windows, restore it, resize it and close it.

Task 2

Practise to perform the following tasks on a computer.

Step 1: Create one Microsoft Word Document file and name it as ‘Lesson 3.1.1.’. Create one folder and as it as ‘EC ICT Curriculum’.
Step 2: Rename the file with your name and folder as ‘Activity 2’.
Step 3: Move the file inside the folder. Temporarily delete both file and folder.
Step 4: Restore the file and folder. Do the permanent deletion of the file and folder.

Learning activity 2

In group, share one problem each on using Windows and discuss possible solutions. Two examples of common problems are given below.

Common problems using Windows	*Possible solution / suggestion*
A file is accidentally deleted and needs to be recovered.	
I know my file name but forget where I have saved it in the File Explorer.	

3.1.2. Installing fonts onto an Operating System

Expected learning outcomes

By the end of the lesson, you will be able to:

- Install fonts onto the system and demonstrate typing.

What is font?

In the computer system, font is the printable or displayable text character in specific style and size. It is also called typeface. There are many type of fonts with different styles and designs of the alphabets, such as Times New Roman, Arial and Calibri. These fonts are already installed into the commonly used Operating System such as Microsoft Windows.

There is a standard that defines how text should be saved into data and how it is read and written, and it is called Unicode. Before Unicode, there were many different character encoding systems, which could cause character encoding to be conflicted with one another as the Operating System might not be able to read and understand different character encoding.

Myanmar fonts

In Myanmar, there are two main types of character encoding system which is commonly seen. Zawgyi font is a typeface used for Myanmar language text on websites, also known as Zawgyi-One or zawgyi1 font. It is the most popular font on Myanmar websites and widely used among Myanmar people. Although some of the code-points are similar to Myanmar Unicode, it is not compatible with Unicode. In order to use Zawgyi Font, you will need to install the font and a keyboard layout into the Operating System.

Myanmar Unicode is another typeface with Myanmar characters, which follows internationally accepted standards by the World Wide Web Consortium. Myanmar Unicode font, sometimes known as Myanmar2/Myanmar3, is gaining its popularity in Myanmar and is pre-installed in commonly used Operating System such as Microsoft Windows 8 or above. The latest version of Myanmar Unicode family is Pyidaungsu font.

Installing the font into the Windows system

To install any font into the Windows system, you may follow the procedures below:
Step 1: Download the font file from the Internet.
Step 2: Copy the downloaded font file into Font folder. (or)
Alternate Step 2: Right click on the font file and Click 'Install font'.

Keyboard layout

A typical keyboard displays the English alphabets, which you can type on each stroke. The most commonly used keyboard layout is 'QWERTY' keyboard, called based on the few keys on the top row of letters. It is important to familiarise yourself with the keyboard layout so that you can practise typing.

Step 1: Take a good look to the Keyboard layout. You will find the function keys such as Caps Lock, Shift, Backspace, Delete, Esc (Escape), and so on. There are also letter keys. You can put your fingers as shown in Figure 5.1.

Step 2: Try typing something in a word processing application such as Microsoft Word in capital letters and small letters. You can try pressing at the same time 'Shift + a alphabet key' or pressing 'Caps Lock' and then any alphabet key to see the letter transformation between upper-case and lower-case.

Step 3: Try using different fonts. There are many fonts which are different in styles. Typing in Myanmar font is different whereas the key placing is not the same even between two popular Myanmar typefaces, Zawgyi and Unicode fonts. You can find in Figures 5.2 and 5.3 below the keyboard layout for these fonts.

Step 4: Try using Function keys. Try erasing the letters you have typed by using 'Backspace' and 'Delete' function keys. You can also combine the Function key(s) and letter key(s) to use as shortcut keys or activation of certain functions. For instance, type at the same time 'Ctrl + F' to launch a Find window to search for documents by keywords in your computer.

Table 3.2.

Keyboard Function Keys/Short-cuts	*Action*
F1	Universal Help in almost every Windows program.
F5	Refresh or reload the page or document window.
Alt + F	File menu options in current program.
Alt + Tab	Switch between open apps.
Ctrl + A	Select all.
Ctrl + C	Copy selected item.
Ctrl + End	Goes to end of document.
Ctrl + Esc	Open the Start Menu.
Ctrl + Home	Goes to beginning of document.
Ctrl + Ins	Copy selected item.
Ctrl + Shift + F	Change the font.
Ctrl + V	Paste selected or Cut item.
Ctrl + X	Cut
Ctrl + Z	Undo last action.
End	Goes to end of current line.
Home	Goes to beginning of current line.
Shift + Del	Cut selected item.
Shift + End	Highlights from current position to end of line.
Shift + Home	Highlights from current position to beginning of line.

Myanmar Language Keyboard (Unicode)

Myanmar Unicode Typing includes built-in in the Windows 10. In other words, there is no need to install Unicode in Windows 10. But you need to add Unicode Myanmar keyboard in Language settings. To add it, you can do the following steps.

Step 1: Type '**Control Panel**' in the search bar and then open **Control Panel**.
Step 2: After opening control panel, choose **Language**.
Step 3: And then, choose **Add a language**.
Step 4: After clicking Add a language, choose မြန်မာစာ and then click **Add**.
Step 5: After clicking Add, it added Unicode Myanmar keyboard in Language settings.

To use Myanmar font, you need to change keyboard settings. To change it, click keyboard icon  on the taskbar and then choose **MY Burmese (Myanmar)**. Another way is that you can use Ctrl + Shift key from keyboard to also change keyboard settings.

For example - To type 'မြန်မာ', you need to type **'j r e f r m'**.

Figure 3.11. Hand position on a QWERTY keyboard

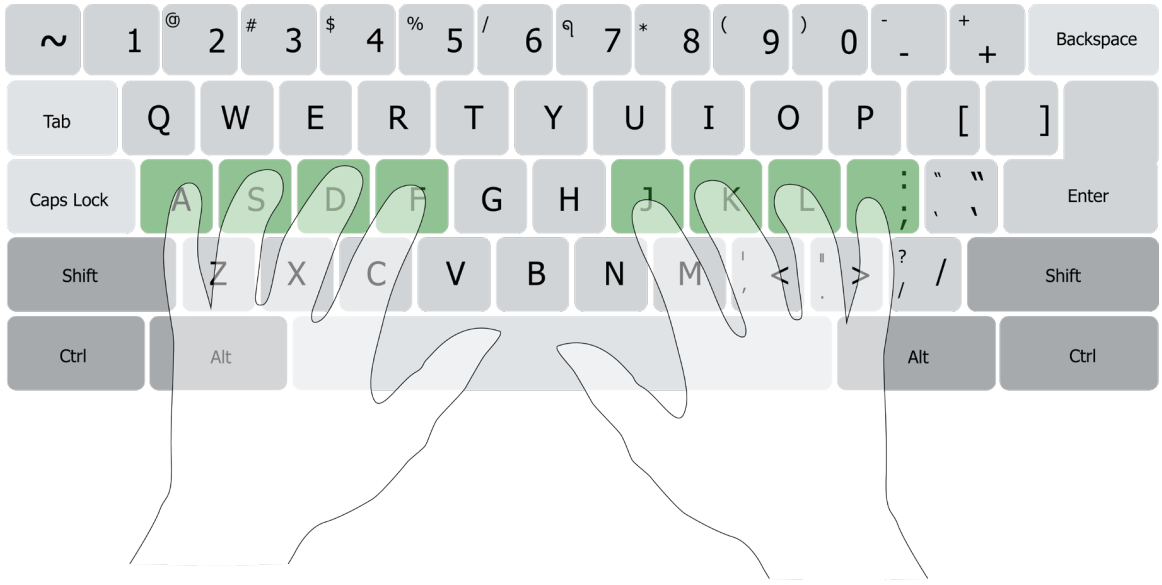
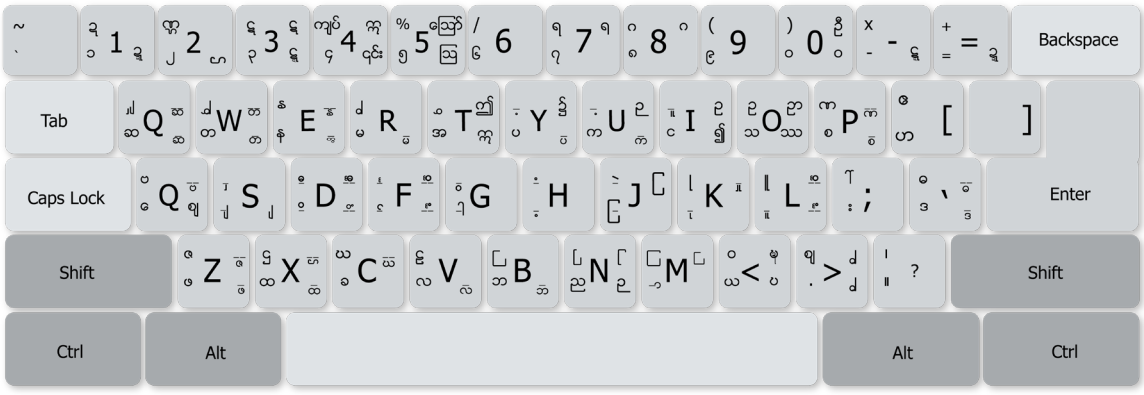


Figure 3.12. A keyboard layout for typing Zawgyi font



Dead-key အဖြစ် သုံးထားသော Tide (သို့) Shift+Tide key (နံပါတ် - ၁ ဝဲဘက်) ကို ရိုက်ရုံနှင့် မည်သည့်စာလုံးမျှ ပေါ်လာမည်မဟုတ်ပဲ အခြားကီးတစ်ခုဆက်ရိုက်မှသာ လက်ကွက်ပုံတွင်ပြထားသည့် **အပြာရောင်စာလုံးများ ပေါ်လာမည်မဟုတ်ဘဲ(Shift ကဲ့သို့ တွဲရိုက်ရခြင်းမဟုတ်)**
ဥပမာ - Tide ရိုက်ပြီး y ရိုက်လျှင် "ဦ" ပေါ်မည်။ Shift+Tide ရိုက်ပြီး y ရိုက်လျှင် "ဥ" ပေါ်မည်။

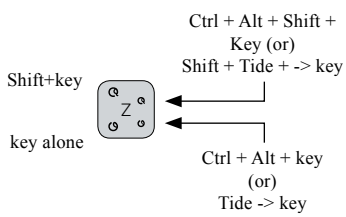


Figure 3.13. A keyboard layout for typing Unicode font

စိုး	စ + ◌ို + ◌် + း(သို့)စ + ◌် + ◌ို + း
ကျွေ	က + ◌ျ + ◌ွ + ◌ေ
ကျို	က + ◌ျ + ◌ို + ◌်
ကျောင်း	ဂ + က + ◌ျ + ◌ာ + ဂ + ◌် + း
ကြီး	က + ◌ြ + ◌ီ + း
ချို	ခ + ◌ြ + ◌ို + ◌်
မြို	မ + ◌ြ + ◌ို + ◌်
ဘွဲ့	ဘ + ◌ွ + ◌ဲ + ◌့
ခြသေ့	ခ + ◌ြ + ဂ + ◌် + ◌္ + ဂ + သ + ◌့
ဘွိုင်း	ဘ + ◌ွ + ◌ို + ◌် + ဂ + ◌် + း
နှိုး	န + ◌္ + ◌ို + ◌် + း
ရွှေ	ရ + ◌ွ + ◌ှ + ◌ေ
ရှိုက်	ရ + ◌ွ + ◌ို + ◌် + က + ◌်
နှောင့်	ဂ + န + ◌္ + ◌ာ + က + ◌်
ဆွန်	ဆ + ◌ွ + ◌န + ◌်
ကြွ	က + ◌ြ + ◌ွ
ကြွင်း	က + ◌ြ + ◌ွ + ◌ဲ + ဂ + ◌် + း

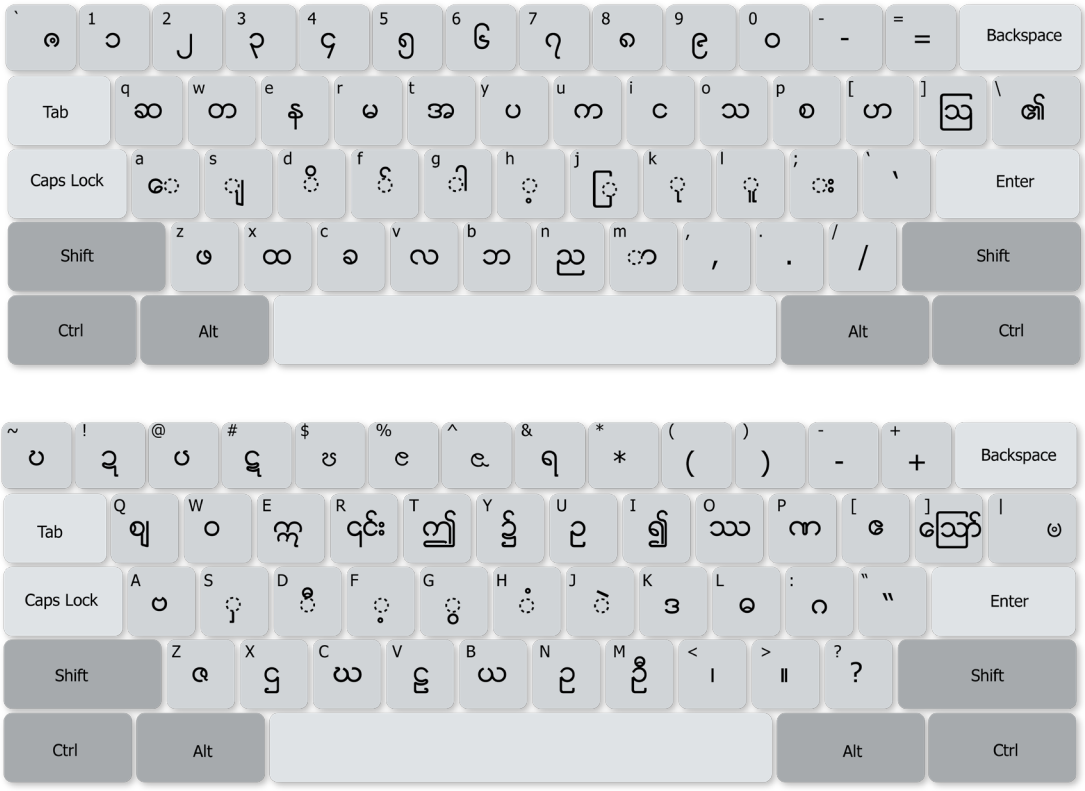
ကြွေး	ဂ + က + ◌ြ + ◌ွ + ◌ေ + း
လျှင်	လ + ◌္ + ◌ျ + ဂ + ◌်
မြွှင့်	မ + ◌ြ + ◌ွ + ◌္ + ◌ျ + ဂ + ◌် + ◌့
ဦး	ဂ + ◌ြ + ◌ီ + း
ရွှေ	ဂ + ရ + ◌ွ + ◌ှ + ◌ေ
မြင်း	မ + ◌ြ + ဂ + ◌် + း
စက္ကူ	စ + က + ◌် + က + ◌ူ
လိမ္မော်	လ + ◌ိ + ဂ + မ + ◌် + မ + ◌ာ + ◌်
အင်္ဂါ	အ + ဂ + ◌် + ◌် + ဂ + ◌ါ
အကျိ	အ + ဂ + ◌် + ◌် + က + ◌ျ + ◌ိ
သင်္ဘော	သ + ဂ + ◌် + ◌် + ဂ + ဘ + ◌ာ
ဥက္ကဋ္ဌ	ဥ + က + ◌် + က + ◌္ + ◌် + ဋ
ဆဋ္ဌမ	ဆ + ◌္ + ◌် + ဋ + မ
ဂုဏ်ဂုဏ်	ဂ + ◌ု + ဏ + ဝ + ◌ု + ◌ဏ + ◌် + ဝ
သဏ္ဌာန်	သ + ဏ + ◌် + ◌ဏ + ◌ာ + န + ◌်
ဘဏ္ဍာ	ဘ + ဏ + ◌် + ◌ဏ + ◌ာ
မင်္ဂလာ	မ + မ + ◌် + ◌် + ဂ + လ + ◌ာ

ပါဠိဆင့်များ ရိုက်သွင်းနည်း

ပါဠိဆင့်ပြုလုပ်လိုလျှင် အသတ်နေရာ၌ ◌် (Shift + f) ရိုက်ပေးရမည်။
◌် (Shift + f) ရိုက်ပြီး ဗျည်းထပ်ရိုက်သောအခါ ပါဠိဆင့်စာများ ဖြစ်ပေါ်လာမည်။
ထူးခြားသော ပါဠိဆင့်နမူနာများမှာ အောက်ပါအတိုင်း ဖြစ်ပါသည်။

ဏ္ဍ = ဏ + ◌် ဍ
ဗ္ဗ = ဗ + ◌် ဗ
ဏ္ဏ = ဏ + ◌် ဏ
ဋ္ဌ = ဋ္ + ◌် ဌ

Figure 3.14. A keyboard layout for typing Pyidaungsu font



စိုး	စ + ◌ို + ◌် + း(သို့)စ + ◌် + ◌ို + း
ကျွှေ	က + ◌ျ + ◌ွ + ◌ှ
ကျို	က + ◌ျ + ◌ို + ◌်
ကျောင်း	ဂ + က + ◌ျ + ◌ာ + င + ◌် + း
ကြီး	က + ◌ြ + ◌ီ + း
ခြံ့	ခ + ◌ြ + ◌ံ + ◌့
မြို	မ + ◌ြ + ◌ို + ◌်
ဘွဲ့	ဘ + ◌ွ + ◌ဲ + ◌့
မြသေ့	ခ + ◌ြ + င + ◌် + ◌ု + ဂ + သ + ◌့
ဘွိုင်း	ဘ + ◌ွ + ◌ို + ◌် + ◌် + ◌် + း
နှိုး	န + ◌ှ + ◌ို + ◌် + း
ရှု	ရ + ◌ှ + ◌ု
ရှိုက်	ရ + ◌ှ + ◌ို + ◌် + က + ◌်
နှောင့်	ဂ + န + ◌ှ + ◌ာ + က + ◌်
ချွန်	ခ + ◌ွ + ◌် + န + ◌်
ကြွ	က + ◌ြ + ◌ွ
ကြွင်း	က + ◌ြ + ◌ွ + ◌် + ◌် + း

ကြွေး	ဂ + က + ◌ြ + ◌ွ + ◌် + း
လျှင်	လ + ◌ျ + ◌ှ + ◌် + ◌်
မြွှင့်	မ + ◌ြ + ◌ွ + ◌ှ + ◌် + ◌် + ◌့
ဖြိုး	◌် + ◌ြ + ◌ို + း
ဇွေ	ဂ + ရ + ◌ွ + ◌ေ
မြင်း	မ + ◌ြ + ◌် + ◌် + း
စက္ကူ	စ + က + ◌် + က + ◌ူ
လိမ္မော်	လ + ◌ိ + ◌် + ဂ + မ + ◌် + မ + ◌ာ + ◌်
အင်္ဂါ	အ + ◌် + ◌် + ◌် + ဂ + ◌ါ
အက်္ကျီ	အ + ◌် + ◌် + ◌် + က + ◌် + ◌ျ + ◌ီ
သင်္ဘော်	သ + ◌် + ◌် + ◌် + ◌် + ဂ + ◌ော် + ◌်
ဥက္ကဋ္ဌ	ဥ + က + ◌် + က + ◌် + ဋ္ဌ + ◌် + ဋ္ဌ
ဆဋ္ဌမ	ဆ + ◌် + ◌် + ◌် + ဋ္ဌ + မ
ဂုဏ်ဂုဏ်	ဂ + ◌ု + ◌ဏ် + ဝ + ◌ု + ◌ဏ် + ◌် + ပ
သဏ္ဌာန်	သ + ◌ဏ် + ◌် + ◌ဏ် + ◌ာ + ◌် + ◌်
ဘဏ္ဍာ	ဘ + ◌ဏ် + ◌် + ◌ဏ် + ◌ာ
မဂ်လာ	မ + မ + ◌် + ◌် + ဂ + လ + ◌ာ

ပါဠိဆင့်များ ရိုက်သွင်းနည်း

ပါဠိဆင့်ပြုလုပ်လိုလျှင် အသတ်နေရာ၌ (Shift + f) ရိုက်ပေးရမည်။
(Shift + f) ရိုက်ပြီး ဗျည်းထပ်ရိုက်သောအခါ ပါဠိဆင့်စာများ ဖြစ်ပေါ်လာမည်။
ထူးခြားသော ပါဠိဆင့်နမူနာများမှာ အောက်ပါအတိုင်းဖြစ်ပါသည်။
ဣ = က + ဋ
ဓ = ဒ + ဓ
ဏ္ဍ = က + ဍ
ဋ္ဌ = ဋ + ဌ

Review questions

1. Reflect on what you have learnt in the lessons under this unit and assess your understanding of the subject.

	Yes	No	Not sure
3.1.1.			
I can perform basic functions on an Operating System such as Windows.			
3.1.2.			
I can install fonts onto the system and demonstrate typing.			

2. What is an Operating System? How is it useful for your daily work?
3. Which Myanmar font do you think would be the most suitable for Myanmar basic education schools? Justify your answer.

3.2. Word Processing

A word processing application, or known as a word processor, allows you to perform different tasks of composing, editing, formatting and printing of a wide variety of documents, including letters, resumes and reports. It is a useful aid for teaching and learning as well because you may use it to create lesson plans, worksheets and examination papers. Moreover, the produced materials by word processing are easy to share among teachers and students. Education staff can also prepare official letters and other office documents for administrative purposes using a word processing application.

A word processing application is one of the most frequently used software programmes on a computer. Microsoft Word is the most popular but commercial one. Examples of free word processing application are LibreOffice, Open Office and Google Docs. While many of the word processing applications have similar functions, it is important to know which application your counterparts usually use because it is advisable to use the same word processing application for document sharing to avoid any loss in formatting. For instance, if you create a document using LibreOffice and share it with a friend who will use Microsoft Word to open it, the formatting of the document may be slightly changed.

Be aware of the difference between a word processing application and a plaintext editor. The former can perform formatting tasks while the latter, such as Notepad on the Windows Operating System, can only allow editing and creating plain text documents without any formatting capabilities. A word processing application offers a number of additional features that can make your text document with a more professional appearance. However, if you need more design features of a document, you may need to use a desktop publishing software, such as Microsoft Publisher or Adobe InDesign, which can give you more control over the page layout.

In this unit, you will learn how to navigate the commonly used Microsoft Word interface and become familiar with its most important features, such as the Ribbon, Quick Access Toolbars, and Backstage view and Myanmar font typing.

3.2.1. Basic functions of word processing 1

Expected learning outcomes

By the end of the lesson, you will be able to:

- Describe the basic features of a word processing application;
- Create, open, view, save and close a new document; and
- Type Myanmar font (Zawgyi and Unicode) in word document.

Starting the Microsoft Word

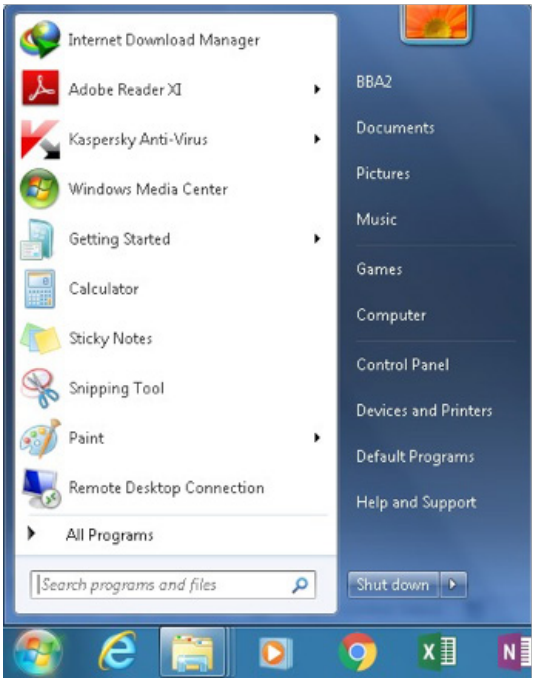
Here is more than one way to start the Microsoft Word. The following are three methods that you can start the Microsoft Word.

Method 1

Step 1: Click **Start** Button on the Windows taskbar. Start Menu will display.

Step 2: Point on **All Programs** and click on Microsoft Word application (for example, **Word 2016**).

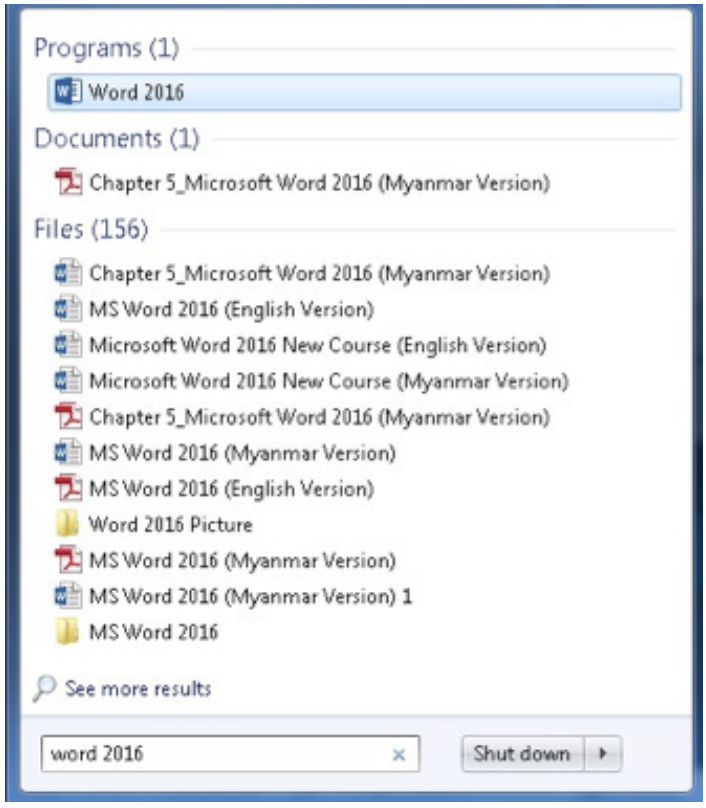
Figure 3.15.



Method 2

Step 1: In the Search box, type the name of Microsoft Word application (e.g. **Word2016**)

Figure 3.16. Opening a Microsoft Word window



Step 2: Click on Microsoft Word application (e.g. **Word 2016**).

Method 3

Step 1: Hold the window key and press **r** in keyboard.
Step 2: Type 'winword' in run box.
Step 3: Click **OK** or press **Enter** key.

The following screen will appear as soon as a Microsoft Word window is opened. You may explore how each feature work. You may also see the screencasts of detail explanation of some important features.

Figure 3.17. Microsoft Word 2016 screen

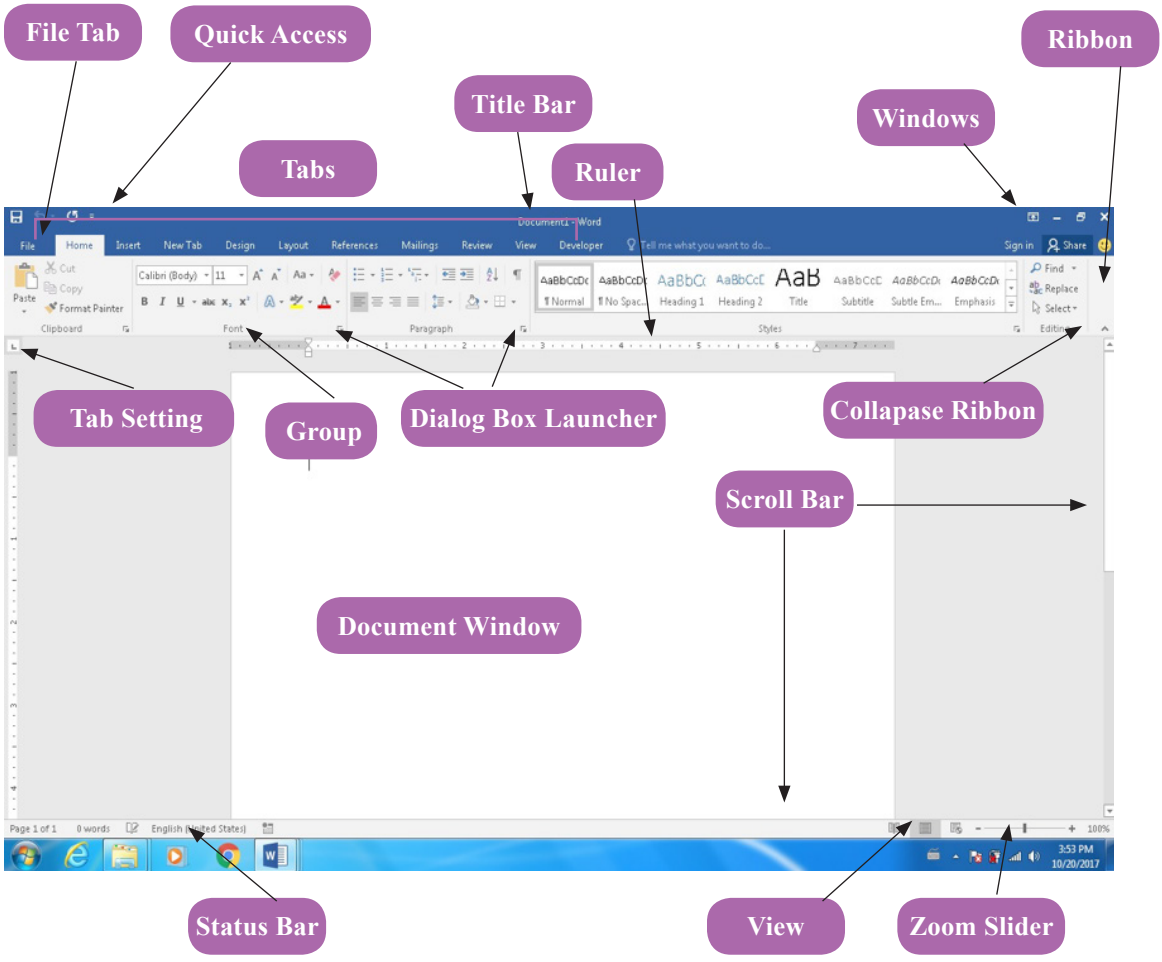
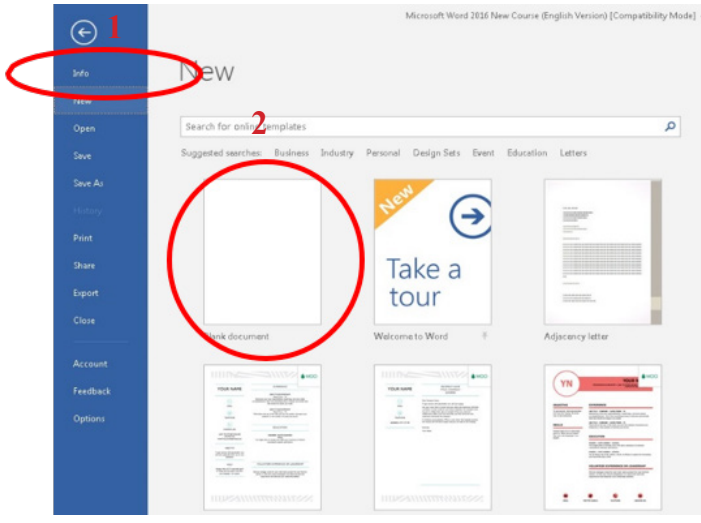


Figure 3.18. Microsoft Word 2016 Open New File screen



Creating a new document

Step 1: Click **New** in **File** Tab

Step 2: Double click on **'Blank Paper** or **a template'**

Saving a document

Step 1: Click **Save** (or) **Save as** in **File** tab.

Step 2: Click **browse** to find the location to save.

Step 3: Choose the location where you want to save the document. For example, click **Desktop**.

Step 4: Type your name in the file name box.

Step 5: Choose **word document** in the save as type.

Step 6: Click **Save**. You will see the Microsoft Word file with your name on Desktop Screen.

Learning activity 1

Prior to the lesson, create a new word document and, in the blank document, type the following first paragraph in Myanmar Zawgyi and type the second paragraph in Myanmar Unicode. Save your file with a meaningful file name.

Type the following in Myanmar Zawgyi:

သုံးစွဲသူများ၏ အလုပ်တစ်ခု သို့မဟုတ် အလုပ်များကို ပြီးမြောက်စေရန်ကူညီပေးသည်။ ၎င်းတွင် စာစီစာရိုက်ခြင်း၊ အင်တာနက်ကြည့်ရှုခြင်းနှင့် အခြားလုပ်ငန်းကိစ္စများအတွက် Software များကိုသွင်းယူထားရမည်။ အချို့သော Application Software များကို ကွန်ပျူတာစနစ်နှင့်အတူ ကြိုတင်သွင်းယူထားသည်။ Software ကို ယေဘုယျအားဖြင့် လူပုဂ္ဂိုလ်များအလွယ်တကူဖတ်နိုင်သော အဆင့်မြင့် Program ရေးသားနည်း (High-Level Programming Language) ဖြင့်ရေးသားထားကြသည်။ ၎င်း(High-Level) ညွှန်ကြားချက်များမှ ကွန်ပျူတာ နားလည်သည့်ဘာသာစကား (Machine Language) သို့မဟုတ် နှစ်ခုစုံသင်္ကေတ (Binary Code) အဖြစ် Hardware များလုပ်ဆောင်နိုင်ရန် ပြောင်းလဲပေးသည်။ ကွန်ပျူတာနားလည်သည့် ဘာသာစကား (Machine Language) သည် Software များသွင်းယူစဉ်ကတည်းက ပါဝင်လာသည်။

Type the following in Myanmar Unicode:

Microsoft Windows (သို့မဟုတ် Windows) ကို Microsoft မှ Graphical Operating Systems များအဖြစ် ပြုလုပ်ရောင်းချခဲ့ပါသည်။ ၎င်းတွင် Operating Systems မျိုးနွယ်ပေါင်းများစွာပါဝင်ပြီး IBM ကုမ္ပဏီထုတ်တစ်ကိုယ်ရေသုံး ကွန်ပျူတာနှင့် သင့်လျော်သောစနစ်နှင့်အတူတကွ ကွန်ပျူတာစက်မှုလုပ်ငန်းများအတွက် ထုတ်လုပ်ထားပါသည်။ လက်ရှိ Windows စနစ်တွင် Windows NT၊ Windows Embedded နှင့် Windows Phone တို့ပါဝင်ပါသည်။ ဥပမာ Windows Embedded Compact သို့မဟုတ် Windows Server စသည့် အခြားမျိုးနွယ်များနှင့်ပါ ဆက်စပ်မိစေသည်။ ပျောက်ကွယ်သွားပြီဖြစ်သော Windows မျိုးနွယ်တစ်ခုမှာ Windows 9x ဖြစ်သည်။ Windows 10 Mobile သည် ယခုလက်ရှိ ထုတ်ကုန်ဖြစ်ပြီး ပျောက်ကွယ်သွားသည့် ထုတ်ကုန်များနှင့် ဆက်နွယ်မှုမရှိတော့သည်ကို တွေ့ရသည်။

Learning activity 2

In class, discuss the difficulties found during the individual practice and find the solutions together with the guidance of your teacher educator.

Common Problems using Microsoft Word	*Possible Solution / Suggestion*

Learning activity 3

This activity is to be completed after class. Produce a Word document using Myanmar Unicode font as shown in the sample below and save it with the file name as 'Activity 3.2.1._[Add Your Name Here]' in your computer. Please make sure to back up your file in your own USB flash drive (if any).

မြန်မာစာရိုက်ရာတွင် အောက်ပါ ပါဠိစကားလုံးများလည်းရိုက်တတ်ရန်လိုအပ်ပါသည်။

က၊ ခ၊ ဂ၊ ဃ၊ င
ကဏ္ဍ၊ ၊ ကန္တာရ၊ ကိန္နရီ ကိန္နရာ၊ ဣစ္ဆာသယ၊ ကပ္ပိယ၊ ခန္ဓာ၊ ၊ ခန္တီ၊ ခြသေ့၊ ဂန္ထင်၊ ဂန္ဓာရုံ၊ ဂန္ဓမာပန်း။

စ၊ ဆ၊ ဇ၊ ဈ၊ ည
စိတ်သန္တာန်၊ စန္ဒာ၊ စဏ္ဍာလ။

ဋ ဌ ဍ ဎ ဏ

တ၊ ထ၊ ဒ၊ ဓ၊ န
တဏ္ဍော၊ ဒုလ္လဘာ၊ ဒဏ္ဍာရီ၊ ဒေသန္တရ၊ ဒက္ခိဏာ၊ နန္ဒ၊ နှစ်ပရိဏ္ဍေဒ။

ပ၊ ဖ၊ ဗ၊ ဘ၊ မ
ပုဏ္ဏား၊ ပုံပန်းသဏ္ဌာန်၊ ပဏ္ဍိတ၊ ပါမောက္ခ၊ပရိက္ခရာ၊ပလ္လင်၊ ပဏ္ဍာ၊ ဗန္ဓတ်၊ ဗိန္ဒေ၊
ဘဏ္ဍာ၊ ဘိက္ခု၊ မဏ္ဍိုင်၊ မဏ္ဍပ်၊ မိစ္ဆာ၊ မစ္ဆာရိယ၊ မန္တန်၊ မေတ္တာ။

ယ၊ ရ၊ လ၊ ဝ၊ သ
ရာထူးဌာနန္တရ ၊ ရိက္ခာ ၊ ရုက္ခစိုး၊ ရုက္ခဗေဒ၊ ရဟန္တာ၊ ဝဏ္ဏ၊ ဝံသာနုရက္ခိတ၊ သကေ်တ၊ သဏ္ဌာန်၊ သဒ္ဒါ၊ သဒ္ဒါရုံ၊
သဒ္ဒါ၊ သန္တာ၊ သန္တိသုခ၊ သန္တရသ၊ သပ္ပုရိသ၊ သဗ္ဗာယ်၊ သန္ဓေ၊ သိန္ဓောဆား၊ သန္နိဋ္ဌာန်၊ သုဝဏ္ဏသာမ၊ သုဒ္ဓကိန်း၊
သိဒ္ဓိ၊ သိဒ္ဓိတင်၊ သဒ္ဒါလင်္ကာရ၊ လက္ခဏာ။

ဟ၊ ဠ၊ အ
အဏ္ဏဝါ၊ အနန္တ၊ အန္တိမ၊ ဧကန္တ၊ အိန္ဒြေ၊ အာဂန္တု။

3.2.2. Basic functions of word processing 2

Expected learning outcomes

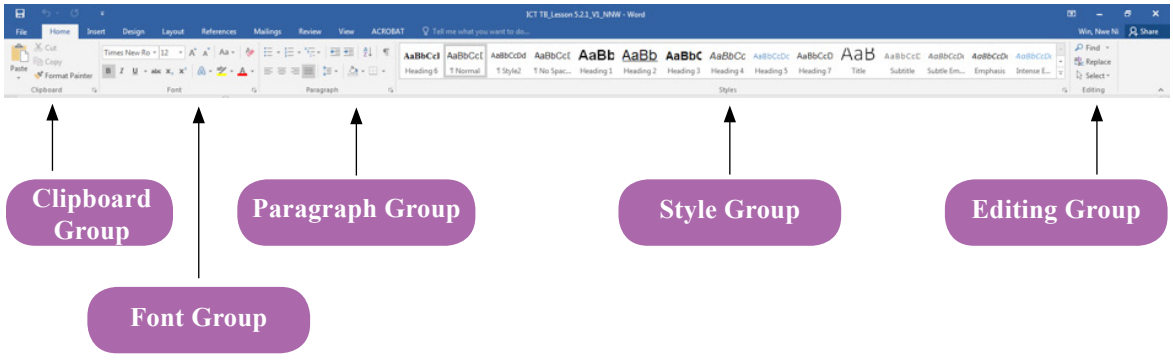
By the end of the lesson, you will be able to:

- Do text, paragraph and table formatting;
- Create document designs and layout; and
- Print a document.

Text and paragraph formatting

You are to be working under Home tab to do text and paragraph formatting.

Figure 3.19.



Copying text

Step 1: Type some text in the blank document, select the text by clicking and drag from the beginning to the end of the text.

Step 2: Click **Copy** in Clipboard group (or) press (**Ctrl + c**) at the same time in keyboard.

Step 3: Place the cursor in new location and click **Paste** in Clipboard group (or) press (**Ctrl + v**) at the same time in keyboard.

Moving text

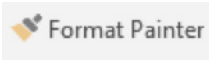
Step 1: Type some text in the blank document, select the text by clicking and drag from the beginning to the end of the text.

Step 2: Click **Cut** in Clipboard group (or) press (**Ctrl + x**) at the same time in keyboard.

Step 3: Place the cursor in new location and click **Paste** in Clipboard group (or) press (**Ctrl + v**) at the same time in keyboard.

Copying Format

Step 1: Select a word (or) a shape that has been formatted.

Step 2: Click Format Painter 

in Clipboard group (or) double click Format Painter to apply the format in multiple places. The cursor will change into Format Painter form.

Step 3: Place the cursor on another word/shape you want to apply the format.

Customising font

Step 1: Select the text by clicking and drag from the beginning to the end of the text.

Step 2: Choose the font type, style, size, color, highlight color in the Font group (ctrl + r) (or) Click **custom arrow**  in Font Group to open Font Dialog box where you can choose more options to customise your text in advanced setting.

Please format the text as follows:

Font type = Monotype Corsiva
Font size = 18
Font color = Grey
Bold and underline
Capitalise each word
Double strikethrough

A sample answer is shown below:

Myanmar Educational Colleges
21st Century Skills, H_2O

Customising paragraph

Step 1: Type one paragraph (or) copy and paste the previous text into one paragraph, select the text by clicking and drag from the beginning to the end of the paragraph.

Step 2: Choose the alignment, line space, indent, sort, paragraph mark, shading, border in the Paragraph group (or) Click **custom arrow** in Paragraph Group to open Paragraph Dialog box where you can choose more options to customise your paragraph in advanced setting.

Figure 3.20.

Left	:	Align text to the left
Center	:	Align text to the center
Right	:	Align text to the right
Justify	:	Align text to both left and right margins
Line Spacing	:	Space between each line within a paragraph
Bullets	:	Create a bullets list from scratch
Numbering	:	Create a numbered list from scratch
Decrease indent	:	Move closer to margin
Increase indent	:	Move farther away from margin
Sort	:	Arrange the line in alphabetical (or) numerical order
Paragraph Mark	:	Show/Hide paragraph mark
Shading	:	Highlight the paragraph
Borders	:	Add/ Remove the border of paragraph

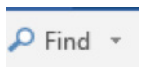
Editing *[screencasts link to be added]*

- To find or replace the words,
  Step 1: Type one paragraph (or) copy and paste the previous text into one paragraph.

  Step 2: Click **Find** or **Replace** in Editing group, type the word you want to find in the box next to **find what**, type the word you want to replace in the box next to **replace with**.

  Step 3: Click Replace to change one by one, Replace All to change all the word you find, Find Next to skip changing the current word, Cancel to withdraw finding and replacing.

- To quickly go to a specific place within a document,

  Step 1: Click on dropdown arrow of **Find** 

and click Go to.

  Step 2: Under **Go to what**, choose the Page if you want to go to a specific page.

  Step 3: Type the page number you want to go (e.g. 3) under **Enter page number** and click **Go To**.

Figure 3.21.

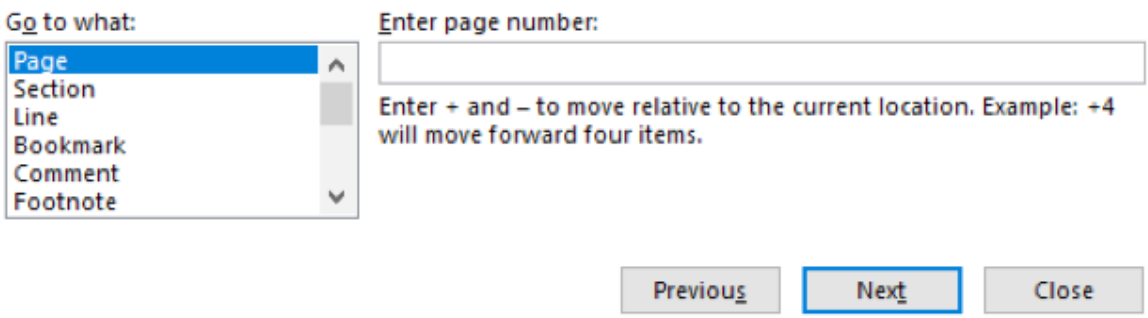
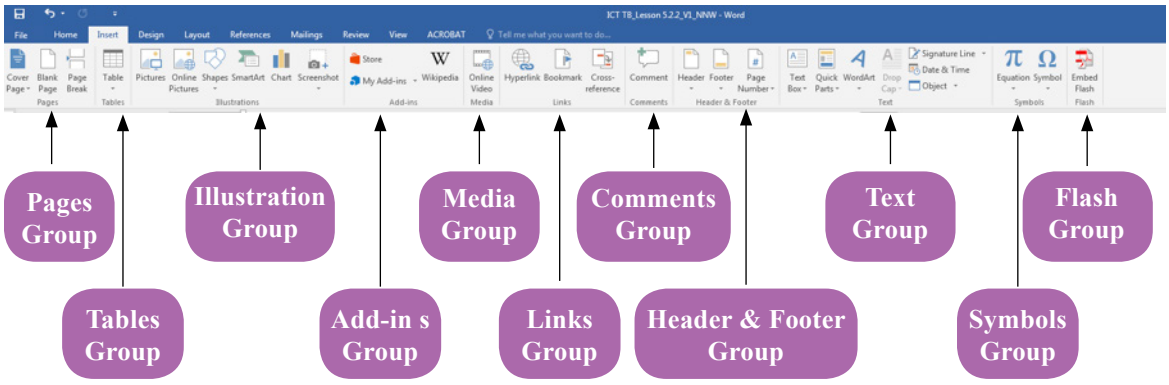


Table creating and formatting

You will be working in Insert tab to create a table.

Figure 3.22.



Creating Table [screencast link to be added]

There are three methods to create table.

Method 1

Step 1: Place the cursor where you want to insert table.

Step 2: Click drop down arrow in **table** group in **Insert** tab.

Step 3: Select number of row and column and click.

Method 2

Step 1: Place the cursor where you want to insert table.

Step 2: Click **Insert Table** in table group in insert tab. Table Dialog Box will appear in the document.

Step 3: Select **Number of columns** and **Number of rows** in Insert Table Box and click **OK**.

Method 3

Step 1: Click Draw Table in table group in insert tab.

Step 2: A pencil tool appears and draw the table, columns, rows by dragging and dropping.

Modifying Table [screencast link to be added]

A table can be modified in Design tab and Layout tab.

Figure 3.23. Groups under Design tab under Table Tools

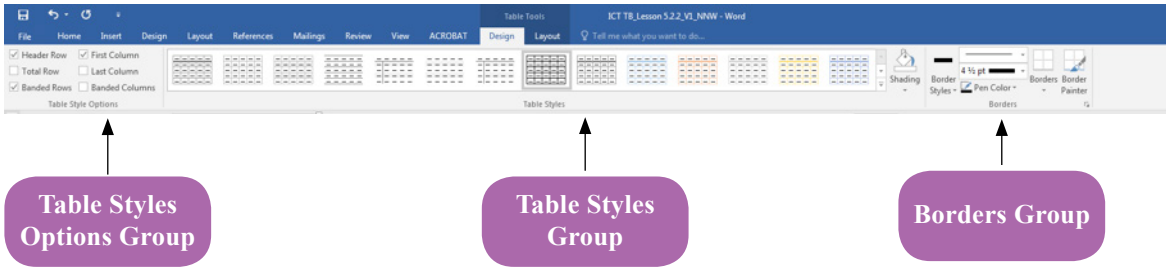
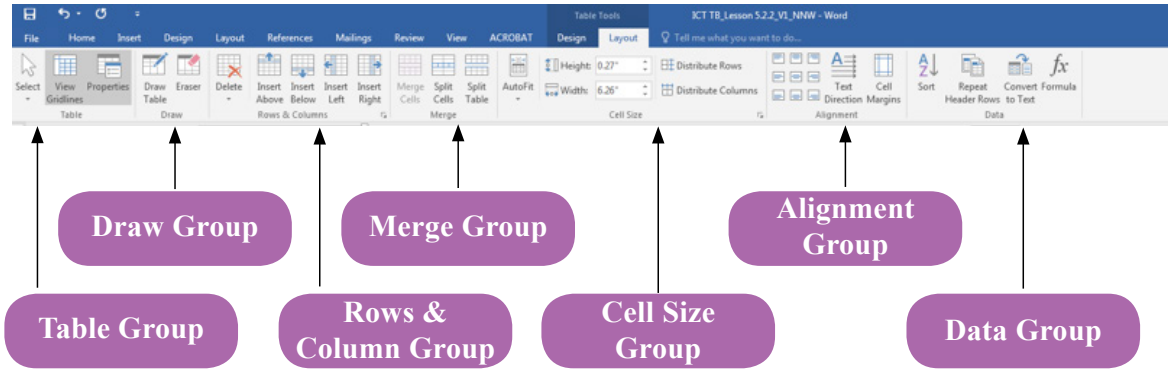


Figure 3.24. Groups under Layout tab under Table Tools



- To add more columns and rows in an existing table,

  Step 1: Place cursor in the table.

  Step 2: Select **insert above/insert below/insert left/insert right** in **rows and columns** group in **layout** tab.

  Note: you can click **Draw Table** button to draw table or **Eraser** button to delete border of table in **Draw** group in **Layout** tab.

- To delete cell, column, row, table,

  Step 1: Select (or) place cursor in cell/column/row/table you want to delete.

  Step 2: Click drop down arrow of Delete in **rows and columns** group in **Layout** tab.

  Step 3: Click **Delete Cells/Delete Columns/ Delete Rows/Delete Table.**

- To merge cells of a table,

  Step 1: Select cells you want to merge.

  Step 2: Click **Merge Cells** in Merge group in **Layout** tab.

- To Split cells of a table,

  Step 1: Place cursor

  Step 2: Click **Split Cells** in **Merge** group in **Layout** tab, set the number of rows and columns you want to split.

- To split tables,

  Step 1: Place cursor in the cell where you want to split the table.

  Step 2: Click **Split Table** in **Merge** group in **Layout** tab.

- To adjust text positions in table,

  Step 1: Select the text in table cells.

  Step 2: In **Alignment** group in **layout** tab, click Text Direction and choose your preferred alignment top **left/ top center/top right/ center left/ center/ center right/ bottom left/ bottom center/ bottom right**.

- To modify table cells,

  Step 1: Place cursor in the selected cell (or) select all cells you want to modify.

  Step 2: Click **Drop down arrow** of **Shading** button in **Design** tab and click on the color you prefer.

- To change table border style,

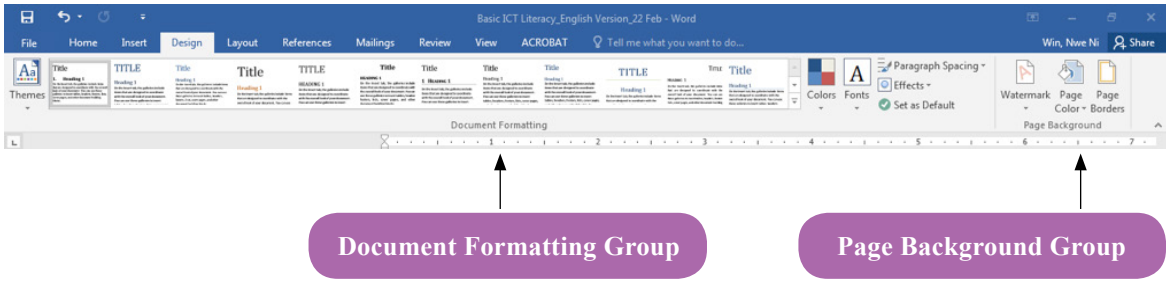
  Step 1: In Design tab, choose line style, line weight, pen color.

  Step 2: Pencil tool will appear and click on the table borders you want to change.

Document design and layout

You will learn commonly used functions for document design and layout. You will be working in Design tab and layout tab to do edit a document design and set the layout.

Figure 3.25. Design tab



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Formatting page background *[screencast link to be added]*

- To add watermark,

  Step 1: Click dropdown arrow of **Watermark** 

.

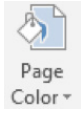
  Step 2: Click on an available watermark with text to apply immediately (or) **Click Custom Watermark** for more options and continue step 3.

  Step 3: Select the radio button of **Picture watermark** and search for picture stored in computer (or) select the radio button of **Text watermark** and type the letter you want in Text box, choose font, size, color and layout of the text.

  Step 4: Click **Apply** to confirm (or) click **Cancel** for not applying.

  Note: After applying a watermark, you can cancel by clicking **Remove Watermark.**

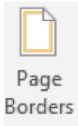
- To add page color,

  Step 1: Click dropdown arrow of **Page Color** 

.

  Step 2: Click on a color you prefer (or) click more color for More options (or) click Fill effects to add gradient, texture, pattern, and picture as page background.

- To add page borders,

  Step 1: Click **Page Border** 

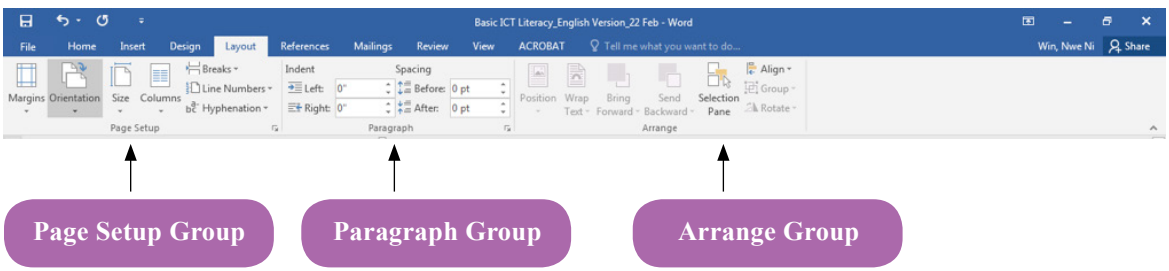
.

  Step 2: Choose border style, color, with, and art.

  Step 3: Under **Apply** to, choose where you want to apply the border in the document.

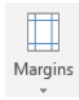
  Step 4: Click OK to confirm (or) click **Cancel** for not applying.

Figure 3.26. Layout Tab



ii) Page setup *[screencast link to be added]*

- To set page margin,

  Step 1: Click dropdown arrow of **Margins** 

.

  Step 2: Select normal (or) moderate (or) wide which are commonly used.

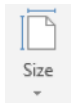
- To choose page orientation,

  Step 1: Click dropdown arrow of **Orientation** 

.

  Step 2: Choose portrait (or) landscape.

- To choose size,

  Step 1: Click dropdown arrow of **Size** 

.

  Step 2: Choose the paper size you prefer. Letter, A4 and A3 sizes are commonly used.

- To set columns,

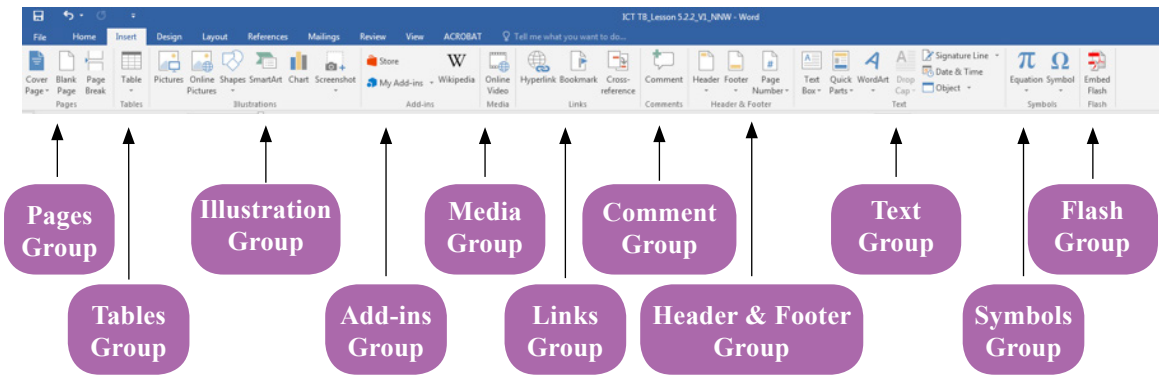
  Step 1: Click dropdown arrow of 

  Step 2: Choose the number of columns you want which are one, two, three, left right (or) click More columns for more options.

Working with graphics

You will be working in **Insert tab** to insert pictures, shapes, smartarts, charts, wordart, drop cap, symbols.

Figure 3.27.



You will be working in **Format tabs** to modify pictures, shapes, smartarts, charts, wordart, drop cap, symbols.

Figure 3.28.

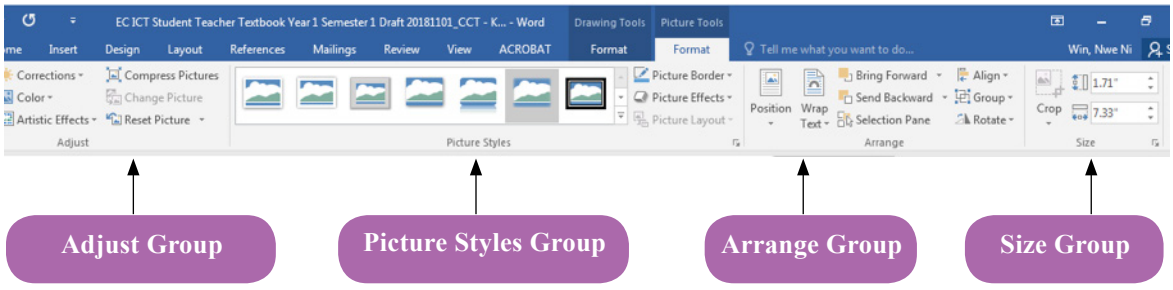
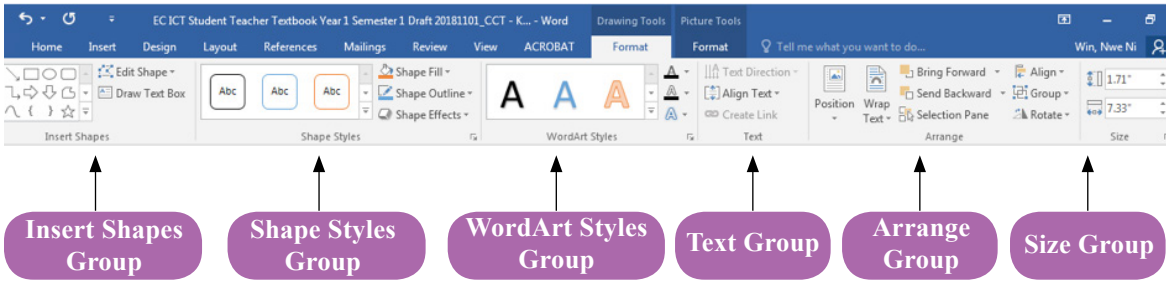


Figure 3.29.



<u>Pictures</u> *[screencast link to be added]*

- To insert picture,

  Step 1: In **Insert** tab, click **Pictures**  in **Illustrations** group.

  Step 2: Find and click on your preferred picture, click **Insert**.

- To modify picture,

  Step 1: Click on picture that you inserted in the document.

  Step 2: In **Format** tab, you can adjust picture color, remove background of picture, add effects, choose the frame, change layout, position and rearranging, crop/resize the picture.

Shapes *[screencast link to be added]*

- To draw shape,

  Step 1: In **Insert** tab, click dropdown arrow of **Shapes**  in **Illustrations** group.

  Step 2: Choose your preferred shape and draw by diagonal dragging with mouse.

  Step 3: Select the shape you draw.

- To modify shape,

  Step 1: Click on a shape that has been drawn.

  Step 2: In **Format** tab, you can insert new shapes, fill the color inside shape, choose outline style, change effects, edit the alignment of text inside shape, choose the position of shape and its arrangement, resize shape.

  (Note: some groups in Format tab to modify shape will be different from format tab to modify picture)

SmartArt *[screencast link to be added]*

- To insert smartart,

  Step 1: In **Insert** tab, click **SmartArt**  in **Illustrations** group.

  Step 2: Choose a SmartArt graphic you like and click **OK**.

- To modify smartart,

  Step 1: Click on a smartart you want to edit in the document.

  Step 2: In **Format** tab, you can modify the smartart as modifying a shape.

  Step 3: In **Design** tab, you can add more shapes, open text page to type, rearrange, choose color and layout.

Chart *[screencast link to be added]*

- To **insert** chart,

  Step 1: In **Insert** tab, click **Chart**  in **Illustrations** group.

  Step 2: Choose a chart you like and click **OK**.

  Step 3: Select the chart you inserted, you can modify its type, style, layout, color in **Design** group and **Format** group.

- To modify chart,

  Step 1: Click on the chart you inserted.

  Step 2: In **Format** tab, you can select the format of chart in **Current Selection** group and further modifications can be done.

  Step 3: In **Design** tab, you can add element of chart, change layout, change color, choose chart styles, select and edit data, change chart type.

WordArt *[screencast link to be added]*

- To apply wordart,

  Step 1: In **Insert** tab, click dropdown arrow of **WordArt**  in **Illustrations** group.

  Step 2: Choose your preferred wordart style and type the word in the textbox.

- To modify wordart,

  Step 1: Click on the text which is in wordart format.

  Step 2: You can do modification as you did to modify shape in **Format** tab.

Drop Cap *[screencast link to be added]*

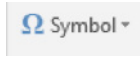
- To apply drop cap,

  Step 1: Select the word you want to apply drop cap.

  Step 2: Click dropdown arrow of **Drop Cap**  in **Text** group, and choose **Dropped** (or) **In margin**. Click **Drop Cap Options** to choose font, number of lines to drop, and distance from the text.

  Symbols *[screencast link to be added]*

- To add symbol,

  Step 1: In **Insert** tab, click dropdown arrow of **Symbol** 

in **Symbols** group.

  Step 2: Click **More Symbols** for more options.

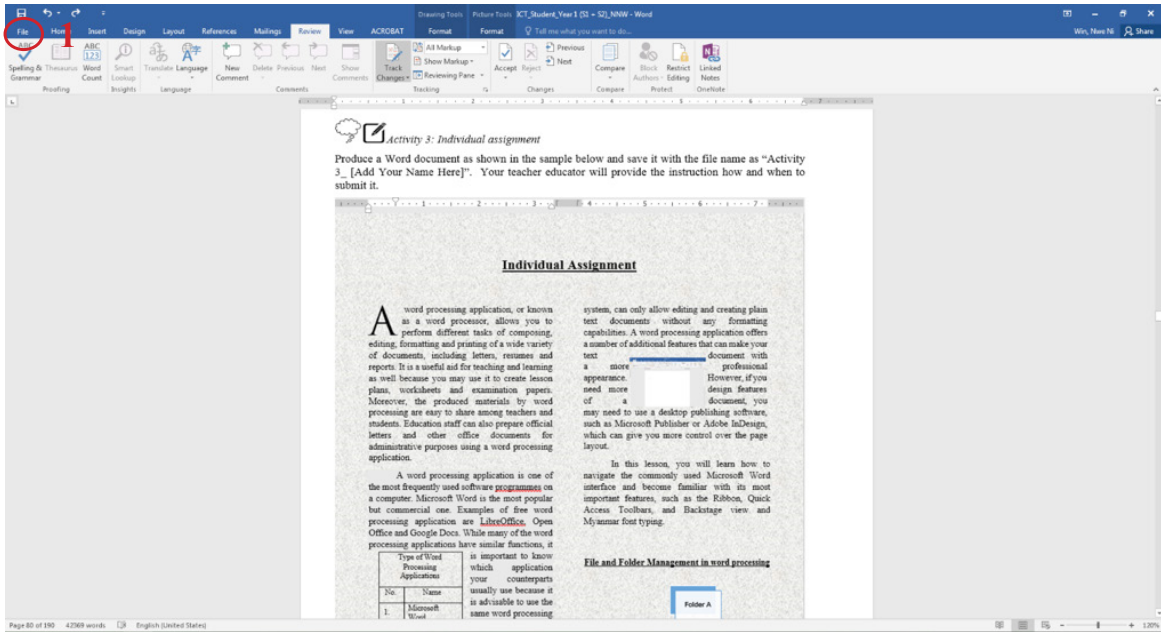
  Step 3: You can change font in **Font** box and choose an option in **Subset** box.

  Step 4: Click on the symbol you prefer and click **Insert** to confirm or **Cancel** not to add the symbol.

Printing a document *[screencast link to be added]*

Step 1. Click **File Tab**.

Figure 3.30.



Step 2. Choose '**Print**' (or) press '**Crtl+P**' in keyboard.

Step 3. Click drop down arrow under 'Printer' and choose the available printer name.

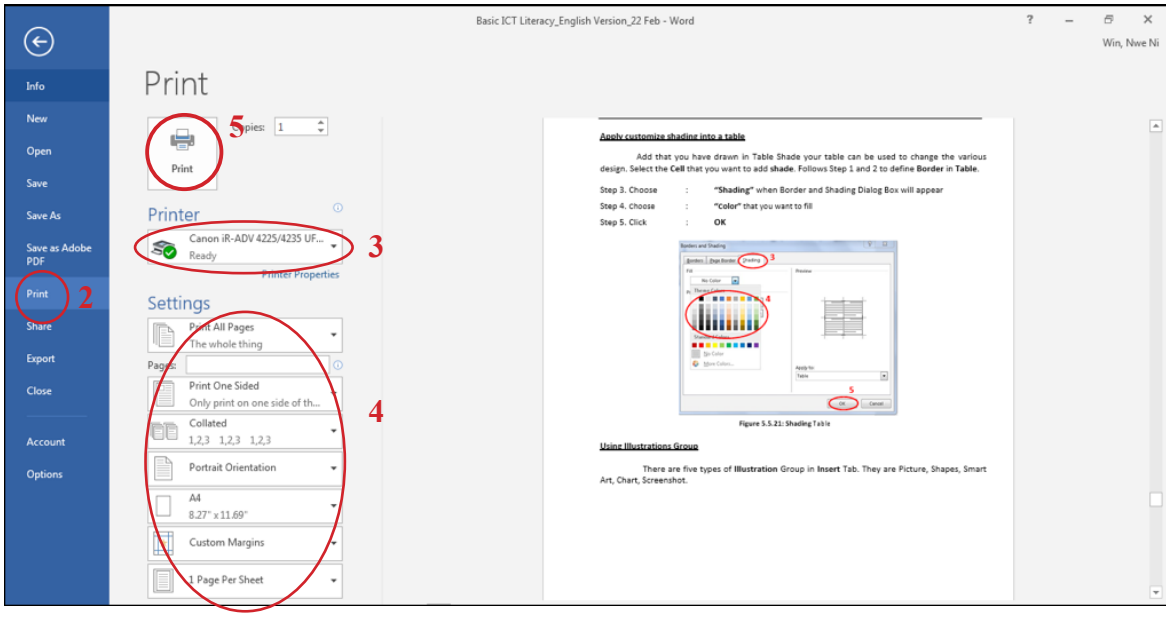
Step 4. Choose printing options under 'Settings'.

- You will see a preview of the document displayed in the right side of the window.
- Print the entire document (or) the current page (or) a range of pages.
- Print one side (or) both sides.
- Set page layout, such as page orientation, paper size, margins and number of page per subject.

Step 5. Click **Print** button 

to print the document.

Figure 3.31.



Learning activity 1

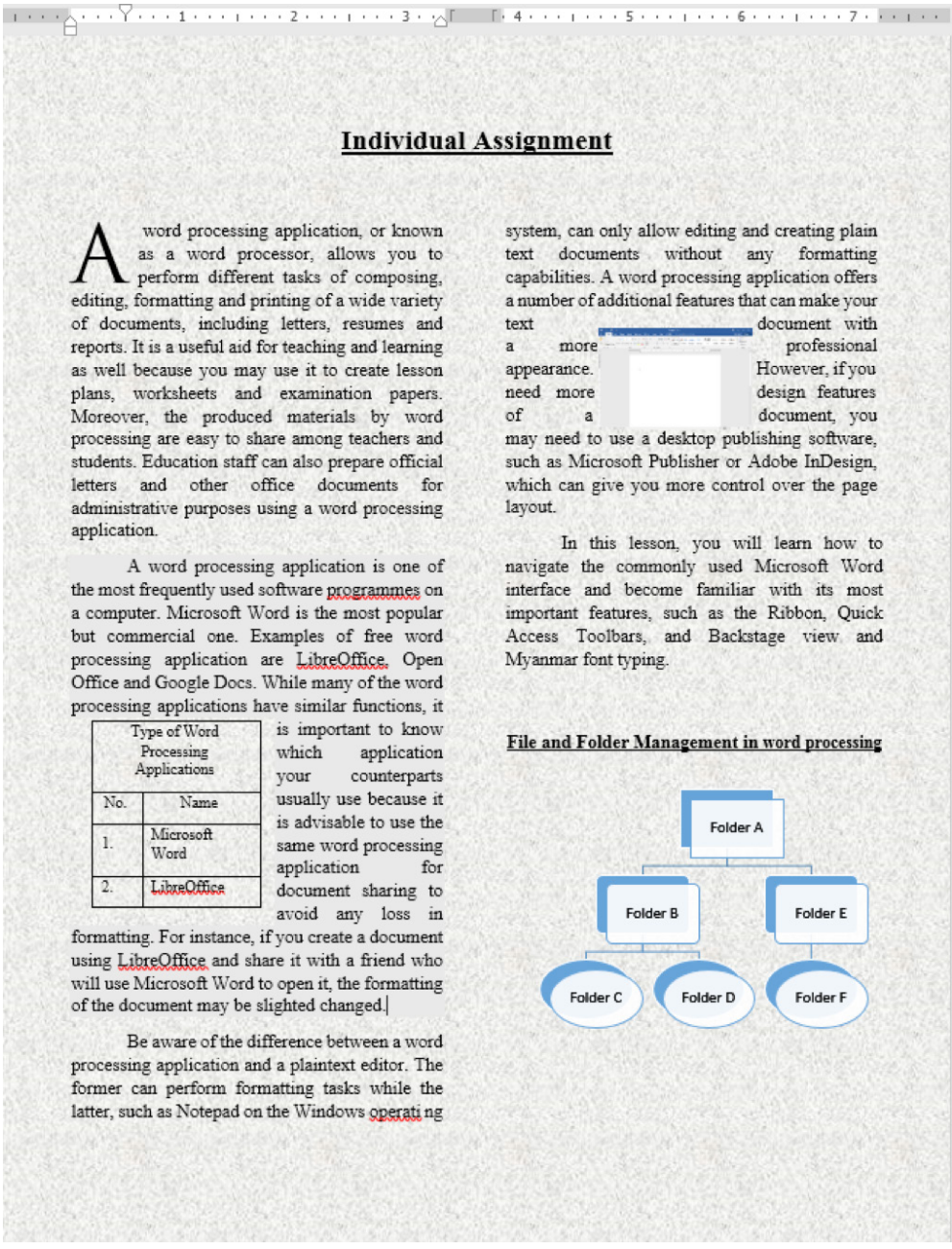
In class, discuss the difficulties found during individual practise and find the solution together with the guidance of teacher educators and print the document ('Activity 1_ [your name]') that you save during self-practice in activity 1 if a printer is available.

Common problems using Microsoft Word	*Possible solution / suggestion*

Learning activity 2

Produce a Word document as shown in the sample below and save it with the file name as 'Activity 2_ [Add Your Name Here]'. Your teacher educator will provide the instruction how and when to submit it.

Figure 3.32.



Individual Assignment

A word processing application, or known as a word processor, allows you to perform different tasks of composing, editing, formatting and printing of a wide variety of documents, including letters, resumes and reports. It is a useful aid for teaching and learning as well because you may use it to create lesson plans, worksheets and examination papers. Moreover, the produced materials by word processing are easy to share among teachers and students. Education staff can also prepare official letters and other office documents for administrative purposes using a word processing application.

A word processing application is one of the most frequently used software programmes on a computer. Microsoft Word is the most popular but commercial one. Examples of free word processing application are LibreOffice, Open Office and Google Docs. While many of the word processing applications have similar functions, it is important to know which application your counterparts usually use because it is advisable to use the same word processing application for document sharing to avoid any loss in formatting. For instance, if you create a document using LibreOffice and share it with a friend who will use Microsoft Word to open it, the formatting of the document may be slighted changed.

Type of Word Processing Applications	
No.	Name
1.	Microsoft Word
2.	LibreOffice

Be aware of the difference between a word processing application and a plaintext editor. The former can perform formatting tasks while the latter, such as Notepad on the Windows operati ng system, can only allow editing and creating plain text documents without any formatting capabilities. A word processing application offers a number of additional features that can make your text document with a more professional appearance. However, if you need more design features of a document, you may need to use a desktop publishing software, such as Microsoft Publisher or Adobe InDesign, which can give you more control over the page layout.

In this lesson, you will learn how to navigate the commonly used Microsoft Word interface and become familiar with its most important features, such as the Ribbon, Quick Access Toolbars, and Backstage view and Myanmar font typing.

File and Folder Management in word processing

3.2.3. Basic functions of word processing 3

Expected learning outcomes

By the end of the lesson, you will be able to:

- Describe and practise the basic functions of word processing such as Microsoft Word (typing in Myanmar font (Zawgyi and Unicode), page setup, saving, formatting, printing, header and footer, bullets and numbering; creating tables, inserting pictures and charts).

This lesson emphasises on extra practising all the basic functions of word processing. In the previous lessons, you have learnt how to navigate the commonly used Microsoft Word interface and become familiar with its basic functions. In this lesson, you have to revisit those features practically and apply the skills in the educational context.

Learning activity 1

Before class, do the revision and practise the tasks that you have learnt in the previous lessons about word processing in group. Please take note of the parts that you are still unclear or need clarification.

In class, discuss the difficulties found during the revision of previous lessons in your group.

Common problems using Microsoft Word	*Possible solution / suggestion*

Learning activity 2

Task 1

Create a word document following the sample below with the guidance of the teacher educator and print the document if a printer is available. Save the document as 'Lesson 3.2.3_Activity 2_Task 1_ [your name]'.

Application software

Allow users to accomplish one or more tasks. It includes:

- ✓ ***word processing;***
- ✓ ***web browsing; and***
- ✓ ***almost any other task for which you might install software.***

Some application software is pre-installed on most computer systems. Software is generally created (written) in a high-level programming language, one that is readable by people. These high-level instructions are converted into 'machine language' instructions, represented in binary code, before the hardware can 'run the code'. When you install software, it is generally already in this machine language, binary, form.

Figure 3.33.

သုံးစွဲသူများ၏ အလုပ်တစ်ခု သို့မဟုတ် အလုပ်များကို ပြီးမြောက်စေရန်ကူညီပေးသည်။ ၄င်းတွင်-

a. စာစီစာရိုက်ခြင်း၊

b. အင်တာနက်ကြည့်ရှုခြင်းနှင့်

c. အခြားလုပ်ငန်းကိစ္စများအတွက် Software များကိုသွင်းယူထားရမည်။

အချို့သော Application Software များကို ကွန်ပျူတာစနစ်နှင့်အတူ ကြိုတင်သွင်းယူထားသည်။ Software ကို ယေဘုယျအားဖြင့် လူပုဂ္ဂိုလ်များအလွယ်တကူဖတ်နိုင်သော အဆင့်မြင့် Program ရေးသားနည်း (High-Level Programming Language) ဖြင့်ရေးသားထားကြသည်။ ၄င်း (High-Level) ညွှန်ကြားချက်များမှ ကွန်ပျူတာနားလည်သည့်ဘာသာစကား (Machine Language) သို့မဟုတ် နှစ်ခုစုံသင်္ကေတ (Binary Code) အဖြစ် Hardware များလုပ်ဆောင်နိုင်ရန် ပြောင်းလဲပေးသည်။ ကွန်ပျူတာနားလည်သည့် ဘာသာစကား (Machine Language) သည် Software များသွင်းယူစဉ်ကတည်းက ပါဝင်လာသည်။

Task 2

Produce a Word document as shown in the sample below and save it with the file name as 'Lesson 3.2.3_ Activity 2_Task 2_ [Add Your Name Here]'.

Myanmar Education College **Attendance Sheet**			
အတန်း - ဘာသာရပ် - ရက်စွဲ နှင့် အတန်းချိန် -			
အမှတ်စဉ်	အမည်	ခုံအမှတ်	လက်မှတ်
၁။	မအိသဇင်ဖူး		
၂။	မောင်နေသူရိန်		
၃။	မောင်မြတ်နိုင်		
၄။	မမေသူအေး		
၅။	မသွန်းစက်နေခြည်		
၆။			
၇။			
၈။			
၉။			
၁၀။			

Task 3

Create a lesson plan template using Microsoft Word. You can make reference to the lesson plan you created for other subjects or a sample lesson plan from others in hard copy. Save the file as 'Lesson: 3.2.3._Activity 3_ [your name]'. Your teacher educator will provide the instructions on how and when to submit your assignment.

Review questions

1. Reflect on what you have learnt in the lessons under this unit and assess your understanding of the subject.

	Yes	No	Not sure
I can describe and practise the basic functions of word processing such as Microsoft Word (typing in Myanmar fonts (Zawgyi and Unicode), page setup, saving, formatting, printing, header and footer, bullets and numbering, creating tables, inserting pictures and charts).			

Unit Summary

Key messages

- In Myanmar, there are two main types of character encoding system which is commonly seen. Compared to Zawgyi, Unicode follows internationally accepted standards and is gaining its popularity in Myanmar. The latest version of Myanmar Unicode family is Pyidaungsu font.

- A word processing application, or known as a word processor, allows you to perform different tasks of composing, editing, formatting and printing of a wide variety of documents.

Unit reflection

1. How will you make good use of Myanmar font typing skill in teaching and learning?

2. How can you apply the skills of utilising a word processing application when you work as a teacher in basic education schools?

3. If you are asked to install Myanmar font into a computer, what are the steps you would take to do it?

4. How would a word processing application be useful to plan your lesson?

Further reading

3.1.

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UNESCO. (2018). Basic ICT training manual. Yangon, Myanmar: UNESCO

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Unit 4

Media and Information Literacy and Digital Citizenship[1]

In this unit, you will be introduced to the principles and basic concepts of Media and Information Literacy. You will learn the competencies that a Media and Information Literate person should have and why it is important that teachers and students are Media and Information Literate. The unit will take you through the different media and information providers and the functions and roles that they play in a democratic society.

Expected learning outcomes

By the end of this unit, you will be able to:

- Explain what Media and Information Literacy is and why it is important for a teacher (including but not limited to teaching) in primary school;
- Understand the difference between types of information providers and types of media; and
- Understand the functions of the different media and information providers and the role they play in a democratic society.

[1] During Semester 1, *4.1.1 Understanding the principles of Media and Information Literacy and 4.1.2 The roles and functions of Media and Information providers will be covered. This unit will further be covered during Semester 2.*

4.1. Media and Information Literacy

This sub-unit is divided in three different lessons. Lesson 4.1.1. provides a general overview of what is Media and Information Literacy, and the importance of it when teaching and learning about and through ICTs. Lesson 4.1.2. aims at explaining the different roles that the media and the information providers play in our society. Lesson 4.1.3. is devoted to one specific type of media, News Media, and its importance in democratic societies.

4.1.1. Understanding the principles of Media and Information Literacy

Expected learning outcomes

By the end of the lesson, you will be able to:

- Explain what Media and Information Literacy is and why it is important for a teacher (including but not limited to teaching) in primary school.

Why do we need Media and Information Literacy?

In the 21st century, the exposure and the multi-media content that the public has to access and information is not only due to the growing number of information providers but also due to media platforms. The evolution of ICTs such as smartphones and the rapid expansion of internet access globally are affecting the ways in which media and information are consumed and shared.

The society in which we live today is driven by information and knowledge. The decisions we make every day, what we know about what is currently happening in our country or what we know about other countries and different cultures around the world, are based on the information that we access and receive everyday through internet, newspapers, television, radio, movies and books.

A new form of literacy affecting our lives

Traditional literacy, understood as the ability to learn reading, writing and numeracy, is no longer sufficient to participate and succeed throughout all stages of life. The growth of information providers and media, the rapid development of ICTs and the bigger presence they have in our daily activities, play a determinant role in our personal, social, economic and political lives.

Media and information affect our personal and social life in many ways. A simple example is that we buy our clothes, and we change our style based on the newest trends in fashion that we see on TV and movies. To a great extent, we also learn gender roles influenced by how men and women are portrayed in magazines, TV series or films.

As for the economic life, we might decide when to request a loan from the bank or make an investment based on the news we read on how the economy in our country is performing. When it comes to political life, we might decide which political party or which politician we are going to vote in the next elections based on what we learn about them through the news published in the newspapers or TV; or we build an opinion around certain government programme based on the news we read or watch.

The amount of information and media content that is being created, shared and consumed every day is greater than ever before. Therefore, it is important to acquire a new set of competencies (knowledge, skills and attitudes) that allow citizens to consume, share and produce information in a critical and effective way. This is why Media and Information Literacy (MIL) is important to teaching and learning processes.

Basic principles and notions of Media and Information Literacy

MIL is defined as a set of competencies that empower citizens to access, retrieve, understand, evaluate and use, create as well as share information and media content in all formats, using various tools, in a critical, ethical and effective way in order to participate and engage in personal, professional and societal activities. (UNESCO, Global Media and Information Literacy Assessment Framework: Country Readiness and Competencies, 2013).

It is important to note that MIL is a combination of two concepts, **Information Literacy** and **Media Literacy**, and each concept refers to a specific set of knowledge, attitudes and skills.

Information Literacy puts the focus on accessing information, evaluation and ethical use of that information. Media Literacy refers to the ability to understand the functions and roles that media play in society, evaluate the performance of those functions and, based on that, engage with media in a critical way for the purpose of self-expression.

In the chart below, you can see the different components of each type of literacy:

Figure 4.1. Components of information literacy and media literacy

For information literacy:

For media literacy:

The combination of both concepts, Media and Information Literacy, includes three different processes:

1. Accessing information and media content: The first step in MIL refers to the ability to search, access and retrieve information and media content. To access the information needed for day-to-day decision making, problem solving, participation in society and learning, it is indispensable to be able to articulate what is the specific information needed. Based on those information needs, it will be possible to locate and access effectively relevant information, and discard the content that is irrelevant or/and inadequate;

2. Evaluation of information and media content: The second step refers to the ability to understand, critically evaluate and analyse the information that has been accessed and retrieved. The information is evaluated based on its credibility (is this information credible? Real?), authority (does it come from a credible source) and purpose (what is this information or media content needed for?). Finally, the content that has been accessed and evaluated, is ready to be used or applied; and

3. Production, sharing and use of media content and information: The last step in MIL is about producing information and media content and sharing it with others for educational purposes, self-expression and/or democratic participation. This last step in MIL includes in one hand the necessary ICT skills to process information (photography, recording, video and audio editing, and so on) to produce content and on the other hand, the ability to communicate the user-generated content in an ethical and responsible way in the format and medium that is most appropriate for the intended audience.

The three processes are interrelated with one another and each of them requires distinct skills and knowledge. In order to engage with media and use information providers such as libraries, archives, and so on, it is essential to understand what their functions are, what their purpose is and what role they play in our society in the light of **Freedom of Expression** and **Right to Information**.

Nowadays, a vast majority of media content, including newspapers or TV/radio content is consumed through ICTs (such as smartphones, tablets or laptops). In some contexts, Digital Literacy or ICT Literacy is also included under the umbrella concept of Media and Information Literacy.

Why teachers need to be Media and Information Literate

Teachers often use different information and media texts in the classroom to better present or/and illustrate concepts, ideas and events and support the learning process of students. Therefore, teachers must understand how media and information might be utilised in the school curriculum. Teachers have to be able to critically assess media content and information sources in the light of the functions attributed to news media and other information providers. This will allow them to select the most appropriate materials from media and information resources to be used in the classroom.

To maximise the existing information and media content for its use in the classroom, MIL provides teachers with enhanced knowledge of the whole range of media and other information providers that are available to them, from libraries and print newspapers to the newest social media platforms or the internet.

Media and Information Literate teachers will lead to Media and Information Literate students. Critical thinking and problem-solving skills acquired by teachers through MIL will be effectively transferred to students across the different subjects in the curriculum. If teachers know and understand the core concepts, tools of enquiry and structures of MIL, they will be able to create learning experiences that are meaningful for students and prepare them for their role as citizens.

With the application of media and information resources, MIL also enables teachers' life-long learning and professional development. MIL provides teachers with the necessary skills to use media and technology to locate and access information, resources and tools that will support them in acquiring new subject matter and pedagogical knowledge in support of their own professional development.

Learning activity 1

Think about how often and for which purpose you engage with information providers and the media in your day-to-day life.

In the table below,

1. List the types of media or/and information providers that you engaged with during the last week;
2. Estimate the overall time that you spent interacting with them during the last week; and
3. Describe the reason(s) why you interacted or accessed those types of media and/or information providers.

Type of Media or Information Provider	*Number of hours spent in one week*	*Purpose for interaction*

Learning activity 2

In groups, choose a topic about something that has recently happened in your township or city. It can be a festival, an event organised by the government or the community, and so on. you can get inspiration from the news.

You are planning to gather information and process it to present and explain that event to your class. For that purpose, answer the following questions:

1. Why do I need that information?

2. Where am I going to search for that information/media content?

3. How do I retrieve and store the information/media content?

4. How do I know if the information/media content I collected and retrieved is of good quality, accurate and truthful?

5. How shall I apply the new knowledge?

6. What media shall I use to communicate the information/knowledge/media content?

Learning activity 3

Now, you know the basic principles of MIL which strengthen the ability to access, evaluate and produce information and media content. Explain in your own words why MIL is important for you when you become a primary school teacher after graduation. Your explanation should be between half page and one page long.

4.1.2. The roles and functions of Media and Information providers

Expected learning outcomes

By the end of the lesson, you will be able to:

- Understand the difference between types of information providers and types of media; and
- Understand the functions of the different media and information providers and the role they play in a democratic society.

What are the media and what are their functions?

Information is anything that informs. It can be defined as data, facts, experiences or knowledge that has been processed to be presented in a way that can be used and applied for a certain purpose. The media are one way through which the information and knowledge is communicated to the public.

Media has evolved through the years. Media was born with the development of written languages. The possibility or recording information in written form, allowed humanity to communicate information and knowledge. With time, it evolved into print media (books, newspapers, magazines, and so on.) thanks to the revolutionary invention of the printing press in 1439 by Johannes Gutenberg. The evolution of the media happened hand in hand with the development of technologies. In the 20th century new technological advancements allowed recording sound and image, and new media forms appeared: Cinema, Television and Radio.

Media can also be defined by the format in which the information is packaged and communicated: Print Media (newspapers, books, magazines, comic books), Audiovisual Media (movies, photographs, radio, audio recordings) and Digital Media (blogs, social media like facebook or youtube, videogames). Nevertheless, it is important to note that many media can contain other types of media texts. For example, we can find photos in a newspaper or we can watch videos or listen to audios on social media, and so on.

It is important to note that in this lesson we talk about media and information providers because media are just one way to communicate information and knowledge. There are also other non-media information providers where the public can access and search information from, such as libraries, archives, museums or the internet.

General roles of the media and information providers

To be able to access, evaluate and use/produce/share information and media content, it is critical that the public understand the different roles that the media and information providers play. The general roles that the media and information providers play are listed below:

- Inform;
- Educate;
- Facilitate teaching and learning processes;
- Provide access to all types of information;
- Promote universal values and civil rights, such as freedom of expression and information;
- Serve as society's collective memory;
- Gather information;
- Preserve cultural heritage; and
- Entertain.

As part of MIL, we pay special attention to one specific type of media, News Media. For the purpose of this subject, the news media is defined as sources of credible and current information created through an editorial process determined by **journalistic values**. These media play several roles beyond just communicating information and knowledge.

It is important to note, that one media can play more than one role from the list above. For example, a TV documentary about wildlife can Inform, Educate and can also Entertain. On the other hand, we can also find the media which only fulfill one role. For example, a comedy film only seeks to Entertain the audiences.

The roles of news media include the following:

- Act as channels of information and knowledge through which citizens communicate with each other and make informed decisions;
- Facilitate informed debate between diverse social actors;
- Provide us with much of what we learn about the world beyond our immediate experience;
- Are means by which a society learns about itself and builds a sense of community;
- Function as a watchdog of the government in all its forms, promoting transparency and public scrutiny of those with power through exposing corruption, maladministration and corporate wrong-doing;
- Are essential facilitators of democratic processes and one of the guarantors of free and fair elections;
- Are a vehicle for cultural expression and cultural cohesion within and between nations; and
- Function as an advocate and social actor in its own right while respecting pluralistic values.

The growth of media and especially the rapid expansion of the internet has extremely widened the information and media material, content and resources available. The reliability, accuracy and value of that information, can range from very good quality to very bad quality, or even harmful. It is, therefore, important that the people understand the roles of information providers and the media, so that they can effectively engage with the media and search, access, evaluate and use the information they need.

Learning activity 1

Think about what practices you usually do that makes you a Media and Information Literate person by answering the following questions.

1. Do you double-check with other media the news you read in facebook?
2. Do you check different information sources to ensure the quality of the information you have located before using it?
3. Do you share information (posts in facebook, a message received through viber, an article or video found online) before verifying it is true or false?

Learning activity 2

Work in groups to search online two to three resources or media content that are examples of the functions listed below. Please note that one example/media/information provider might fulfill more than one role.

1. Inform
2. Educate
3. Facilitate teaching and learning processes
4. Provide access to all types of information
5. Promote universal values and civil rights, such as freedom of expression and information
6. Serve as society's collective memory
7. Gather information
8. Preserve cultural heritage
9. Entertain

Learning activity 2

In each of the examples provided below, identify which role or roles is the news media playing in each case. Note that some of the examples can fulfill more than one role of the media.

A. An investigative report published in a daily newspaper about a Minister that has been giving multi-million contracts to companies owned by members of his family.
B. A foreign company will be building a production plant in the bank of the Ayeyarwaddy river, near a village where most of the population are farmers and fisherfolk. In the news, they have interviewed the owners of the plant who talk about the new jobs that they will create when they build the plant. Local farmers have been also talking on TV, complaining that the waste produced by the plant will pollute the water and the soil, and no vegetables will grow there anymore, making it

impossible for them to live from farming. The protests staged by environmentalists have been also covered by the news, they claim that the pollution of the plant will destroy the ecosystem of the region. In a press conference, the government assures the local population that the plant will not affect their livelihoods and will bring great wealth to the region.
C. In the lead up to the general elections, a TV channel will be broadcasting a debate between the Chairs of the two main political parties. In the TV programme, both leaders will present their electoral programmes. In the elections day, journalists and TV crews will be at the poll stations to report any incidents that might happen during the election day, and make sure that the guidelines issued by the Election Commission are strictly followed.
D. A TV documentary series about the culture and customs of the different ethnic groups that co-exist in Myanmar.
E. A feature story in a newspaper that denounces the high number of incidents of gender-based violence that rural women suffer and the lack of policies and mechanisms to address the issue.

Roles and functions of the news media:

1. Act as channels of information and knowledge through which citizens communicate with each other and make informed decisions.

2. Facilitate informed debated between diverse social actors.

3. Provide us with much of what we learn about the world beyond our immediate experience.

4. Are means by which a society learns about itself and builds a sense of community.

5. Function as a watchdog of government in all its forms, promoting transparency and public scrutiny of those with power through exposing corruption, maladministration and corporate wrong-doing.

6. Are essential facilitators of democratic processes and one of the guarantors of free and fair elections.

7. Are a vehicle for cultural expression and cultural cohesion within and between nations.

8. Function as an advocate and social actor in its own right while respecting pluralistic values.

Review questions

1. Reflect on what you have learnt in the lessons under this unit, and assess your understanding of the subject.

	Yes	No	Not sure
Lesson 4.1.1.			
I can explain what Media and Information Literacy is and why it is important for a teacher (including but not limited to teaching) in primary school.			
Lesson 4.1.2.			
I understand the difference between types of information providers and types of media.			
I understand the functions of the different media and information providers and the role they play in a democracy.			

2. Media and Information Literacy is important for a teacher in primary school. Please give examples why it is important.

3. What are the differences between types of information providers and types of media?

4. What are the roles media and information providers play in Myanmar?

Further reading

4.1.

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Glossary

Terms	Elaborations
Arithmetic Logic Unit (ALU)	The part within a Central Processing Unit which carries out arithmetic operations like addition, subtraction, multiplication and division and other logical actions such as AND and OR functions and operates on data available in the main memory and send them back after processing
Artificial Intelligence (AI)	A computer system that stimulates human intelligence process which include learning, reasoning and interacting.
Asynchronous	Something not occurring at the same time or delay between two or more points. For example, in asynchronous conferencing, there is a delay in interaction between participants.
CD-ROM	An adaptation of the CD that is designed to store computer data in the form of data(text, graphics and so on). Its full name is Compact Disc, read-only-memory.
Central Processing Unit (CPU)	The main part of a computer in which all processing is carried out and which controls the activities of the whole computer configuration
Control Unit	The part which directs all operations inside a computer and can be known as the heart of the computer because it controls and coordinates all hardware operations including the Central Processing Unit, input and output devices
Conferencing	Two or more peoples have simultaneous conversation using Internet, it is called conferencing. When this process is adding video streaming technology, it is called video conferencing.
Copyright	A set of rights granted to the author or creator of a work to restrict others' ability to copy, redistribute and reshape the content. Rights are frequently owned by the companies who sponsor the work rather than the creators themselves, and can be bought and sold on the market.

Terms	Elaborations
Democracy	A system of government where the people have final authority which they exercise directly or indirectly through their elected agents chosen in a free electoral system. It also implies freedom to exercise choice over decisions affecting the life of the individual and the protection of fundamental rights and freedoms. In this context, independent media and free access to information are fundamental to the pursuit of democracy and freedom in the whole world.
Digital	The electronic technology using two electronic states: ON and OFF expressed in Digits (ON = 1 and OFF = 0), to generate, store and process data. In computer system, the information is stored in the form of a string of 0s and 1s, and each digit is referred to as a bit.
DVD	A digital optical disc storage format which can store computer data with higher capacity than a compact disc (CD), while having the same dimensions.
File	The digital version of resource or data stored in computer system.
Flash drive	A data storage device which is also called thumb drive, pen drive or flash stick. It is typically removable, rewritable and much smaller than an optical disk.
Folder	The cataloging structure of a directory in a file system which can put files inside.
Freedom of Expression	A fundamental human right. It is used to indicate not only the freedom of verbal speech but any act of seeking, receiving and delivering information.
Graphical User Interface (GUI)	A feature which allows users to interact with the system and applications through graphical icons instead of text-based user interfaces.
Hard Disk Drive (HDD)	An electromechanical data storage device which use magnetic storage technology to store and retrieve digital information.

Terms	Elaborations
Information Literacy	Focuses on the purposes of engaging with information and the process of becoming informed. It is associated with the concepts of learning and making decisions through its emphasis on defining needs and problems, relevant information and using it critically and responsibly (ethically).
Input device	Any device that enters information into a computer from an external source
Internet	The most well-known and the largest network linking hundreds of thousands of individual smaller networks all over the world.
Joystick	A cursor control device used in computer games and assistive technology, being a hand-held lever that pivots on one end and transmits its coordinates to a computer
Local Area Network (LAN)	A network of computers that interconnect within a limited area.
Media	Physical objects used to communicate, or mass communication through physical objects such as radio, television, computers, films, etc. It also refers to a physical object used to communicate media messages. Media are a source of credible information in which contents are provided through an editorial process determined by journalistic values and therefore, editorial accountability can be attributed to an organisation or person. In more recent years, the term media is often used to include new online media. Media are channels of information and education through which citizens can communicate with each other and disseminate stories, ideas and information, they are also vehicles for cultural expression and cultural cohesion within and between nations.
Media Literacy	The ability to read, analyze, evaluate and produce communication in a variety of media forms (e.g. television, print, radio, computers, etc.)
Memory	The part in a computer to store information which can be recalled and accessed when required

Terms	Elaborations
Metropolitan Area Network (MAN)	A network that interconnect computer resources in a geographic area or region larger than that covered by LAN.
Modem	A conversion device which converts signals from one device into signals another device can read. Its full name is modulator demodulator. For example, a modem may covert the digital data of a computer into an analog signal that can be read and carried by a telephone line.
Operating System	The system software which operate hardware and act as the platform for end-users' application software.
Optical character recognition	A device which reads printed or written text characters and then translates the character image into commonly used character codes for data processing.
Output device	Any device that translates the computer output into a form that human beings can understand.
Processing device	Any electronic devices that process or transform provided information as an input to output.
Right to information	The right of citizens to access information held by public bodies (Government, parliament, military, etc.)
Solid-state Storage Drive (SSD)	A data storage device which uses integrated circuit assemblies as memory to store data persistently. SSDs are more resistant to physical shock, lower latency, faster access time but more expensive than HHDs.
Voice recognition	A device which enables the translation of spoken language into text
Wide Area Network (WAN)	The computer network which is also called telecommunications network. The Internet may be considered a WAN.

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The Government of the Republic of the Union of Myanmar
Ministry of Education