

# Information and Computer Studies for Secondary Schools

Student's Book  
Form Four



Tanzania Institute of Education



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# Information and Computer Studies for Secondary Schools

Student's Book  
Form Four

THE UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION,  
SCIENCE AND TECHNOLOGY

*Certificate of Approval*

No. 725

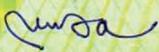
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Dr Lyabwene M. Mtahabwa  
Commissioner for Education

Tanzania Institute of Education

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Tanzania Institute of Education

P.o. Box 35094

Dar es Salaam, Tanzania

Mobile numbers: +255 735 041 170 / +255 735 041 168

E-mail: [director.general@tie.go.tz](mailto:director.general@tie.go.tz)

Website: [www.tie.go.tz](http://www.tie.go.tz)

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## Acronyms and Abbreviations

<b>AIDS</b>	Acquired Immuno Deficiency Syndrome
<b>AVI</b>	Audio Video Interleave
<b>CD</b>	Compact Disk
<b>DTP</b>	Desktop Publishing
<b>DVD</b>	Digital Versatile Disc
<b>EWS</b>	Extrem Wide Shot
<b>FLV</b>	Flash Video Format
<b>GB</b>	Gigabyte
<b>HIV</b>	Human Immunodeficiency Virus
<b>HTML</b>	Hypertext Markup Language
<b>ICT</b>	Information and Communication Technology
<b>LED</b>	Light Emitting Diode
<b>LCD</b>	Liquid Crystal Display
<b>MPEG-2</b>	Motion Pictures Experts Group -2
<b>MPEG-4</b>	Motion Pictures Experts Group -4
<b>MP3</b>	MPEG-2 - Audio layer 3
<b>MU</b>	Mzumbe University
<b>OUT</b>	The Open University of Tanzania
<b>PC</b>	Personal Computer
<b>PhET</b>	Physics Education Technology
<b>RAM</b>	Random Access Memory
<b>RTF</b>	Rich Text Format
<b>SATA</b>	Serial Advanced Technology Attachment
<b>SSD</b>	Sold State Drive
<b>SUZA</b>	State University of Zanzibar
<b>TIE</b>	Tanzania Institute of Education
<b>UDOM</b>	University of Dodoma
<b>UDSM</b>	University of Dar es Salaam
<b>URL</b>	Uniform Resource Locator
<b>USA</b>	United States of America
<b>WAV</b>	Waveform Audio File
<b>WMV</b>	Windows Media Video

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**Writers:** Dr Leonard Binamungu (UDSM), Dr Hashimu Uledi (UDSM), Dr Almasi Maguya (MU), Philibert Komba (UDOM), Nchahoruri Francis Joel (TIE), Phorosia Makhanda (TIE), and Watson Mtewele (TIE).

**Editors:** Dr Leonard Binamungu (UDSM), Dr Edephonce Ngerera Nfuka (OUT), Dr Tupokigwe Isagah (MU), Mwanajuma Suleiman Mgeni (SUZA), and Nchahoruri Francis Joel (TIE).

**Designer:** Katalambula Faraji Hussein

**Illustrators:** Nchahoruri Francis Joel (TIE) and Alama Art and Media

**Coordinator:** Nchahoruri Francis Joel (TIE)

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Dr Aneth A. Komba  
Director General  
Tanzania Institute of Education

## Preface

This textbook, *Information and Computer Studies* for Secondary Schools Student's Book Form Four, is written specifically for form four students in the United Republic of Tanzania. It is written in accordance with the 2005 Information and Computer Studies Syllabus for Secondary Schools, Form I-IV issued by the then Ministry of Education and Culture. The book consists of five chapters, which are: Presentation, Using presentation software, Using desktop publishing software, Multimedia, and Interactive content. In addition to textual descriptions, each chapter contains illustrations, activities, and exercises. You are encouraged to do all activities and exercises in this book, and other assignments provided by your teacher. This will enable you to develop the intended competencies.

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# Chapter

# 01

## Presentation

### Introduction

*Individuals whose regular jobs require conveying messages to different audiences face challenges in communicating their ideas. For example, they must think about where to start and end, what to include and not include in their communication, or what will be the response of their audiences. In this chapter, you will learn about the concept of presentation, qualities of a good presentation, qualities of a good presenter, and how to prepare and deliver a presentation. The competencies developed will enable you to plan, design and present any idea or message in a manner that engages and enriches your audience.*

### The concept of presentation

Presentation refers to a means of communication that can be used in various contexts such as speaking in front of a group of people, addressing a meeting, or briefing a team. During presentation, the presenter conveys a message to the audience and in most cases, persuades them to pay attention to the topic being presented. The following are examples of contexts in which you will need to find the best way of explaining and convincing the audience through a good presentation: introducing a new idea, product, service, or piece of work; disseminating or sharing knowledge and skills about something; and giving instructions to an audience.

Therefore, presenting is an act of addressing an audience to share ideas or information. It is a general term that can also refer to other forms of dialogue such as making a speech at a wedding, getting a point across in a video conference, or simply expressing yourself to others. Common areas where presentation skills are applicable include schools and workplaces. You are likely to use presentation skills when demonstrating a class assignment to your teacher, addressing a religious gathering, and in addressing entrepreneurship meetings and business forums.

## Art and skills of presentation

Presentation is said to be both an art and a science. Therefore, as a science, there are principles that you need to observe to deliver a good presentation. Also, as an art, there are principles you need to follow as part of a presentation. Good presenters use their presentation skills to convey a message to an audience. They look smart; use presentation tools; use gestures such as eye contact, facial expression, and posture; stay in a position that is easily noticeable by the audience; and uses moderate voice tone and volume. Qualities of a good presenter are described next.

**Appearance:** While presenting, make sure that you look smart and dress according to the nature of the presentation. For example, if you are giving an official presentation, make sure that you dress formally.

**Eye contact:** While presenting, make sure you maintain eye contact with your audience as much as possible. This will help you to regulate the flow of communication and control the senses of your audience. Maintaining eye contact enables a presenter to easily communicate with the audience and allows a presenter to convey interest, concern, warmth, and credibility to the audience.

**Facial expressions:** A facial expression such as smiling is a powerful act that shows happiness, friendliness, warmth, and liking. Smiling is often catching and can cause others to react favourably. A smiling presenter makes the audience more comfortable during the presentation, which help the audience to concentrate on what is being presented.

**Posture:** The way you position yourself while giving a presentation matters a lot. You should not stand still; you should rather talk and move. Standing straight and leaning forward communicates that you are approachable, receptive, and friendly.

**Proximity:** Proximity to an audience enables the presenter to make better eye contact and increases the opportunities for the audience to speak. If possible, avoid congested rooms.

**Voice projection and tone:** You should make sure that your voice is heard clearly. That means you should project your voice in a manner that the audience can hear you well. In doing so, your voice should also be moderate (not too high, and not too low). Speaking in a monotone voice should generally be avoided.

## Preparing presentations

When preparing a presentation, you should consider the context of your presentation, your personality as a presenter, the characteristics of your audience,

the message you want to convey to the audience, the method of delivery, and possible impediments.

**Context:** You should ask yourself about when and where the presentation will be delivered. Familiarize yourself with the settings related to the presentation and ask yourself whether the settings are formal or informal, the size of the audience, whether it is a small group or a crowd, and the expectations of the audience. Asking yourself these questions will enable you to put your presentation in context.

**Presenter:** Your role is to communicate with the audience and influence how the presentation goes. Therefore, you should get prepared technically, socially, morally, and emotionally.

**Audience:** You should try as much as you can to understand your audience: their level of understanding, their experience, knowledge, and their values. It is also important to know their expectations from your presentation.

**Message:** A message is the information you intend to pass on to your audience. It should be convincing, expressed in a simple language, and relevant to your audience.

**Method of delivery:** This refers to how the presentation is delivered. It can be face-to-face, from a distance over the TV, radio or over the Internet using video conferencing systems such as Zoom. You should observe all the necessary setup requirements for the delivery mode of your choice.

**Impediments:** These are factors which may hinder the effectiveness of the presentation. A presentation can be affected by factors such as power blackouts, noise, and weather conditions. Therefore, you should plan how you will deal with impediments if they occur. The following precautions may help to mitigate some impediments.

1. You may need a standby generator if there is a possibility of power outage. Likewise, if you are planning to present electronically, you may prepare handouts beside your presentation.
2. Prefer an auditorium (presentation hall) that is likely free from noise.

### Steps in preparing and giving a presentation

A good presentation typically involves four steps: planning, creating the presentation, practising, and presenting.

**Planning:** A good presentation requires planning of what is going to be presented. A presentation is not about how much the presenter can present, but how much the audience can understand. It is important to organize the information into three to five points in a slide, because most audiences can easily recall only three to five points.

**Creating a presentation:** At this point, you prepare materials to be presented and organise them for presentation before the audience. If your presentation is non-electronic, you must have your visual aids ready, whereas if you are using electronic means, you should prepare your slides using a presentation software.

**Practising:** At this point, you figure out words and expressions to use during the presentation and work out the timing of different sections and an overall presentation flow. In addition to these aspects, you should record the presentation and review it for improvement. Likewise, consider using different coloured highlighters to remind yourself when to pause or emphasize a particular point. Also, practice in front of peers and get feedback on how you are presenting. Recall that the more you practice, the more comfortable and confident you will become with the materials during the actual presentation.

**Presenting:** As a presenter, you should make the audience feel comfortable and engaged with the presentation. Among other things, you should maintain eye contact; not read your slides word to word, only look at them briefly; be enthusiastic about the topic; and maintain a welcoming facial expression. Also, use repetition. Listening is much different from reading. In reading, the audience can usually go back and read about something they have missed or did not understand. However, in listening, it is not always possible to go back and read what has been missed or not understood. Use repetition through internal summaries, transitions, analogies, and stories.

### Parts of a presentation

A good presentation is organised in three parts: introduction, body, and conclusion.

**Introduction:** In most cases, an audience pay more attention to a topic which they perceive to be important. Therefore, after introducing yourself, before starting the presentation, provide a brief outline of the major points you will cover in your presentation, relate the topic to the audience, and explain why it is important for them to learn about the topic.

**Body:** This is the core part of your presentation. To make your presentation effective, you need to explain the key points by giving clear explanations and providing enough examples. Also, use slide movements between sections of the

presentation as well as between points in a particular section. To ensure clarity, it is important to maintain a good flow of your presentation content.

**Conclusion:** When you approach the end of your presentation, you need to give a signal to your audience using transitions such as ‘*I am now approaching the end of my presentation*’, or ‘*As a final point, I would like to...*’. In the conclusion part, you summarize your main points, and tell your audience about the next course of action, if needed. Finish by thanking the audience for listening, and welcome questions/comments from them.

## Exercise

### 1.1

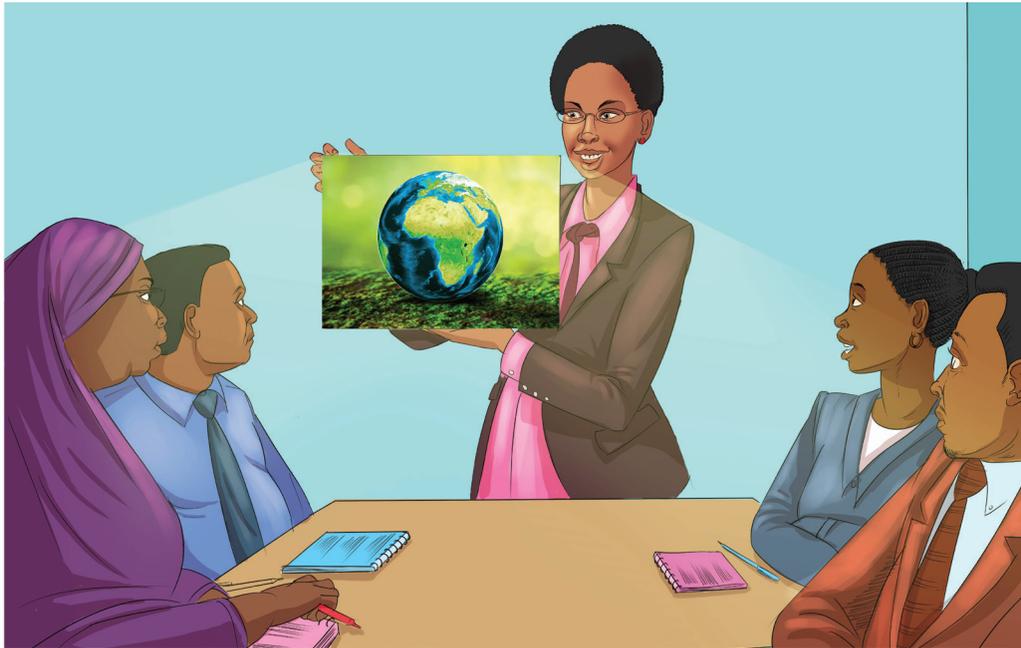
1. What do you understand by the term presentation?
2. Why are presentations important?
3. Describe parts of a good presentation.
4. Why do you think it is important to understand the qualities of a good presenter?

## Presentation delivery modes

Presentation delivery mode refers to the method by which the content is conveyed from a sender to a recipient. In this context, presentation delivery mode is the way the presenter uses media to convey his/her message to an audience. There are two main presentation delivery modes: *non-electronic mode* and *electronic mode*.

### Non-electronic presentation delivery mode

A non-electronic presentation delivery mode uses non-electronic aid materials such as large printed charts, whiteboards, flipcharts, pointers, handouts, cards, photos, books, podiums, posters, blackboards, chalks, marker pens, sketchbooks, and drawing sheets. This mode is also called traditional mode. In this presentation mode, physical objects such as various apparatuses, finished products and models of physical objects like the globe (earth) can be used. In non-electronic delivery mode, a presentation is given without using any electronic devices such as computers, projector, or speaker. This kind of delivery mode is common in schools, colleges, and in political rallies. Figure 1.1 shows a person giving a presentation using a non-electronic delivery mode.



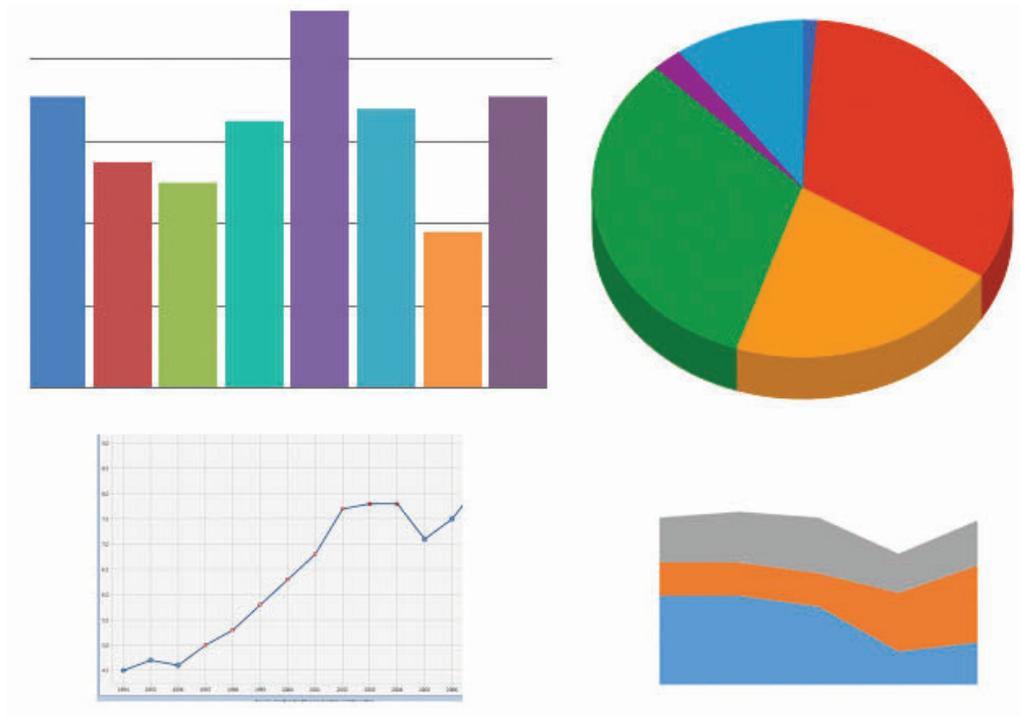
**Figure 1.1:** *A person giving a presentation using non-electronic mode of delivery*

Generally, non–electronic presentations are more engaging to both the presenter and the audience, because the presenter performs different physical activities such as writing on a flipchart or demonstrating ideas using presentation aids or equipment/tools that keep them engaged.

### **Aids for non-electronic presentations**

Aids are tools which are used to plan, create and give presentations. They also help to emphasise various parts of the presentation and make it easy for the audience to understand. As mentioned before, presentation aids include charts, whiteboards, flipcharts, pointers, handouts, cards, photos, books, and podiums. These aids are described next.

**Charts:** These help the audience to follow the presentation and serve as a reference for the presenter. However, to be effective, charts need sufficient light, and images/drawings must be clear and large enough. Figure 1.2 shows examples of charts.



**Figure 1.2:** *Examples of large printed charts*

**Boards:** These are useful when the presenter wants to write something during the presentation. When using them, make sure that you use a handwriting that is large enough and clear for the audience to read. Also, use the boards for brief notes and illustrations. These boards should be used as aids, not the overall focus of your presentation. Figure 1.3 shows an example of a whiteboard.



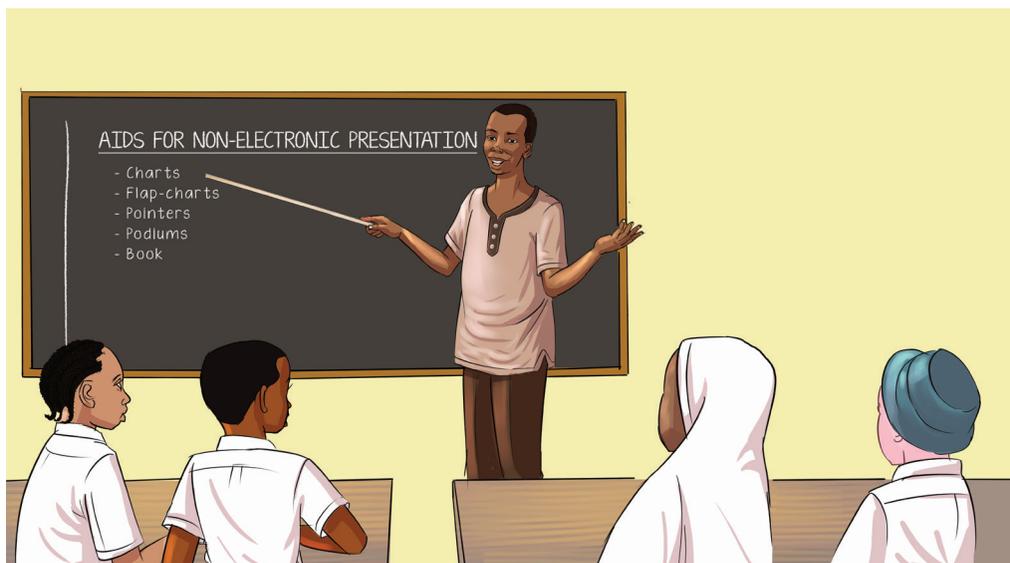
**Figure 1.3:** *A whiteboard*

**Flipcharts:** These consist of a collection of large paper sheets that are usually fixed using a flipchart stand. Flipcharts can be easily moved from one venue to another. Sometimes, illustrations such as charts can be presented on a flipchart. On a flipchart, information can be written in sections and displayed only when necessary. As such, it helps both the presenter and audience to pause between sections when flipping the papers. During your presentation, you need to have a flipchart stand (see Figure 1.4) to fix your papers. When preparing yourself, practice flipping your chart to ensure smooth flipping of papers during the presentation. Also, position your flipchart suitably relative to your height and make sure there is enough space for you to stand and move freely.



**Figure 1.4:** *Examples of flipcharts and flipchart stands*

**Pointers:** Another tool that can be used for non-electronic presentations is a pointer. A pointer helps a presenter stay a bit far from the content being presented. It also assists the presenter to draw the attention of the audience to what is pointed to. To properly use a pointer, the following points should be considered: use a pointer only when it is needed; do not hold it unnecessarily; make sure that the pointer does not hide the content; and use it when elaborating details which need special attention such as specific parts of a map or diagram. Pointers used in non-electronic presentations are physical objects like a stick. Figure 1.5 shows a presenter holding a stick pointer.



**Figure 1.5:** A presenter holding and using a pointer during presentation in a classroom

**Handouts:** Handouts carry additional information that help the audience to follow the presentation. For example, the presenter may distribute details of statistical data pertaining to the presentation. Handouts should be prepared early and placed in the presentation room. In addition, handouts should be given to the audience only when they are needed for effective delivery of presentation materials.

**Books:** You can also use books as tools for non-electronic presentations. These are used as either sources of additional information or quick references to supplement your presentation. Note that you will normally not be able to read a larger portion of a book, but you can just refer to a figure, page, or table. Therefore, to use a book in your presentations, consider the following points: the pages that you will use during your presentation should be marked beforehand, when showing a page, you should avoid obstructing the audience, you should move around to make sure that everyone sees what you intended to convey.

**Podiums:** Podiums are small platforms used by presenters when giving a presentation. Having the right podium will help you to communicate with your audience more effectively. When setting and using a podium, consider the following points: make sure you put it in a place that is clearly visible to the entire audience; make sure that the podium is proportional to your height; do not rest your hands or lean on the podium; and you may put few materials on the podium for your quick reference. Figure 1.6 shows examples of podiums.



**Figure 1.6:** *Examples of podiums*

### **Advantages of non-electronic presentations**

Based on its nature and scope, a non-electronic presentation has several advantages, including the following:

1. It does not need specialised skills to prepare it.
2. It can be used even where there is no electricity.
3. It is easier to draw the attention of the audience towards the presenter and to a theme being presented.
4. It can increase the engagement of participants, especially when presentation aids are employed.
5. It is easy for the audience to take notes from the presenter, because the aids used are generally static.

### **Disadvantages of non-electronic presentations**

Because a non-electronic presentation does not use electronic devices/aids, the whole task of ensuring that the presentation is effective rests on the shoulders of a presenter. As such, this type of presentation is associated with the following disadvantages:

1. It is challenging to ensure smooth flow of information, and that could make it difficult for the audience to understand what is being presented.

2. It can require someone with a good handwriting for writing text related to the content of a presentation.

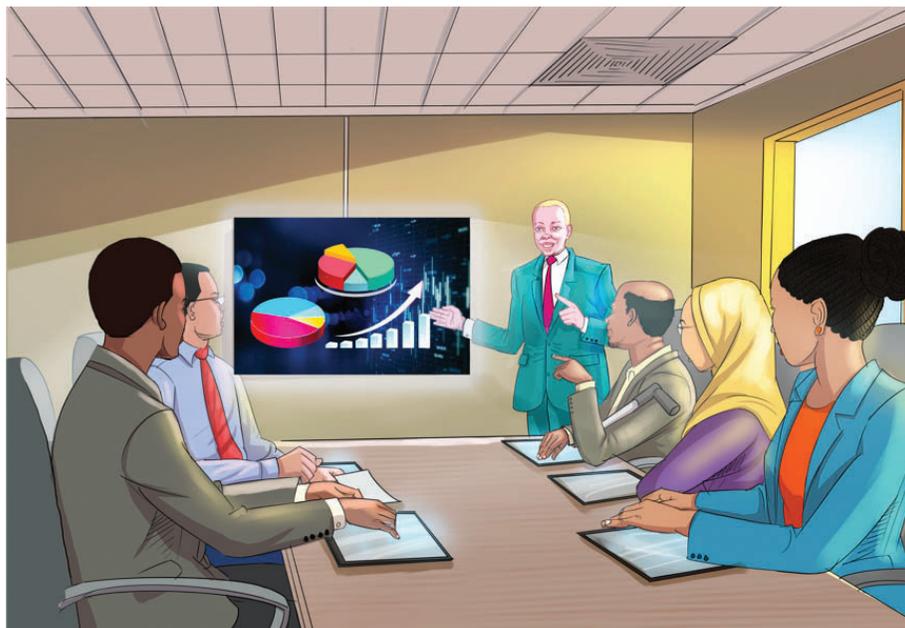
### **Activity 1.1:** Preparation of aids for a non-electronic presentation

Use different materials found in your environment to prepare five aids for a non-electronic presentation of your choice.

### **Electronic presentation delivery mode**

An electronic presentation delivery mode involves the use of electronic devices such as computers with a presentation software, multimedia projectors and, sometimes, pointers. Depending on the context and purpose of the presentation, other devices such as radio receivers, TV sets, smartphones, and computers connected to the Internet can also be used during a presentation. Thus, an electronic presentation delivery mode may also refer to a media through which a presentation is delivered.

When preparing an electronic presentation, you should start by organizing your thoughts and key points. Next, you should plan how your presentation will appear to the audience; that is, you should decide on the use and place of text and visual aids such as charts and figures. Finally, use a presentation software such as Microsoft Office PowerPoint or Apache OpenOffice Impress to prepare your presentation. Figure 1.7 shows an example of an electronic presentation in a meeting.



**Figure 1.7:** An example of an electronic presentation during a meeting

### Aids for electronic presentations

Electronic presentations make use of different aids that help in the planning, preparation, and delivery of presentations. These aids include specialized computer software, multimedia projectors, speakers, and microphones.

**Microphones:** Microphones are devices that work with other devices such as speakers to ensure that your voice can be heard properly during the presentation. The choice of a microphone for your presentation will depend on the nature of your presentation. For example, if you are going to move around, you can consider using a wireless microphone. Thus, choose a microphone that suits the need of your presentation. Also, make sure that you test the microphone before your presentation starts. Figure 1.8 shows examples of microphones that can be used in a presentation.



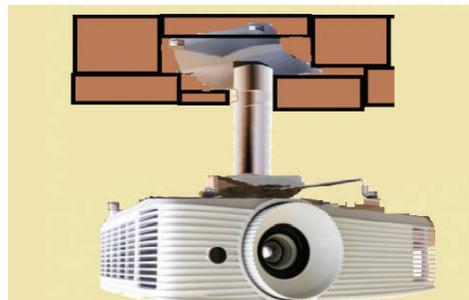
**Figure 1.8:** *Examples of microphones*

**Multimedia Projectors:** These are devices that are used to project a computer display onto a magnified view on a screen or wall. They can be connected to either a laptop or a desktop computer. In addition, due to advancement of mobile technologies, some portable multimedia projectors might be connected to mobile devices such as smartphones. These projectors are rechargeable and can be used without being connected to a source of power, thus providing the possibility to use a device for a while, even in places without access to power. If you plan to use a multimedia projector, ensure that you make proper settings and test your connections before your audience enters the presentation room. This will help you to know in advance if the projector and the computer are compatible and are properly working. The projector can be placed on a flat surface such

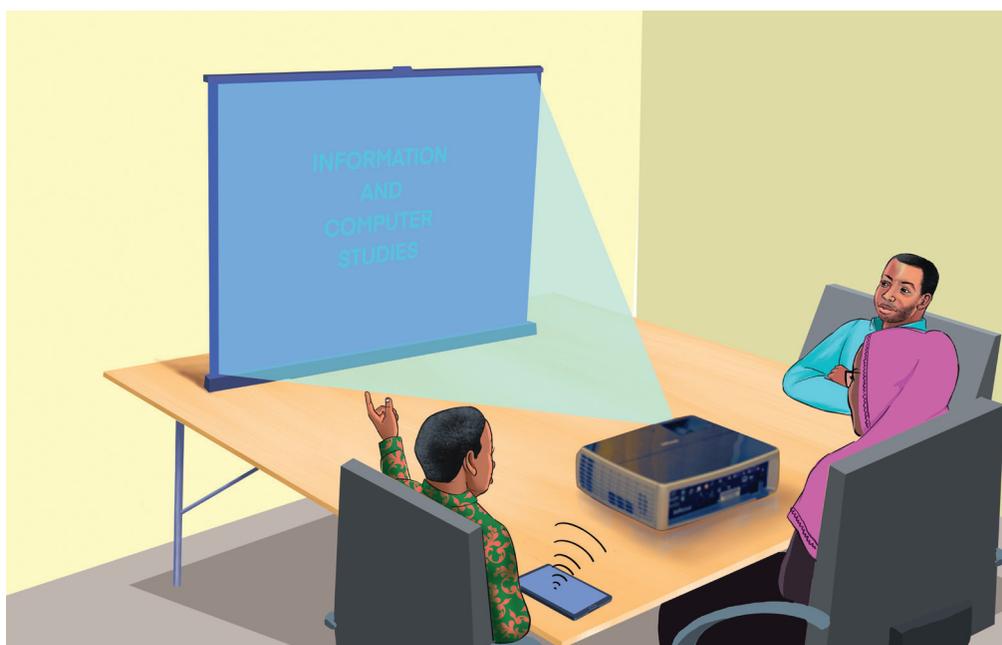
as on a table or can be mounted on a ceiling. Figure 1.9 shows examples of a multimedia projector, while Figure 1.10 shows an example of a rechargeable portable multimedia projector.



**Figure 1.9(a):** *A multimedia projector placed on a table*



**Figure 1.9(b):** *A multimedia projector mounted on a ceiling*



**Figure 1.10:** *A rechargeable multimedia projector connected to a smartphone*

**Software:** A software can be used to prepare visual aids, presentation notes, and deliver a presentation. In the preparation stage, some software can be used to create various visual aids to be used during the presentation. An example of software that can be used in the preparation stage of a presentation is image editing software such as Adobe Photoshop or Adobe Illustrator. There are other many software that can be used in preparing and giving presentations. Popular examples of presentation software are Microsoft Office PowerPoint and Apache

OpenOffice Impress. Microsoft PowerPoint is a proprietary software, which means you need to buy a licence to use it. Apache OpenOffice Impress is an open-source software that can be downloaded and used for free.

**Pointers:** Electronic presentations can also use electronic pointers, also known as laser pointers. These pointers require batteries to operate and can be used to control presentation slides from a distance. Electronic pointers use wireless technology to help the presenter point to a specific area of interest on a slide. They can connect wirelessly to your laptop or other electronic devices, and can control the flipping of slides. Figure 1.11 shows examples of electronic pointers that are used in electronic presentations.



**Figure 1.11:** *Examples of electronic laser pointers used for presentation*

**Speaker:** Due to poor voice projection, the voice of a presenter may not be heard properly by the audience. A speaker can be used to make the voice of a presenter audible. The presenter can use a microphone to transfer the sound to an amplifier system in this case, it is a speaker. The speaker receives the sound from the system and amplifies it for the audience to hear. Figure 1.12 shows examples of speakers.



**Figure 1.12:** *Examples of speakers that can be used during presentation*

**NOTE:** There are some devices, aids, materials and equipment that can be used in both non-electronic and electronic presentations. For example, a speaker can be used to aid a non-electronic presentation in case the presenter wants to increase his/her voice. Others include flipchart and pointers.

### Advantages of electronic presentations

The advantages of electronic presentations can be summarized using five terms: engagement, collaboration, flexibility, sharing, and understandability.

1. **Engagement:** A presentation software allows a presenter to use different media such as animations, high-definition images, and videos in a presentation. These media enable conveying ideas easily, engage the audience, and minimize boredom to the audience.
2. **Collaboration:** A group of presenters can easily collaborate during the preparation of a presentation. This is achieved by sharing a presentation through cloud storage media such as Google Drive, One Drive, and Dropbox. For example, a group of people in different locations can interact in real-time and collaborate to improve or deliver a presentation.
3. **Flexibility:** You can use multiple templates and customize them to suit your needs. It is also easy to correct mistakes or do updates at any stage of a presentation, compared to handwritten presentations.
4. **Sharing:** The presentation materials can easily be shared via email programs such as Gmail, social media applications such as WhatsApp, and cloud storage such as Google Drive.
5. **Understandability:** Tools used in electronic presentation allow the combination of various media such as text, video, animations, tables, graphs, or pictures in a presentation. Thus, it becomes easier for the audience to understand the content of the presentation. For example, 3D images or illustrations of how the heart works are not easily presented in a non-electronic presentation but can easily be presented in an electronic presentation.

### Disadvantages of electronic presentations

Since electronic presentations involve the use of electronic devices to prepare and make presentations, you need to possess some skills on using such electronic devices and associated software. Thus, because of their nature, electronic presentations have the following disadvantages:

1. They need a presenter to have relevant skills to prepare and make a presentation. For instance, you may need skills of using presentation software such as Microsoft PowerPoint or Apache OpenOffice Impress and publication software such as Microsoft Publisher or Adobe Photoshop.
2. Improper use of visual aids (multimedia) can distract the audience as they may concentrate on looking at the visual aids supporting the presentation rather than focusing on the content. Also, if a visual aid is not properly designed, it can lead to a breakdown in communication between the presenter and the audience.
3. It can be difficult for the audience to take notes during the presentation as they are supposed to both listen to the presenter and watch the running slides.

**Activity 1.2:** Investigating and presenting a crosscutting issue of public concern

- (i) Choose one of the following cross-cutting issues: gender bias, HIV/AIDS, COVID-19, ICT, road safety, drugs and drug abuse, terrorism, and child abuse.
- (ii) With the help of the Internet or other resources, read about the cross-cutting issue you have chosen in (i).
- (iii) Summarize what you have read.
- (iv) Present your summary to your fellow students (your summary should have an introduction, body, and conclusion).
- (v) Mention aids, materials, equipment or tools that will enable you to prepare and deliver your presentation electronically.

**Exercise 1.2**

**Review questions**

**A. True and False questions**

Write T for a true statement and F for a false statement

1. It is not the duty of a presenter to do everything possible to make the audience understand the message \_\_\_\_
2. Presentation skills are important to any public speaker, including teachers, students, and politicians \_\_\_\_

3. During a non-electronic presentation, a whiteboard is used to present everything that a presenter intends to present to the audience \_\_\_\_
4. Non-electronic presentations are difficult to prepare as they need specialised skills and availability of power \_\_\_\_
5. A microphone is a device used to amplify sound during an electronic presentation \_\_\_\_
6. A speaker is the only device used in electronic presentation mode \_\_\_\_

### **B. Multiple choice questions**

Choose the most correct answer and write it in the provided box.

1. The following are common visual aids used to enhance non-electronic presentations except:
  - (a) Charts
  - (b) Whiteboards
  - (c) Projectors
  - (d) Flipcharts
2. A small platform where a presenter stands when making a presentation is known as:
  - (a) Podium
  - (b) Stage
  - (c) Stand
  - (d) Altar
3. A device that is used to display a presentation from a computer to a big screen is known as:
  - (a) A microphone
  - (b) A projector
  - (c) A speaker
  - (d) A podium
4. The following are the advantages of an electronic presentation except:
  - (a) Engagement
  - (b) Monotonicity

- (c) Collaboration
  - (d) Flexibility
5. One of the following is not a part of a presentation.
- (a) Practicing
  - (b) Introduction
  - (c) Main body
  - (d) Conclusion

### **C: Short answer questions**

Answer the following questions

1. Describe aids that can be used in non-electronic presentations.
2. Describe aids that can be used in electronic presentations.
3. Is it necessary to use every kind of aid in every presentation? Why?
4. Mention and describe common aids of non-electronic presentations that can also be used in electronic presentations.
5. Appearance is one of the things to consider when preparing for a presentation. Explain the meaning of this statement.
6. Why do you need to practice before your presentation?
7. Describe two software packages that you may use in planning, preparation, and delivery of a presentation.
8. Use examples to describe the difference between electronic and non-electronic presentations.
9. Describe situations in which you would use non-electronic presentations over electronic presentations.
10. Consider the following scenarios: formal meeting, group discussion, lecture session, family gathering, sharing research findings, and a political rally. Which mode of presentation would be the most effective means of delivering a message to the audience of each of these scenarios? Justify your answer.

## Using presentation software

### Introduction

*In Chapter one, you learnt about the concept of presentation, qualities of a good presentation, qualities of a good presenter, how to prepare a presentation, and presentation delivery modes. In this chapter, you will learn how to use a presentation software to prepare, deliver, share, and print your presentation. The competence developed will enable you to prepare, deliver, share, and print electronic presentations.*

### Presentation software

A presentation software is an application software used for creating, delivering, sharing, and printing of electronic presentations. A presentation created using a presentation software consists of units called slides. Like a page in a word processing software, a slide is a frame used to hold the contents of your presentation, which can include text and graphics. A series of slides, arranged according to the logical flow of your presentation, form an electronic presentation. Each slide in a presentation may contain different combinations of texts and graphics. When delivering a presentation, a multimedia projector or any other projection media, can be used to display slides to the audience.

Several presentation software exist. They include Microsoft (MS) PowerPoint, Apache OpenOffice Impress, Google Slides, Slidebean, Keynote, SlideDog, Prezi, Canva, and ClearSlide. MS PowerPoint is among popular presentation software. Millions of people in the world use MS PowerPoint for preparing and delivering presentations. There are several versions of MS PowerPoint. Among them are MS PowerPoint 2007, MS PowerPoint 2010, MS PowerPoint 2013, MS PowerPoint 2016, MS PowerPoint 2019, and MS PowerPoint 365 (cloud based). As of this writing, the latest version was MS PowerPoint 2019. However, MS PowerPoint 2019 was relatively new, and the predecessor version, MS PowerPoint 2016, was still in widespread use. For this reason, this chapter gives a detailed discussion on how to use MS PowerPoint 2016 for creating and delivering presentations.

## Features of a presentation software

All presentation software have some common features, including the following.

**Templates:** A presentation software comes with a wide range of pre-designed slides called templates. These templates are designed to suit various presentation scenarios, and if used, save user's time and effort. When using a presentation template, you are required to enter the content of your presentation in it. While some templates are built in a presentation software, other templates can be downloaded or purchased through Internet.

**Slide layouts:** The arrangement, design, or outline of items in a slide is known as slide layout. In a presentation, each slide can have a different layout. One slide might have a bullet to the left of an image, another slide might have a main title and bullets underneath, while another slide might have a chart.

**Master slide:** A master slide is a slide from which other slides derive their style and layout. A master slide enables you to configure common features that you want to appear on each slide. The features you can configure include footer, slide number, date, header, and the presenter's name. You can also use a master slide to choose a text style to apply throughout your presentation.

**Animation:** An animation is a movement or an effect assigned to elements such as texts and pictures in a slide to move the content in unique ways during slide start, emphasis, and exit. Most presentation software come with a variety of features that can be used to add extra flair to your presentations.

**Transition effects:** These influence what you see when you move from one slide to another. For example, the current slide may appear to dissolve as the next slide is displayed. Presentation software consist of numerous slide transitions that can be used when switching between slides. Activity 2.1 explore features of a presentation software.

### Activity 2.1: Exploring features of a presentation software

Use the Internet or any other resource to view and learn about different features of a presentation software of your choice.

## Working with MS PowerPoint 2016

MS PowerPoint 2016 is a popular presentation software that allows a user to create presentation slides that can be viewed on a computer screen, TV, or through a projector connected to a computer. MS PowerPoint 2016 is simple to learn and use.

### Launching MS PowerPoint 2016

There are several ways to launch MS PowerPoint 2016 presentation program, depending on the type and version of the operating system installed on your computer. For example, suppose you are using Windows 10, you can use the **Start** button on the Windows taskbar and scroll to find a thumbnail icon for MS PowerPoint 2016. Also, you can double click on a PowerPoint shortcut icon that may appear on the desktop or MS PowerPoint button on the taskbar. Activity 2.2. shows the steps of launching MS PowerPoint 2016 on a computer with Windows 10 operating system.

#### Activity 2.2: Launching MS PowerPoint 2016

- (i) Click on the Start button (number 1 in Figure 2.1) to display the start menu.
- (ii) Click on the **PowerPoint 2016** thumbnail button (number 2 in Figure 2.1) to display a blank screen of MS PowerPoint 2016.

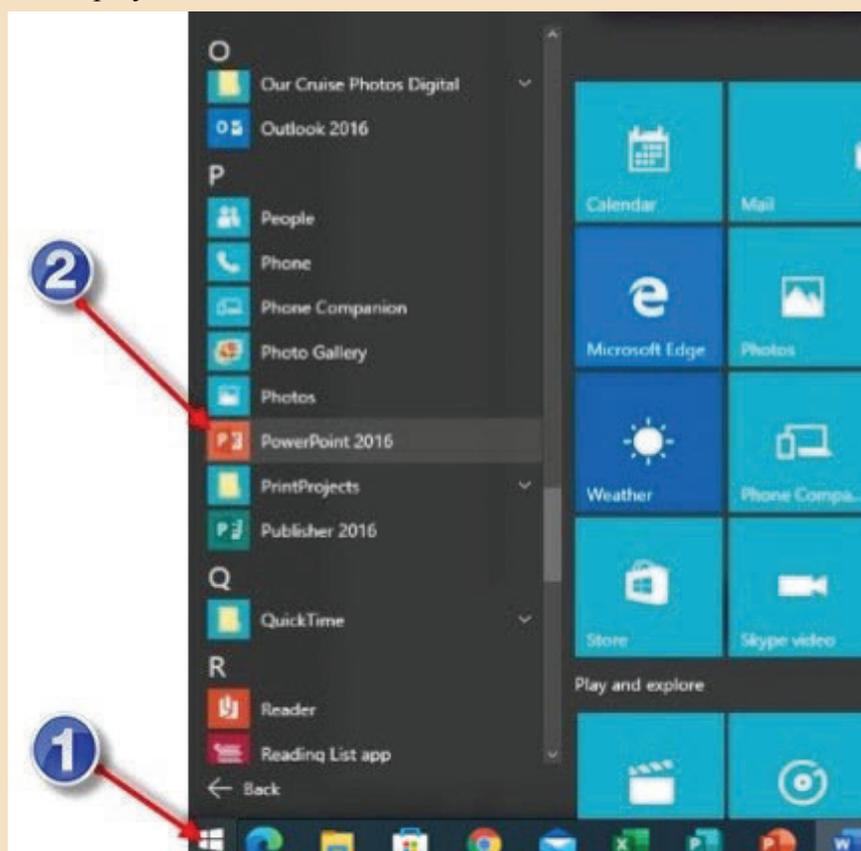
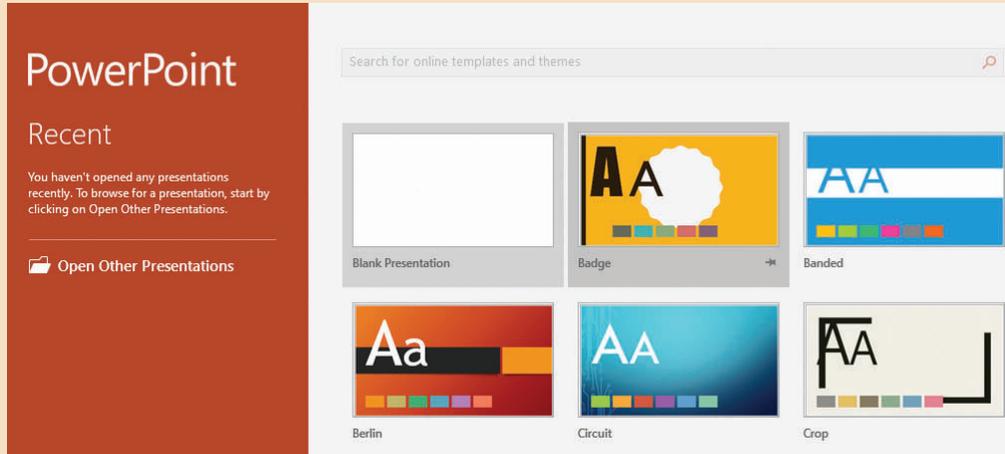


Figure 2.1: Launching MS PowerPoint 2016 in a computer with Windows 10

**NOTE:** MS PowerPoint 2016 will open a backstage view that shows different built-in presentation templates, as shown in Figure 2.2. You can also access the recently opened file.

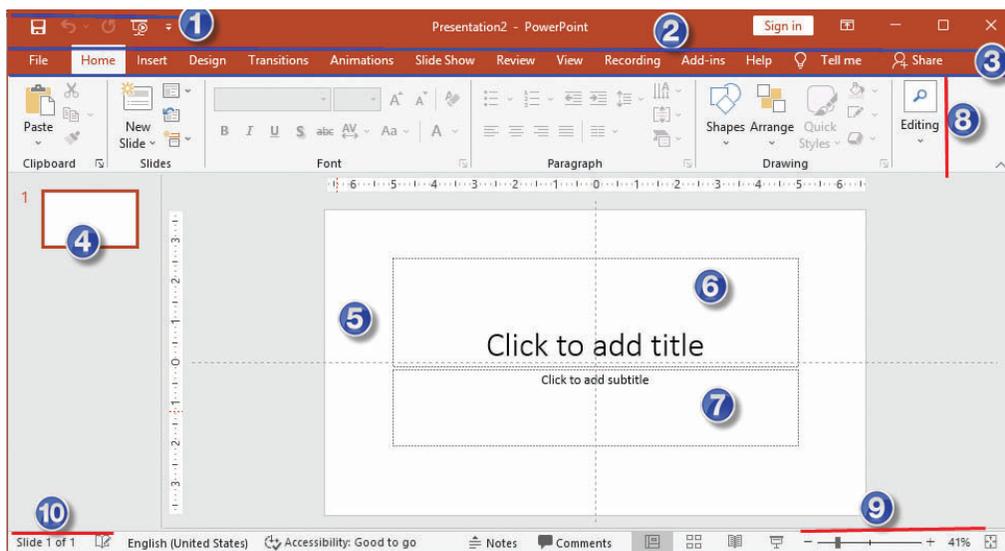


**Figure 2.2:** MS PowerPoint 2016 backstage view showing different presentation templates

(iii) Click on **Blank Presentation** to start a new presentation.

### Parts of MS PowerPoint 2016

MS PowerPoint 2016 has several parts. Some of them are similar to those found in other MS Office application software such as MS Word and MS Excel. These include (referring to Figure 2.3) Title bar (2), Menu bar (3), Working area (5), and Status bar (10). Figure 2.3 shows some main parts of MS PowerPoint 2016.



**Figure 2.3:** Some parts of MS PowerPoint 2016

**Key:**

- 1 = Quick access commands    2 = Title bar                    3 = Menu bar  
 4 = Slide pane                    5 = Working area            6 = Main title pane  
 7 = Subtitle pane                8 = Ribbon of commands    9 = Slide zoom  
 10 = Status bar

**Title bar**

The title bar displays the program name and the name of the current document you are working with. Also, it contains buttons for minimising, maximising, and closing MS PowerPoint 2016 window, as shown in Figure 2.4.

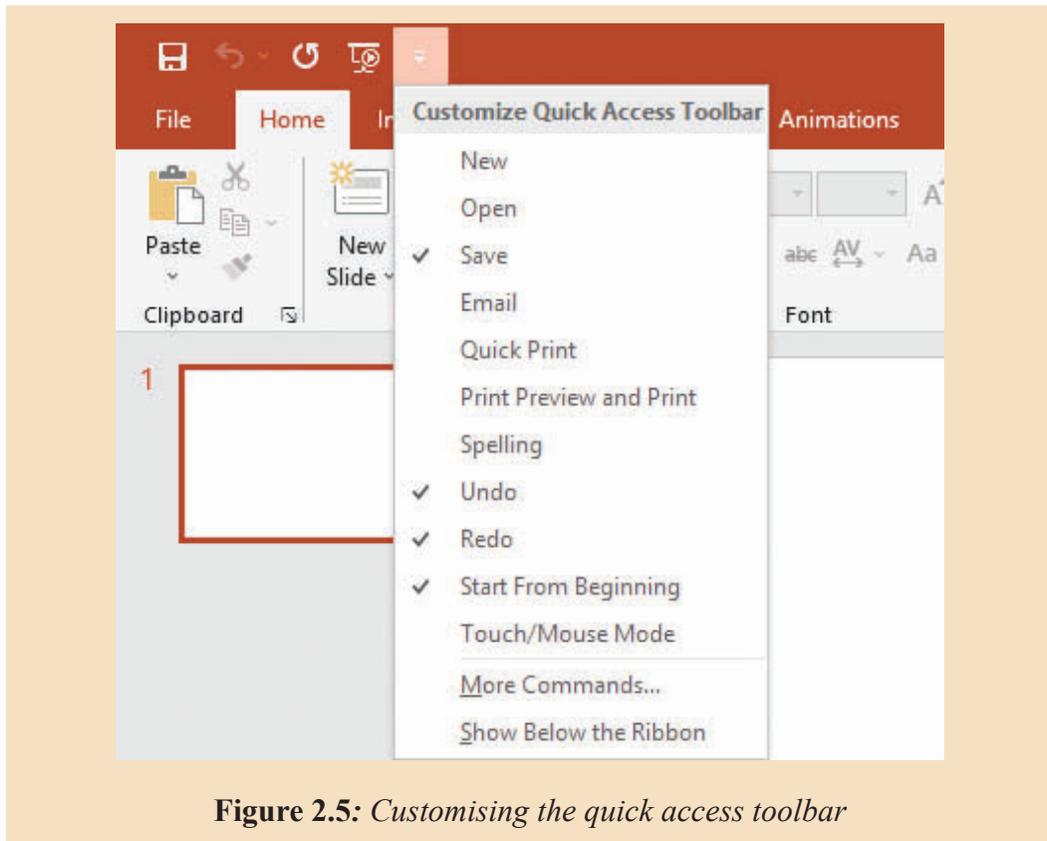


**Figure 2.4:** *MS PowerPoint 2016 title bar*

By default, when creating a new presentation, the title bar will display the following text: “Presentation1 - PowerPoint”. After saving your presentation and giving it a name, the title bar will display that name, instead of the default one. For example, if you name your presentation “Understanding COVID-19”, the new title bar will display “Understanding COVID-19 - PowerPoint”. The title bar also contains a quick access toolbar. The quick access toolbar allows you to access frequently used commands, regardless of the selected tab. Common quick access commands include **Save**, **Undo**, and **Redo**. However, one can customise the list of quick access commands by removing or adding other commands to the quick access toolbar. Activity 2.3 demonstrates how to customise the quick access toolbar.

**Activity 2.3:** Customising the quick access toolbar

- (i) Click on the drop-down arrow to the right of the quick access bar.
- (ii) On the pop up menu that appears (see Figure 2.5), click on the command that you want to add or remove to/from the quick access toolbar. An icon for the selected command will appear on (or will be removed from) the quick access bar.



**Figure 2.5:** Customising the quick access toolbar

### Menu bar

MS PowerPoint 2016 menu bar contains a list of different tabs. Some of the tabs are **File**, **Home**, **Insert**, **Design**, **Transitions**, **Animations**, **Slide Show**, **Review**, **View**, **Recording**, **Add-ins**, and **Help** as shown in Figure 2.6.



**Figure 2.6:** MS PowerPoint 2016 menu bar

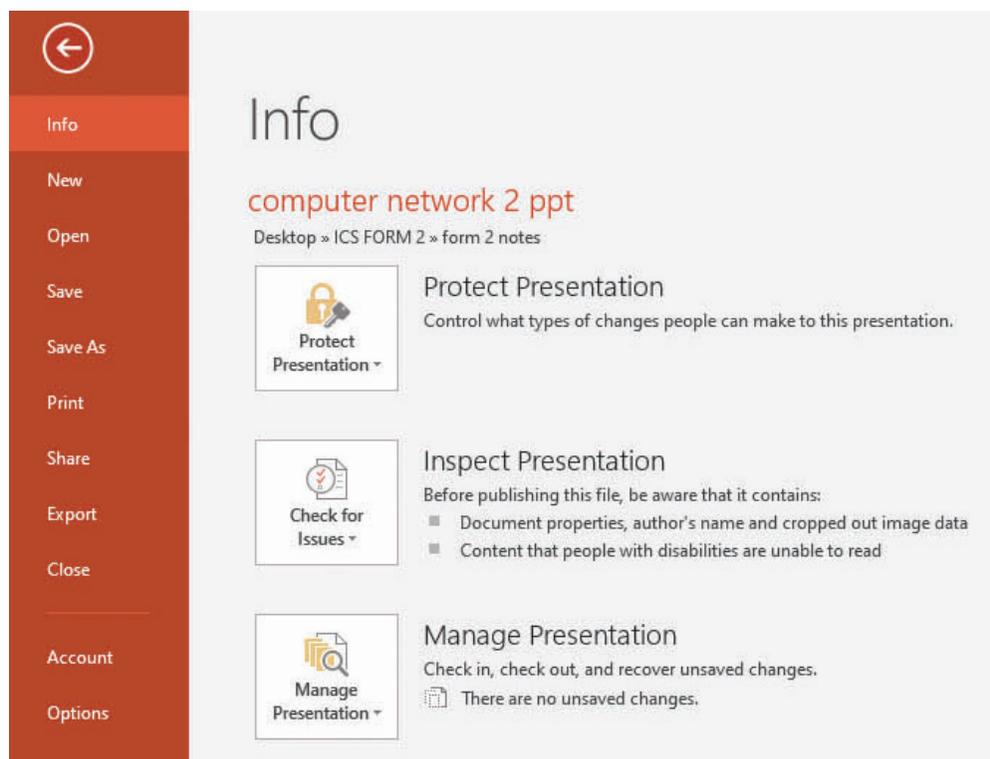
Each tab has a ribbon that displays a list of commands in groups. For example, a ribbon in the **Design** tab contains a list of command groups such as Themes, Variants, and Customize (see Figure 2.10).

### Exploring different tabs on MS PowerPoint 2016 menu bar

MS PowerPoint 2016 menu bar contains various tabs such as File tab, Home tab, Insert tab, Design tab, Transitions tab, Animations tab, Slide Show tab, Review tab, and View tab. This section explores these tabs and the commands contained in a ribbon of each tab.

## File tab

MS PowerPoint 2016 File tab appears at the top left corner of the window, just below the quick access toolbar. When opened, it displays a backstage view containing various submenu items, including Info, New, Open, Save, Save As, Print, Share, Export, Close, Account, and Options, as shown in Figure 2.7.



**Figure 2.7:** Backstage view of the MS PowerPoint 2016 File tab

The File tab is different from other tabs because, instead of displaying a ribbon, it displays a list of submenus called the Backstage view. Clicking on any submenu on the Backstage view displays a different dialog box or window options. The Backstage view includes the submenus described in Table 2.1.

**Table 2.1:** Commands in the backstage view of MS PowerPoint file tab

No	Command	Description
1	<b>Info</b>	Shows information about an active presentation and provides commands that control permissions, sharing, and version management
2	<b>New</b>	Lists available templates, from which you can create a new presentation

3	<b>Open</b>	This allows you to find and open a presentation file on any storage media attached to your computer
4	<b>Save</b>	This allows you to save changes made in the presentation you are working on
5	<b>Save As</b>	This allows you to save the presentation you are working on, using a different name. It also creates a copy of the active presentation and allows you to continue working with the copy of a presentation
6	<b>Print</b>	This allows you to print your presentation
7	<b>Share</b>	This allows you to share your presentation through various online platforms
8	<b>Export</b>	This allows you to save your presentation in a different format such as PDF
9	<b>Close</b>	Closes the currently opened presentation
10	<b>Account</b>	Displays information about the Microsoft account you are signed in to
11	<b>Options</b>	Opens the PowerPoint Options dialog box, from which you can configure many aspects of the software

### Home tab

The Home tab displays a ribbon with different groups of commands that give you access to the most used commands, including **Copy**, **Paste**, **Formatting**, and the **New Slide** command. These commands are placed into groups: **Clipboard**, **Slides**, **Font**, **Paragraph**, **Drawing**, and **Editing**, as shown in Figure 2.8. The Home tab is a default selection, whenever you open the MS PowerPoint 2016 program.



Figure 2.8: The Home ribbon

### Insert tab

The Insert tab has a ribbon that contains commands for allowing you to insert different objects into your presentation. Using commands of the Insert ribbon, you can insert things such as a new slide, table, picture, link, textbox, word art,

and special symbols. These commands are categorised into ten groups: Slides, Tables, Images, Illustrations, Add-ins, Links, Comments, Text, Symbols, and Media, as shown in Figure 2.9.

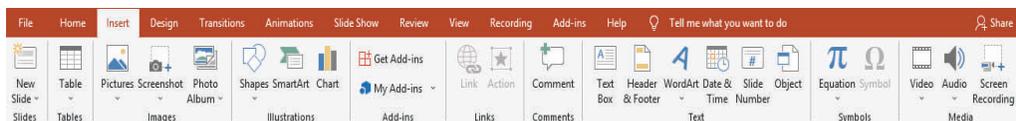


Figure 2.9: The Insert ribbon

## Design tab

The Design tab has a ribbon that contains commands for allowing you to customise various aspects of your presentation. These commands are categorised into three groups: Themes, Variants and Customize, as shown in Figure 2.10. For example, the Themes commands group enables you to change the look and feel (overall appearance) of your presentation; variants allow you to modify the font of the presentation or the effects applied to the presentation elements, and they allow you to change the presentation background. The Customize group allows you to change the slide orientation from landscape to portrait and vice versa.

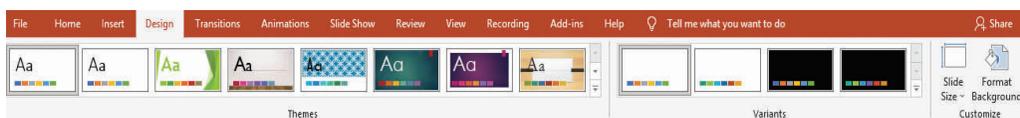


Figure 2.10: The Design ribbon

**NOTE:** Some commands are activated based on the type of slide pane you are using or an action you want to perform in your slide. For example, when you have a slide with a Table in it, table tools are activated, giving you an option to choose Table styles, as shown in Figure 2.11.

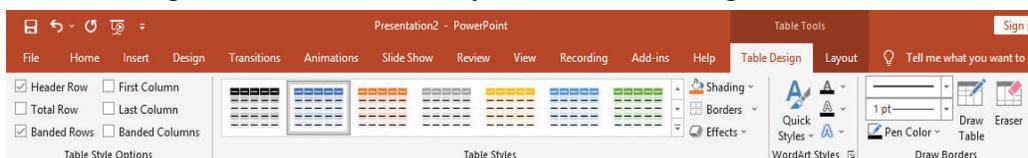


Figure 2.11: Table tools on the design ribbon

## Transitions tab

The Transitions tab has a ribbon that contains commands for allowing you to add and customise effects that occur when you move (transition) from one slide to another. The transition ribbon contains three groups: Preview, Transition to This

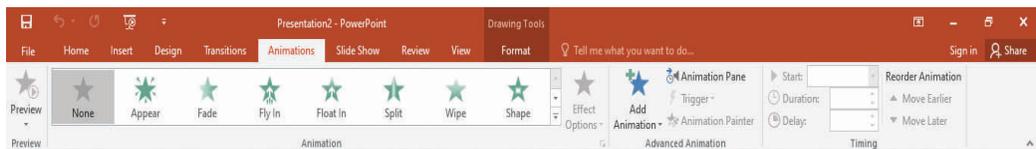
Slide, and Timing, as shown in Figure 2.12. For example, you can customise the timing, specifying how long a transition should last. Also, the transition ribbon has many pre-created transition effects that you can use and/or customise. In addition, this ribbon has a command that allows you to preview the transition applied to a slide.



**Figure 2.12:** *The Transitions ribbon*

## Animations tab

The Animations tab has a ribbon containing commands that allow you to add and customise the way text, images and other objects move as they appear on or disappear from a slide. These movements are called animations. For example, you can make a block of text appear to **fly in** a slide as it enters that slide. Figure 2.13 shows the Animations ribbon.



**Figure 2.13:** *The Animations ribbon*

## Slide Show tab

The Slide Show tab has a ribbon with different commands in three groups: Start Slide Show, Set Up and Monitors, as shown in Figure 2.14.



**Figure 2.14:** *The Slide Show ribbon*

The Start Slide Show ribbon contains commands for displaying your slides in a presentation mode, which is also known as a slide show. In slide show mode, slides are displayed in full screen. For example, commands in the Start Slide Show group enable you to start a slide show from the first slide or from the current slide (the slide you are currently working on). The Set Up group contains

commands that enable you to rehearse your presentation and set up different aspects of a slide show. The configuration of display monitors for use during the presentation is done using commands from the Monitors group. For example, commands in the Monitors group enable you to use dual monitors to give your presentation.

## Review tab

The Review tab has a ribbon that contains commands used to perform various editorial tasks. The commands in the Review tab are in six groups: Proofing, Insights, Language, Comments, Compare, and Ink, as shown in Figure 2.15. For example, the Proofing group contains commands for checking the spellings of a text in your slides and accessing reference materials such as dictionaries and encyclopedias. The Language group has commands for translating text from one language to another and for setting language preferences.



Figure 2.15: The Review ribbon

## View tab

The View tab has a ribbon that contains commands in seven groups: Presentation Views, Master Views, Show, Zoom, Color/Grayscale, Window, and Macros, as shown in Figure 2.16.

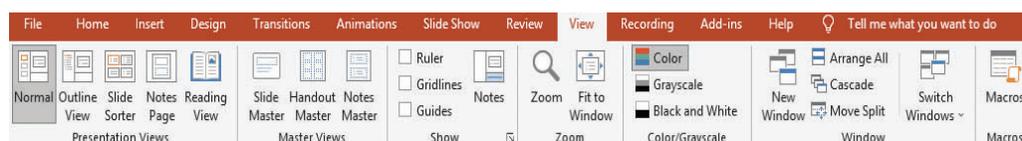
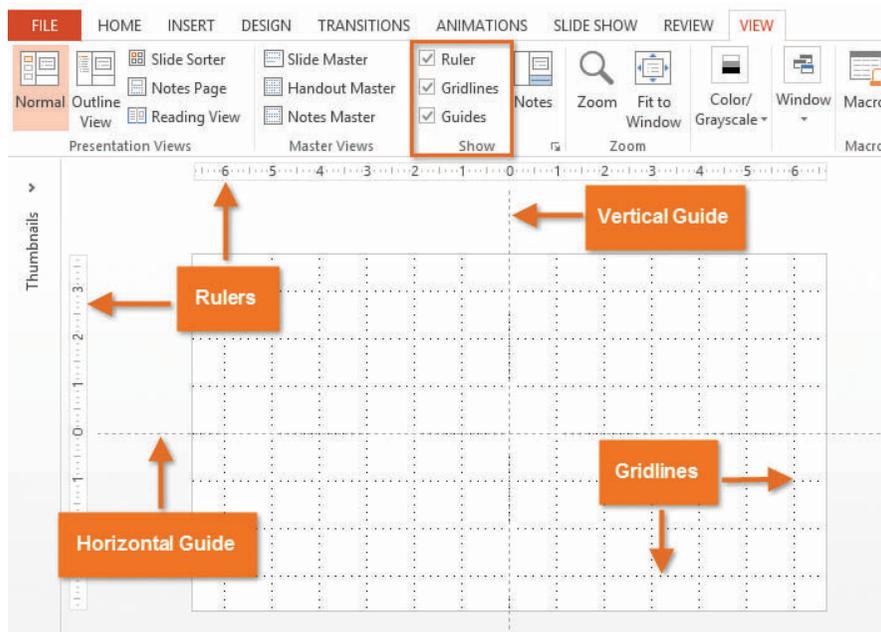


Figure 2.16: The View ribbon

The Presentation Views group contains commands for viewing your presentation in different modes. For example, the Reading View command displays your presentation in full-screen mode for easy reading. The Master Views group contains commands that enable you to change the layout of slides, notes, and handouts. The Show group has commands that help you to organise the contents on your slides, including the Ruler, Guides, and Gridlines. These tools make it easier to arrange objects on your slides. Click the check boxes in the Show group on the View ribbon to show and hide these tools, as shown in Figure 2.17.



**Figure 2.17:** Ruler, Guides, and Gridlines

You can view your slides in different styles; the common views include the following.

**Normal view:** This is a default working view; it allows you to work on the current slide.

**Outline view:** This is the left pane of the Normal view. It shows the list of slides that are being worked on and usually lists them in numbers. The view also allows you to find where you can insert a new slide, before or after a certain slide, if required. Likewise, you can use this view to delete unwanted slides.

**Slide Sorter view:** All slides in a presentation are displayed on a single screen. In Slide Sorter view, you can re-organise slides by dragging individual slides to different positions. You can also use this view to duplicate and delete slides.

**Notes Page view:** Shows one slide at a time, along with any notes that are associated with the slide. This view lets you create and edit notes. You may find it easier to work with notes in this view than in the Normal view. You can also print notes for your presentation; notes will be printed as they appear in the Notes Page view.

**Reading view:** This view is like the Slide Show view, except that it occupies a window rather than filling an entire screen. Displaying a presentation in a window enables you to work in other windows at the same time.

**Slide Show view:** This view portrays how your audience will see your presentation on a screen. In this view, a slide is displayed on a full screen. You cannot change or edit anything when you are in Slide Show view, unless you switch to normal view.

### Status bar

The status bar appears at the bottom of the screen. It provides information such as the number of the current slide, the total number of slides in your presentation, the language used, different view styles, and zoom options. For example, in Figure 2.18, the status bar shows that presentation is on the 4<sup>th</sup> slide out of 5 slides, and the language used is English (United States).



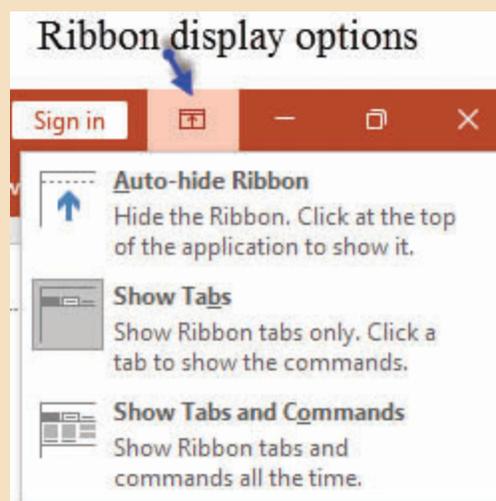
**Figure 2.18:** *The status bar*

### Hiding and showing the ribbon in MS PowerPoint 2016

The ribbon in MS PowerPoint is designed to respond to your current task, but you can choose to hide it if you find that it takes too much screen space. You can follow the steps in Activity 2.4 to hide and show the ribbon.

#### Activity 2.4: Hiding and showing the Ribbon in MS PowerPoint 2016

- (i) Click the **Ribbon display options** arrow. A drop-down menu will be displayed as shown in Figure 2.19.



**Figure 2.19:** *Ribbon display options*

- (ii) Select the desired display option from the drop-down menu.

**NOTE:**

1. **Auto-hide Ribbon:** Displays a PowerPoint presentation in full-screen mode and completely hides the ribbon. To show the ribbon, click the **Expand Ribbon** (dotted line near the ribbon display options) command at the top of the screen.
2. **Show Tabs:** This option hides all command groups when not in use, but **tabs** remain visible. To show the ribbon, simply click a tab.
3. **Show Tabs and Commands:** This option shows the ribbon. All the tabs and commands will be visible. This option is a default selection when you open MS PowerPoint for the first time.

**Closing a Presentation**

You are advised to save and close any opened presentation before you exit the MS PowerPoint 2016 program, or before you shut down your computer. Closing a presentation removes it from the screen. But MS PowerPoint 2016 continues running and so you can work with other presentation files. Use Activity 2.5 to practice closing a presentation.

**Activity 2.5:** Closing a presentation

1. Click on the **File** tab to show the Backstage view.
2. Click on **Close**. MS PowerPoint removes the presentation from the screen.

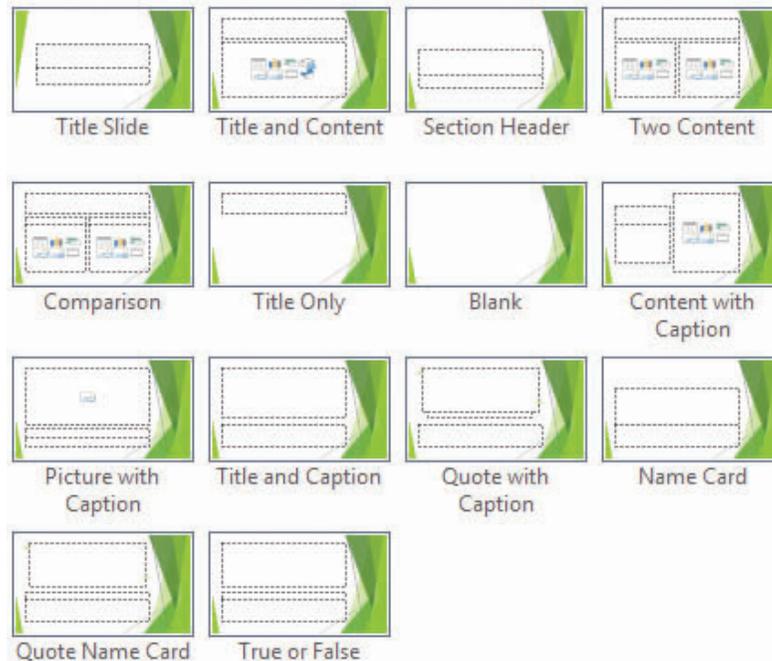
**NOTE:** If you made some changes to your last saved presentation, PowerPoint will ask you to confirm your action by displaying a dialog box with three options: **Save**, **Don't Save**, and **Cancel**. Choosing **Save** will save changes to the presentation before closing it. Choosing **Don't Save** will close the presentation without saving changes. Choosing **Cancel** will neither close nor save changes to the presentation, but will return you to the presentation you are currently working on.

**Exercise 2.1**

1. What is the purpose of a presentation software? Give examples of scenarios where a presentation software can be used.
2. Describe common features of a presentation software and their importance.
3. Mention any three presentation software. Which one is mostly used today in your area and why?

## Preparing a presentation using MS PowerPoint 2016

A presentation in MS PowerPoint 2016 is made up of a series of **slides**. Slides contain the information you will present to your audience. This includes text, pictures, and charts. Information is usually presented in different slide layouts. There are several slide layouts, as shown in Figure 2.20.



**Figure 2.20:** Slide Layouts

**NOTE:** When preparing your slides, you need to select the type of layout based on the nature of the contents you want to put on a slide. For example, if your content is a two-column text, you may prefer a two-content layout, instead of a title and content layout.

## Creating a new presentation using MS PowerPoint 2016

Creating a new presentation in MS PowerPoint 2016 is a straightforward task. After you have planned your content and opened MS PowerPoint, you can start adding your content in slides. Activity 2.6 guides you to create a new presentation in MS PowerPoint 2016.

### Activity 2.6: Creating a new presentation in MS PowerPoint 2016

- (i) On the Home ribbon, click the **New Slide** arrow,
- (ii) Click the **Title and subtitle** slide layout; the slide view will be opened as shown in Figure 2.21.

- (iii) Type the title and subtitle of your presentation.



**Figure 2.21:** *Creating a title and subtitle of a presentation*

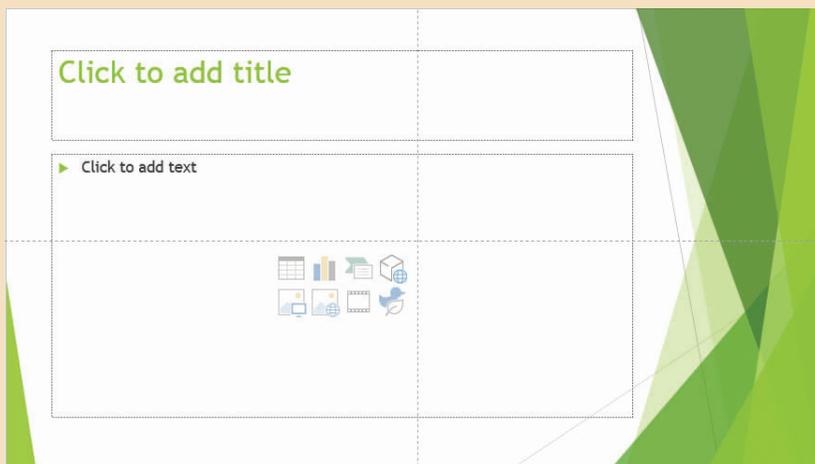
By default, when you start a new presentation, the title and subtitle layout is displayed first, asking you to click to add a title and a subtitle, as shown in Figure 2.21. The title and subtitle layout allows you to type a title and a subtitle only. You can add more slides as you wish, depending on the length and type of contents in your presentation.

### Inserting a new slide

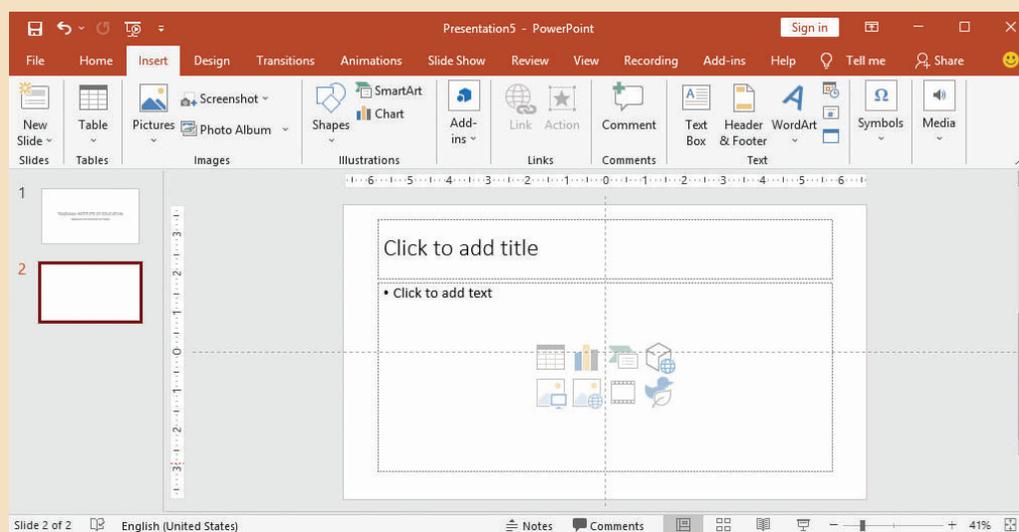
Whenever you start a new presentation, it will contain one slide with the **Title Slide** layout. You can insert as many slides as you need from a variety of layouts. Follow the steps in Activity 2.7 to insert a new slide.

#### Activity 2.7: Inserting a new slide

- (i) Click the **Insert** tab,
- (ii) On the Slides group of the Insert ribbon, click on the **New Slide** arrow; the office theme layout will appear.
- (iii) Choose the desired layout; in this case, click on the **Title and Content** layout (see Figure 2.22). A window similar to the one in Figure 2.23 will appear.



**Figure 2.22:** Title and content slide layout



**Figure 2.23:** Window displayed after adding a new slide.

- (iv) Type the title of your slide,
- (v) To add a new slide of the same layout, click the **New Slide** button on the Home ribbon; a new slide will be added.
- (vi) Add the content to your slide,
- (vii) To add a slide of a different layout, click the **New Slide** arrow,
- (viii) Click on the layout you want to use for the new slide.

## Saving a presentation

The procedure to save a presentation is the same as saving a file in other MS Office applications like MS Word and MS Excel. Follow the steps in Activity 2.8 to save your presentation.

### Activity 2.8: Saving a presentation in MS PowerPoint 2016

- (i) Click on the **File** tab,
- (ii) Click **Save As**,
- (iii) Choose a location where you want to save your presentation,
- (iv) Type the name of your presentation,
- (v) Click **Save**.

**NOTE:** Both **Save As** and **Save** are used to save a presentation, but they do it differently, as described next.

1. **Save As:** This command can be used in the following situations: when saving your document for the first time, when you want to create a new version of your presentation, and when you want to save your presentation in a different location or using a different name.
2. **Save:** This command is used for saving changes made to a document while you continue working on it. Clicking on **Save** overwrites the content of the previous version of a document. You can also use the shortcut **Ctrl+S** on your keyboard to save your presentation.

## Adding tables and charts in a presentation

### Adding a table

Tables are used to present data in rows and columns. Usually, columns and/or rows have labels or names that make it easy for the reader to make reference to the data in each table cell. MS PowerPoint 2016 allows the use of tables to present your data. This can be done by selecting the table icon in a slide pane and specifying the number of rows and columns, or using an Insert Table command to create a table. The procedure in Activity 2.9 guides you on how to add a table to your presentation.

### Activity 2.9: Adding a table to a presentation

There are two ways of inserting a table in a presentation:

- (i) Click on the **Insert** tab,
  - (ii) On **Insert** ribbon, click the arrow for table insertion,
  - (iii) Specify the number of rows and columns, and a table will be inserted,
- Or
- (i) On the slide pane, click the put table icon,
  - (ii) On the Insert Table dialog box, specify the number of rows and columns (see Figure 2.24),
  - (iii) Click **OK**: a table will be inserted.

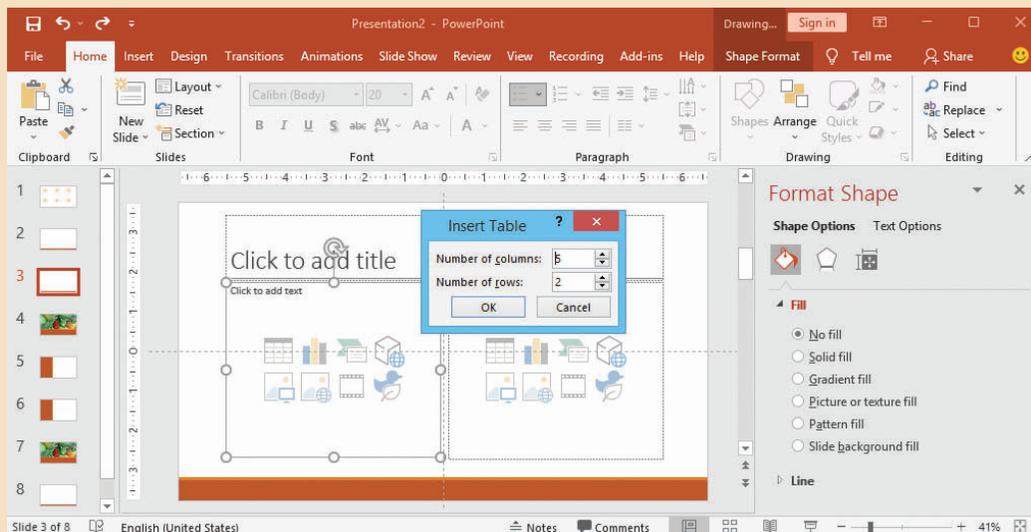


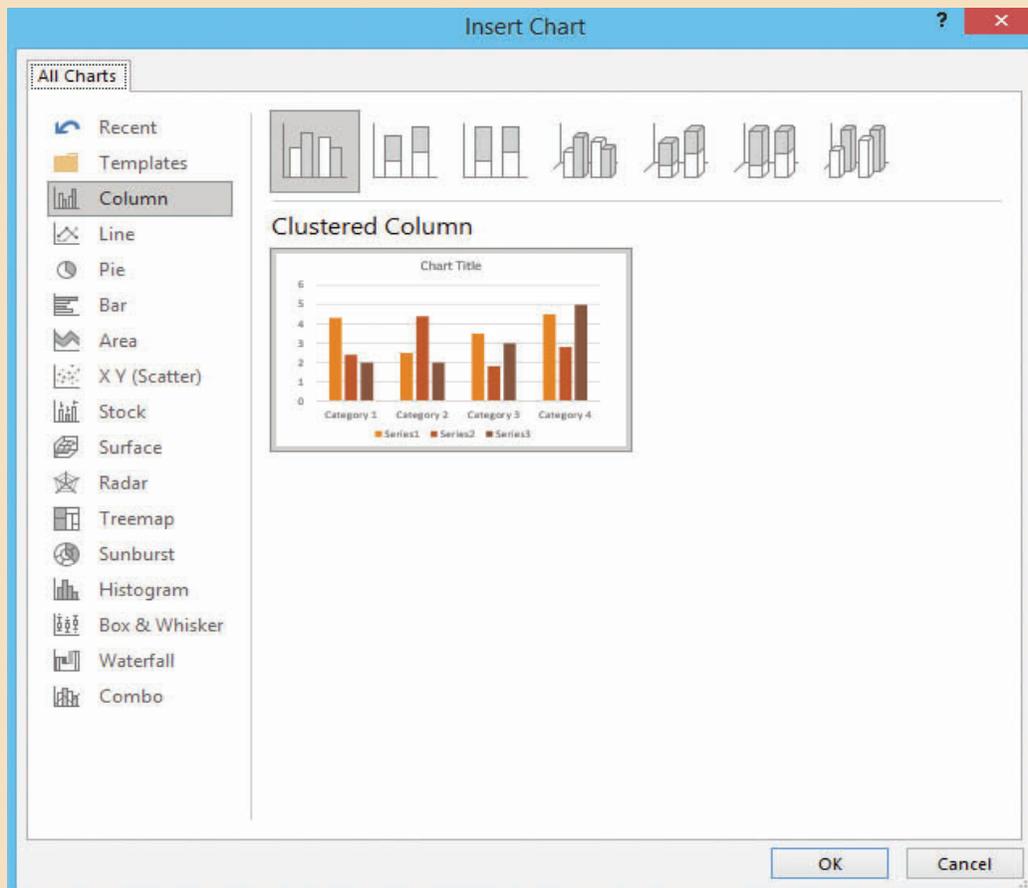
Figure 2.24: Insert Table dialog box

### Adding a chart

Charts are graphical representations of data. Features of charts include bars, lines, or columns that you can use to understand different trends or compare values. Charts created in MS PowerPoint 2016 can easily be modified to different forms. The procedure in Activity 2.10 will enable you to add a chart to your MS PowerPoint presentation.

**Activity 2.10:** How to add a chart

- (i) Click on the **Insert** tab,
  - (ii) On the **Insert** ribbon, click the **Chart** icon,
  - (iii) On the **Chart** dialog box, choose the type of chart you want to insert,
  - (iv) Click **OK**.
- Or
- (i) On the slide pane, click the icon for chart insertion,
  - (ii) On the **Chart** dialog box (see Figure 2.25), choose the type of chart you want to insert,
  - (iii) Click **OK**.

**Figure 2.25:** *Insert Chart dialog box*

### Adding sound to a presentation

MS PowerPoint 2016 offers tools that can assist you in adding sound to your presentation. These tools allow you to configure a sound object that will be played whenever you display the slide. You can also set a sound object by clicking the sound object icon. The procedure in Activity 2.11 guides you in adding sound to your presentation.

#### Activity 2.11: Adding sound to a presentation

- (i) Select the slide to which you want to add the sound,
- (ii) Click on the **Insert** tab,
- (iii) On the **Insert** ribbon, click the Audio button located on the right side,
- (iv) Choose the location where your audio file is found; for example, **C:TIE/Desktop/kingereza nyimbo**: the **Insert Audio** dialog box will appear, as shown in Figure 2.26.
- (v) Select the audio file you want to insert.
- (vi) Click the **Insert** button to add sound.

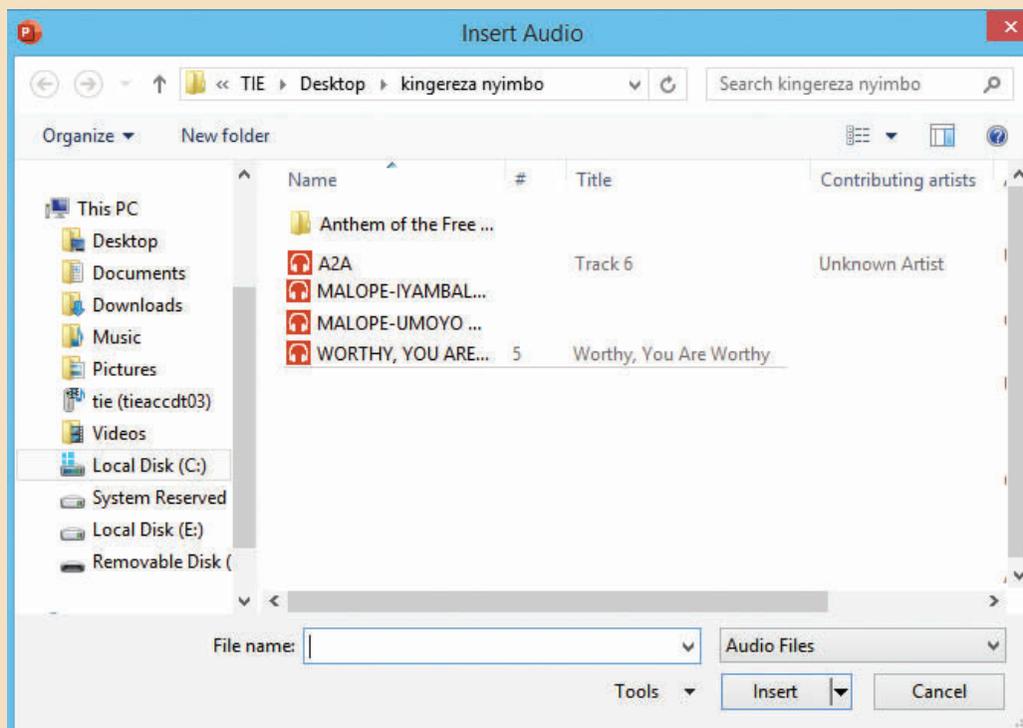
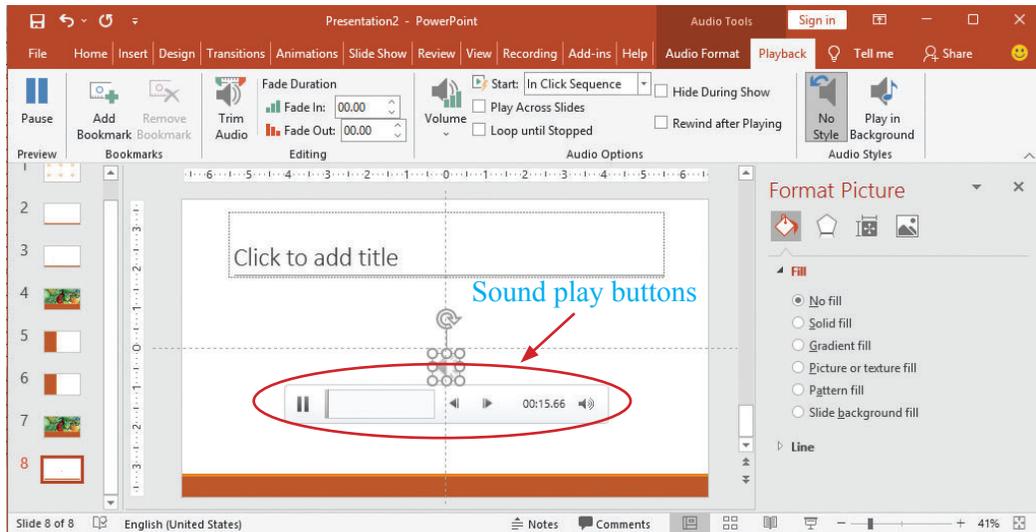


Figure 2.26: The Insert Audio dialog box

**NOTE:** The buttons for playing a sound will be displayed on the slide, as shown in Figure 2.27.



**Figure 2.27:** A slide with a sound play button

### Adding video to a presentation

You can also embed a video in a PowerPoint presentation or specify a link to a video file for use in a PowerPoint presentation. To do this, you can use a video file available on your PC or download one from the Internet or insert a link from the Internet. The procedure in Activity 2.12 guides you to insert a video into your presentation.

#### Activity 2.12: Adding video to a slide

- (i) Select the slide to which you want to add a video,
- (ii) Click on the **Insert** tab,
- (iii) On the **Insert** ribbon, click the **Video** button located on the right side,
- (iv) Choose the media or link that contains your video,
- (v) Select the video file you want to insert,
- (vi) Click the **Insert** button.

### Working with slides

PowerPoint presentations can contain as many slides as you may need. The **Slide Navigation** pane makes it easy to **organise** your slides. Using the slide

navigation pane, you can manipulate your presentation in different ways such as duplicating slides, rearranging slides, and deleting slides from your presentation.

### Duplicating slides

If you want to create a copy of a slide, you can **duplicate** it. To duplicate a slide, right-click on the slide and choose **Duplicate Slide** from the menu that appears. You can also duplicate **multiple slides** at once by selecting them first.

### Moving slides

It is easy to change the **order** of your slides. To move a slide to a different position, drag the slide in the Slide Navigation pane to the desired position.

### Deleting slides

If you want to remove a slide from your presentation, simply select the slide you want to delete, and then press the **Delete** or **Backspace** key on your keyboard.

### Copying and pasting slides

If you want to create several slides with the same layout, you may find it easier to **copy and paste** a slide you have already created, instead of starting with an empty slide. Follow the procedure in Activity 2.13 to copy and paste slides.

#### Activity 2.13: Copying and pasting slides

- (i) In the Slide Navigation pane, select the slide you want to copy,
- (ii) Click the **Copy** command on the **Home** ribbon,
- (iii) In the Slide Navigation pane, click just below a slide (or between two slides) to choose a paste location. A horizontal insertion line will appear.
- (iv) Click the **Paste** command on the **Home** ribbon or use a keyboard shortcut “**Ctrl + V**”, the slide will appear in the selected location.

**NOTE:** You can also copy a slide by right-clicking on it and selecting Copy from the menu that appears, and then right clicking to choose the Paste option.

### Customising slides

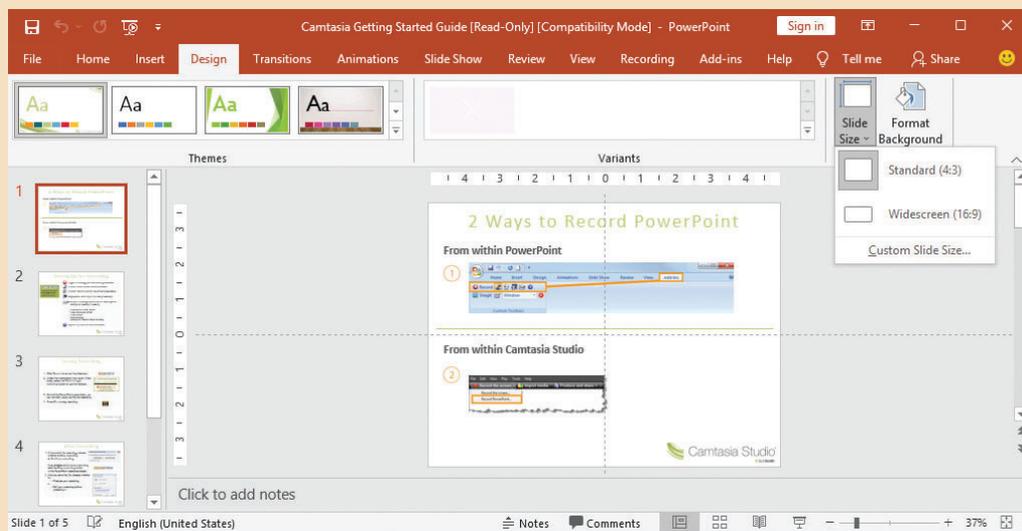
Customising a slide means changing the default settings of a slide to user-defined settings. There are several options to customise a slide, including changing the slide size, formatting slide background, applying a theme, applying animations, and applying transitions.

### Changing on-screen show slide size

By default, all slides in MS PowerPoint 2016 use a **16:9** on-screen show **slide size** known as the **widescreen** aspect ratio. Widescreen slides will work best with widescreen monitors and multimedia projectors. However, if you need your presentation to fit on a standard **4:3** screen, it is easy to change the on-screen slide show size to fit on that screen. The steps in Activity 2.14 guide you on how to change the on-screen slide show size.

#### Activity 2.14: Changing the on-screen show slide size

- (i) On the **Design** ribbon, click on the **Slide Size** command (see Figure 2.28),



**Figure 2.28:** Changing on-screen show slide size

- (ii) Choose the desired on-screen show slide size from the menu that appears.

Alternatively, you can follow the following steps to change the on-screen show slide size.

- (i) Using the slide size command on the design ribbon, click on **Custom Slide Size**,
- (ii) Use the slide size dialog box (see Figure 2.29) to set up the on-screen show size of your slides.

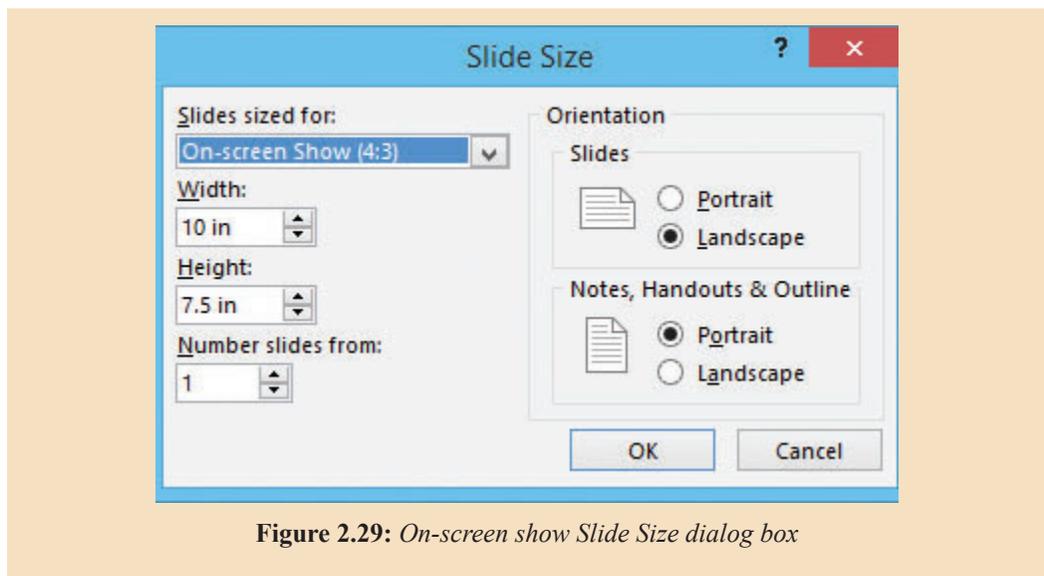


Figure 2.29: On-screen show Slide Size dialog box

### Formatting slide background

By default, all slides in your presentation use a **white background**. It is easy to change the background style for some or all your slides. Examples of backgrounds you can use are **solid fill**, **gradient fill**, **pattern fill**, and **picture fill**. Follow the steps in Activity 2.15 to practise how to change the slide background.

#### Activity 2.15: Changing the slide background

- (i) On the **Design** ribbon, click the **Format Background** command. The **Format Background** pane will appear on the right (see Figure 2.30).
- (ii) Select the desired fill option,
- (iii) Click **Apply to All** to apply the selected background style to all slides in your presentation.

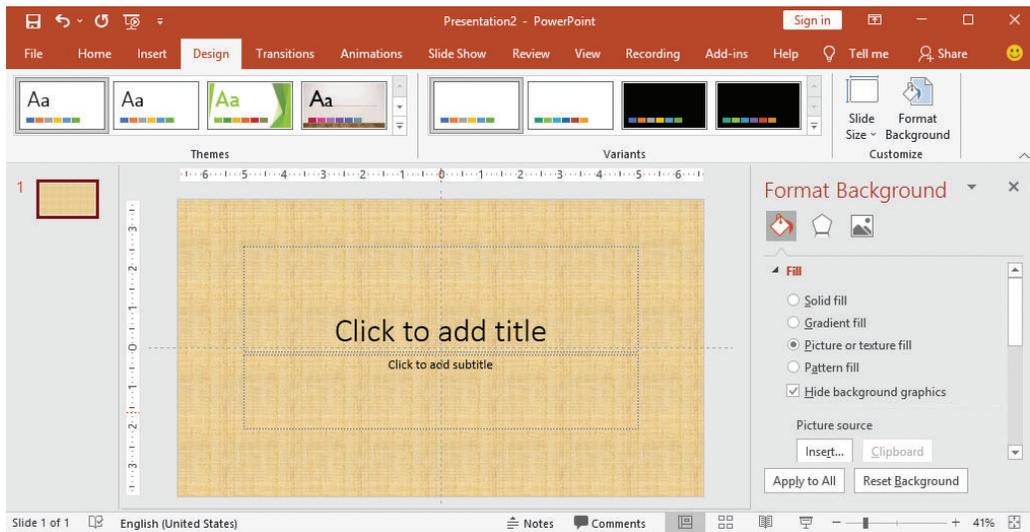


Figure 2.30: Changing the slide background

### Applying a theme

A theme is a predefined set of colours, fonts, and effects that may be used to instantly change the look and feel of your presentation. Follow the procedure in Activity 2.16 to change the theme of your slides.

#### Activity 2.16: Changing a slides theme

- (i) On the **Design** ribbon, click the **More** drop-down arrow: a window with all the available themes will appear (see Figure 2.31).
- (ii) Select the desired theme and it will be applied on your slides.

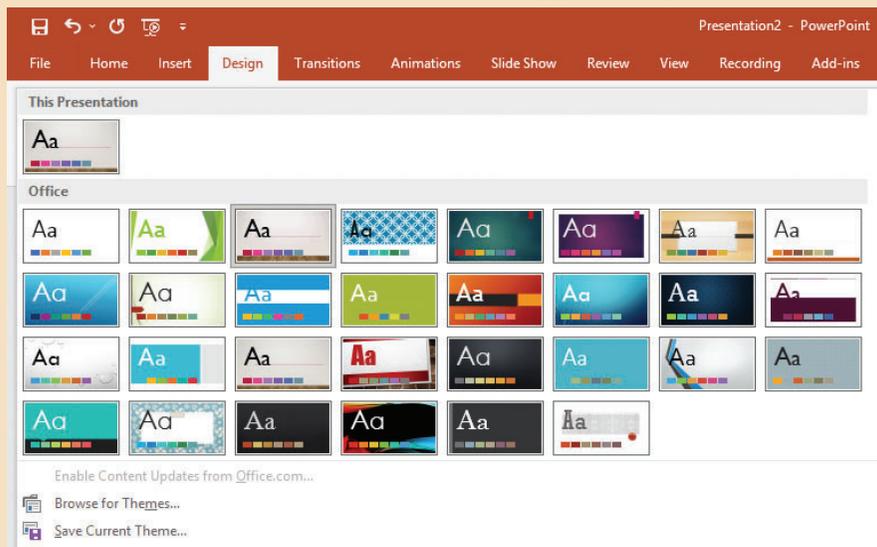
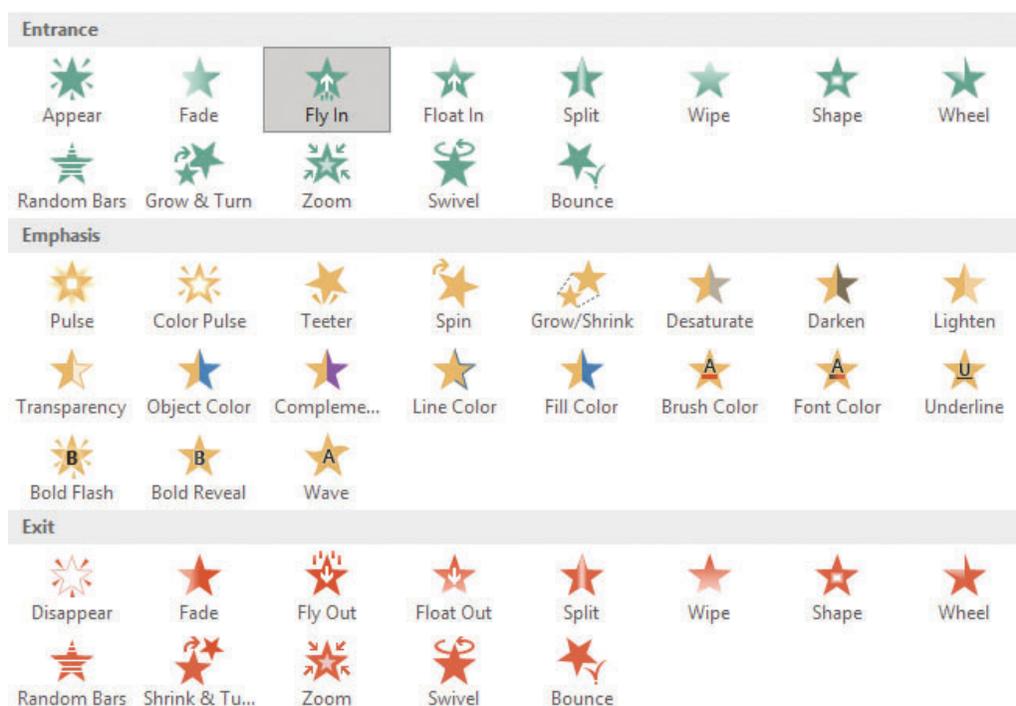


Figure 2.31: Applying a theme to slides

**NOTE:** Some themes will work better than others, depending on the contents of your slides.

### Applying animations

Animations make objects appear to move on the screen. In a PowerPoint presentation, things like text and graphics can be made to move around a slide (animated). Animations are very useful in making a presentation more dynamic and help to emphasise points. However, you should be very careful in using animations because too much of them can distract the audience. In MS PowerPoint 2016, animations can be used to signal entrance to a slide, to emphasise objects on a slide, and to signal exit from one slide (see Figure 2.32).



**Figure 2.32:** Categories of animation in MS PowerPoint 2016

### Important points in adding animations

- Use simple animations as much as possible.
- Avoid unnecessary use of too many animations.
- Adjust the timing of an animated object to suit the needs of a presentation.

The procedure in Activity 2.17 guides you in applying animations to your presentation.

### Activity 2.17: Setting animations in a presentation

- (i) Click on the **Animations** tab,
- (ii) On the **Animations** ribbon, choose the animation style you want to use,  
Or,

If you prefer a certain animation that is not in the default ones, follow the following steps.

- (i) On the **Animations** ribbon, click the **More** arrow: more animation styles will appear, as shown in Figure 2.33.
- (ii) Choose the animation style you want to use.

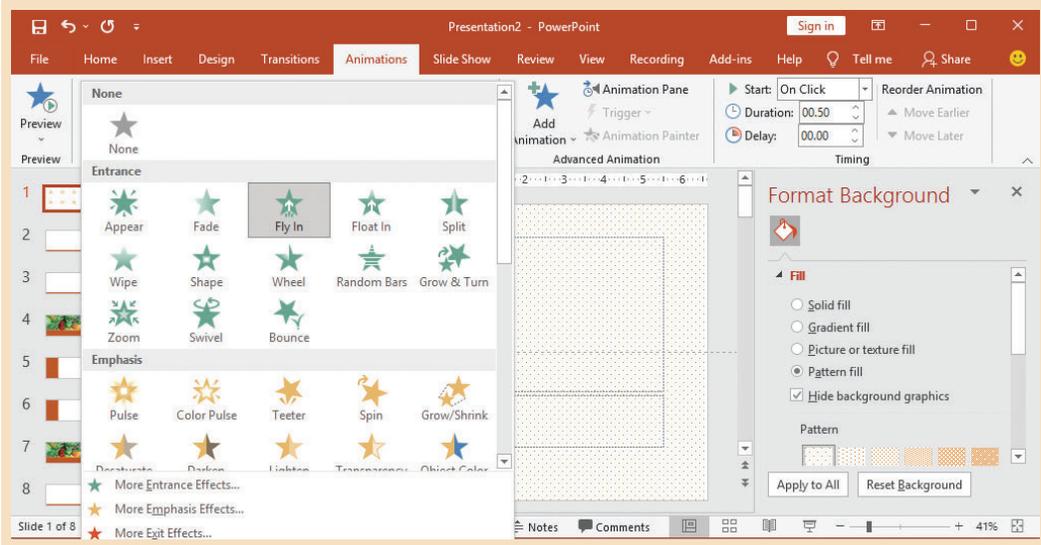
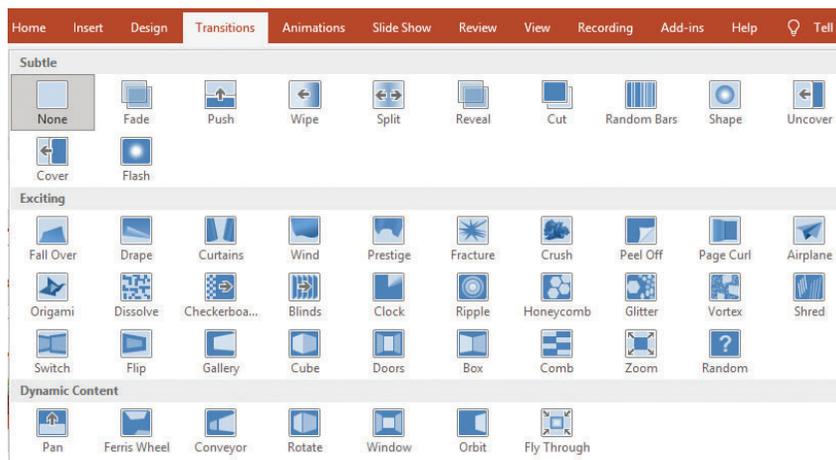


Figure 2.33: Animation style options

**NOTE:** If you want to apply the same animation to all text or objects in a slide, you can select all text or objects, and then click on the command for animation you prefer.

### Applying transitions

Transitions refer to animations applied when moving from one slide to another. There are many transition options available in the Transitions ribbon of MS PowerPoint. These transitions are divided into three categories: subtle, exciting, and dynamic content, as shown in Figure 2.34.

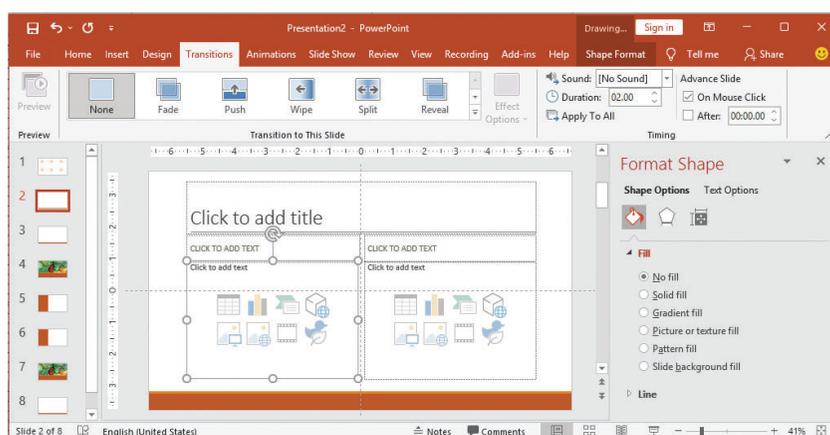


**Figure 2.34:** Categories of transitions in MS PowerPoint 2016

**NOTE:** Transitions can help you to automatically move from one slide to the next, without clicking anywhere. The steps in Activity 2.18 guide you on how to set transitions for your presentation.

### Activity 2.18: Setting transitions

- (i) Select the slide to which you want to introduce a transition,
- (ii) Click on the **Transitions** tab,
- (iii) On the **Transitions** ribbon, choose the required transition (see Figure 2.35),
- (iv) Click the **More** arrow, if you want to explore more types of transitions,
- (v) Click the **Apply to All** button if you want to apply the transition to all slides.



**Figure 2.35:** Transitions window

## Exercise 2.2

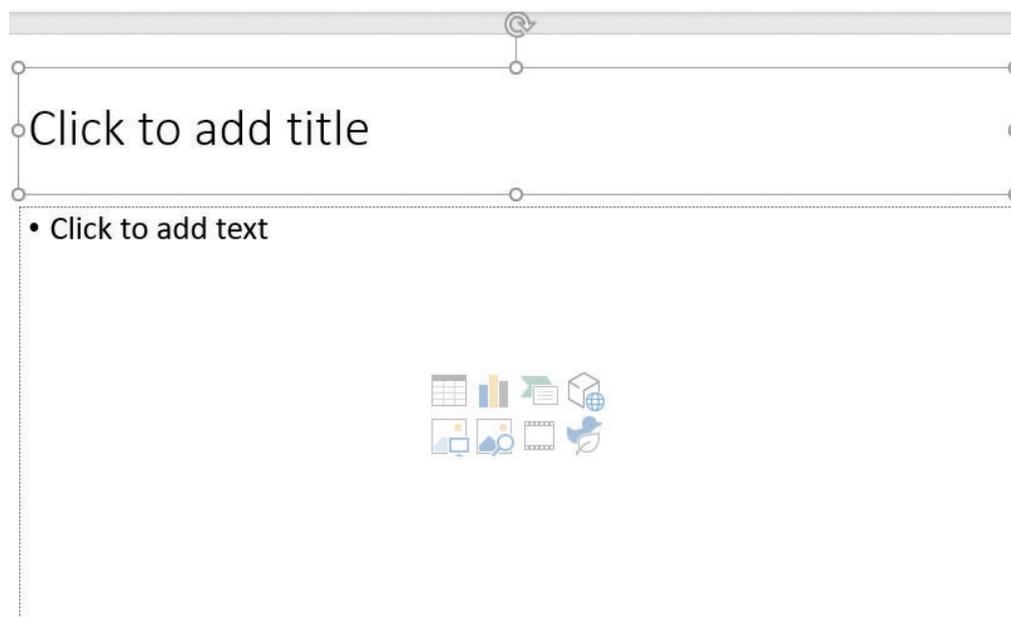
Prepare a presentation that contains ten slides about yourself, your family, friends, and your schools. Apply a transition of your choice to all the slides. Also, apply animations to at least three relevant slides in your presentation.

### Customising slide layouts

Sometimes, the available slide layouts may not suit your needs. For example, the layout may have too many or too few placeholders. Likewise, you may find it necessary to rearrange the placeholders on the slide. This is quite simple when using MS PowerPoint 2016 because it gives a way to adjust slide layouts as needed.

### Adjusting placeholders

You can adjust a placeholder by moving or resizing it. To adjust a placeholder, you need to select it first. To select a placeholder, hover the mouse over the edge of the placeholder and click (you may have to first click on the text in the placeholder to see the border). A selected placeholder will have a solid line instead of a dotted line, as shown in Figure 2.36.



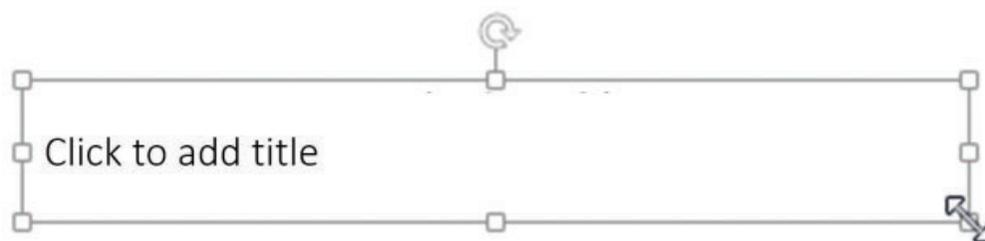
**Figure 2.36:** Placeholder with a solid line

To move a placeholder, select the placeholder (Figure 2.37), then click and drag it to the desired location.



**Figure 2.37:** Placeholder with the moving handle

To resize a placeholder, select the placeholder you want to resize. **Sizing handles** will appear (see Figure 2.38). Click and drag the **sizing handles** until the placeholder is of desired size. You can use the corner sizing handles to change the placeholder's height and width simultaneously.



**Figure 2.38:** Placeholder with resizing handles

### Deleting a placeholder

Select the placeholder you want to delete, and then press the **Delete** or **Backspace** key on your keyboard.

### Adding a text box

Text can be inserted into both placeholders and text boxes. Inserting text boxes modifies a slide layout. Unlike placeholders, text boxes always stay in the same place, even if you change the theme. The procedure in Activity 2.19 guides you to add a text box to a placeholder.

#### Activity 2.19: Adding a text box to a placeholder

- (i) On the **Insert** ribbon, select the **Text Box** command,
- (ii) Click, hold, and drag to draw a text box on the slide. The text box will appear as shown in Figure 2.39.



**Figure 2.39:** A text box

### Using blank slides

Blank slides with no placeholders are a good option if you want to organise your content in your own style. Blank slides can be altered to include your own text fields, images, charts, and other elements. Activity 2.20 guides you on how to insert and use a blank slide.

#### Activity 2.20: Using blank slides

- (i) Click on the **Insert** tab,
- (ii) On the **Insert** ribbon, click on **New Slide** command,
- (iii) Choose **Blank** from the menu that appears.

**NOTE:** When you use blank slides, you will not have the freedom to use pre-designed layouts that come with each theme.

### Playing the presentation slides

After you have prepared your presentation, you may play your slides using **Slide Show** mode. A slide show is used both to test your presentation and for delivering a presentation. The quickest way to play your presentation is to use the **Start From Beginning** command. The steps in Activity 2.21 enable you to run your slides.

#### Activity 2.21: Playing your presentation

- (i) On the **Slide Show** ribbon, click on the **Start From Beginning** command: the presentation will appear in full-screen.
- (ii) Click a left mouse button or use a space bar to move to the next slide. You can also use the arrow keys to move from one slide to another.
- (iii) Press the **Esc** key to exit the presentation mode.

### Exercise 2.3

Use your computer to modify any existing presentation by doing the following.

1. Open an existing presentation.
2. Insert a new slide with the Title and Content layout.
3. Add some text to the title placeholder.

4. Change the layout of the slide to a layout of your desire.
5. Move the slide in step 4 to a new location by using Copy and Paste commands.
6. Apply a theme to your presentation. If you have applied another theme before, change it to the Integral theme.
7. Insert a blank slide, and then insert a text box on the slide.
8. Change the slide size from Widescreen to Standard.

### Exporting presentations

MS PowerPoint, like other Microsoft Office applications, can export presentations to different file formats such as a portable document format (**PDF**), as well as file formats that are specific to previous versions of PowerPoint. Exporting a presentation to other file formats follows the same procedure as saving a file for the first time, except that you must choose a different file format for saving your document.

### Saving your presentation as a PDF file

Follow the procedure in Activity 2.22 to save a presentation as a PDF file.

#### Activity 2.22: Saving a presentation as a PDF file

- (i) Click on the **File** tab,
- (ii) In the **Backstage View**, click **Save As**,
- (iii) Select a location on your computer to which you want to save the file,
- (iv) From the **Save as type** drop-down menu, choose **PDF**,
- (v) Click **Save**.

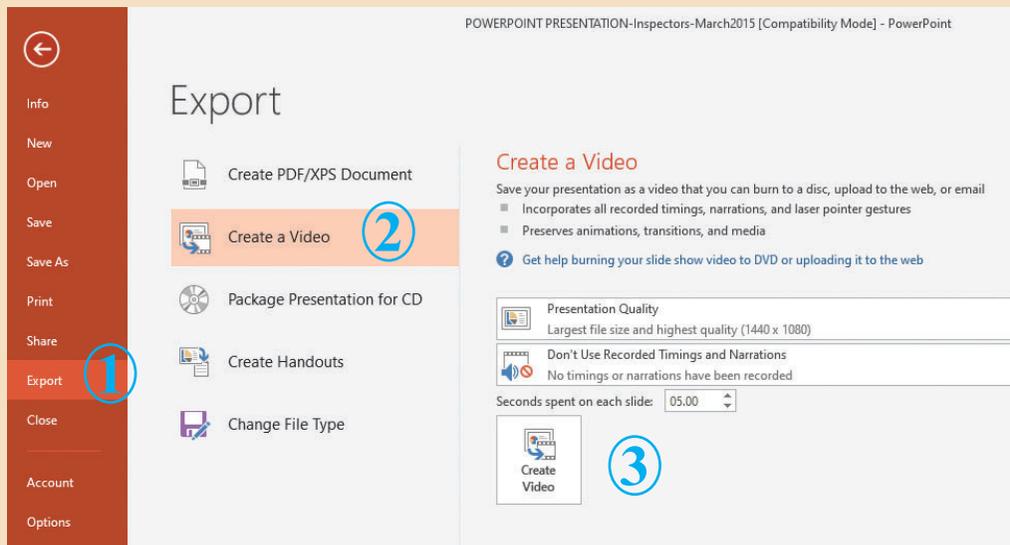
### Saving your presentation as a video file

MS PowerPoint 2016 also allows you to export your presentation to a video format. The steps in Activity 2.23 guide you in saving your presentation as a video.

#### Activity 2.23: Saving your presentation as a video

- (i) Click the **File** tab to access the **Backstage view**,

- (ii) On the **Backstage view**, click **Export**: the Export dialog box will appear, as shown in Figure 2.40.



**Figure 2.40:** *Exporting a presentation. to a video file format*

- (iii) Choose the desired option; in this case, select **Create a Video**: the sub-window for creating the video will appear,
- (iv) Click the **Create video** button, and the window for specifying file information will be opened.
- (v) Specify the file name,
- (vi) Click **Save**.

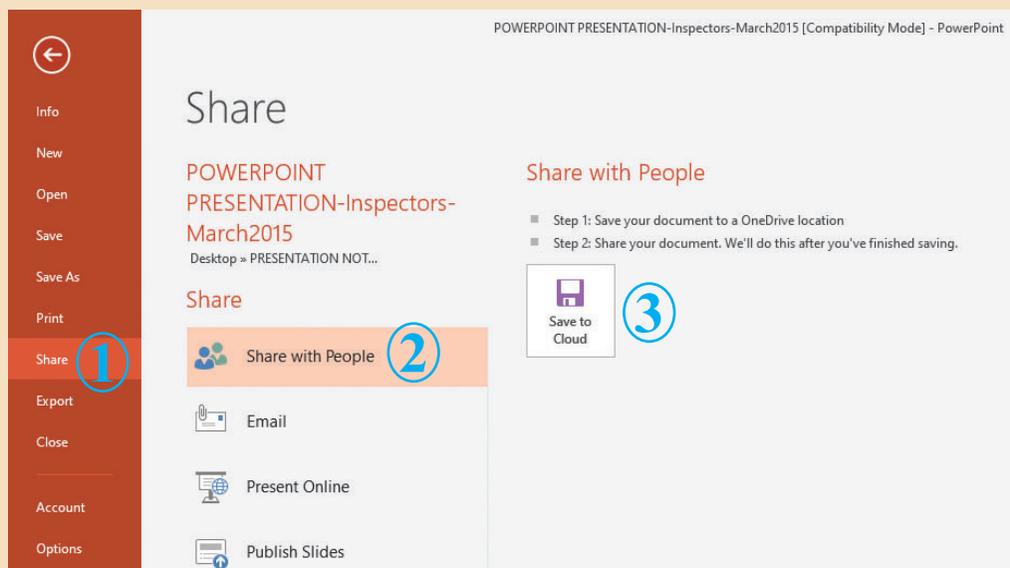
**NOTE:** The steps in Activity 2.23 can also be followed to export the presentation to PDF, package it to a CD or flash disk, create handouts, and change file type.

### Sharing presentations

MS PowerPoint 2016 makes it easy to share and collaborate on presentations using OneDrive, which is a file hosting and synchronization service managed by Microsoft. Microsoft OneDrive is like Google Drive. When you use MS PowerPoint 2016 to share a presentation, you let others access the same file. This lets you and your collaborators edit the same presentation, without having to keep track of multiple versions. To share a presentation, it must first be saved to your OneDrive account. Follow the procedure in Activity 2.24 to share your presentation.

**Activity 2.24: Sharing a presentation**

- (i) Click on the **File** tab,
- (ii) On the **Backstage view**, click on **Share**: the **Share** pane will appear as shown in Figure 2.41.



**Figure 2.41:** *Sharing a presentation.*

- (iii) Click on **Save to Cloud**,
- (iv) Click on **Browse**,
- (v) Specify a file name,
- (vi) Click **Save**.

**NOTE:** A digital presentation can be shared in different ways, including email, online presentation platforms, or via storage devices such as CD or flash disk. Sharing of a presentation via a CD or flash disk can be appropriate if the presentation is to be done physically. A presentation saved on external storage such as external hard disk, Flash disk or CD can be shared to other computers. Sharing the presentation via email is done as an attachment. The existing online options enable you to present to a remote audience, who can view your presentation via a web browser or via video conference tools such as Zoom, Google Meet, or Skype.

## Exercise 2.4

In this exercise, you are going to create, save, share, and export a presentation. The following steps guide you on how to accomplish the task.

1. Create a new presentation.
2. Save the presentation on the Desktop.
3. Save the presentation **online** and invite someone else to view it.
4. Export the presentation to a **PDF** file.

### Linking a presentation file to other documents

A hyperlink enables you to link a text or an image to another file. It makes it possible to link additional content to your presentation. To elaborate a certain point during the presentation, you may use a hyperlink to access a linked object. MS PowerPoint 2016 enables you to link your slides to files, other slides, web addresses, or e-mail addresses. You are required to create a hyperlink that can be clicked easily.

### Inserting a hyperlink to an existing file

Hyperlinks have two basic parts: the address of the data source you want to connect to, and the text to be displayed. For example, if you want to connect to YouTube, the address could be <http://www.youtube.com>, and YouTube could be the content to be displayed. But sometimes, the content to be displayed might be the same as the address. You need to specify the address as well as the content or image that will be displayed when creating a hyperlink in PowerPoint. The procedure in Activity 2.25 guides you on how to insert a hyperlink to your presentation.

### Activity 2.25: Inserting a hyperlink to a presentation

- (i) Select the text or image you want to link to another file,
- (ii) Click the **Insert** tab,
- (iii) On the **Insert** ribbon, click the **Hyperlink** command: the **Insert Hyperlink** dialog box will be opened, as shown in Figure 2.42,
- (iv) Type the address of the file, or select the file you want to link to your slide,
- (v) Click **OK**.

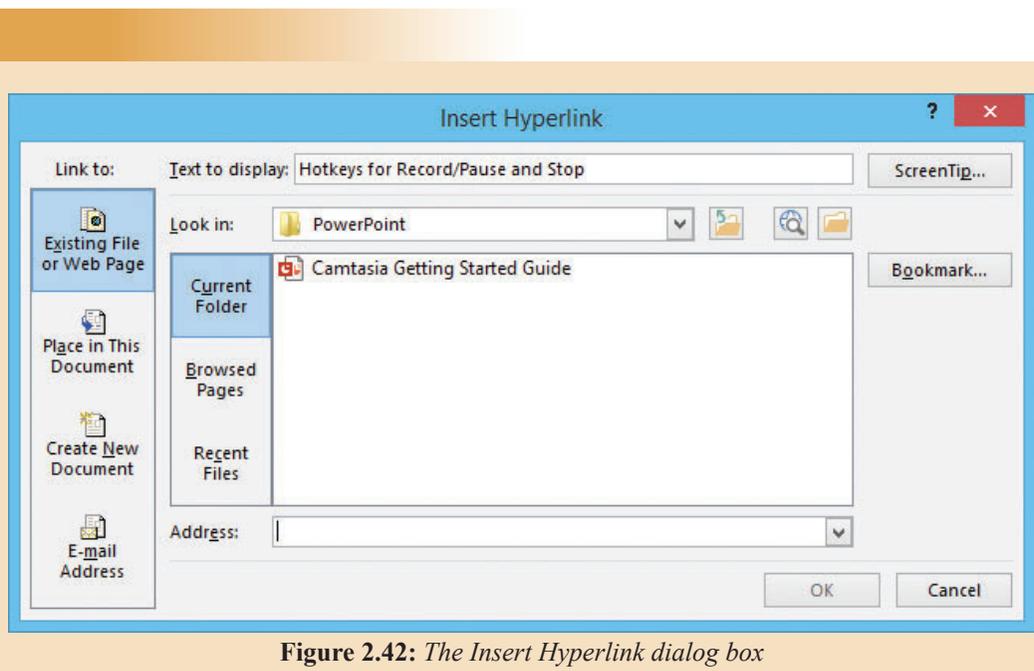


Figure 2.42: The Insert Hyperlink dialog box

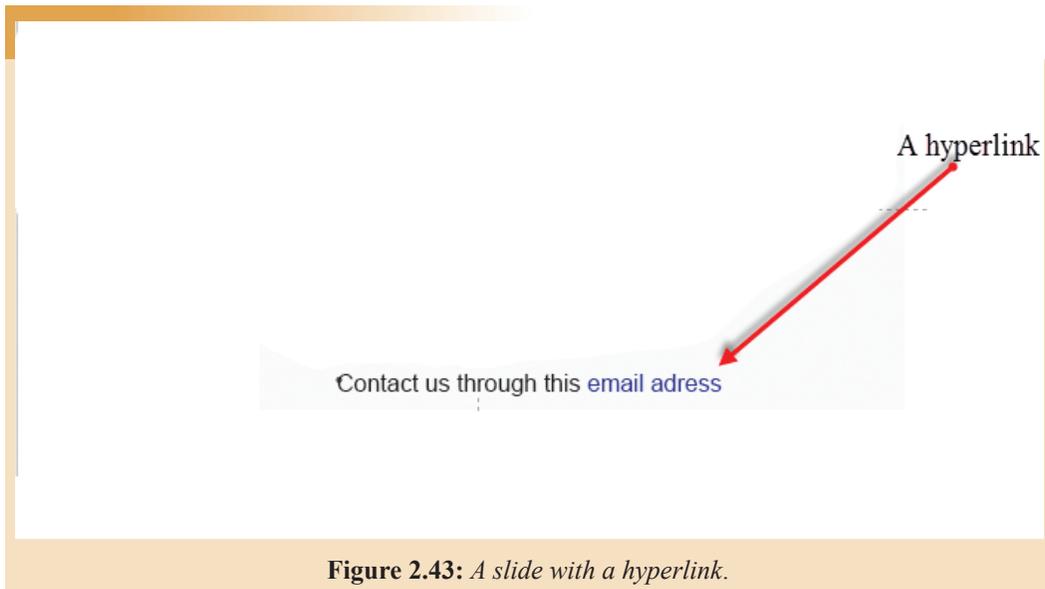
**NOTE:** The file may be selected from a recent file or other sources by clicking on the **Browsed Pages** command on the dialog box.

### Linking a PowerPoint Slide to an e-mail address

Activity 2.26 guides you on how to insert a hyperlink to an email address.

#### Activity 2.26: Inserting a hyperlink to an e-mail address

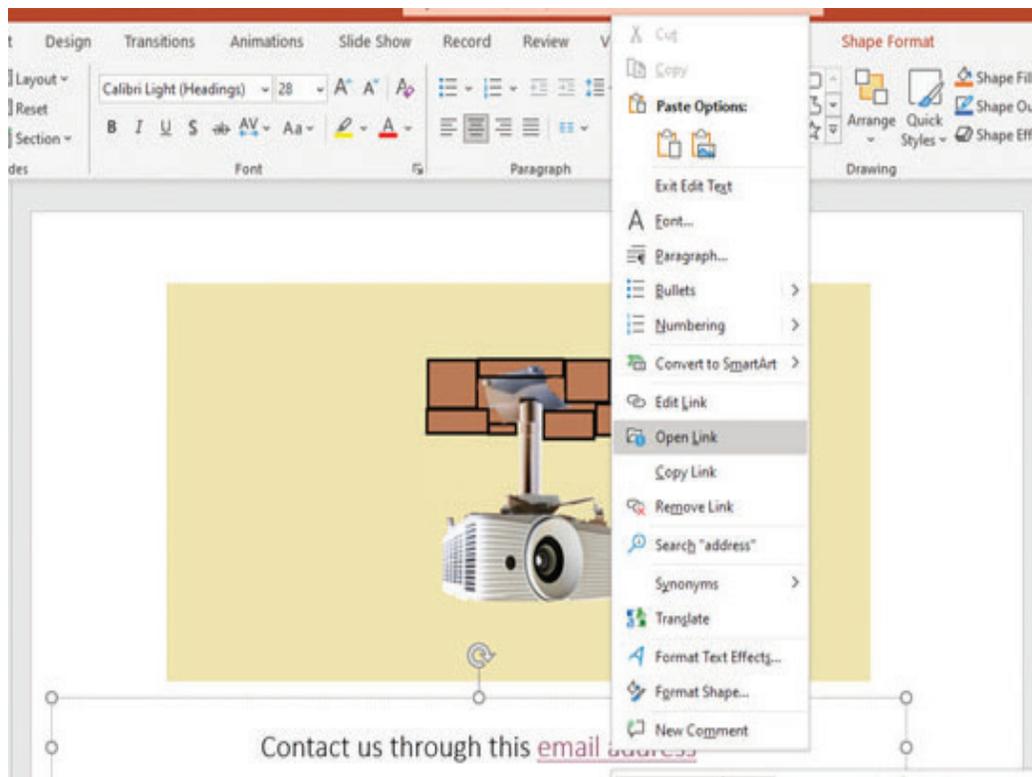
- (i) On a slide, select the text or image you want to link to an email,
- (ii) On **Insert** ribbon, click the **Hyperlink** command. The **Insert Hyperlink** dialog box will be opened.
- (iii) Click **Email Address**,
- (iv) In the **Email Address** box, type the e-mail address you want to connect to,
- (v) Click **OK**. The text will change colour to indicate a hyperlink, as in Figure 2.43.



**Figure 2.43:** A slide with a hyperlink.

### Opening a hyperlink

You are advised to test your hyperlinks to see if they work as expected. This is done by right-clicking on the hyperlink and then clicking on **Open Link**, as shown in Figure 2.44.



**Figure 2.44:** Opening a hyperlink

### Removing a hyperlink

You may find that the links you have introduced to your slide or document are no longer needed; MS PowerPoint 2016 allows you to remove them. To remove a hyperlink from the slide, right-click on the hyperlink and then click on the **Remove Hyperlink** menu option.

### Inserting action buttons

Action buttons are built-in shapes that can also be used to link your slides to a web page, file, e-mail address, or another slide show. A button acts as a hyperlink, which, when clicked, it opens the specified location or object. You can insert action buttons on one slide at a time, or you can insert an action button that will appear on every slide. Action buttons can help you to link your slide to or back to a specific slide. The procedure in Activity 2.27 guides you on how to insert an action button into your presentation.

#### Activity 2.27: Inserting an action button on a slide

- (i) Click on the **Insert** tab.
- (ii) On the Insert ribbon, click the **Shapes** command in the Illustrations group. A drop-down menu will appear with the action buttons, as shown in Figure 2.45.

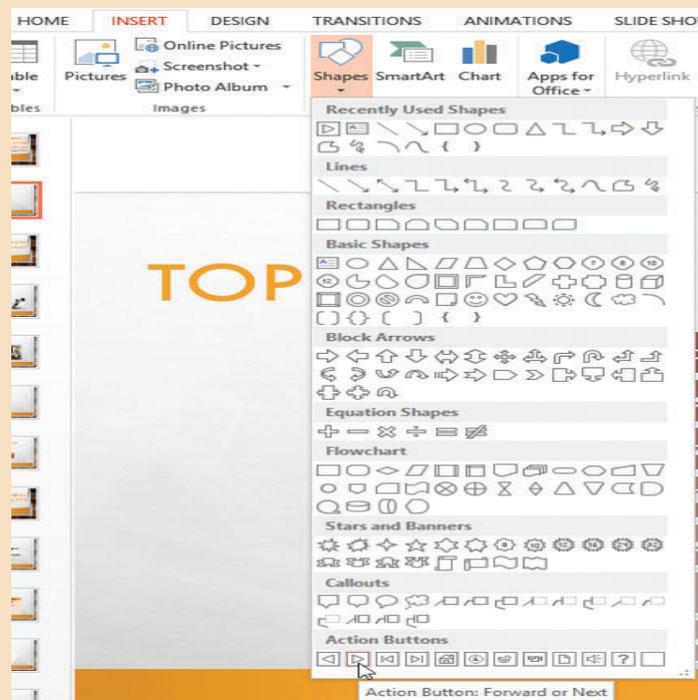
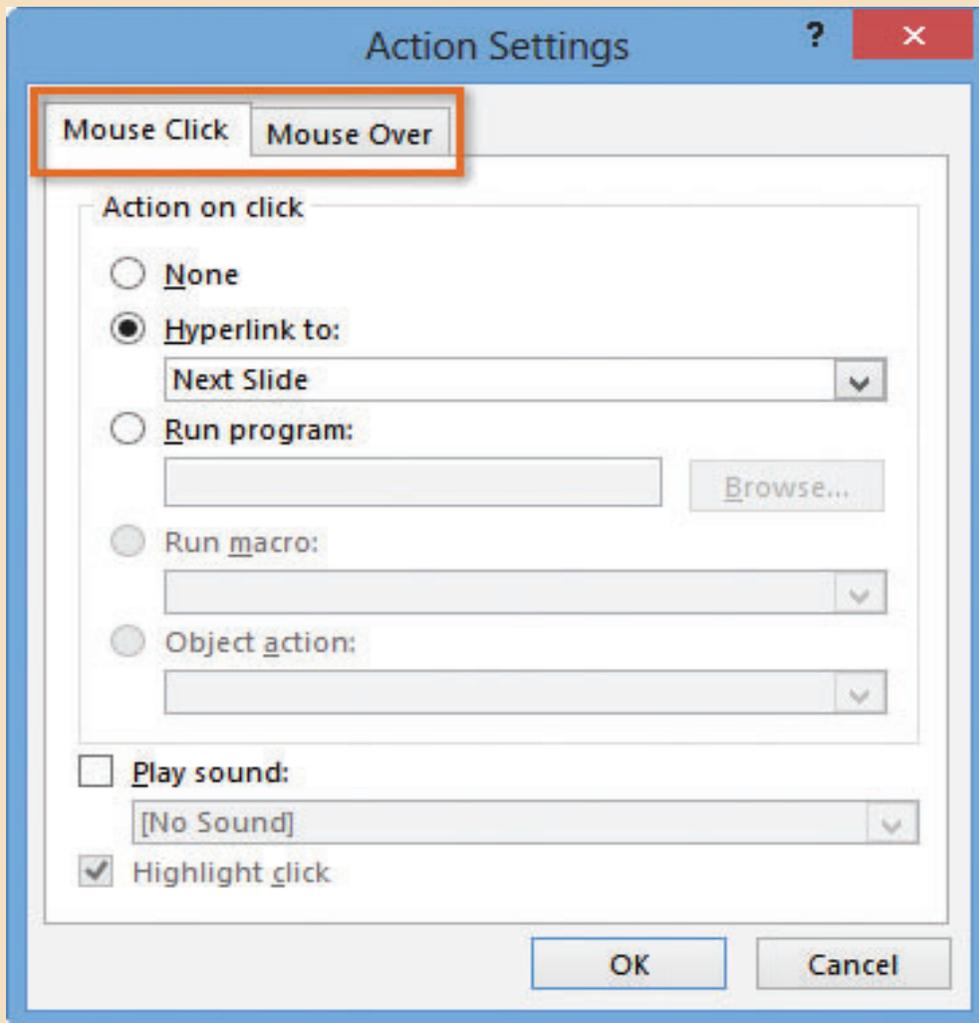


Figure 2.45: Action buttons

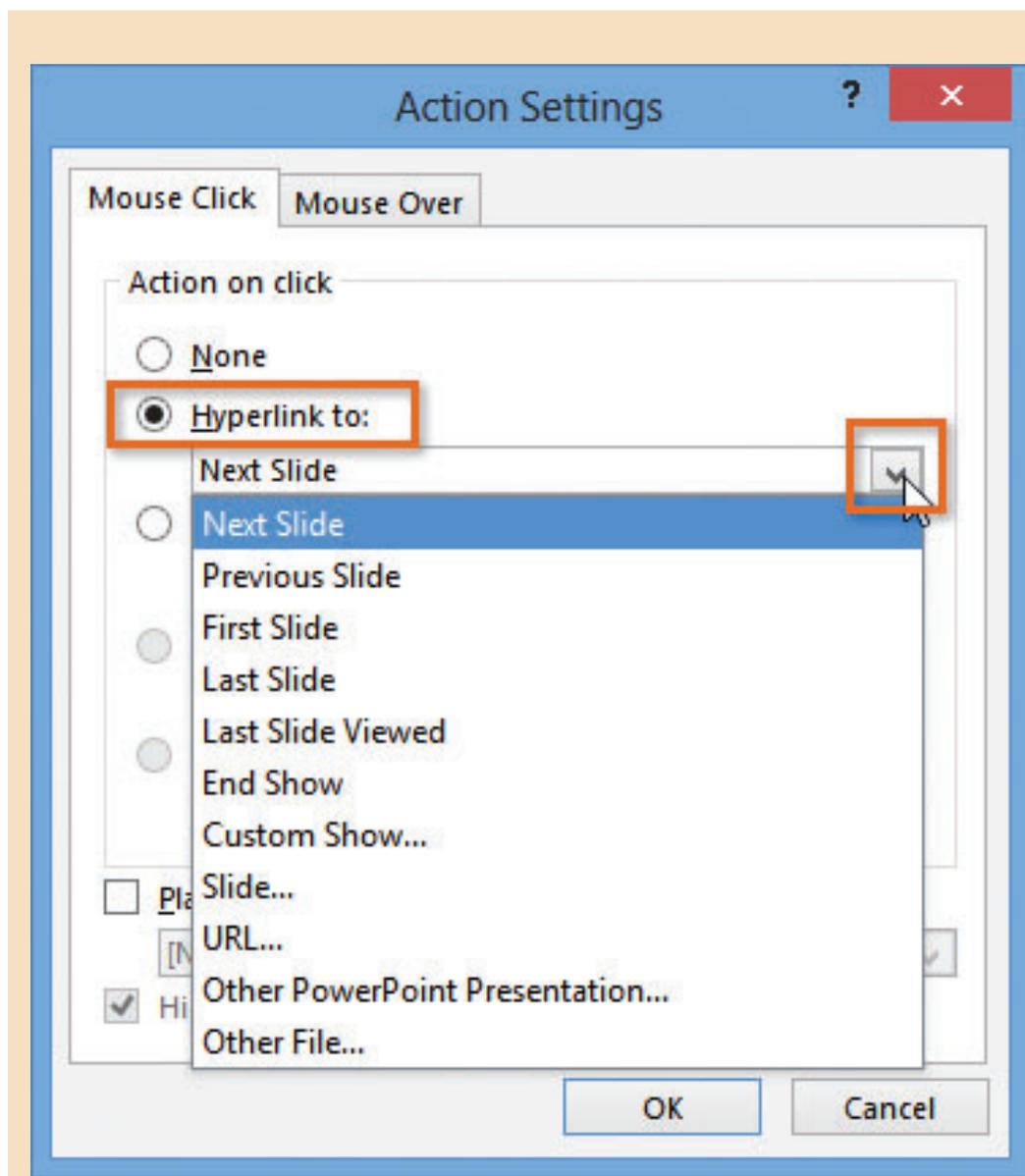
- (iii) Select the desired **action button**,
- (iv) Insert the button onto the slide by clicking on the desired location. The **Action Settings** dialog box will appear, as shown in Figure 2.46.
- (v) Select the **Mouse Click** or **Mouse Over** tab,



**Figure 2.46:** Action Settings dialog box.

**NOTE:** Selecting the **Mouse Click** tab means the action button will perform an action only when clicked. Selecting the **Mouse Over** tab will make the action button perform an action when you move the mouse over it.

- (vi) From the **Action on click** section, select **Hyperlink to**,
- (vii) From the **Hyperlink to** drop-down menu, choose Next Slide option, as shown in Figure 2.47.



**Figure 2.47:** *Specifying hyperlink destination for an action button*

- (viii) Select the **Play Sound** box, if you want a sound to play when the action button is clicked.
- (ix) Select the type of sound from the drop-down menu, or select other sounds from your computer, as shown in Figure 2.48.

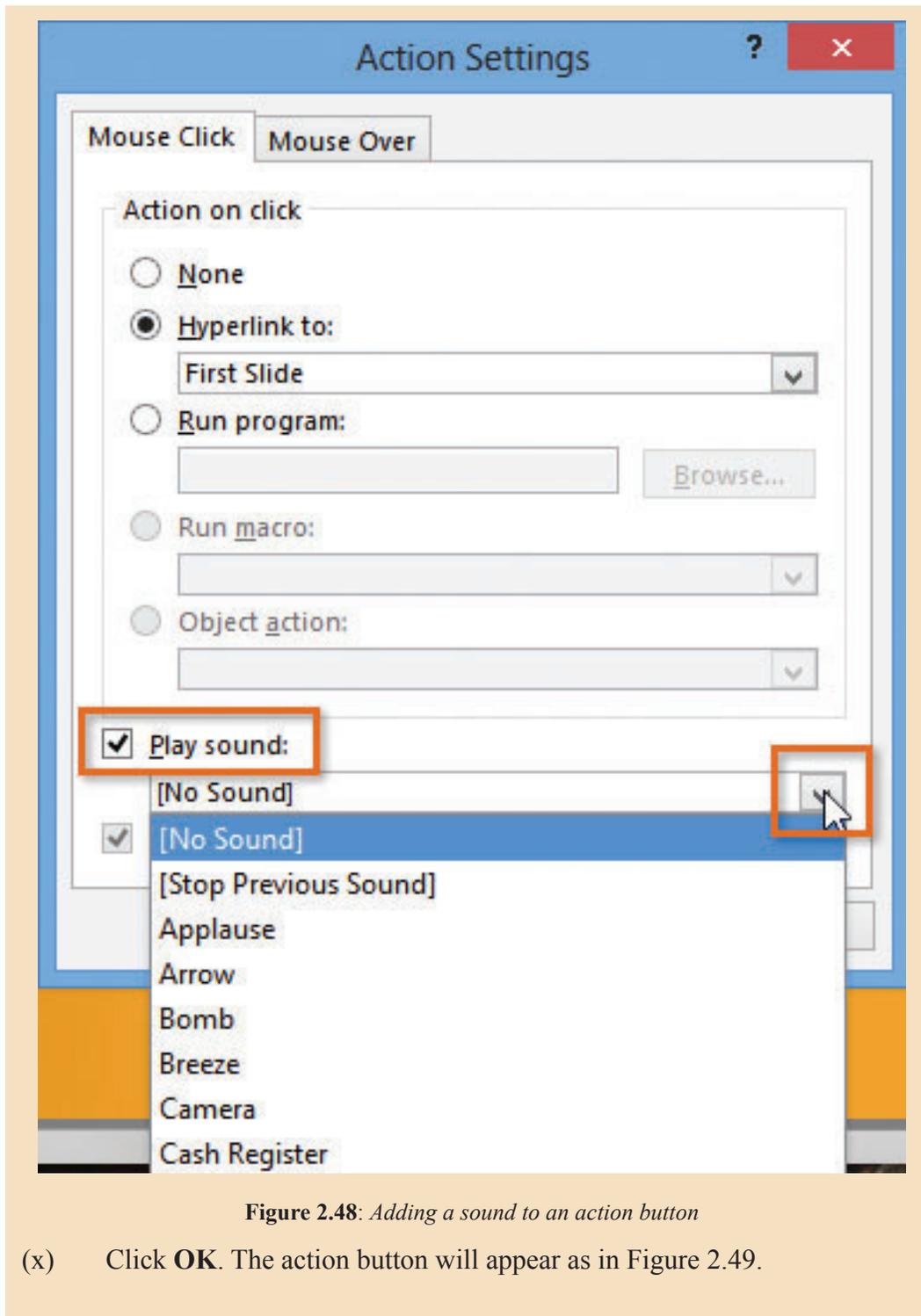
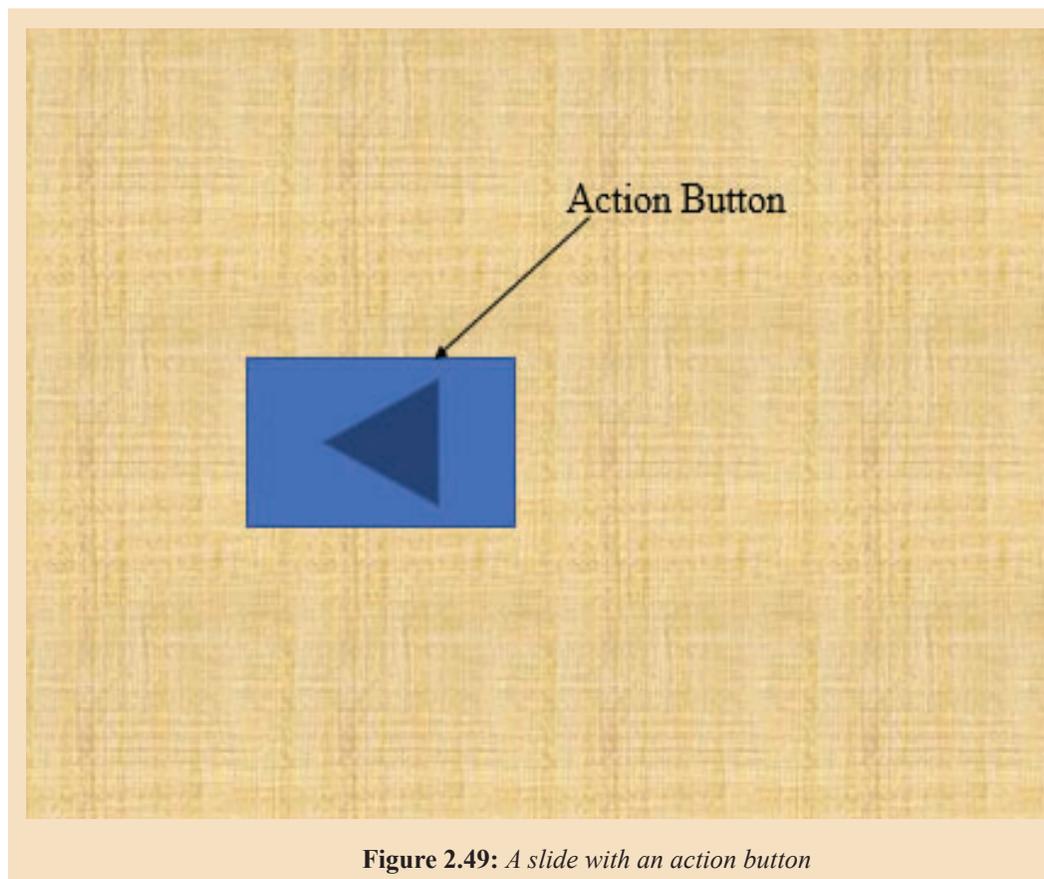


Figure 2.48: Adding a sound to an action button

- (x) Click **OK**. The action button will appear as in Figure 2.49.



### Inserting an action button to all slides

MS PowerPoint 2016 allows you to apply an action button to all slides at once. The procedure in Activity 2.28 guides you to insert an action button to all slides at once.

#### Activity 2.28: Inserting an action button to all slides

- (i) Click the **View** tab,
- (ii) On the **Master Views** group, click the **Slide Master** command: a blank slide will appear in your presentation.
- (iii) Click the **Insert** tab, and follow the instructions to add an action button to a slide,
- (iv) Click the **Slide Master** tab,
- (v) Click **Close Master View**, and the new action button will be displayed on every slide.

### Testing an action button

It is advised to test your action button after you have created it. Follow the procedure in Activity 2.29 to test the action button you have created.

#### Activity 2.29: Testing an Action Button

- (i) Click the **Slide Show** tab,
- (ii) In the **Start Slide Show** group of the Slide Show ribbon, click **From Current Slide**, as shown in Figure 2.50.
- (iii) Click your action button, and observe what will happen.



**Figure 2.50:** A slide show from current slide for testing an action button

### Editing an action button

After you have created an action button, it is possible to edit it. The procedure for editing an Action Button is presented in Activity 2.30.

#### Activity 2.30: Editing an action button

- (i) Select the action button,
- (ii) Click the **Insert** tab,
- (iii) In the **Links** group of the Insert ribbon, click the **Action** command: the **Actions Settings** dialog box will appear.
- (iv) Edit the action or hyperlink,
- (v) Click **OK**.

### Changing the appearance of an action button

The action button can be modified in a way preferred by the designer. To make changes to an action button, you can follow the procedure in Activity 2.31.

#### Activity 2.31: Changing the appearance of an Action Button

- (i) Select the action button,
- (ii) Click the **Format** tab,
- (iii) On the **Format** ribbon, use the tools in the **Shape Styles** group to change the button style or colour.

**Exercise 2.5**

1. Open an existing PowerPoint presentation.
2. Select a text and insert a hyperlink to a webpage of your choice.
3. Select a text or an image and insert a hyperlink to another slide in the presentation.
4. Insert an action button that uses sound.
5. Change the shape and style of an action button.

**Delivering a presentation**

After you have prepared your slides, the next step is to deliver a presentation. If your presentation will be face-to-face, you will need to prepare yourself by connecting the multimedia projector to your computer and using slide show mode.

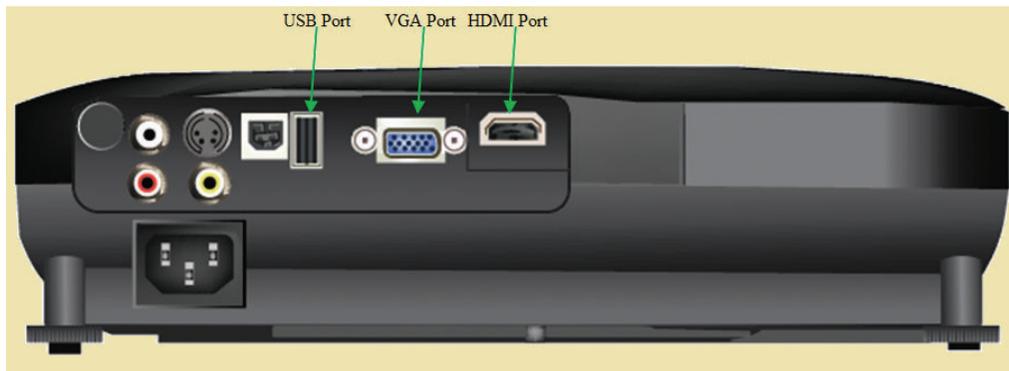
**Connecting a multimedia projector to a computer**

All modern TVs and projectors have one or more ports that allow them to be connected to a computer. Both desktop and laptop computers can connect to a TV or a multimedia projector, only if appropriate cables are used. You are supposed to follow the instructions for using a TV or multimedia projector as a computer monitor. Areas of focus include the following:

- (i) Identifying available connections.
- (ii) Connecting a computer to a multimedia projector or TV.
- (iii) The type of data source, either a desktop computer or a laptop.
- (iv) Troubleshooting connection problems, if there is any.

**Identifying available connections**

The first step in connecting your computer to a TV or projector is finding appropriate ports on both devices. These can be Video Graphics Array (VGA) ports, High-Definition Multimedia Interface (HDMI), or Universal Serial Bus (USB). After identifying ports, you must connect the two devices with the correct cable. Figure 2.51 shows available connection ports on a typical multimedia projector.



**Figure 2.51:** *Connection ports on a multimedia projector*

### High-Definition Multimedia Interface

The High-Definition Multimedia Interface (HDMI) connection is popular among display electronics appliances. Nearly all modern televisions and multimedia projectors have HDMI ports. A lot of laptop computers have HDMI ports, and the HDMI ports are becoming more prevalent on desktop computers as well, even those without a high-end video card. HDMI is quickly becoming the standard for all electronic equipment, because of its high-quality signals and the ability to carry audio and video signals. Figure 2.52 shows an example of HDMI cable.



**Figure 2.52:** *Examples of HDMI cable*

### Video Graphics Array

The Video Graphics Array (VGA) connection is also another type of connection on both desktop and laptop computers. It is also common on multimedia projectors and some Liquid Crystal Display (LCD) and Light Emitting Diode (LED) TV panels. The VGA cable has a 15-pin connector on each end that can be plugged

into a VGA port on each device being connected. Since modern designs do not support VGA connections, it is recommended to use HDMI cables due to their wide range of compatibility. Figure 2.53 shows an example of VGA cable.



**Figure 2.53:** Example of VGA cable

### Digital Visual Interface

The Digital Visual Interface (DVI) connection is newer than VGA and offers sharper images. Although the DVI port is not shown on the projector's image in Figure 2.51, it is still somewhat common on multimedia projectors, but not common on TVs. It is mainly found on desktop computers and is used for connecting monitors. Also, some laptops have DVI connections as well. Because it is difficult to find a DVI port on a TV or multimedia projector, it is recommended to use HDMI cables, if available. Figure 2.54 shows a DVI cable.



**Figure 2.54:** Example of a DVI cable

## S-Video

The super video (S-Video) connection is also commonly found on TVs (see Figure 2.55) and multimedia projectors, but seldom on a desktop or laptop computer. This connection is almost obsolete.



Figure 2.55: S-Video connection ports and cables

The S-video connection is quite common on TVs and projectors, but it is nearly non-existent on modern computers. This connection has a three-cable bundle consisting of red, white, and yellow ports for audio. You can see this set up on older video cards for desktop computers.

## Universal Serial Bus

Universal Serial Bus (USB) is an industry connection standard used for short-distance digital data communications. A USB cable (see Figure 2.56) is a standard cable connection interface for personal computers and consumer electronics devices. USB ports allow devices to be connected using USB cables, to transfer digital data. They can also be used to supply electric power across the cable to devices that need power. Recently, USB is becoming a standard connector for connecting a computer or laptop to a projector or TV, charging mobile phones, power banks, etc.



**Figure 2.56:** *A USB cable*

### **Connecting a computer to a multimedia projector or TV**

After identifying what connection ports are available on your computer, TV, or multimedia projector, you can then connect the devices. The following instructions can assist you in connecting the devices.

#### **Desktop Computers**

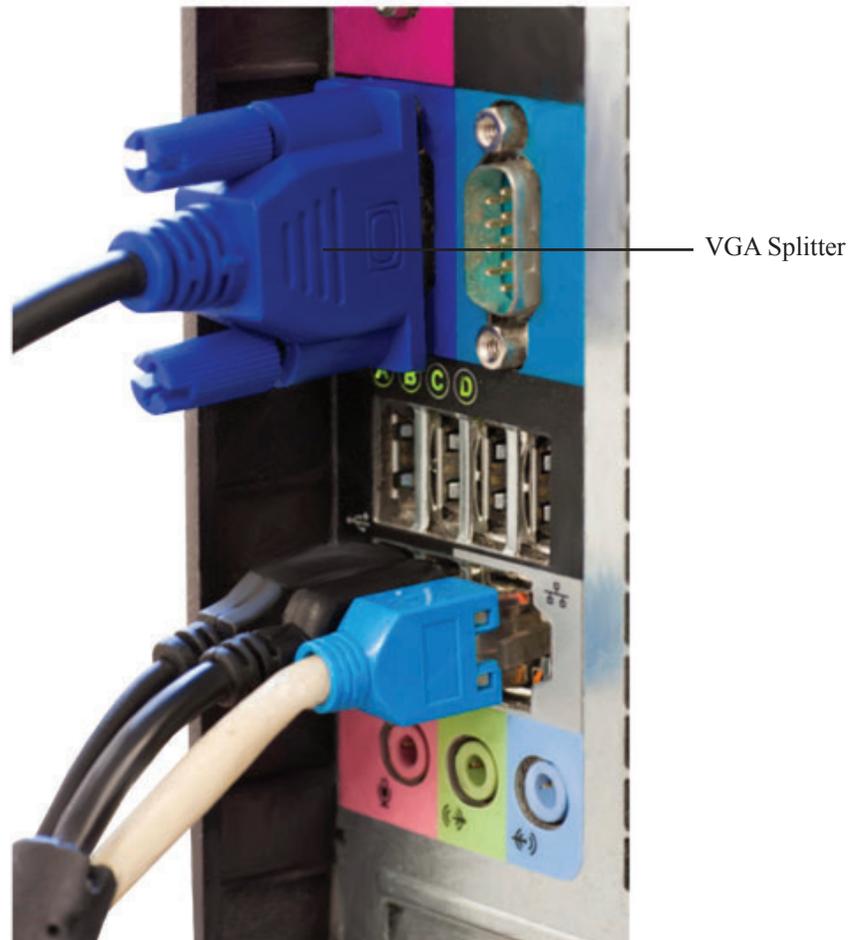
To connect a desktop computer to a display device of interest, plug the cable into the computer and an output the device. This can take several steps as follows:

- (i) Disconnect the VGA cable from the computer monitor,
- (ii) Connect the splitter to the VGA port of the projector (see Figure 2.57)



**Figure 2.57:** *VGA splitter connected to a projector*

- (iii) Connect the other end of the splitter to the system unit port (see Figure 2.58).



**Figure 2.58:** *VGA splitter connected to the computer*

- (iv) Make sure the projector's power cable is plugged into an electrical outlet.
- (v) All projectors have an on/off switch. Press once to power on the lamp. Press twice to power off the lamp. The fan will continue to run after the lamp is powered off. Do not unplug the projector from the power source until the fan stops running.
- (vi) Adjust the projector's foot to get the correct height for your projector.
- (vii) For some projector models, you can adjust the focus using "focus" or "zoom" buttons on a projector. Other projectors have a "dial" around the lens on the front part of a projector.

If you do not see an image, you may have to change the display using the following steps.

1. On your computer, press the Windows Key,
2. Type **Adjust screen resolution** and press **Enter**,
3. Find **Display** and click the down arrow on the right-hand side of the box,
4. Select the appropriate output device,
5. Click **Apply**, and then click **OK**.

### Laptop Computers

If you connect a laptop computer to a TV or a projector, you will often need to “send” a video signal to a display device. The sequence of keys to do this varies depending on the laptop manufacturer brand, but it is often one of the following keyboard key combinations: **Fn + F3**, **F4**, **F5**, **F8**, or **F9**. For example, pressing and holding **Fn + F3** simultaneously on the keyboard sends the video signal to the connected TV instead of the laptop’s screen. For other laptops, a key for **Fn** might have a picture of a monitor.

### Switching TV inputs

If you connect a computer to a TV, ensure that the TV is set to a correct input channel. For example, if you connect the HDMI cable to your computer and then connect the same cable to the “HDMI 2” port on your TV, you may need to switch to the “HDMI 2” input channel on the TV. This action can usually be accomplished by pressing the **input** button on the remote control of your TV until the correct input channel is selected.

### Setting up the slide show

After you have made all the connections the next step is to play your slides in Slide Show mode. Microsoft PowerPoint 2016 has various options for setting up and playing a slide show. For example, you can set up an unattended presentation that can be displayed at a kiosk, making your slide show repeat itself continuously. The steps in Activity 2.32 guide you on how to set up the slide show.

#### Activity 2.32: Setting up a slide show

- (i) Click **Slide Show** tab,
- (ii) On the slide show ribbon, click the **Setup Slide Show** command. The Set-Up Show dialog box will appear as in Figure 2.59.
- (iii) Select the desired options for your presentation,
- (iv) Click **OK**.

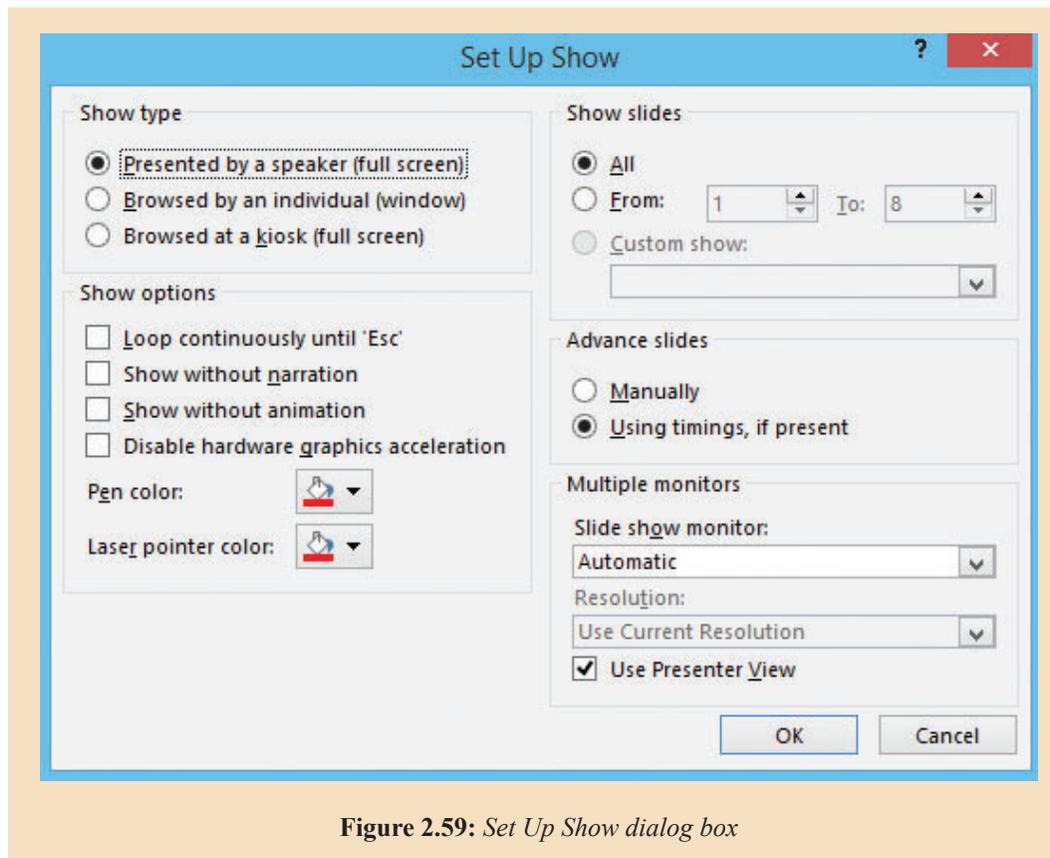


Figure 2.59: Set Up Show dialog box

### Project 1: Playing a slide show

1. Create a PowerPoint presentation of at least nine slides on any topic of your choice.
2. Practice playing a slide show and navigating through the slides.
3. Change your mouse pointer to a pen or highlighter and try marking a slide: add a chart on slide 8 and mark it.
4. Try using the Presenter view.
5. Open the **Setup Show** dialog box and try to modify the options.
6. Submit the created presentation in soft copy.

### Printing a presentation document

Several options are available for printing the presentation document, depending on the purpose. For example, a custom version of a presentation can be printed to help the audience follow the slides during your presentation. Printed presentations

can also serve as handouts, which the audience can also use for taking notes. Print settings are done using the printing pane, by performing page setup to specify what you want to print from the slides.

### Performing page setup before printing your presentation

MS PowerPoint 2016 has several layouts you can use when printing a presentation. The layout you choose will mostly depend on why you are printing the slides. There are four different print layouts, as described next.

#### Printing full-page slides

This layout prints a full page for each slide in your presentation. It is a layout that would be most helpful if you need to review or edit a printed copy of your presentation. The procedure in Activity 2.33 guides you to set up full-page slide printing.

#### Activity 2.33: Full-page slide printing

- (i) Click the **File** tab,
- (ii) Click the **Print** tab: the printing set-up window will appear as shown in Figure 2.60.
- (iii) In settings options, select **Print All Slides**,
- (iv) Select **Full Page Slides** in the Slides option,
- (v) Click the **Print** icon.

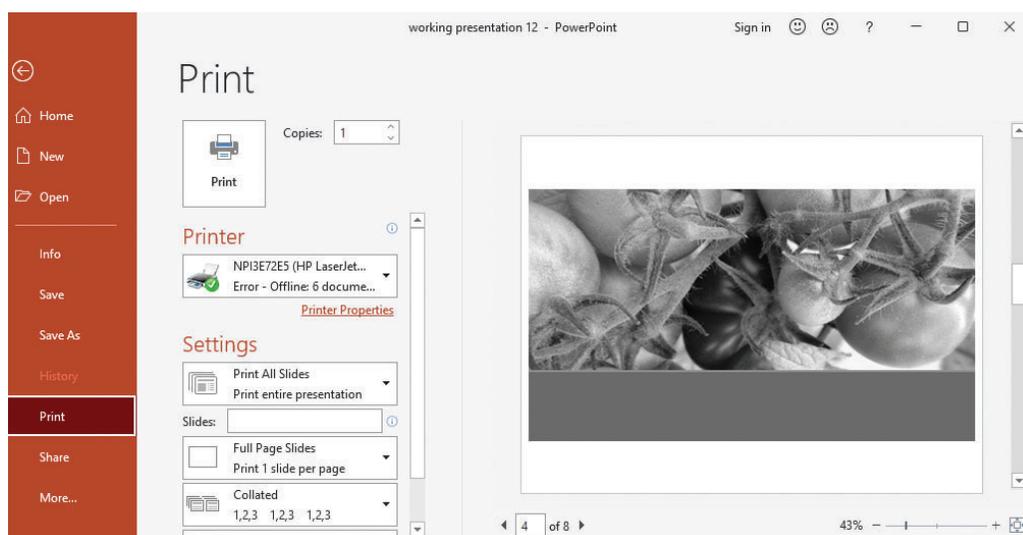


Figure 2.60: Slides printing set-up

## Printing Notes

This layout prints each slide, along with any speaker's notes for the slide. If you have a lot of notes for each slide, you could keep a printed copy of the notes with you while presenting.

## Printing an outline

This layout prints an overall **outline** of the slide show. You could use this layout to review the organisation of your slide show as you prepare to deliver your presentation. Activity 2.34 guides you on how to print an outline of your slides.

### Activity 2.34: Printing the outline of slides

- (i) Click the **File** tab,
- (ii) Click the **Print** tab,
- (iii) In setting and printing layout options, select **Print All Slides**,
- (iv) Select **Outline** in a Slides option: the printing set-up window will appear as shown in Figure 2.61.
- (v) Click **Print** icon.

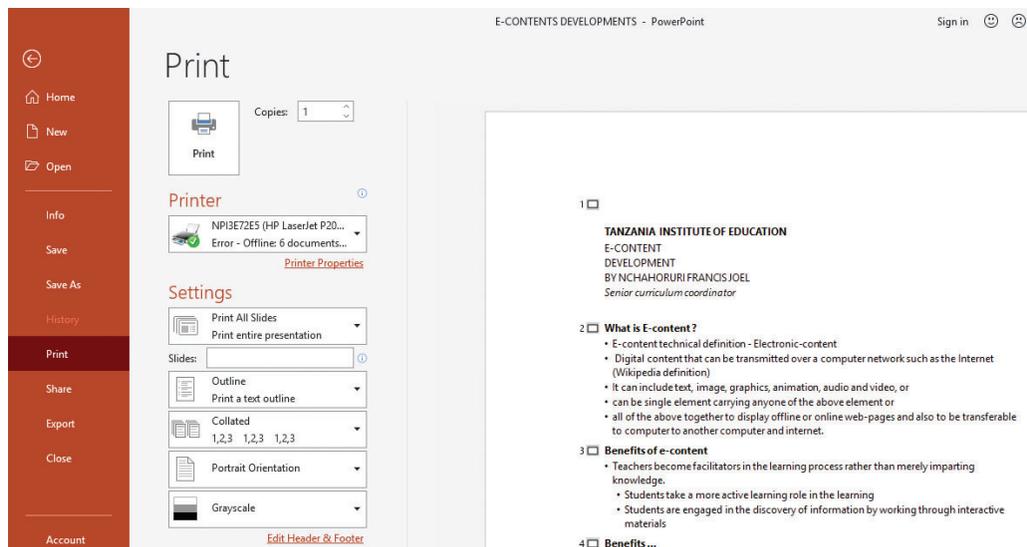


Figure 2.61: Printing the outline of slides

## Printing Handouts

This layout prints thumbnail versions of each slide, with optional space for notes. It is especially useful if you want to give your audience a physical copy of the

presentation at the time of presentation delivery. The optional space allows them to take notes on each slide. Activity 2.35 guides you to print slides as handout.

**Activity 2.35:** Printing slides as a handout

1. Open an existing PowerPoint presentation.
2. Preview the presentation in the **Print** pane.
3. Print a Handout version of the presentation, with three slides per page. Figure 2.62 shows an example of Handout slides printout.



**Figure 2.62:** Handout slides printout

**Exercise 2.5****Review Questions****A. True or False questions**

Write T for a true statement and F for a false statement

1. MS PowerPoint 2016 is a software used to prepare documents such as letters and reports \_\_\_
2. In MS PowerPoint 2016, content is organized in slides \_\_\_
3. The only option available when preparing a presentation using MS PowerPoint 2016 software is to use the built-in templates \_\_\_
4. The arrangement of items in a slide is known as templates \_\_\_
5. There are several versions of MS PowerPoint apart from MS PowerPoint 2016 \_\_\_
6. In an MS PowerPoint window, an area that displays the file name is known as the title bar \_\_\_
7. When presenting, slides need to be viewed in a normal view \_\_\_
8. Individual elements in the menu bar of MS PowerPoint 2016 are known as tabs \_\_\_
9. The Save option in the file tab of MS PowerPoint 2016 is used when you want to save your presentation for the first time \_\_\_
10. A part of MS PowerPoint 2016 window that displays information such as number of slides and language used is known as the status bar \_\_\_

**B. Multiple choice questions**

Choose the most correct answer and circle it

1. The following are presentation software except:
  - (a) SlidesDog
  - (b) Canva
  - (c) MS Access
  - (d) Google Slides
2. The following terms provide a clear meaning of slide layout except:
  - (a) Arrangement of items
  - (b) Movement of items

- (c) Outline of items
  - (d) Organisation of items
3. A tab that can be used to change the background colour of slides in a presentation is:
- (a) Home
  - (b) Insert
  - (c) Design
  - (d) Animations
4. \_\_\_\_\_ is a view in MS PowerPoint used when you want to delete or change the order of slides:
- (a) Normal view
  - (b) Slide show view
  - (c) Slide sorter view
  - (d) Outline view
5. Which function key on a keyboard is used to start a slide show view?
- (a) F2
  - (b) F3
  - (c) F4
  - (d) F5
6. A text or image that has been linked to another file in MS PowerPoint is known as:
- (a) Link
  - (b) Hyperlink
  - (c) URL
  - (d) Object link
7. The following are cables which can be used to connect an LCD projector to a computer except:
- (a) HDMI cable
  - (b) VGA cable
  - (c) USB cable
  - (d) Ethernet cable

8. The Backstage view of the file tab in MS PowerPoint 2016 contains the following options except:
  - (a) New
  - (b) Open
  - (c) Print
  - (d) View
9. The default size of all slides in MS PowerPoint 2016 is \_\_\_\_
  - (a) 16:9
  - (b) 16:8
  - (c) 16:4
  - (d) 16:2
10. Which function key on a keyboard is used to switch a presentation from a Slide Show view to a Normal view is \_\_\_\_
  - (a) F12
  - (b) Esc
  - (c) Tab
  - (d) End

### C. Short answer questions

Answer the following questions

1. What is a presentation program? How are it used?
2. Assume there is graduation ceremony in your school and you have been invited as head prefect to give a speech about the importance of school environment conservation. Prepare a ten (10) slides presentation to be presented to the audience during the ceremony.
3. Present and analyse three (3) precautions which should be taken when adding animations to a presentation you have prepared.
4. Differentiate between transitions and animations as applied in MS PowerPoint 2016.
5. Describe the steps of adding a video clip to a presentation prepared using MS PowerPoint 2016. What is the advantage of adding a video to a presentation? Give examples of scenarios in which videos can be added to a presentation.
6. What are the differences between MS PowerPoint, Google Slides, and Open Office Impress? What situations are suitable for use of each of the three presentation software?

## Using Desktop Publishing Software

### Introduction

*The world is full of art. Artworks facilitate translation of the imaginary world into reality. Artworks can be presented as text, pictures, and drawings to represent things such as buildings, furniture, and clothes. Created by hand or using different software, artworks can be presented and published on paper or other printing materials. Common works of art in our environment include birthday cards, billboards, hotel menu lists, calendars, posters, and brochures. In this chapter, you will learn how to use Desktop Publishing Software to develop and produce publications for different purposes. The competence developed in this chapter, will enable you to prepare different kinds of publication using Desktop Publishing Software.*

### The concept of desktop publishing

There is always a need to develop and produce publications such as advertisements, invitation cards, hotel menu lists, calendars, banners, greeting cards, and books. This can be easily done using a software known as Desktop Publishing (DTP) software. DTP refers to the use of a personal computer to create different kinds of publication materials. A DTP software enables us to combine texts, images, charts, and other visual elements into a single document. These documents can be published in two forms: electronic and printed. Examples of electronic publications are e-newsletters, while examples of printed publications are hardcopy of brochures and calendars. A Desktop Publishing Software allows the user to manage visual content of a publications, including page layout and design.

DTP creates high quality products, with an appearance that is better than that produced by word processing software. For example, professionals use DTP software to create documents such as certificates, brochures, business cards, web pages, catalogues, annual reports, fliers, letterheads, newspapers, booklets, logos, posters, and magazines. DTP enables creativity in producing high quality materials by allowing the designer to easily try out various styles such as page

layouts, fonts, and colours. Examples of DTP software are Microsoft (MS) Publisher, PageMaker, Express Publisher, Ventura Publisher, Adobe Creative Suite, and QuarkXPress. This book uses Microsoft Publisher 2016 due to its popular use and availability as part of Microsoft Office software package.

### DTP terminologies and types of publication

Several terminologies are used when working with DTP software. To be able to effectively use DTP software, you need to understand these terminologies. It is also important to be familiar with different kinds of publication that can be produced by DTP software; this will enable you to decide whether a task at hand can be done using a DTP software.

#### Terminologies

**Publication:** In general, publication refers to an act of making the content of some material available to the public. In this chapter, publication refers to the process of making a document more attractive using a DTP software.

**Printing:** The act of producing a hard copy of a publication such as a letter, a book, a newspaper or other material using a printing machine (printer, plotter, etc.).

**Sharing:** In this context, sharing refers to a process of making a designed publication material available for others to access. Sharing can be done via online platforms such as websites and social media.

**Graphics Design:** This refers to an act of combining ideas into a visual representation that can deliver a specific message. It involves designing objects, images, and pictures in different shapes and colours to suit the needs of users.

#### Types of Publication

DTP software can be used to design different types of publication. The following are common types of publication.

**Newsletter:** A newsletter is a publication that is shared periodically, focusing on one main topic of interest to its subscribers that can be institutions, business firms, and government agencies.

**Brochure:** A brochure is a type of leaflet with brief information about an organisation, a product, or a service.

**Flyer:** A flyer (also called a circular, handbill, or leaflet) is a short publication with information for advertising an organisation, an event, a service, or other

aspects. Flyers can be used by institutions, individuals, or businesses to promote their products and services. They are a form of mass marketing or small-scale community communication.

**Business card:** A business card is a card that shows business information about a company or an individual. It can be shared during formal introductions to help a card recipient to easily communicate with the card owner in future. A business card typically includes the bearer's name, company/institution (usually with a logo), qualifications, and contact information such as street addresses, telephone numbers, fax numbers, email addresses, and website links.

**Postcard:** A postcard is a rectangular piece of thick paper or thin cardboard that is used to carry a specific message. It is usually used without an envelope.

**Book:** A book is an extensive publications often with many pages that are bound together. It consists of detailed information about a particular subject matter, for example the Information and Computer Studies (ICS) book.

**Calendar:** A calendar is a system of organising days and specifying different events. Calendars can be used to organise events for work, social, religious, commercial, or administrative purposes.

**Label:** A label is a piece of paper, polymer, cloth, metal, or other material affixed to a container or an article, on which specific information is printed. Information on a label could be about a brand name, product ingredients, contacts, etc.

**Banner:** A banner is a form of advertisement that contains a symbol, logo, slogan, or other messages to be displayed to a specific audience or public.

**Advertisement:** An advertisement is a form of communication used to persuade an audience (viewers, readers, or listeners) to buy a certain product or service. Advertisements relate consumer behaviour with commercial offerings, although political and ideological advertisements are also common.

**Greeting card:** A greeting card is a publication that contains illustration, featuring an expression of friendship or other social relationship. Usually, a greeting card can be folded and enclosed in an envelope. Although greeting cards are usually given on special occasions such as birthdays and holidays, they can also be sent to express gratitude or other feelings.

**Invitation card:** An invitation card is a publication that is used to express an invitation to a special event such as a wedding, cocktail, or graduation ceremony. Figure 3.1 shows examples of different types of publication.



Figure 3.1: Examples of different types of publication

### Common features of DTP Software

DTP software contain a variety of features which allow publications to appear in different styles and colours. A good DTP software also contains ClipArt for designing artworks. Other features include facilities to organise text into columns, while specifying appropriate spacing for characters, words, graphics, sentences and even paragraphs. Some common features for DTP software are described in Table 3.1.

Table 3.1: Common features of DTP software

No	Feature	Description
1.	Various Project Types	All DTP software can create a variety of projects. In other words, they allow flexibility depending on what a user needs
2.	Layout Tools	These tools help a user to plan and design a publication on a page
3.	Text Tools	Text manipulation tools help to transform text to get different artistic effects
4.	Graphics Tools	Graphics tools help to produce publications with high-quality graphic content
5	Printing and sharing	DTP software allows printing to produce hard copy and sharing of a document in various ways, such as online sharing via e-mails and cloud storage

### Importance of DTP Software

DTP software make publications look good; they also enhance visual communication, and streamline dissemination of information of all kinds. DTP make it possible to quickly and efficiently produce printed and electronic documents. The following are some of the advantages of DTP software.

- (i) They are useful for preparing various kinds of publication.
- (ii) They are good at preparing attractive materials (e.g., teaching/learning, advertisements, and invitations) that contain graphical features such as pictures, colours, and layouts.
- (iii) They facilitate sharing of publication materials via physical and electronic channels.
- (iv) When used for commercial purposes, they are a source of income for small, medium, and large entrepreneurs.

### Exercise 3.1

1. Define DTP and describe its importance in your school.
2. Use examples to explain common publications that can be used in schools and businesses.
3. Describe four commonly used DTP software.
4. Why do people prefer to use a DTP software rather than a word processor in designing publications?
5. List any four common features of DTP software and explain the importance of each.

### Working with MS Publisher 2016

MS Publisher 2016 is a DTP software which is part of the Microsoft Office 2016 package. It is a powerful software used for DTP purposes. It can be used to create high-quality publications on a personal computer by allowing you to manipulate features such as page sizes, texts, graphics, layouts, and borders. Learning to use MS Publisher 2016 will help you to become familiar with DTP concepts and how to apply them in practice.

### Launching MS Publisher 2016

There are different ways of launching MS Publisher 2016 on a computer, depending on the operating system and how the computer is configured. A commonly used way to start MS Publisher 2016 is by clicking on the MS Publisher 2016 icon on the shortcut found on the taskbar or on the desktop. Alternatively, you can use the start button to open MS Publisher 2016. Figure 3.2 shows these options.



**Figure 3.2:** Options for starting MS Publisher

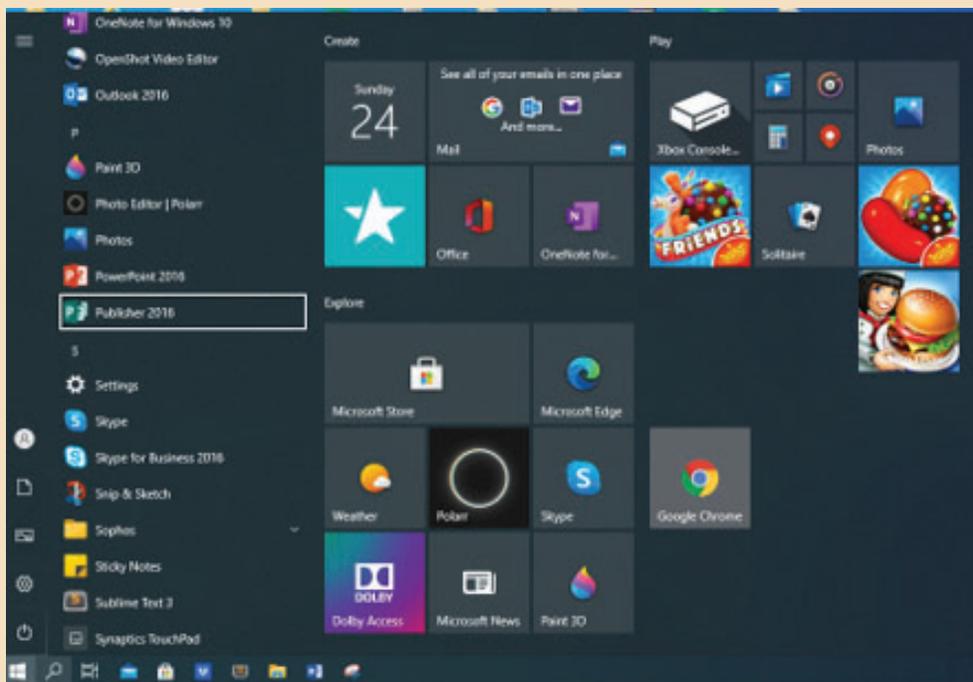
**Key:** 1 = Start button      2 = Shortcut for MS Publisher on the taskbar

Activity 3.1 will guide you on how to launch MS Publisher 2016 using the start button.

### Activity 3.1: Launching MS Publisher 2016 using the start button

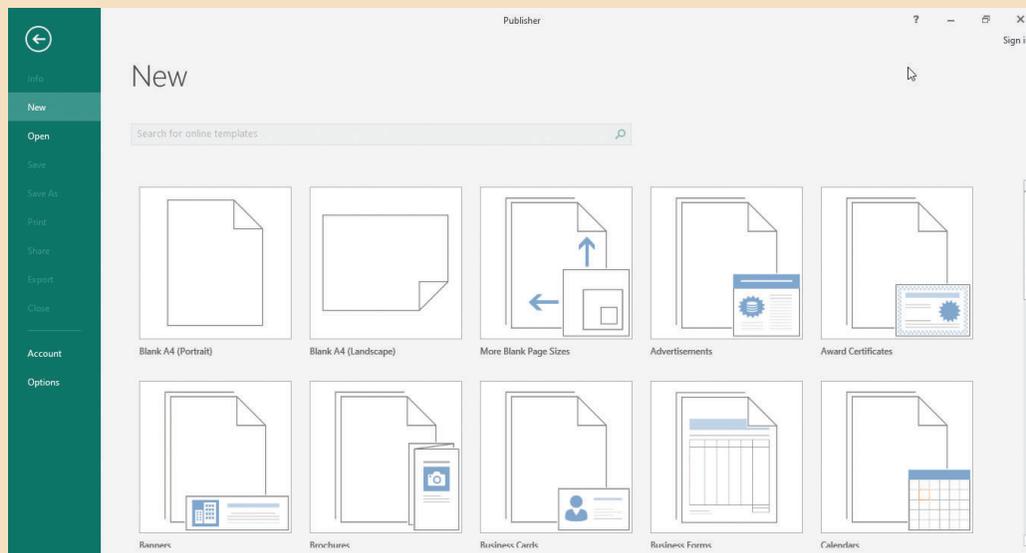
#### Steps

- (i) Click on the **Start** button: icons of different application programs will pop up, as shown in Figure 3.3.



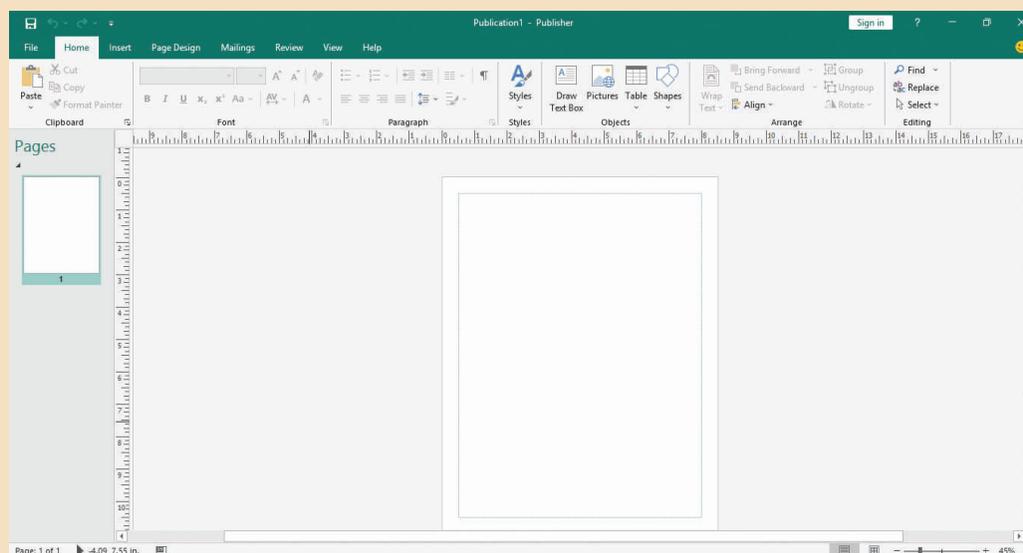
**Figure 3.3:** Launching MS publisher 2016 using the start button

- (ii) Scroll to find the icon for MS Publisher 2016,
- (iii) Click on the icon for MS Publisher 2016: MS Publisher 2016 will be opened, displaying a window as shown in Figure 3.4.



**Figure 3.4:** Default MS Publisher window

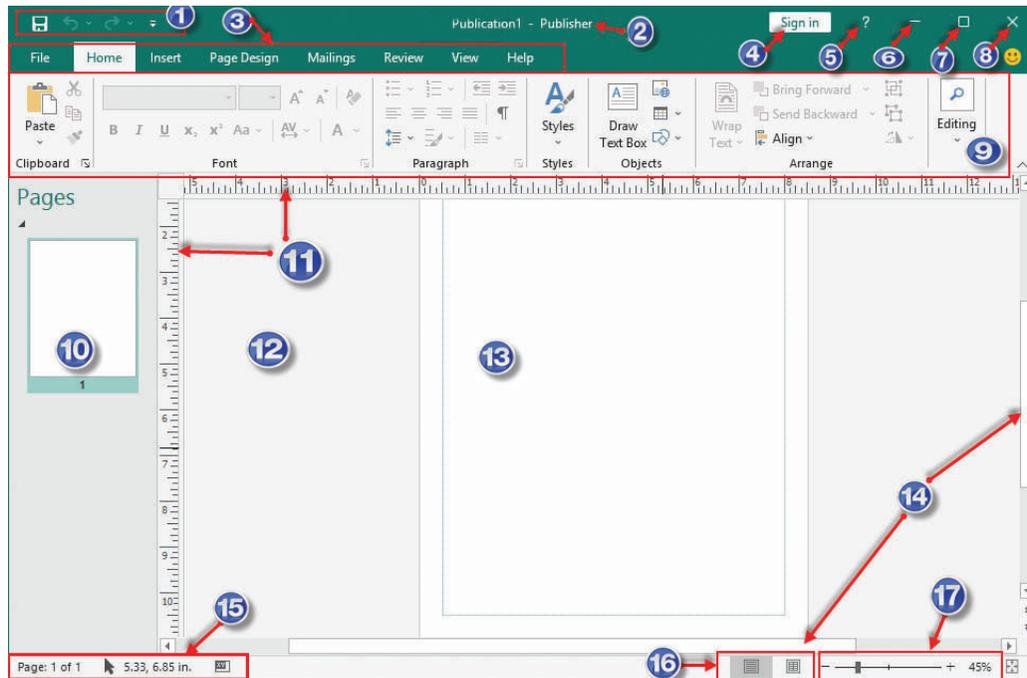
- (iv) Click on the desired template (in this case, Blank A4 (Portrait)): a blank MS Publisher file will be opened, as shown in Figure 3.5.



**Figure 3.5:** A blank MS publisher 2016 file interface

### Parts of the MS Publisher 2016 Window

Like other Microsoft Office applications, the MS Publisher 2016 window has several parts, including title bar, menu bar, status bar, and a working area (publication area), as shown in Figure 3.6.



**Figure 3.6:** *Parts of the MS Publisher 2016*

#### Key:

- |                                   |  |
|-----------------------------------|--|
| 1 = Quick access toolbar          | 2 = Title bar                          |
| 3 = Menu bar                      | 4 = Sign in command                    |
| 5 = Help command                  | 6 = Minimize button                    |
| 7 = Restore/Maximize button       | 8 = Close button                       |
| 9 = Ribbon                        | 10 = Page navigation pane              |
| 11 = Vertical & Horizontal rulers | 12 = Scratch area                      |
| 13 = Publication area             | 14 = Vertical & Horizontal scroll bars |
| 15 = Status bar                   | 16 = View buttons                      |
| 17 = Zoom slider                  |  |

The items of different tabs, areas, and bars in MS Publisher 2016 are listed in Table 3.2.

**Table 3.2:** Items found on different tabs, areas, and bars in MS Publisher 2016

No	Features of MS Publisher	Items contained in a feature
1	Title bar	Quick access command, name of the program, name of the active publication, sign-in icon, help command icon, minimise command icon, maximise/restore command icon, and close command icon
2	Menu bar	File, Home, Insert, Page Design, Mailings, Review, and View tools
3	Ribbon	Contains commands for an active menu tab
4	Working area	Vertical and horizontal rulers, page navigation pane, scratch area, and publication page
5	Status bar	Status of a document, icons for view and zooming slider

The following are descriptions of some elements of MS Publisher 2016 that are used in development of different types of publication.

**File name:** Displays the document's name. If the document is unnamed, the name displayed in the title bar will be of the form of "Publication X", where X is the window number.

**Quick Access toolbar:** It is located at the top left corner of the window. By default, it contains icons for **New**, **Save**, **Undo**, and **Redo** commands.

**File menu:** Displays the backstage view that contains commands to create, open, save, print, and share publications. The backstage view also allows you to edit your business information and provides options for other tasks.

**Navigation pane:** It allows you to move between different parts of your publication, and enables you to add and delete pages.

**Publication area:** It is an area used for designing publications.

### Exploring the menu tabs

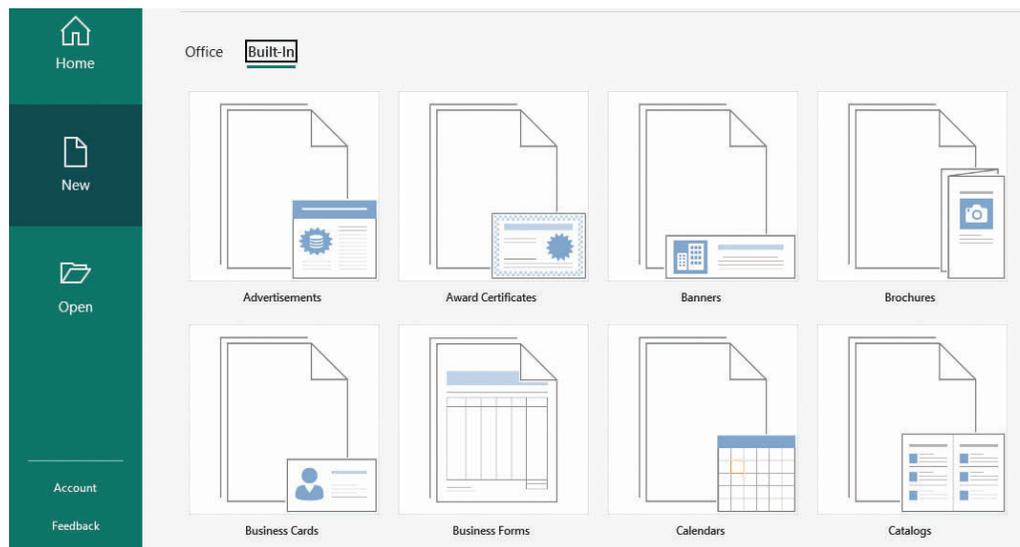
To create a publication, you will mostly use commands from different tabs of the menu bar. Clicking on each tab shows a ribbon that contains different groups of commands. Table 3.3 lists the different actions that you can perform using commands in different tabs of the menu bar.

**Table 3.3:** Groups and commands found on different tabs on a menu bar

Tab	Command	Groups
<b>Home</b>	Format painter, fonts and font formatting, paragraph formatting, Alignment, style, draw textbox, picture	Clipboard, Font, Paragraph, Styles, Objects, Arrange and Editing
<b>Insert</b>	Text boxes, pictures, tables, shapes, picture placeholder, page parts, calendars, borders and accents, page, WordArt, date and time, object, hyperlink, bookmark header and footer, and page number	Pages, Tables, Illustrations, Building Blocks, Text, Links, and Header & Footer
<b>Page Design</b>	Change template, margins, orientation, page size; page set up layout guides; apply Schemes; background, and find a master pages	Template, Page Setup, Layout, Pages, Schemes, and Page Background
<b>Mailings</b>	Mail and mail merge	Start, Write & Insert Fields, Preview Results, and Finish
<b>Review</b>	Check spelling, do online research, translate text, and set language	Proofing and Language
<b>View</b>	Normal/master page view, guides, rulers, and graphics manager	Views, Layout, Show, Zoom, and Window

### Exploring MS Publisher 2016 built-in templates

MS Publisher 2016 has built-in templates for common types of publication. The built-in templates can help you to quickly prepare publications such as advertisements, certificates, banners, brochures, business cards, invitation cards, envelopes, and flyers. Figure 3.7 shows different publication templates which you can customise for different uses.



**Figure 3.7:** MS Publisher 2016 publication templates

## Exercise

### 3.2

Based on your understanding of the features of DTP software you have learnt in this chapter, explain how they relate to features in other MS Office applications such as MS Word and MS Excel.

### Creating a publication

Creating a publication in MS Publisher 2016 is a two-step process. The first step is to plan your publication and the second step is to design it.

#### Planning a publication

Before you start designing any publication, you should plan your work to enable you to get better results. The following are some important steps in planning a publication.

1. Prepare the content you want to include in your publication (e.g., text, image, tables, or graphs).
2. Prepare a blueprint of your publication on a piece of paper.
3. Decide on the colours you will use on your publication.

#### Designing a publication

After you have planned your publication, the next step is to design or create it. There are two ways of creating a publication in MS Publisher 2016:

1. Using a blank page (creating from scratch).
2. Using built-in templates.

### Creating a publication from scratch

Creating a publication from scratch does not involve reuse of existing templates. A designed layout is called a layout guide. The layout guide helps you maintain the alignment of objects such as pictures, text boxes, shapes, WordArt, grouped objects, and tables. When the layout guide is enabled, it gives you guidance for aligning objects on the page. This alignment of objects can be done using edges or midlines. Tables can also be aligned using their gridlines. As you drag or resize an object on a layout guide, the edges, midlines, and gridlines (in the case of a table) will briefly stick to the guide, giving you an indication of the guide's location. The layout guide helps you when setting margins, columns, rows, and baseline guides.

### Layout organising tools

There are several tools for organising layout in MS Publisher 2016. The basic ones are baselines, boundaries, rulers, guides, page navigation, and scratch area, as shown in Figure 3.8. Layout guides are also used to create a grid on a master page. In this case, the grids will appear on every page in your publication. To navigate to a master page, open the View ribbon and click **Master Page**: a window similar to the one in Figure 3.8 will be displayed.

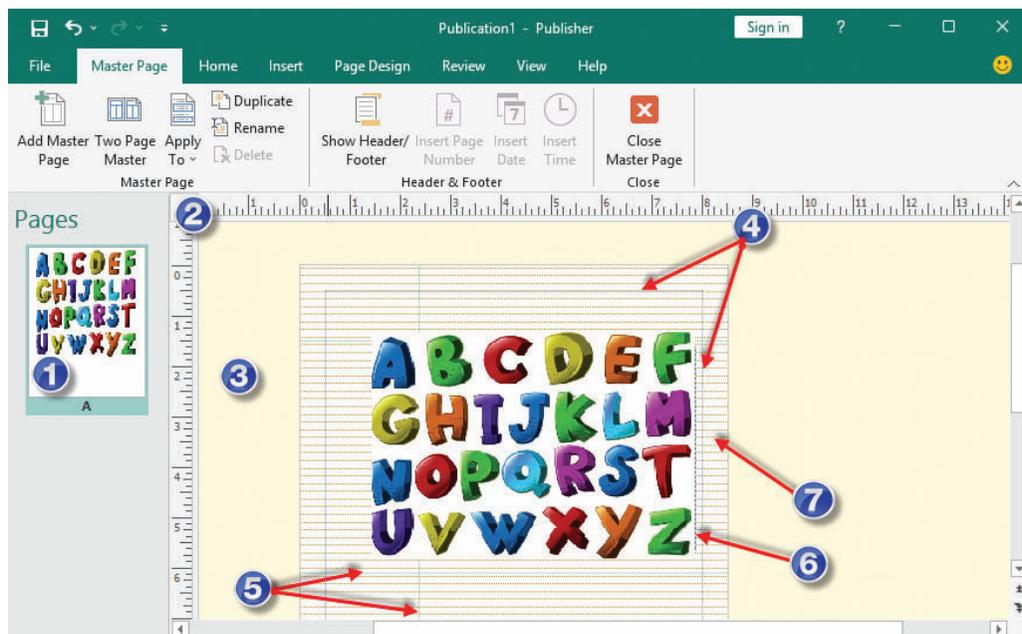


Figure 3.8: Publication layout organising tools

**Key:**

- |     |   |     |   |
|-----|---|-----|---|
| 1 = | Page Navigation                             | 2 = | Vertical and horizontal rulers          |
| 3 = | Scratch Area                                | 4 = | Vertical and horizontal marginal guides |
| 5 = | Vertical and horizontal customisable guides | 6 = | Boundaries                              |
| 7 = | Baselines                                   |     |   |

The following are descriptions of layout organising tools.

**Baselines:** These are evenly spaced horizontal lines that can be used to order a text. Activity 3.2 illustrates how to show baselines when designing a publication.

**Activity 3.2:** Showing baselines

- (i) Click on the View Tab,
- (ii) Check the box next to “**Baselines**”: the baselines will be shown.

**Boundaries:** A Boundary is a dark blue dashed border that appears around objects. Boundaries help in aligning objects and text.

**Ruler:** A tool that helps in lining up texts, images, and other objects. After selecting an object, a blank area will appear on the ruler to indicate the position of an object.

**Customisable Guide:** These are guides used to align objects. There are vertical and horizontal customisable guides, both of which are green in colour. The procedure in Activity 3.3 will guide you on how to introduce customisable guides in designing your publication.

**Activity 3.3:** Adding customisable guides in a publication design

- (i) Click and hold the horizontal or vertical ruler,
- (ii) Drag the mouse pointer to the publication,
- (iii) Release to add the guide to a particular location: the guide will be placed on the publication design. It can be moved at any time by dragging it.

**Margin Guide:** Margin guides mark the edges of the printable area, horizontally and vertically. A margin is blue in colour and is automatically shown when you start the program.

**Page Navigation:** This is a pane located on the left of the working area. It shows the thumbnails of pages in a publication.

**Scratch Area:** This is the space outside the page boundary. Anything in the scratch area will not be printed when you print the page. Sometimes, a scratch area can be used to plan your content before implementing it in the working area.

**NOTE:** Usually, creating a publication is an iterative process. Initially, it involves determining the basic form of the document (planning). After planning, the design phase involves laying out objects such as text, WordArt, and pictures on the page.

### Adding text to a publication

The procedure in Activity 3.4 guides you in adding text to your publication.

#### Activity 3.4: Adding text to a publication

- (i) Open a new publication,
- (ii) Click the **Insert** tab,
- (iii) On the Insert ribbon, in the Illustrations group, click the **Shapes** arrow,
- (iv) From the pop-up menu, choose the command for inserting a **text box**,
- (v) Set the text box by dragging it to an appropriate position,
- (vi) Click inside the text box,
- (vii) Type some text as shown in Figure 3.9,

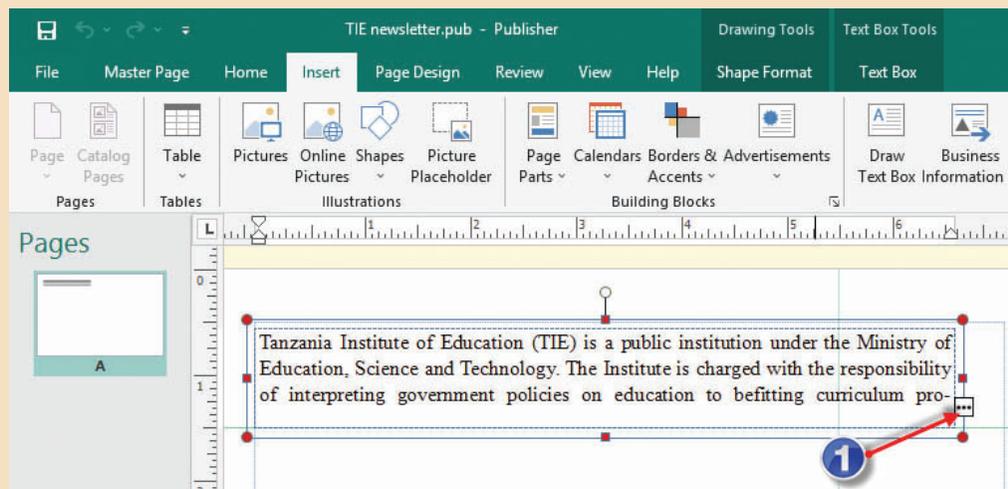
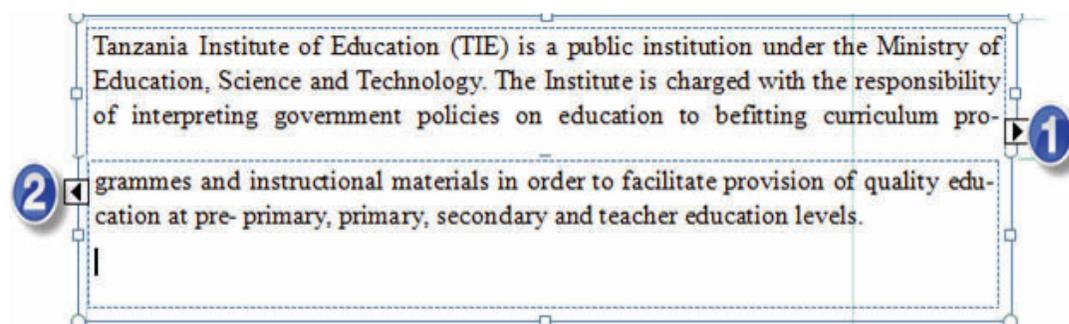


Figure 3.9: Adding text to a publication

**NOTE:** If the text you have typed does not fit in the box, a mark shown by Arrow 1 in Figure 3.9 will appear. You will be required to either extend the text box, or to move the text to a new text box or to a next page. To shift the text, point the mouse on the mark fit, and the mark fit will change to hand. Click the mark fit, the arrow of a pointing mouse will appear. Click on a place you want to insert your text, as shown in Figure 3.10. The arrow indicated by 1 shows that the text continues to the next text position, and arrow 2 shows the text is preceded by another text.



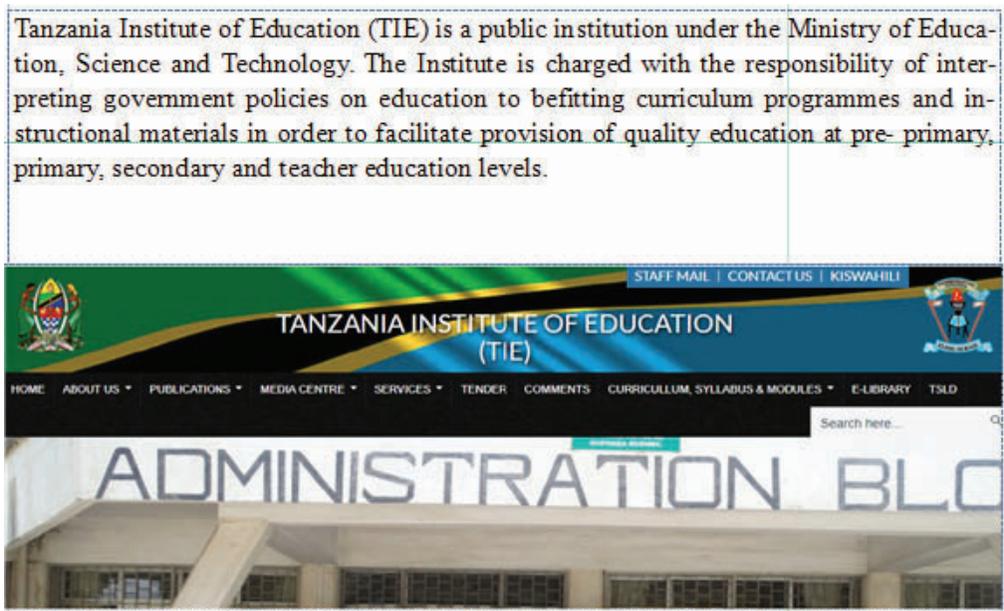
**Figure 3.10:** *Transferring text to a new position*

### Adding objects to a publication

You can insert different objects such as images and drawings into your publication. To insert an image to your publication, follow the procedure in Activity 3.5.

**Activity 3.5:** Adding an image to a publication.

- (i) Click where you want to insert an image, for this case, click or place your cursor after the text you have typed in Figure 3.10.
- (ii) Click the **Insert** tab,
- (iii) On the Illustrations group of the Insert ribbon, choose **Picture Placeholder**: an image placeholder will appear on a publication,
- (iv) Drag the placeholder to the desired position on a publication,
- (v) Click on the picture placeholder,
- (vi) Select work off-line,
- (vii) Browse to find the file that contains your image,
- (viii) Select the image,
- (ix) Click Insert,
- (x) Make necessary adjustments, e.g., resizing. An image will appear as shown in Figure 3.11.



**Figure 3.11:** A picture inserted in MS Publisher 2016 publication

## Formatting text and other objects

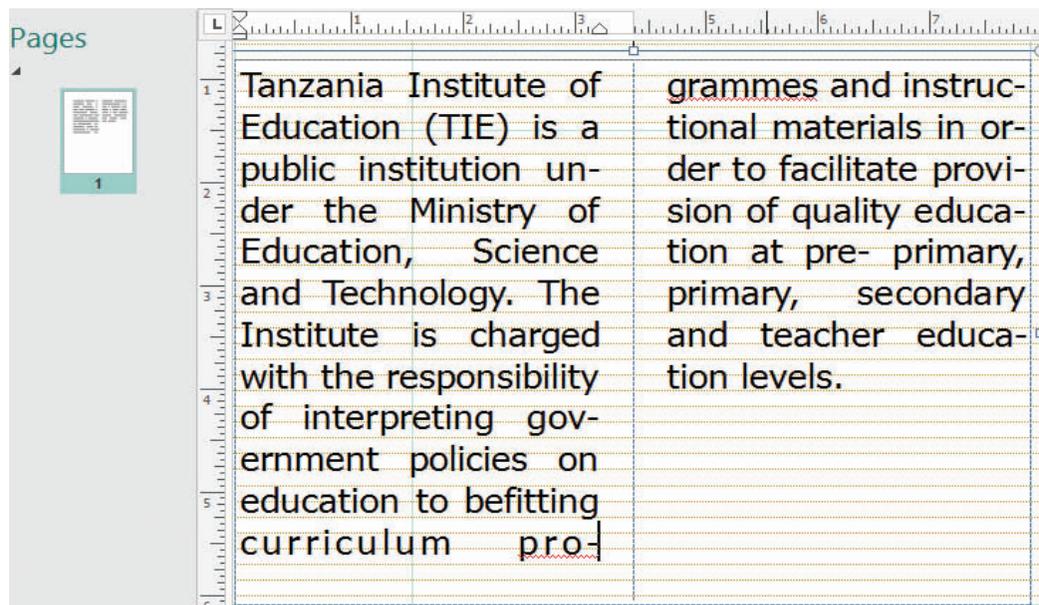
Formatting a publication involves specifying how it should appear on a computer screen and when it is printed.

### *Formatting a text*

Formatting text in your publication can be done in different ways such as changing its direction, size, and colour; and applying attributes like bold, italic, underline, subscript, and superscript. Other formatting features are found in the Alignment group of the Home ribbon: these include alignment of text at different positions such as top left, top centre, and top right, centre left, centre, centre right, bottom left, bottom centre, and bottom right. Also, you can format your text into columns using WordArt styles. In Activity 3.6, you will learn how to format a text into columns.

### **Activity 3.6:** Formatting a text into two columns

- (i) Open an existing publication, or start a new one, and add some text,
- (ii) Select the text you want to format: a text box will be activated under the text box tools tab,
- (iii) In the Alignment group of the Home ribbon, click the down arrow on the column button,
- (iv) Choose the number of columns you want for your text (in this case, choose two columns): the text will appear as in Figure 3.12.



**Figure 3.12:** A two-column formatted text

### *Formatting other objects*

Formatting other objects or graphics in your publication involves several actions such as sending a graphic forward, bringing a graphic backwards, and changing the style of your graphic or picture. Sending backwards and bringing forward are used to change the order in a stack of pictures (e.g., one picture can be placed on top of another), while styling is used to change how a picture looks. The procedure in Activity 3.7 demonstrates how to change the style of a picture.

#### **Activity 3.7:** Changing the style of a picture

- (i) Select the picture you want to format: the picture format tab will be activated under the picture's tools ribbon,
- (ii) In the Picture Style group, click on the down arrow to explore more styles,
- (iii) Choose the style you want.

### **Using built-in templates**

MS Publisher comes with several built-in templates that can be used for common kinds of publication such as certificates, advertisements, invitation cards, flyers, and brochures. When preparing a publication, it is a good idea to see if there is a built-in template that can serve your needs. You can customise an existing template to suit your needs. This saves time that could be wasted if you start from scratch. Figure 3.13 shows an example of a template for advertisements.

# Advertisement Heading

---

Use this space to tell your readers about your business, product, service, or event. This text should tell the reader what your offer can do for them.

---

**Business Name**

List your hours or the time and date of your event. Describe your location by landmark or area of town.

**List your featured items**

- list item here
- list item here

---



**Organization**

---

**Tel: 555 555 5555**

Figure 3.13: A template for advertisements

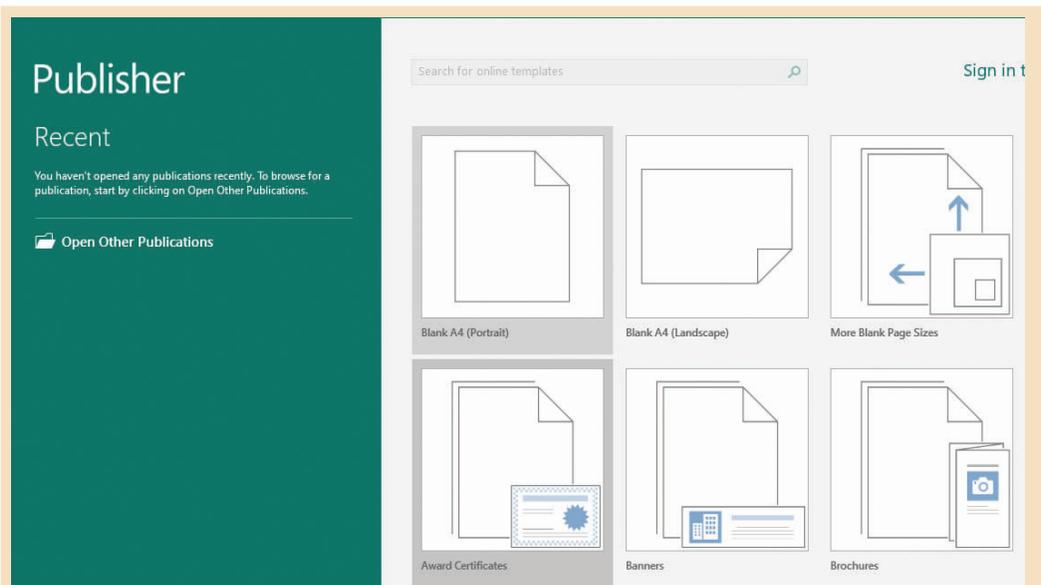
### Exercise 3.3

Select a template of your choice from the list templates in MS Publisher 2016 and use it to design a publication. Share the publication with your fellow students in the class.

### Activity 3.8: Creating a secondary school leaving certificate

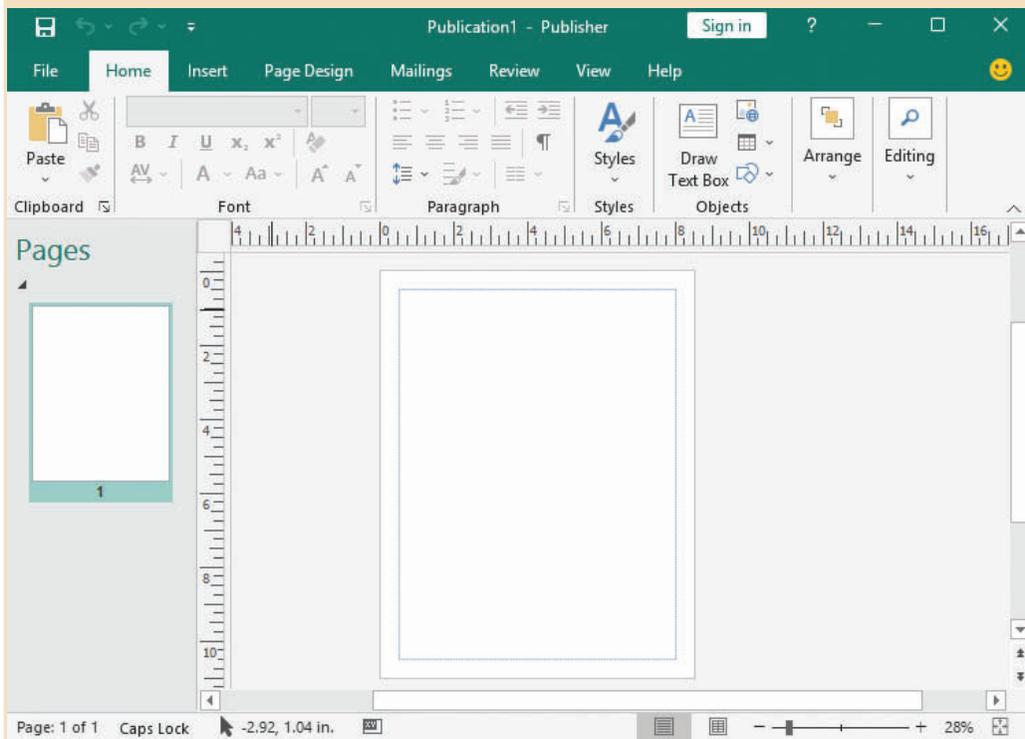
The following steps guide you to create a secondary school leaving certificate as shown in Figure 3.14.





**Figure 3.15:** The backstage view of MS Publisher 2016

- (ii) Click on the **Blank A4 (Portrait)** template as indicated in Figure 3.15: the layout view of MS Publisher will be opened as shown in Figure 3.16.



**Figure 3.16:** A blank template in MS Publisher 2016

- (iii) To add a border, click on the **Insert** tab,
- (iv) On the Insert ribbon, in Building Blocks group, click on **Borders & Accents**: a drop-down box with different border styles will appear as shown in Figure 3.17.

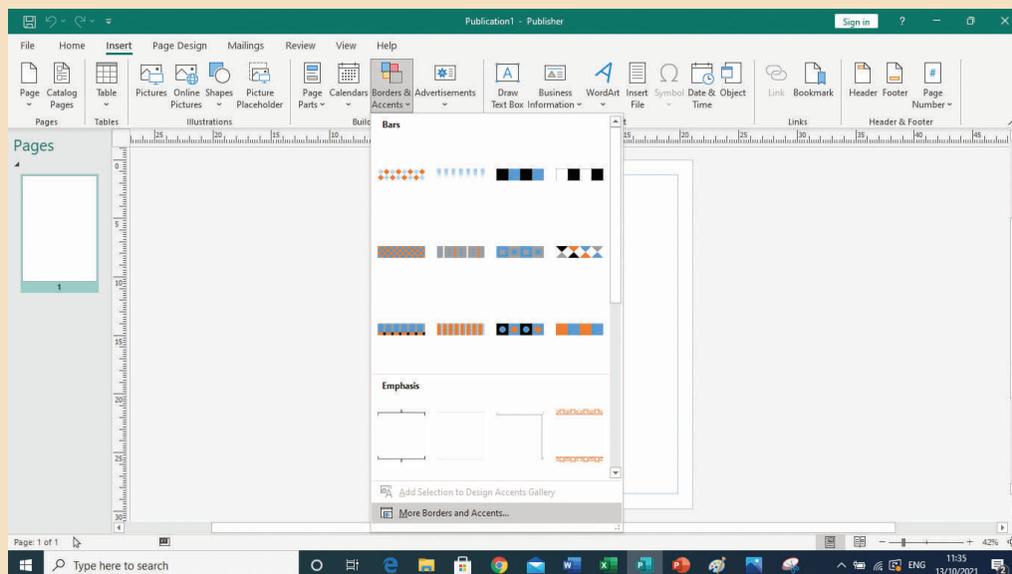


Figure 3.17: Borders & Accents in MS Publisher 2016

- (v) Click on **More Borders and Accents** to find more options of border styles. Different types of building blocks for borders will appear as shown in Figure 3.18.

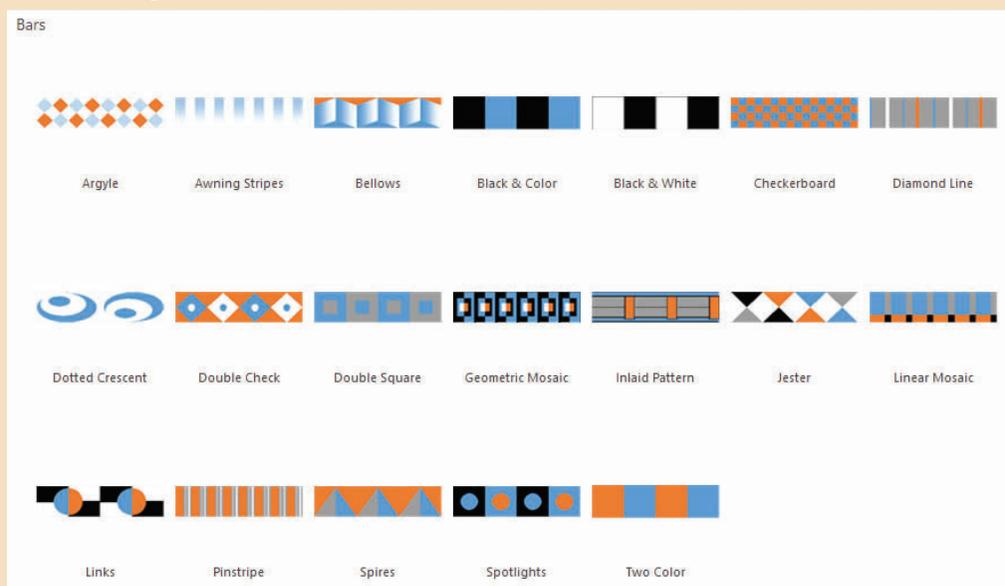
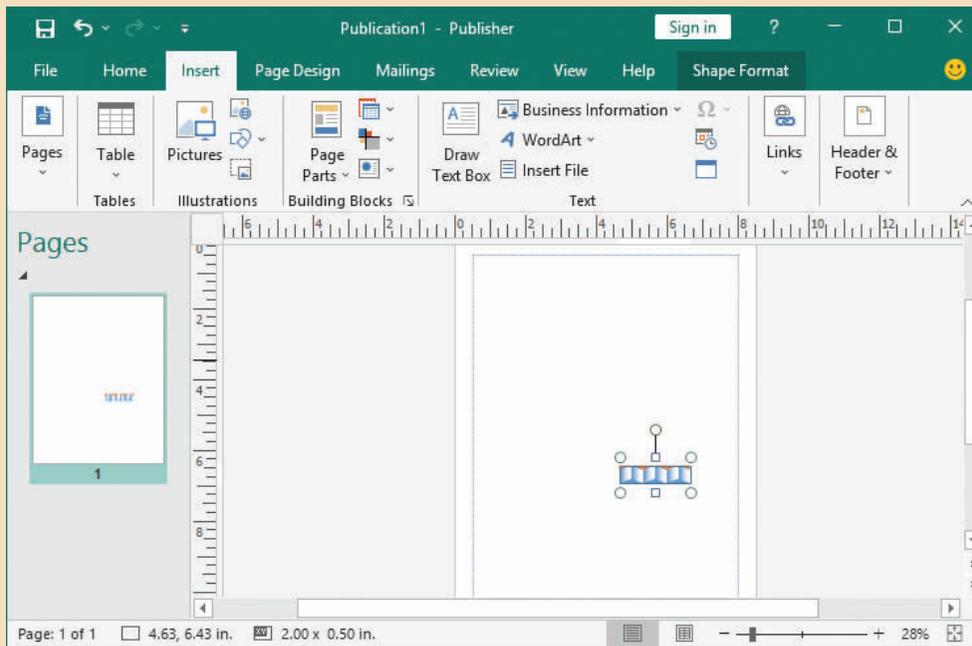


Figure 3.18: Different building blocks for borders

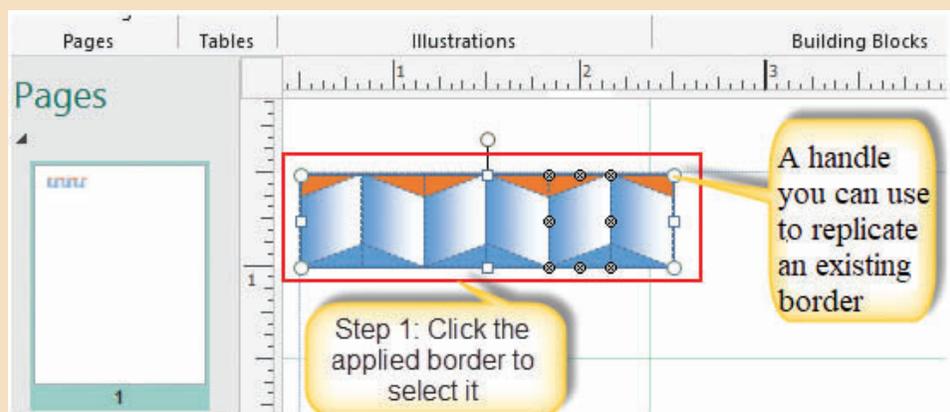
**NOTE:** The building blocks for borders are grouped into different categories, including bars, boxes, emphasis, frame, and lines. The choice of a block depends on preference or official colours of an organisation.

- (vi) Double click the block for a border style of your choice to insert it to a publication. The block will appear on your publication as shown in Figure 3.19.



**Figure 3.19:** MS Publisher 2016 layout view with an added border

- (vii) Click the border to select it as shown in Figure 3.20,

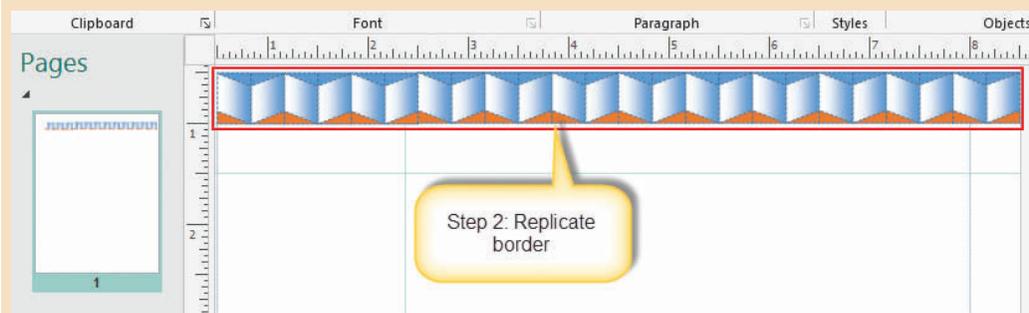


**Figure 3.20:** Selecting an inserted border

- (viii) Move the block to the topmost corner and replicate it to fill the top part of your publication (see Figure 3.21).

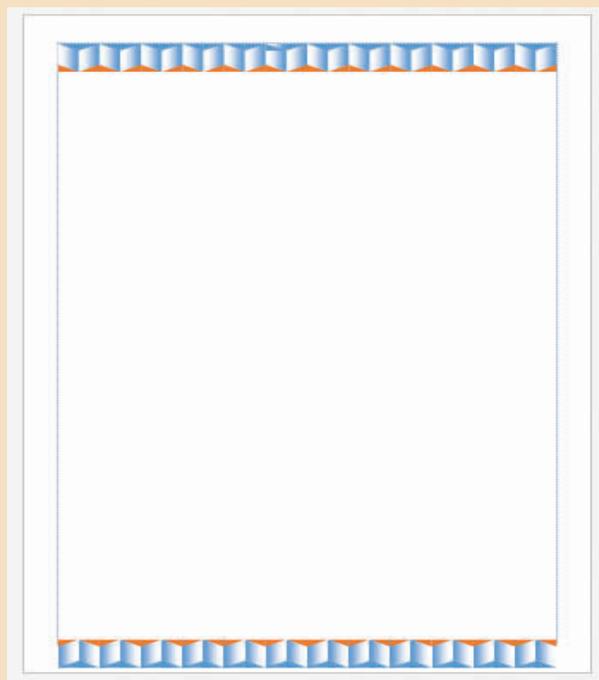
**NOTE:** You can either copy a block and paste it to replicate it, or you may use a handle to replicate the selected border.

- (ix) Copy and paste the block to cover the rest of the top area as in Figure 3.21.



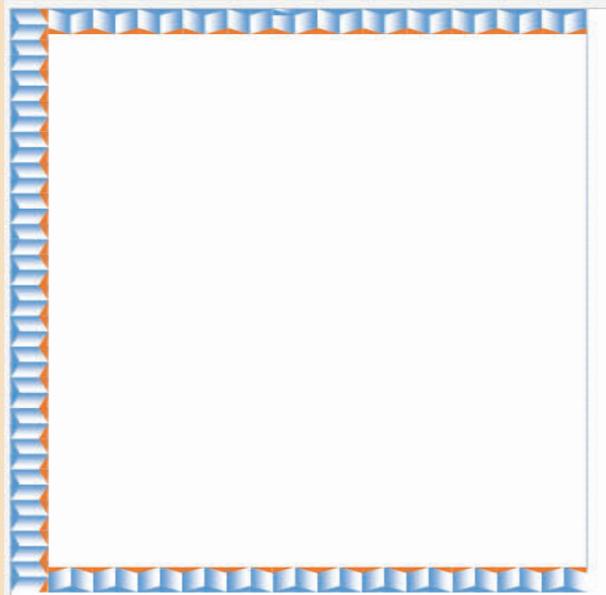
**Figure 3.21:** *Replicated border blocks*

- (x) Once the top part is filled with border as in Figure 3.21, copy and paste the block to the bottom part of your publication as shown in Figure 3.22.



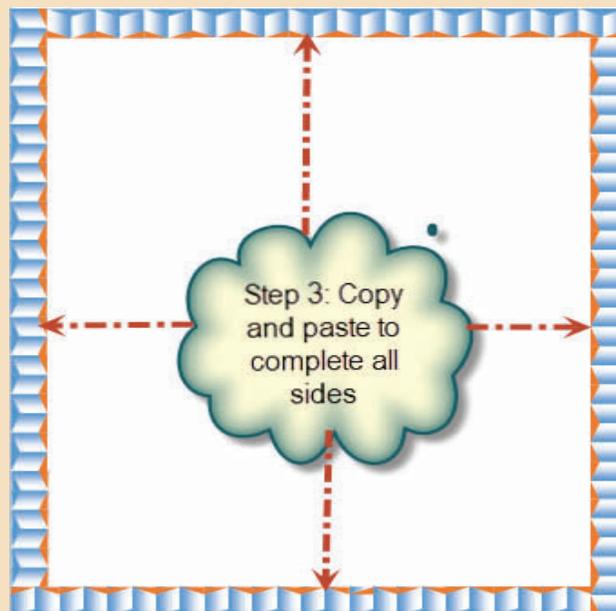
**Figure 3.22:** *Top and bottom boarder block*

- (xi) To fill borders on the right and left sides of the template, copy and paste the block and rotate it vertically, then move it to the leftmost side (see Figure 3.23),



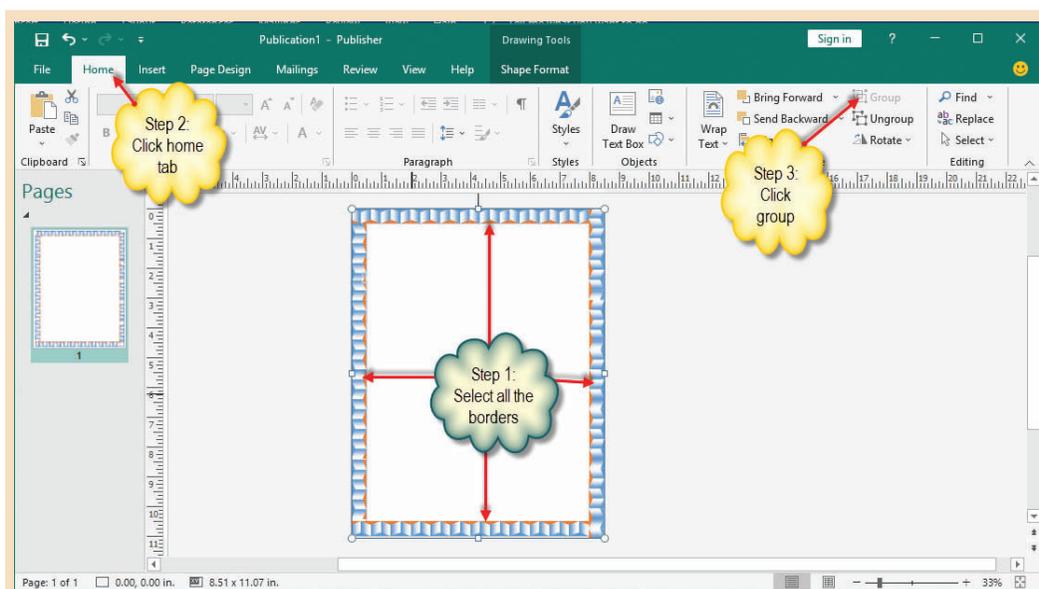
**Figure 3.23:** *Border block replicated on the left side*

- (xii) Copy the rotated block, paste it and move it to rightmost side (see Figure 3.24),



**Figure 3.24:** *Border blocks replicated to all sides*

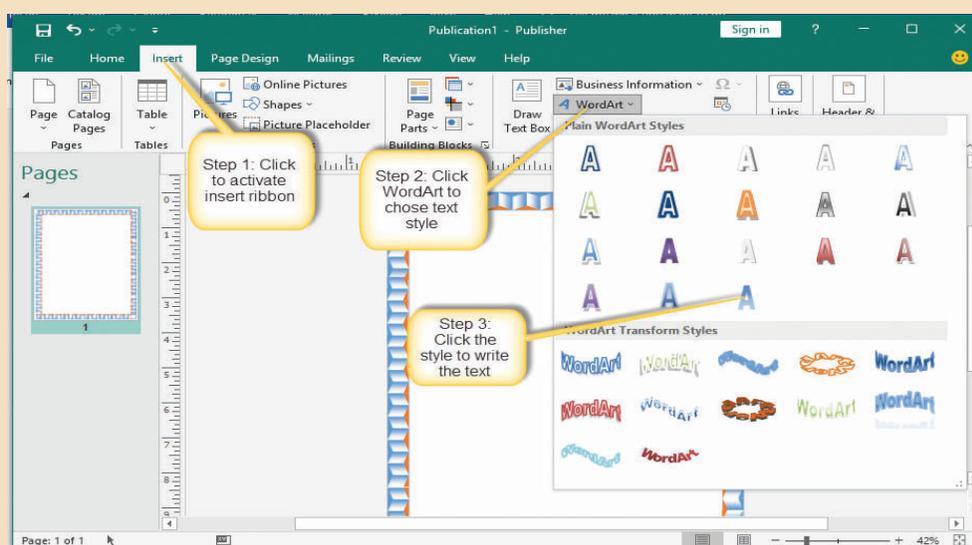
- (xiii) To group borders in a single layer, select the border,  
 (xiv) On the Arrange group of the Home ribbon, click on **Group** to group the border blocks, as shown in Figure 3.25.



**Figure 3.25:** Grouping border blocks in a single layer

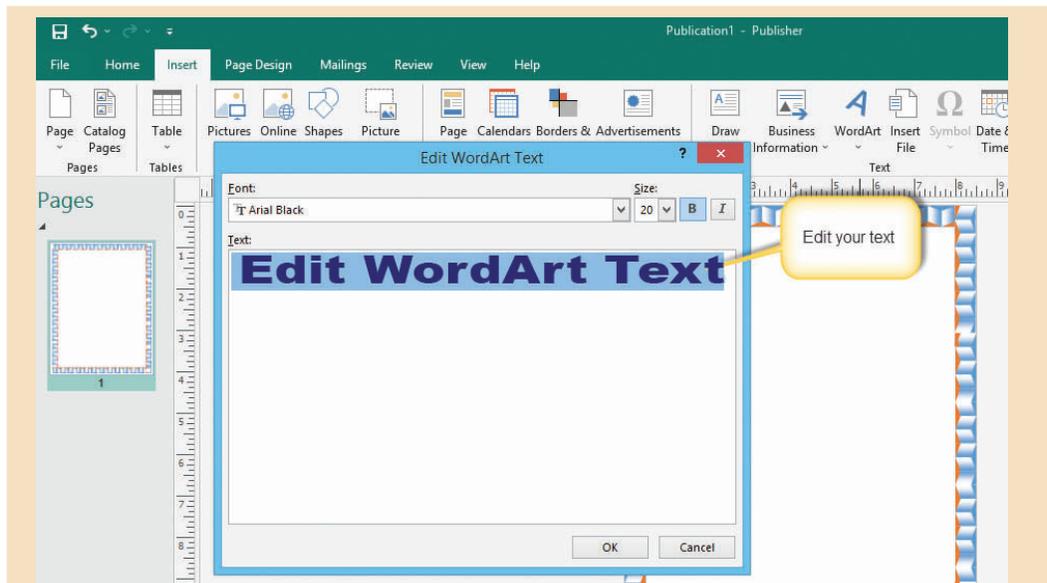
**NOTE:** The Group tool helps you to control the layout of your text, images, and objects in the publication design.

- (xv) To insert a title of the certificate, click the **Insert** tab, and then follow the steps in Figure 3.26.



**Figure 3.26:** Adding text and text effects

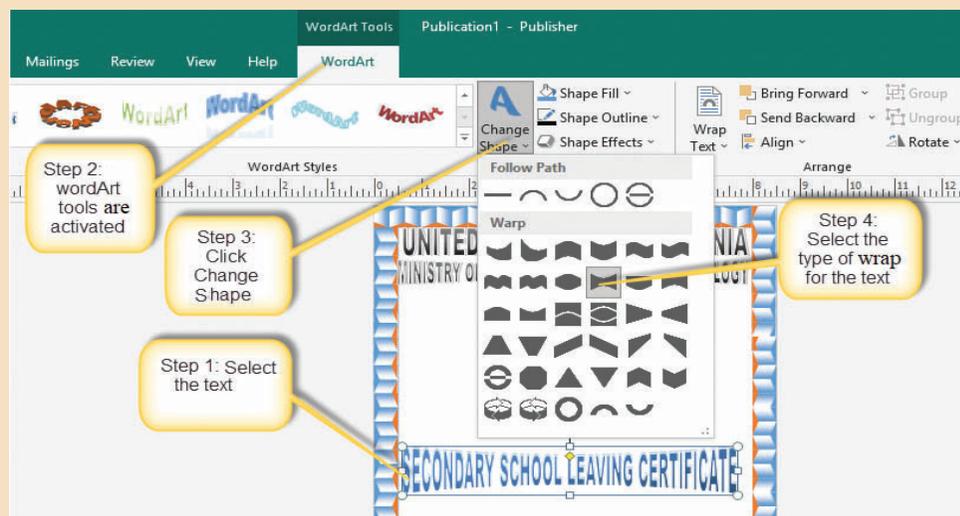
- (xvi) After completion of step 3 in Figure 3.26, a dialog box will appear with the title '**Edit WordArt Text**', as shown in Figure 3.27.



**Figure 3.27:** Using the *edit dialog box* to edit text on a blank page

(xvii) Replace the text in the dialog box with ‘UNITED REPUBLIC OF TANZANIA’ and then click **OK**,

**NOTE:** You can use the “*Font*” part on the dialog box to change the font type and size of the text. Otherwise, you can resize the text box to fit in the box. To insert the title of the certificate, follow the steps in figure 3.28.



**Figure 3.28:** Changing the shape of text in MS publisher

(xviii) Repeat the steps, indicated in Figure 3.26, then type the following text:  
PRESIDENT’S OFFICE REGIONAL ADMINISTRATION AND  
LOCAL GOVERNMENT

- (xix) Write the required information on the certificate by following the steps shown in Figure 3.29.

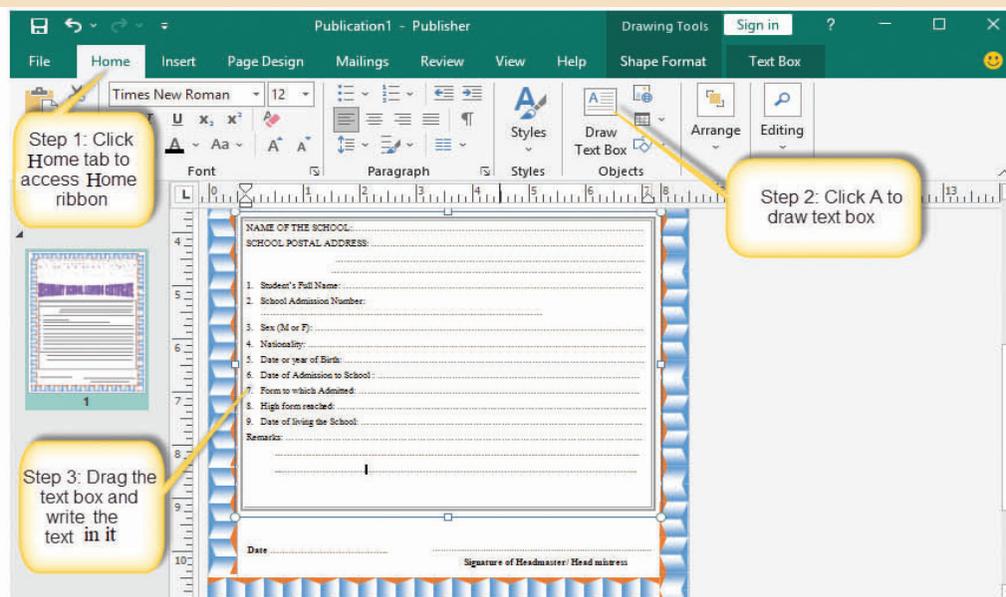


Figure 3.29: Adding text on the certificate

- (xx) Use the procedure in Figure 3.29 to add student details, date, signature, and a box for students' photo,
- (xxi) Add the government logo and a student's photo by following the steps in Figure 3.30.

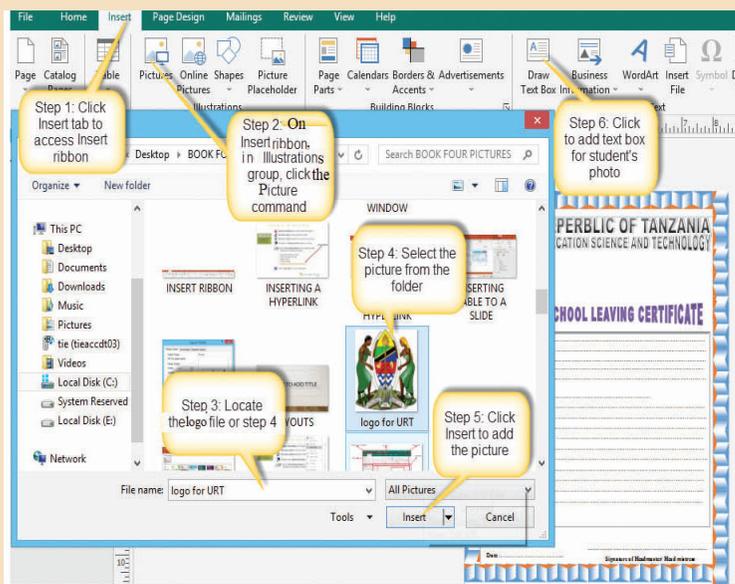


Figure 3.30: Adding a photo and a logo to the publication

**NOTE:** In Step 3 of Figure 3.30, if you do not remember the file name, you can browse the folder with the photo you want, select the photo (Step 4) and insert it.

(xxii) Apply a background to your publication by following the steps shown in Figure 3.31.

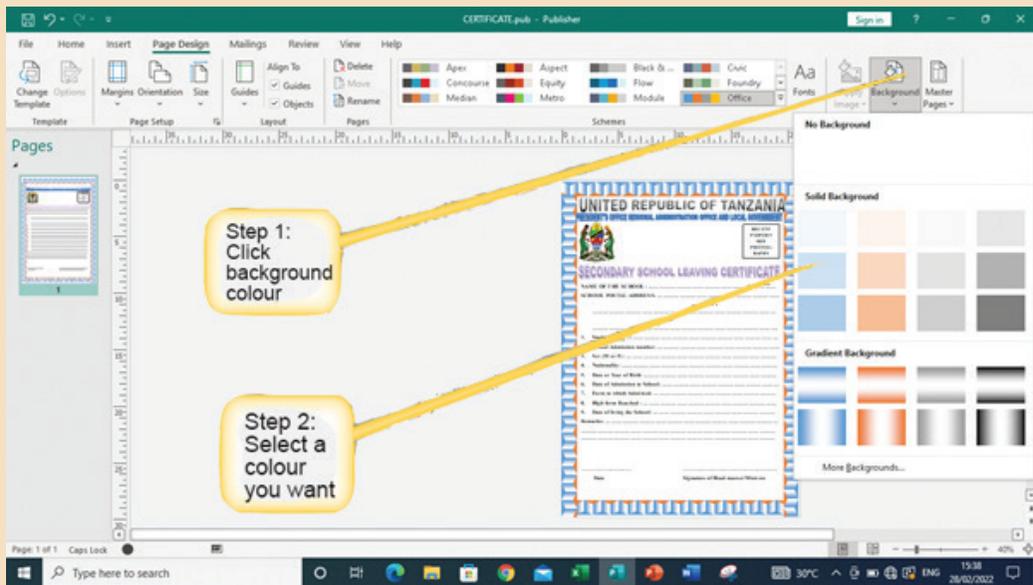


Figure 3.31: Adding a background to the certificate.

**NOTE:** By clicking on **More Backgrounds**, you will see more background options, such as solid fill, gradient fill, picture or texture fill, and pattern fill, as shown in Figure 3.32.

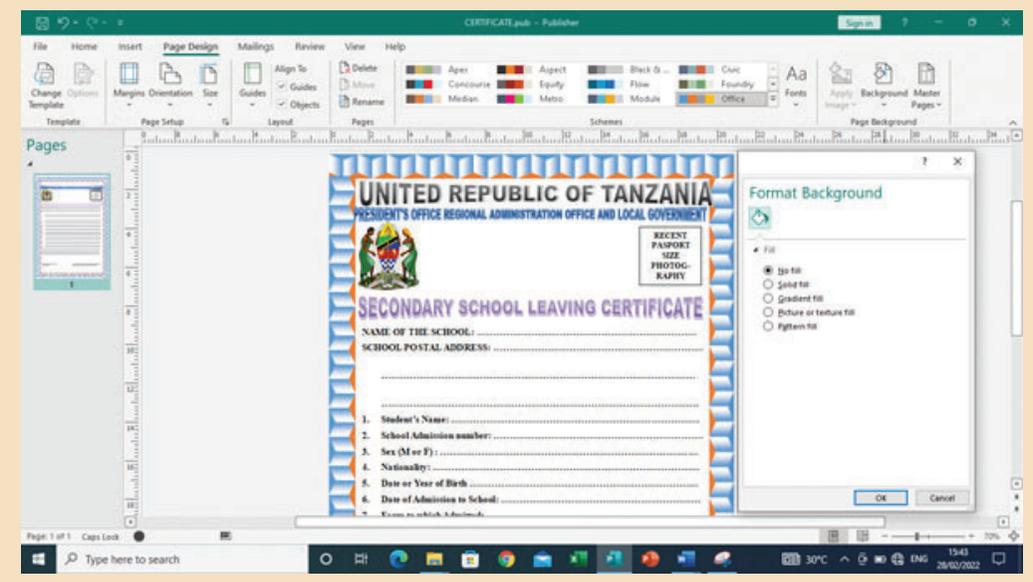


Figure 3.32: Types of background fill for a publication



## Exercise 3.4

Use MS Publisher 2016 templates to design a certificate of award to a form four best student using a paper size of A4 and a landscape orientation.

### Printing a publication

MS Publisher can be used to print high-quality publications, using desktop printers or any other printing facilities. The Print command in MS Publisher 2016 is in the backstage view, accessible by clicking the File tab. The steps in Activity 3.9 guide you to print a publication in MS Publisher 2016.

#### Activity 3.9: Printing a publication

- (i) Click on the **File** tab,
- (ii) On the backstage view, click **Print**: the printer setup window will appear as shown in Figure 3.34.

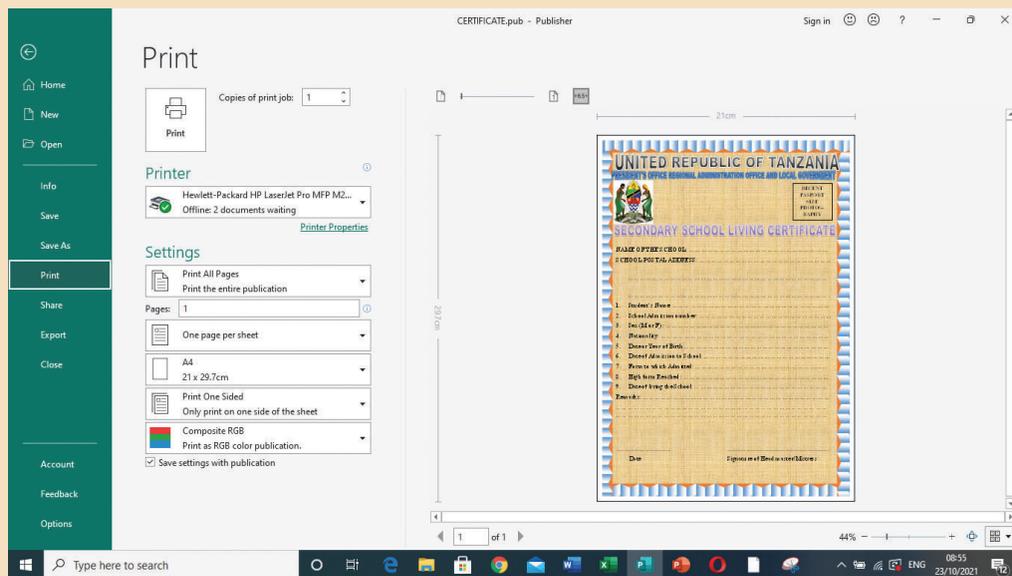


Figure 3.34: Printing a publication

- (iii) Select the desired printer from the list,
- (iv) Specify the number of copies, the number of pages, and other desired options as shown in Figure 3.34,

**NOTE:** The selected printer must be set to print on a paper with the size that matches the size of your publication. So, you must decide which paper

size is appropriate for a publication like a poster, a newsletter, a brochure, a magazine, a business card, etc. Once a printer is chosen, the paper size should be changed from the default option to **A4**.

- (v) Click on the **Print** icon to print the publication.

### Exercise 3.5

#### Review Questions

##### A: Matching items

Match the items in **List A** with corresponding items from **List B** by writing the letter of the correct response in front of the item in **List A**.

List A	List B
1. Newsletter ____	(i) A type of publication used to persuade the audience about a business or service
2. Brochure ____	(ii) Can be a piece of cloth bearing a symbol, logo, slogan, or other messages intended for a particular audience
3. Flyer ____	(iii) A publication expressing friendship or relationship, and is given in special events such as a birthday or a graduation
4. Business card ____	(iv) A piece of paper or other material affixed to a product container to display information such as brand name and ingredients
5. Postcard ____	(v) An extensive publication with many pages bound together
6. Advertisement ____	(vi) Organise days with events of social, religious, commercial, and administrative importance
7. Calendar ____	(vii) A rectangular piece of thick paper or cardboard intended for writing and mailing without an envelope
8. Label ____	(viii) A publication that intends to bring people together for an event or occasion
9. Banner ____	
10. Greeting card ____	
11. Invitation card ____	

- |  |  |
|--|--|
|  | (ix) A publication that shows business information about a company or an individual                            |
|  | (x) A short leaflet with information for advertising an organisation, an event, a service, or other activities |
|  | (xi) Periodically shared publication with one main topic for its subscribers                                   |
|  | (xii) A folded leaflet with brief information about an institution such as a school                            |

### B. True or False questions

Write T for a true statement and F for a false statement.

1. Graphics design is the process of typing documents such as letters and reports \_\_\_\_
2. MS Publisher can be a source of income for small scale entrepreneurs, if used for business purpose \_\_\_\_
3. Rulers in MS Publisher help in lining up text, images, and other objects \_\_\_\_
4. A ribbon in MS Publisher contains a group of commands from an active menu tab \_\_\_\_
5. A publication area in MS Publisher enables you to delete and add pages \_\_\_\_

### C: Short answer questions

Answer the following questions:

1. (a) What is publishing?  
(b) What is a desktop publishing software?
2. Why are desktop publishing software preferred over a word processor in designing publications?
3. Give three examples of desktop publishing software available in the market today.
4. Describe layering and its importance in creating a publication.
5. Describe three main purposes of a desktop publishing software.

6. Describe two ways of designing a publication by using MS Publisher.
7. State five features of a desktop publishing software and their uses.
8. Discuss the steps you need to follow when planning for a publication.
9. Use an example to explain how the knowledge of DTP can help you to employ yourself.
10. Design an invitation card to invite students and parents to a form four graduation ceremony of your school.
11. Design a brief school newsletter, covering events that happened in the past three months.

## Multimedia

### Introduction

*Traditionally, people use content based on a single medium such as video, image, animation, text or sound to convey a message from a sender to a receiver. However, advancement in technology has enabled the use of multimedia to transform the way messages are conveyed, whereby more than one medium can be combined to deliver a message. In this chapter, you will learn about multimedia concepts; multimedia devices; and how to record sound, shoot video, edit and compress video. The competence developed will enable you to prepare multimedia content for different contexts and purposes.*

### The concept of multimedia

Multimedia is a compound word in which, ‘multi’ means ‘more than one’ and ‘media’ means the different forms of transmitting information or messages. Therefore, literally, multimedia means more than one media. This implies that different types of media can simultaneously be used for conveying a message. For example, a slide of a presentation delivered by your ICS teacher may contain text, images, animation, and video content. Such a presentation can be said to have multimedia characteristics. Another example of multimedia is a song in YouTube, which might have images and videos that are accompanied with lyrics expressed in form of text. Figure 4.1 shows a TV programme that contains both animated images and text exemplifying multimedia content.



Figure 4.1: A TV programme that exemplifies multimedia content

Let us consider another multimedia example: when you watch a television programme, you can encounter more than one form of presentation of content. You can see a video of a person speaking and, at the same time, you can hear an accompanying sound. Such an instance involves more than one form of communication, and you can say that television programmes provide us with multimedia-based communication. The ability to see images, hear sound, and read text on a television or video playback exemplifies multimedia presentation.

### History of multimedia

Historically, multimedia is believed to have begun with newspapers. Newspapers were the first communication medium to combine text, images, and graphics to communicate information to an audience. Later, television became a new multimedia communication platform. This platform delivers content in multiple forms such as text, audio, and images. Unlike newspapers which present information in static forms, television programmes display information that is in motion. Currently, multimedia content delivery has become more dominant due to the development of the World Wide Web (WWW) and computers. Multimedia has developed as an area of study which combines many technologies to produce various forms of content to facilitate communication. Also, handheld devices such as smartphones and tablets have promoted easy access and use of multimedia content.

### Types of multimedia content

Multimedia content can be linear or non-linear. Linear multimedia content, also known as passive multimedia, proceed without user interaction. Examples of linear multimedia content can be found in a cinema presentation or when watching a TV programme. In non-linear multimedia content (also known as active multimedia), user interaction is required for the content to proceed. Examples of non-linear multimedia content can be found in computer games, where you must perform a task for a game to continue. Also, computer-based training, in which learners learn at their own pace, is an example of non-linear multimedia content. It is possible to have live multimedia presentations or recorded multimedia presentations, in which a navigation system allows user interaction. Imagine receiving a WhatsApp message from your friend which informs you about a birthday party invitation. The message contains texts and a link at the end. Clicking the link opens an image of the invitation card. This card can also contain a melody. All this demonstrates the notion of non-linear multimedia.

**Exercise 4.1**

1. What do you understand about the concept of multimedia?
2. Use an example to differentiate between linear and non-linear multimedia content.
3. Discuss how handheld devices such as smartphones have transformed the use of multimedia.

**Multimedia devices**

A multimedia device is an electronic appliance used to record, store, produce, display or playback multimedia content. Hardware and software are important parts of multimedia devices. The hardware stores, processes, and displays multimedia content, while the software facilitates recording, editing, storing and retrieving of multimedia content from the storage devices. Examples of multimedia devices are multimedia projectors, smartphones, tablets, iPads, desktop computers, laptops, video game consoles, and video cameras. Some of these devices are described next.

**Multimedia projector:** This is an output device used to display multimedia content on a projector screen or a wall. It can display text, images, and video on a screen. Figure 4.2 shows an example of a multimedia projector.



**Figure 4.2:** *An example of a multimedia projector*

**Smartphone:** This is a multimedia device that can send and receive text messages, make and receive calls, as well as process and share multimedia content. A smartphone can be used to record both videos and images. It can be used to play a video and display an image that has been recorded. It is also capable of recording and playing sound. Figure 4.3 shows an example of a smartphone.



**Figure 4.3:** *Rear and front view of a smartphone*

**Computer:** This device can be used to prepare multimedia content. A computer processes text, audio, animation, graphics, and video to form a digital representation of information. It also stores and displays multimedia content and transmits it from one user to another over a network. Using a computer, you can interactively run multimedia content such as e-learning materials. Figure 4.4 shows an example of a computer displaying multimedia content.



**Figure 4.4:** *A laptop displaying multimedia content*

**Video game console:** This is a multimedia device used to play video games. While playing a video game, you interact with the console by navigating across the game graphics. The device must be connected to a TV screen to display game

graphics and play the game. An example of a video game console is shown in Figure 4.5.



**Figure 4.5:** *An example of a video game console*

**Digital camera:** This is a multimedia device used to capture video, audio and images. Digital cameras are of different sizes and types and are used for different contexts. The nature of a video you want to make will determine an appropriate camera and type of lens for your purpose. Figure 4.6 shows examples of digital cameras.



**Figure 4.6:** *Front, rear and side view of a digital camera*

**Drone camera:** A drone is an Unmanned Aerial Vehicle (UAV) that can be remotely controlled. A drone camera is a type of a camera that is attached to a drone and used for recording videos and taking pictures. Drone Cameras come in a variety of sizes, the largest of which is used for military purposes known as military or predator drones. Drone cameras can also be used to record videos and images of various events such as weddings, political gatherings, sports, and games. Drone technology is constantly evolving through innovation and large-

scale investment, causing advanced drones to be introduced to the market every few months. Figure 4.7 shows examples of drone cameras.



**Figure 4.7:** *Examples of drone cameras*

**Wearable digital devices:** These are multimedia devices that are worn close to and/or on the skin, and are used to detect, analyse, and transmit information of concern. Examples of wearable devices are smart watches, fitness trackers, and smart clothes. These devices can send messages, make calls, and display an image and/or even a video. Figure 4.8 shows examples of wearable digital devices.



**Figure 4.8:** *Examples of wearable digital watch and a smart cloth*

### Multimedia system

A combination of multimedia devices form a multimedia system. A multimedia system is a system capable of processing multimedia data, including generation, representation, recording, storing, transmission, searching, retrieval, and delivery of multimedia information. Specifically, multimedia systems are computer hardware, software, as well as tools and devices that support the combination

of text, images, graphics, animations, audio, or video, and which can be used in production of content.

#### **Activity 4.1:** Exploring multimedia devices

Suppose you are required to display a video showing the surroundings of your school. Conduct an online search to find out all devices that will help you to record, edit and display the video.

### **Characteristics of Multimedia Systems**

Multimedia systems have the following characteristics:

- (i) They are computer-controlled.
- (ii) They integrate and process more than one form of information.
- (iii) They handle information that is represented digitally.
- (iv) The interface that presents multimedia content is usually interactive.

For multimedia systems to work effectively, the following aspects are important:

**High Processing Power:** This processing power is required to deal with high speed data processing and real time delivery of multimedia content. Because multimedia content involve more than one media element, including high-resolution graphics and high quality video, faster processors are required for better performance.

**Multimedia Capable File formats:** This file format is required to deliver real-time media, e.g., Rich Text Format (RTF) for text, or Joint Photographic Expert Group (JPEG) for images, or Motion Picture Expert Group 4 (MPEG/MP4) for videos.

**Efficient and Fast Input/Output (I/O):** The input and output to/from the file subsystem needs to be efficient and fast since Multimedia systems allow real-time recording as well as playback of data.

**Large Storage and Memory capacity:** Large storage and memory capacity are required for efficient management of multimedia content. Because multimedia involves graphics of high resolution and high-quality video and sound, it requires large amount of storage space.

**Reliable Network Support:** If delivery is via network or Internet involving client-server systems, a reliable network is required to share, retrieve, and display multimedia content.

**Software (Application or System):** Software are needed to access, retrieve, share or display multimedia content.

### Categories of multimedia system devices

Multimedia devices can be grouped into three categories: input, output, and storage devices.

#### Input devices

The following are examples of multimedia input devices.

- (i) Keyboard: used to input a text for multimedia content.
- (ii) Digital cameras, scanners and CD-R/DVD-R: used to store and playback audio, video and images of multimedia content.
- (iii) Musical Instrument Digital Interface (MIDI) based keyboard, CD and Microphones: used to capture and playback audio of multimedia content.
- (iv) Mice, track balls, joy sticks, and light pens: used for spatial data input.
- (v) Modem and network interfaces card: used for network data input.

#### Output devices

The following are examples of multimedia output devices.

- (i) Computer Monitor for displaying video, images, text and motion graphics.
- (ii) Projector: for displaying text, graphics, and videos.
- (iii) TV Screen: for displaying multimedia content.
- (iv) Smartphone display screen: for displaying multimedia content.
- (v) Colour printers: for printing multimedia content.
- (vi) Speaker or any other MIDI interfaces for producing sound.

#### Storage devices

Common storage devices for multimedia content include the following.

- (i) Hard disk drive e.g., Serial Advanced Technology Attachment (SATA) or Solid State Drive (SSD)
- (ii) CD-Rs/ DVDRs
- (iii) Flash disk/USB Memory Stick
- (iv) Memory Card, e.g., Secure Digital (SD) Cards or Micro SD Cards

### Use of Multimedia

There are several uses of multimedia in our daily lives. The most common uses include entertainment, advertisement, education, and medicine.

**Entertainment:** Multimedia is extensively used in the entertainment industry, especially in the music, movies, and animations industry. Multimedia content aim to engage users in expressing music, movies, games or a variety of videos in a more entertaining way than traditional entertainment media or arts. Therefore, multimedia content facilitate positive and active users participation and interactivensess. Figure 4.9 shows children interacting with multimedia content.



**Figure 4.9:** *Children interacting with multimedia contents*

**Advertisement:** Multimedia technology is used to produce an exciting presentation that can grab and keep the attention of the audience on an advertisement. For example, the advertisements you watch on television billboards along the roads and on social media may contain texts, images, videos and graphics combined to communicate information about a product or a service that is being advertised.

**Education:** Multimedia technology is very popular in education. It is used to produce computer-based courses that include videos, graphics, and sound, which aid in understanding course materials. Multimedia devices are also used in designing and disseminating interactive content for learning.

**Medicine:** The use of multimedia in medicine has many advantages, including creating awareness to patients about health issues using various media types. Hospitals can provide content in video, sound or graphics to patients to explain medical issues such as how to prevent various diseases or how doctors perform medical procedures. Such information, which can be presented through a

combination of image, videos and animations, helps patients to better understand their medical issues. Currently, multimedia application software such as e-Anatomy or Genome enable doctors to perform virtual surgery. This increases capacity to provide a medical service, including remote provision of surgery services in hospitals remotely. Likewise, using multimedia, the doctor can simulate the spread of new diseases such as Covid-19, and that, can contribute to the development of means to prevent and combat the disease.

### Exercise 4.2

1. Using a computer or a mobile phone, play any computer game found in it and then answer the following questions.
  - (a) Does it qualify to be a multimedia video game? Justify your answer.
  - (b) If you were to correct anything in the game you have played, what would you correct and why?
2. Discuss other areas, apart from those explained in this book, where multimedia technologies play a role in your society.

### Audio and video

Audio and video are among technologies used to carry multimedia content. For example, a multimedia content displayed on a TV programme combines media; apart from image, text, and animations, it contains video and audio. But there are some cases where you can have a video that shows only images without sound, or sometimes you can mute the sound and watch the video.

### Concept of Sound and Audio

Sound is a form of energy produced by vibrating molecules of a substance. When an object is hit, its molecules vibrate, causing variations in the pressure of the air around it. This vibrating air is heard and interpreted by an ear as sound waves. For example, when you beat a drum, you produce a sound that can be heard by your ear. Human beings create voices which are sound waves produced by a vocal cord vibration. This sound can be recorded, processed, and transmitted using a microphone. In multimedia, the transmitted, recorded, or stored sound in

digital form is referred to as audio. If you use a multimedia device to play an audio file, you will hear a sound. This is because the electrical energy in the audio file will be converted back to sound energy using a speaker.

### Sound/Audio recording equipment for multimedia production

There are several equipment you can use to produce audio for use in multimedia production. The required equipment include microphones, computers, sound cards, sound editing software, and other accessories such as cables and pop filters. A microphone is a device that transforms sound energy to audio signal/energy (mechanical to electrical energy). Microphones can be categorised based on their sound pick up pattern characteristics. There are three types of microphone based on how they pick up sound. These are unidirectional, bi-directional, and omnidirectional microphones. A unidirectional microphone (Figure 4.10) captures sound from one direction only and picks up sound from the top of a microphone. It is suitable for recording sound from a single person, like in speeches.



Figure 4.10: Unidirectional microphones

Bi-directional microphones (Figure 4.11) record sound from two directions or sides of the microphone, mostly front and back. These types of microphone are mostly used during question and answer sessions or interviews that involve two people.



Figure 4.11: Bi-directional microphones

An omnidirectional microphone (Figure 4.12) is a microphone that records sound from all directions. It is suitable for a group conversation, live performances of plays and musicals, TV and radio broadcasting, and studio recording of music.



**Figure 4.12:** *Omnidirectional microphones*

Some computers, especially laptops, have a built-in microphone that you can use for audio recording purposes. Such a computer has a sound card, which is an electronic device that converts an analog sound signal into a digital audio. Sound cards can be internal (Figure 4.13(a)) or external (Figure 4.13(b)). An internal sound card is slotted inside a computer, while an external sound card connects to a computer through a USB or Firewire cable.



**Figure 4.13(a):** *Internal sound card*



**Figure 4.13(b):** *External sound card*

In digital sound recording, a software controls the whole recording process. After connecting the hardware for sound recording, you can command the recording process through a software interface. There are software packages that are used for sound production, including Audacity, Power Sound Editor, Adobe Audition, Ardour and Traverso DAW. Some of these software are open source (e.g., Audacity), and some are proprietary (e.g., Adobe Audition). Examples provided in this book are based on **Audacity**. Audacity is a multi-track recording software

that you can use to record and edit audio. It is downloadable in a portable format (zipped), and so you just need to unzip and install the software. Audacity can be downloaded from <http://www.audacityteam.org/download>.

### Audio recording

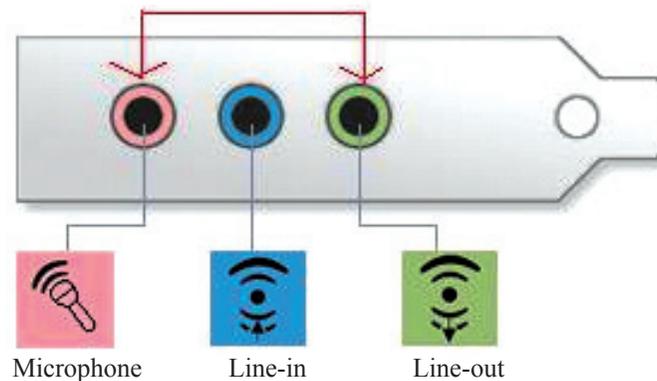
Recording audio for multimedia use involves several steps. In this section, you will be guided through the steps required to accomplish this task using Audacity.

**Step 1:** Download and install Audacity from the following link: <http://www.audacityteam.org/download>. Activity 4.2 guides you on how to download Audacity software.

#### Activity 4.2: Downloading Audacity software

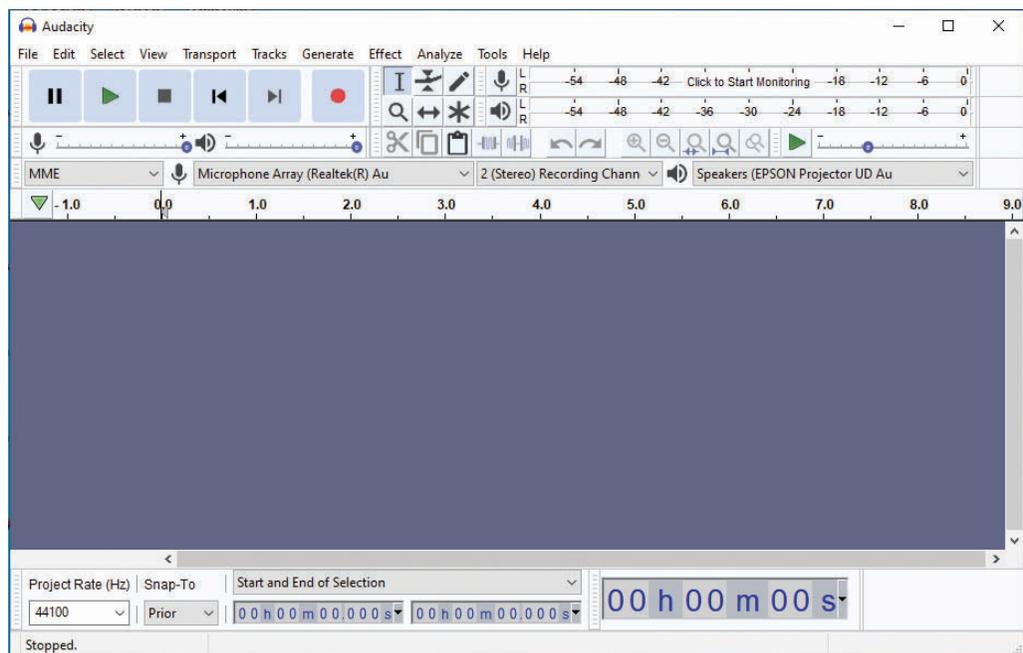
- (i) Type the Audacity download link in the address bar of your browser, and then press Enter key
- (ii) Click on the button for **Audacity for Window**,
- (iii) Follow the instructions provided to install the program.

**Step 2:** Connect a microphone to the sound card by choosing an appropriate symbol of a microphone port as shown in Figure 4.14.



**Figure 4.14:** Examples of microphone connection ports found on computer hardware

**Step 3:** Start the Audacity software: You will be presented with an interface like the one in Figure 4.15.



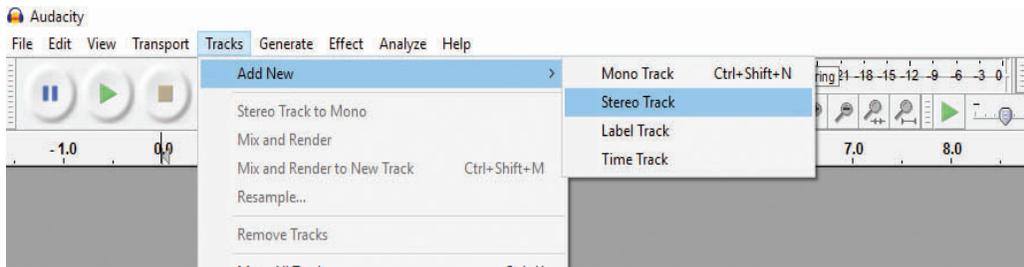
**Figure 4.15:** *Default interface of Audacity software*

**NOTE:** Because Audacity is a multi-track recorder, you are presented with the work area which does not have any track.

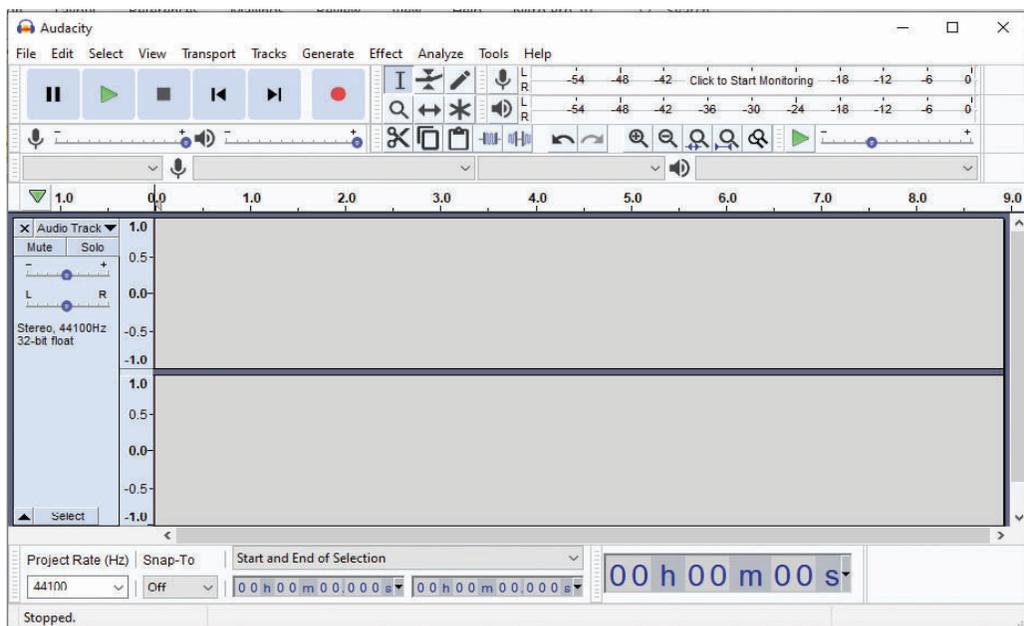
**Step 4:** Add an audio track: When you start recording, audio tracks are added automatically to the workspace. However, for editing purpose, you may add tracks manually to the workspace. Activity 4.3 guides you to add a track manually to the workspace.

#### **Activity 4.3:** Adding a track manually to the workspace

- (i) On the main menu, click **Tracks**,
- (ii) Select **Add new**,
- (iii) Click **Stereo Track** as shown in Figure 4.16. The track will be added to the Audacity program workspace, as shown in Figure 4.17.

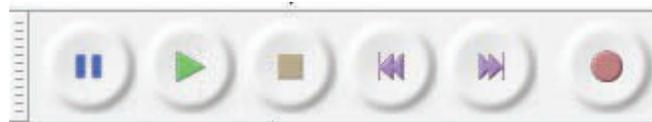


**Figure 4.16:** Adding a track manually to Audacity workspace



**Figure 4.17:** Visual presentation of tracks on the Audacity workspace

Part of the Audacity interface is a transport tool shown in Figure 4.18. The transport tool is represented by six buttons: pause (blue), play (green), stop (brown), skip to start (purple), skip to the end (purple), and record (red).



**Figure 4.18:** Audacity transport tool

**Step 5:** Start a recording session: You need to uncheck 'Playthrough and Overdub' before recording to avoid voiceover. Uncheck **Playthrough** to avoid interference from the speaker, which can lower the quality of your recording.

Uncheck **Overdub** to prevent playing of the previously recorded tracks when you are recording a new one.

The procedure in Activity 4.4 guides you to disable **Playthrough** and **Overdub** in Audacity.

#### Activity 4.4: Disabling Playthrough and Overdub in Audacity

- (i) Click on the **Transport** tab,
- (ii) Select **Transport Options**,
- (iii) Click on **Software Playthrough** to uncheck it,
- (iv) Click on **Overdub** to uncheck it, as shown in Figure 4.19.

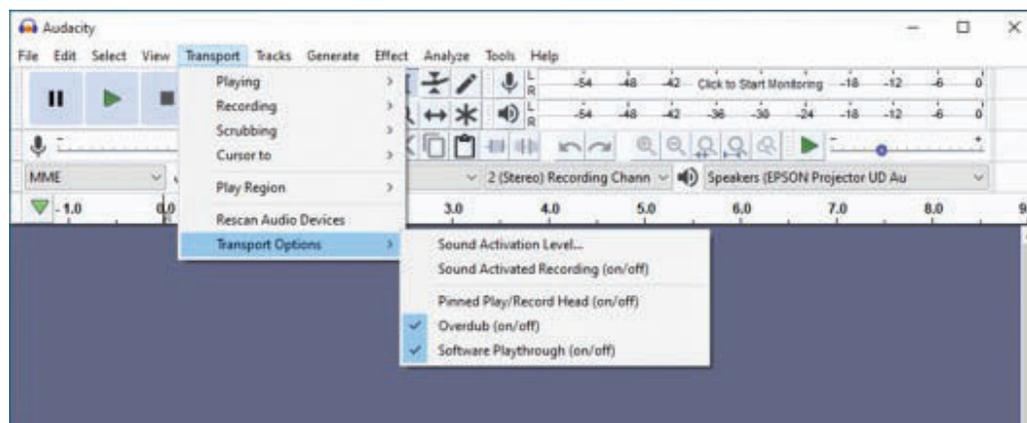


Figure 4.19: Disabling overdub and software playthrough

**NOTE:** This can also be done by following the path **Edit->Preferences->Recording** (Figure 4.20), that enables you to disable Overdub, Software Playthrough, and Sound Activated Recording.

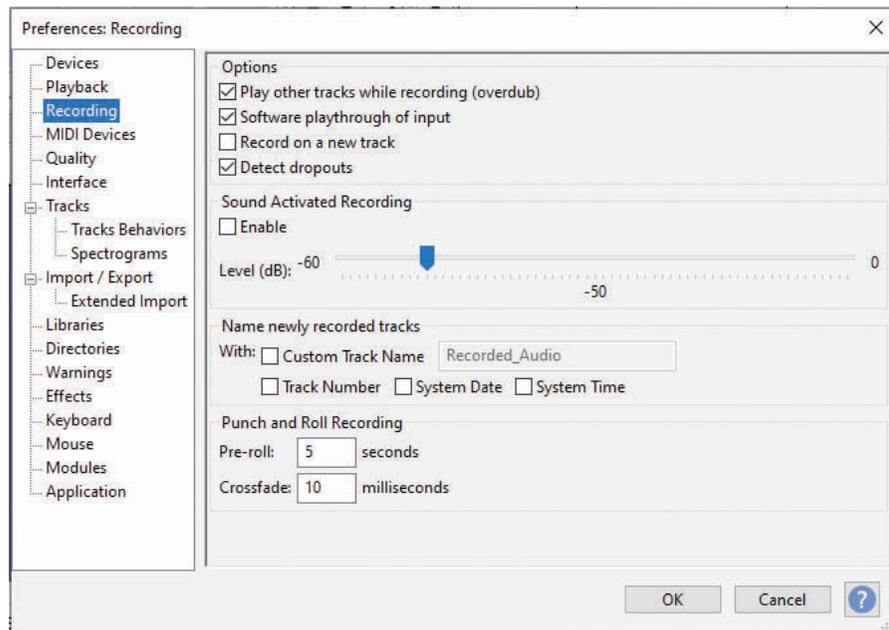


Figure 4.20: Disabling overdub, software playthrough and sound activated recording

You must also take care of a sound-activated recording, which, when activated, recording will start automatically, based on a chosen volume threshold. You can monitor the audio levels by turning on the monitor. Click **Start Monitoring**, accessible through the microphone icon (Figure 4.21(a)), and then you will see a meter showing the sound level (Figure 4.21(b)).

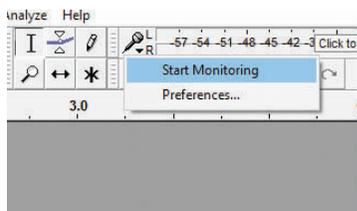


Figure 4.21(a): Starting audio levels monitor

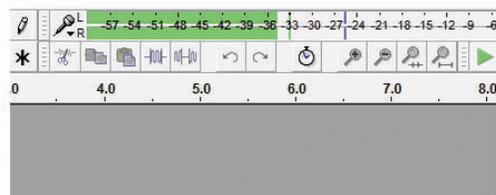
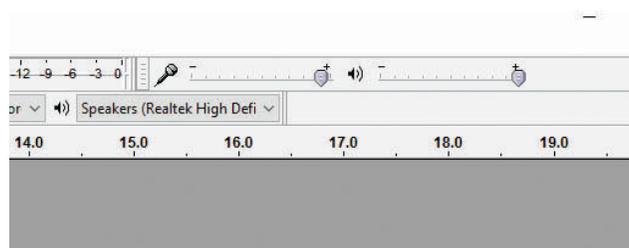


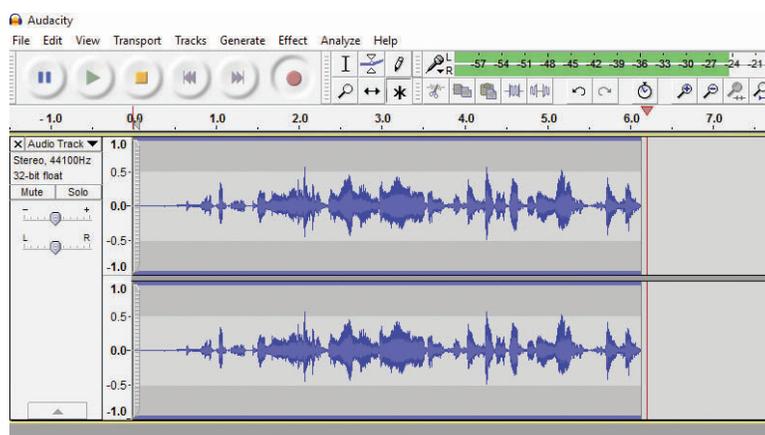
Figure 4.21(b): Audio levels

When you talk on the microphone, you will see the sound level changing on the sound level meter. If the sound level is too high, you can adjust it using the sound level adjustment slider, as shown in Figure 4.22.



**Figure 4.22:** *Microphone and speaker volume adjustment sliders*

To record the sound of interest, click on **Transport->Recording->Record**, then talk to the microphone. Once you finish talking, click the **Stop** button. An audio track will automatically be added to the workspace, and the recorded sound waves will be visible on the track (see Figure 4.23). You can also see the sound level meter that indicates recorded audio levels.



**Figure 4.23:** *Audacity interface showing recorded sound on a track*

### Step 6: Save the recorded audio clip

After you have recorded an audio clip, you may save it for future use or further processing. To save the project, click the **File** tab and select **Save Project** as shown in Figure 4.24. A new page will pop-up, requiring you to name your project. Provide a name for your project, and it will be saved as an Audacity project file, not an audio file.

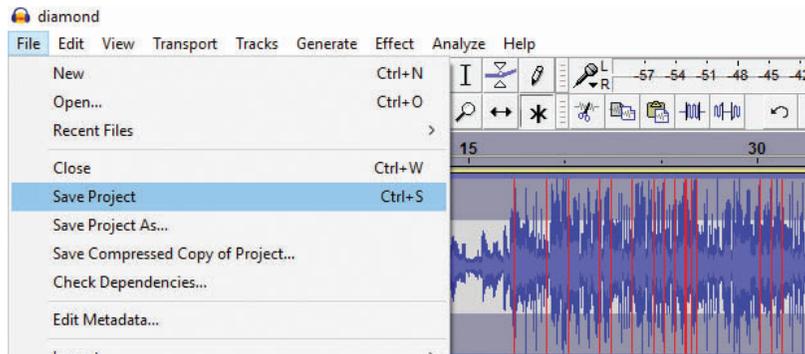


Figure 4.24: Saving an Audacity project

**Step 7:** Export the audio clip to an audio storage in a file format such as Wave form Audio File (WAV). This will enable the recorded audio clip to be used in other software products. To export an audio clip to the WAV format, click **Export** , on the File tab: the Export Audio dialog box like the one shown in Figure 4.25 will appear.

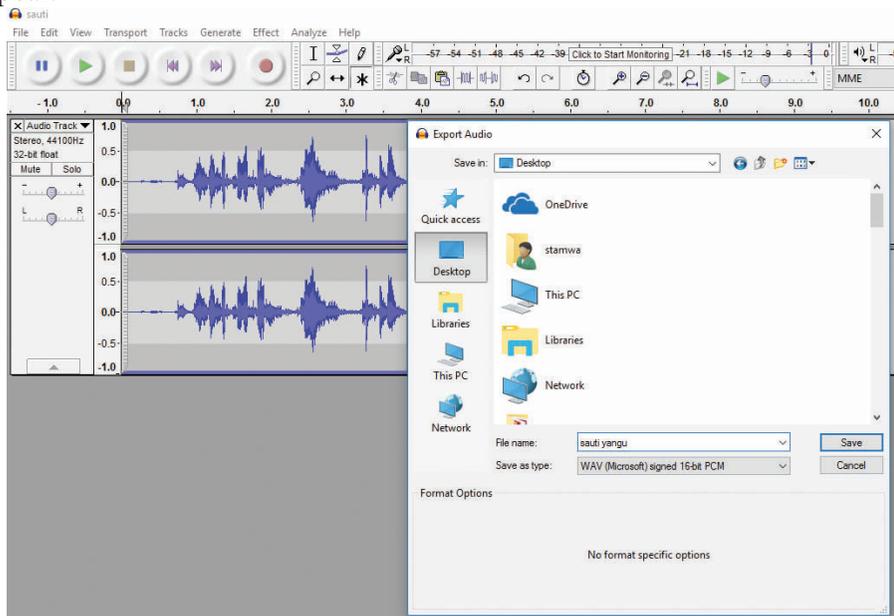


Figure 4.25: Dialog box for exporting an audio file

Select WAV in the Save as type, name the file, and then click **Save**. You can now play and hear your voice using any audio player.

**NOTE:** To export an audio clip in MP3 format, you may be required to download and install a special library for encoding your audio in MP3 format.

## Digital Audio Editing

Audio editing involves the removal of unwanted parts of an audio clip; splitting or joining audio clips; changing some audio clip characteristics such as gain, volume, or speed; inserting audio clips; and mixing audio clips. In Audacity, audio clips are arranged in tracks. Each audio track has its control panel, as shown in Figure 4.26.

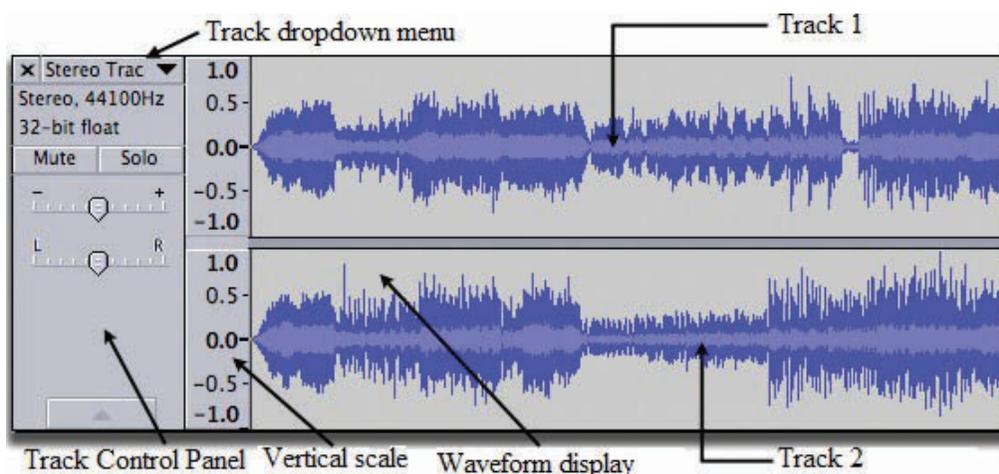


Figure 4.26: Audacity audio track control panel and associated features

You can open as many tracks as required for your audio editing. To close the track, click the close button (X) on the left corner of the track drop-down menu. To edit audio clips in Audacity, follow these steps.

**Step 1:** Import an audio clip you want to edit: To import an audio clip, click the File menu and then select Import (see Fig 4.27).

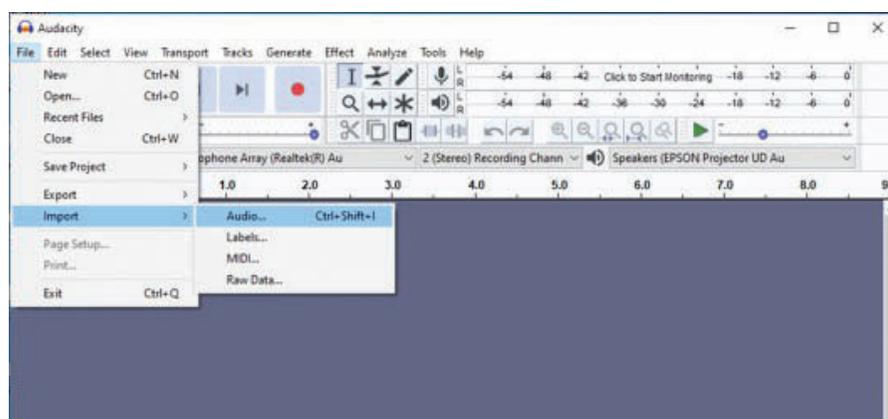
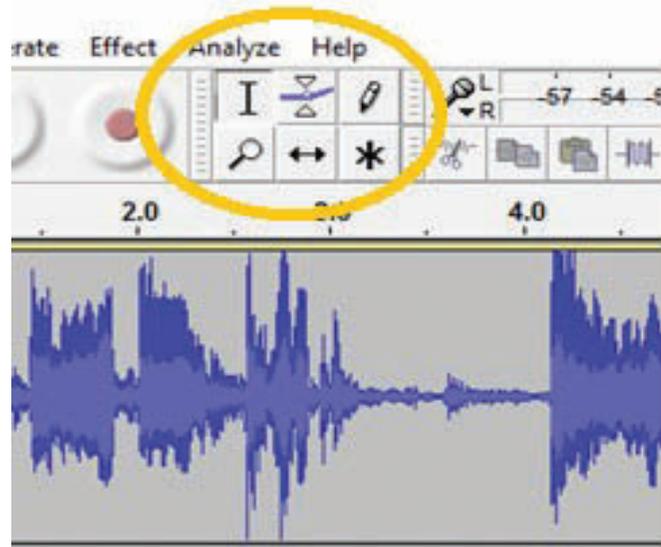


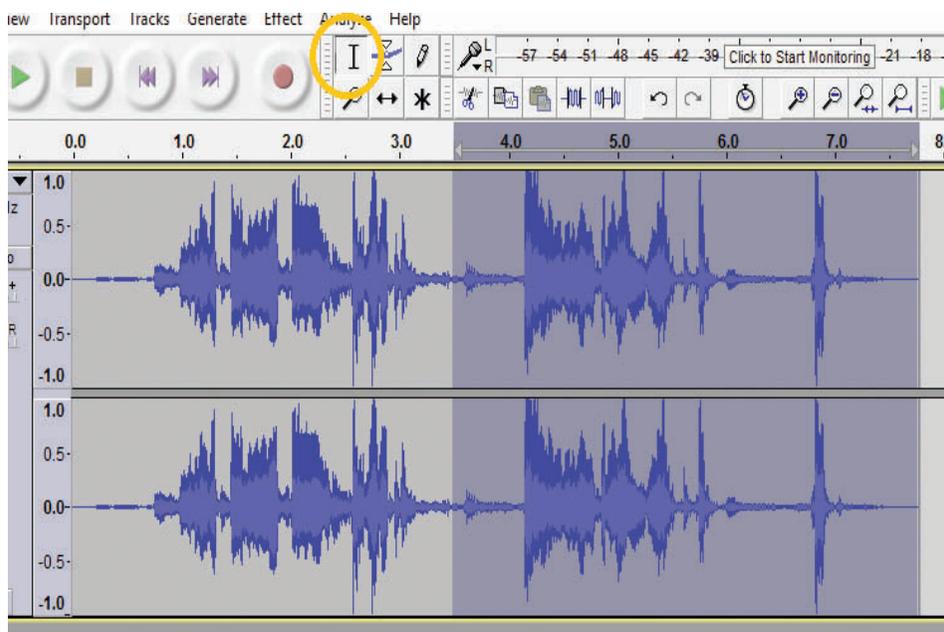
Figure 4.27: Importing an audio clip in Audacity

**Step 2:** Perform the editing of your interest: There are several tools that can help you to manipulate an audio clip. These tools are located on the menu bar for easy access (see Figure 4.28).



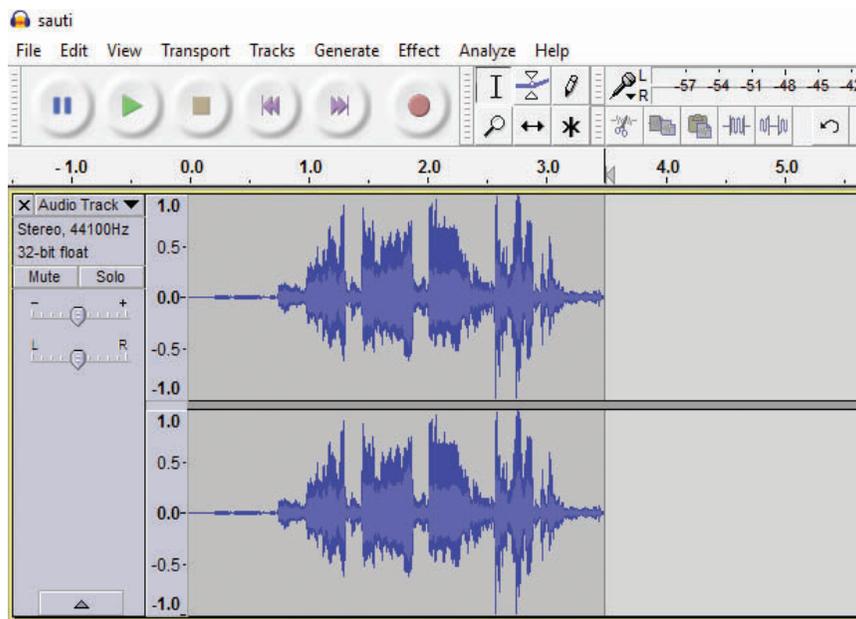
**Figure 4.28:** Quick audio editing tools in Audacity

Using the select tool (circled yellow in Figure 4.29(a)), select half of your audio clip (Figure 4.29(a)).



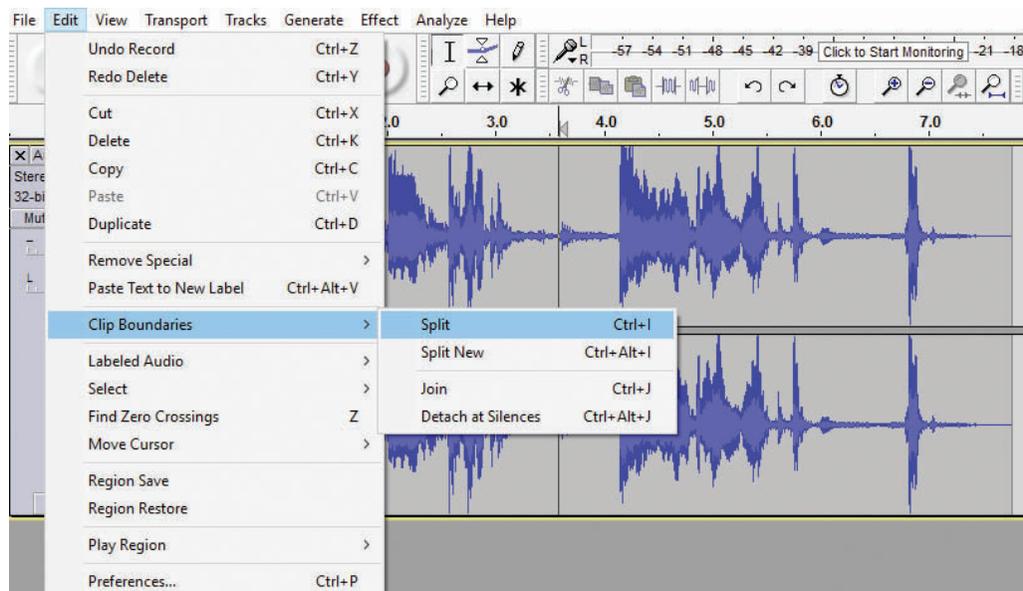
**Figure 4.29(a):** Selecting portions of an audio clip

Press **Delete** to remove the selected part, and the remaining part will appear as shown in Figure 4.29(b).



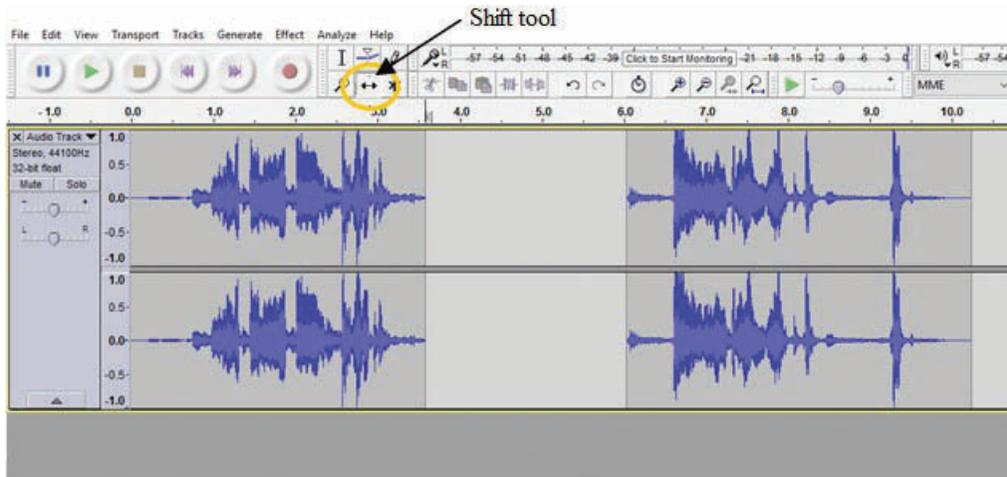
**Figure 4.29(b):** The remaining audio clip after deleting a selected part of the audio

You can also split the recorded audio into two parts using the boundary split tool (see Figure 4.30(a)).



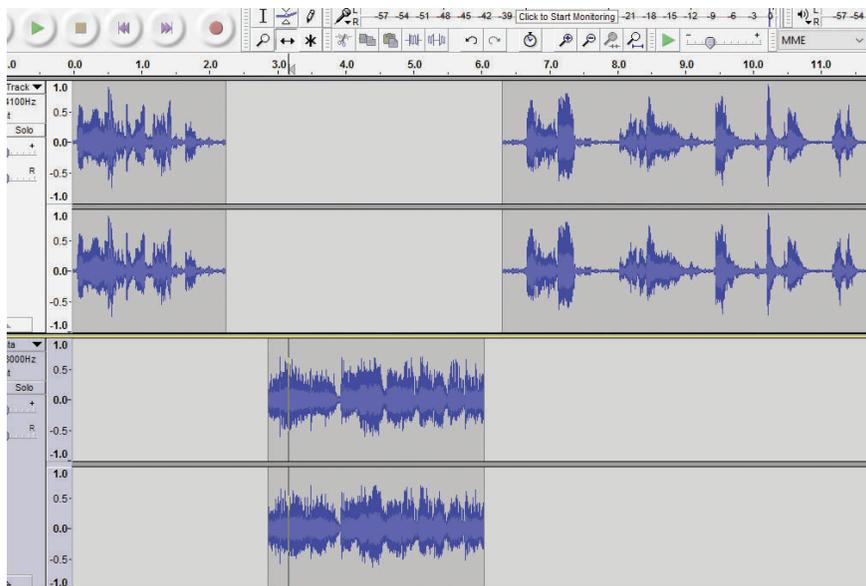
**Figure 4.30(a):** Boundary splitting of a clip

The two resulting clips can be separated using the shift tool (see Figure 4.30(b)), leaving a gap between the separated clips.



**Figure 4.30(b):** Separating the clips apart using the shift tool

To insert a sound clip on the gap, first import the clip you want to insert (see Figure 4.31(a)).



**Figure 4.31(a):** Imported sound clip

Then move the clip from the second track to the gap on the first track (Figure 4.31(b)) using the shift tool.

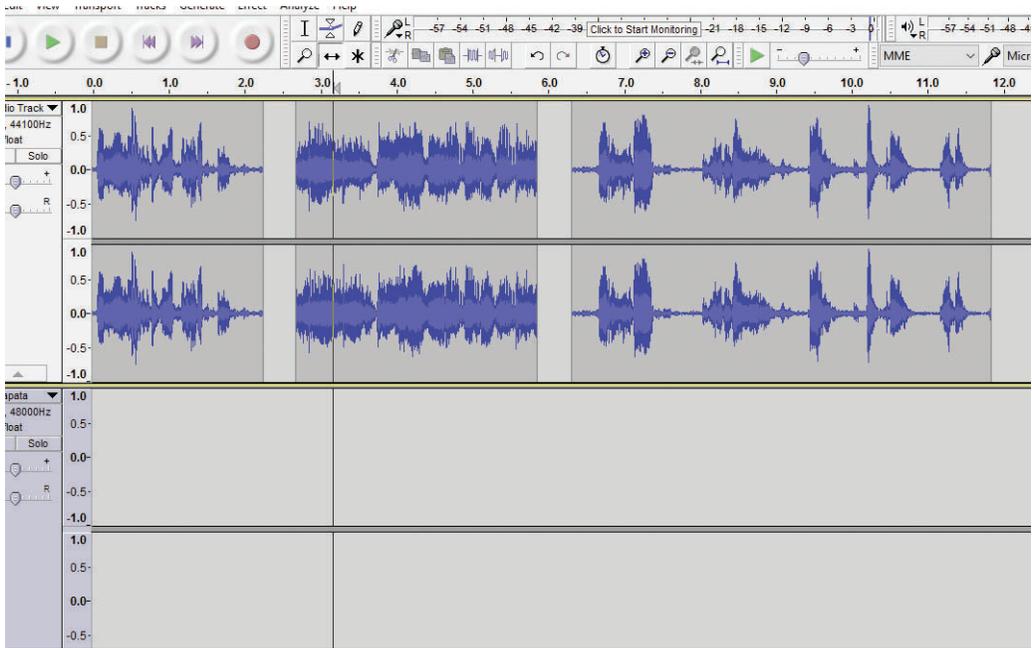


Figure 4.31(b): Audio clip moved to fill the created gap

You can add background music by simply importing music and adjusting the volume (See Figure 4.31(c))

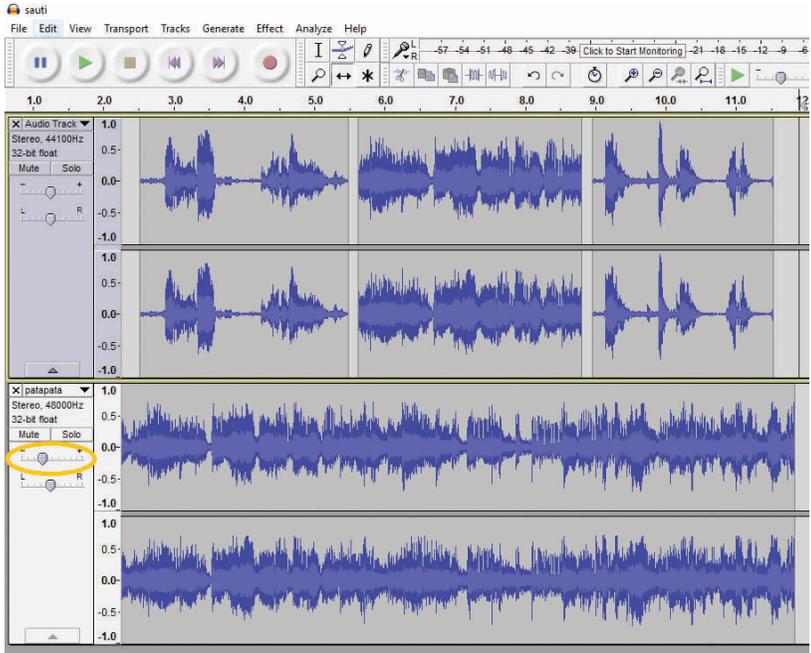


Figure 4.31(c): Volume adjustments for imported music

### Exercise 4.3

Write down your brief history from birth up to now, explaining, among other things, how you spend your school holidays. Using Audacity, record a sound that narrates your history and export it to WAV format.

### Video

A video is a visual medium in which a sequence of images is combined to produce moving pictures. Videos are usually accompanied with audio parts that describe what is displayed.

### Video recording

Video recording or shooting refers to the process of recording pictures for producing moving images or video. Two steps are followed in video recording: First is planning for video production, which includes writing a script (content) for video shooting. This step is well known as a pre-production stage. The second step is the production stage, whereby the actual video recording takes place. Lighting for video is an essential aspect during video recording. The source of light can be natural or artificial. Special skills, techniques, and equipment (see Figure 4.32) are also needed for someone to shoot a good video. Some important video recording techniques focus on how to record videos, sound, lighting a scene, framing of shots and organizing the final video sequences.



**Figure 4.32:** Examples of video production equipment

You probably already know many video production terms, just by watching television. These may include how long each shot lasts, how often the camera moves, and how shots are edited and sequenced. You may also try to focus your attention on the visuals alone without the audio, by analysing the shots, and you will discover a sequence that provides basic building blocks in the edited footage.

## Parts of a Video Camera

The most important device in video production is a video camera. A video camera is a camera used to record motion pictures. Video cameras are used primarily in two modes. The first, characteristic of old broadcasting, is live television, where the camera feeds real time images directly to a screen for immediate view. In the second mode, the images are recorded to a camera storage device for archiving or further processing.

To use a video camera, one needs to understand its basic and operational features. Figure 4:33 shows the basic parts of a camera.



**Figure 4.33:** Basic parts of video camera

## Camera support mechanism

Camera support mechanism is about enabling the camera to capture images (in motion) that imitates what we see in reality. Effective video recording starts with a camera person appreciating the importance of the camera support to the whole process of shooting. The tool that help to support the camera is a tripod.

### *Tripod*

Using a tripod is the standard method of supporting a camera. A tripod has three legs that are collapsible and individually adjustable in length to provide a solid, level support for the tripod head. The tripod provide a system of moving the camera right and left on the horizontal plane (pan) and up and down (tilt). Tripods have a built-in levelling bubble to enable the camera person to get the precise levelling. Figure 4.34 shows operational parts of a tripod.



**Figure 4.34:** *Operational parts of a tripod*

### **Shots, Scenes, and Sequences**

These are building blocks of the final edited footage of a video, which is also called a film/movie or TV programme. If you watch television or movies, you will see that, in general, there is not much movement of a camera. Instead, a series of individual static shots are put together to form scenes and sequences. A **shot** is a continuous view filmed by one camera without interruption. The number of frames you shoot between activating and deactivating the record button on your camera constitutes a shot. A frame is a basic unit of a shot, while shot is a basic unit of video, TV programme or film. Figure 4.35 shows the building blocks of the final edited footage.

**Shots** → **Scenes** → **Sequences**

**Figure 4.35:** *Building blocks of the final edited footage of a video*

Let us compare a book to a film, Video or TV programme to understand how frames, shots, scenes and sequences works to complete a film, Video or TV programme. Sentences have words; assume that each word is a frame. A series

of words (frames) forms a sentence (shot). A series of sentences (shots) forms a paragraph (scene). A series of paragraphs (scene) forms a chapter (sequence). A series of chapters (sequences) constitutes a book (the video, film or TV programme). Therefore, scenes and sequences are made up of a variety of shots available to a videographer. The list of shots could be quite long. In general, the list of shots can be put into seven basic types, based on their sizes as follows

1. Extreme Long Shot (XLS)
2. Long Shot (LS)
3. Medium Long Shot (MLS), also known as Knee Shot
4. Medium Shot (MS)
5. Medium Close Up Shot (MCU)
6. Close Up (CU)
7. Extreme Close Up Shot (XCU)

#### *Extreme Long Shot*

An extreme long shot, also known as Extreme Wide Shot (EWS), is a shot that covers a wider area. The shot frames the subject from a distance and emphasizes on an environment where the subject is found. This type of shot is mostly used to establish the setting or location where an event or action occurs. Figure 4.36 shows an example of an Extreme Long Shot.



**Figure 4.36:** Example of Extreme Long Shot

### *Long Shots*

An long shot captures the entire subject from head to toe. It is also known as a full shot and is useful when you want to focus on the subject while at the same time showing the surroundings or background scenery the subject is in. Figure 4.37 shows an example of a long shot.



**Figure 4.37:** *Long Shot*

### *Medium Long Shot*

A medium long shot, also known as Knee Shot, is a shot that frames the subject from the knee to the head. It is a type of shot found between a long shot and a medium shot. This type of shot is used to capture emotions expressed through a body language, showing multiple subjects occupying one scene and in establishing the environment the character is in. Figure 4.38 shows an example of a medium long shot.



**Figure 4.38:** *Medium Long Shot*

### *Medium Shot*

A medium shot, also known as Mid Shot, is a shot that frames a subject from the waist to the head. It is useful when you want to show the subjects performance, especially actors or actresses, and the surroundings they are in. This type of shot is also useful when you want to emphasize on the actions, costumes and properties worn or used by an actor or actress. Figure 4.39 shows an example of medium shot.



**Figure 4.39:** *Medium Shot*

### *Medium Close Up Shot*

A medium close up shot, is a shot that shows the subjects from the head to a point just below their chest. This type of shot is framed midway between medium shot and close up shot. It is tighter than medium shot and wider than close up shot. This type of shot captures the emotions as well as facial expressions of a subject or performer while giving an audience enough information to understand where the subject is located. Figure 4.40 shows an example of a medium close up shot.



**Figure 4.40:** *Medium Close Up Shot*

### *Close Up*

Sometimes, an image may appear to be very close, and sometimes, it may appear to be far. An image that appears to be close is a good example of a close-up shot. In a close-up shot, objects appear to be magnified. A viewer is provided with small and greater details of the action taking place on the scene and can easily understand the emotional reactions of the subject, which are expressed through facial expressions in a scene. For example, a close-up shot of a person giving a speech would put more emphasis on his or her emotions. Figure 4.41 shows an example of close up shot.



**Figure 4.41:** *Close Up Shot*

### *Extreme Close Up Shot*

An extreme close up shot is a shot that shows only the subject's face, eyes or any other specific aspect of a subject. Extreme Close Up shot is mostly used to express and emphasize the significant minute details of emotions of a subject. It is useful in capturing the mood or tone of the scene. Figure 4.42 shows an example of an extreme close up shot.



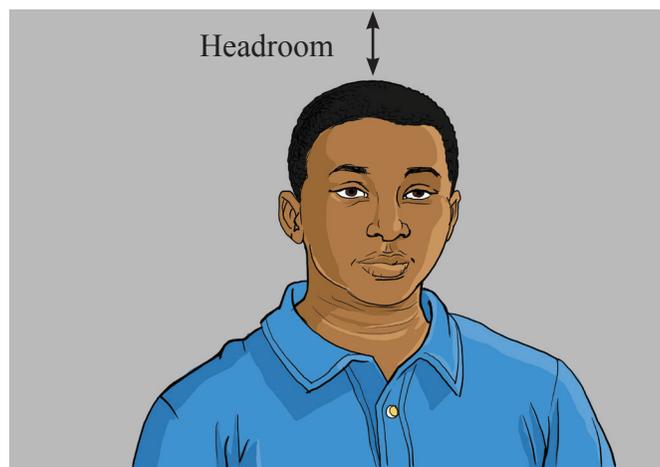
**Figure 4.42:** *Extreme Close Up Shot*

## Framing a shot

When you shoot a shot, the object need to be placed in such a way that either attention is paid to them, or they share the scene with something or someone else. An effective shot is framed and composed. Framing is the process of selecting a part of a view that you want to isolate and emphasize. Therefore, framing means selecting exactly what the viewer is going to see and what the content and volume of your screen will be.

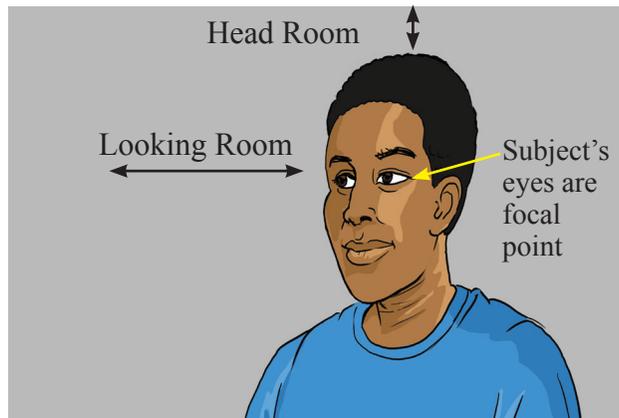
### Principles of framing a shot

1. *Determine the headroom, talking room and walking room:* Headroom is a distance between the top of the subject's head and the edge of the frame. The headroom for shots made for film and drama is different from the headroom for shots made for TV. While too little or no headroom gives a constricted feeling, too much headroom can result in an odd image. Figure 4:43 shows the position of headroom.



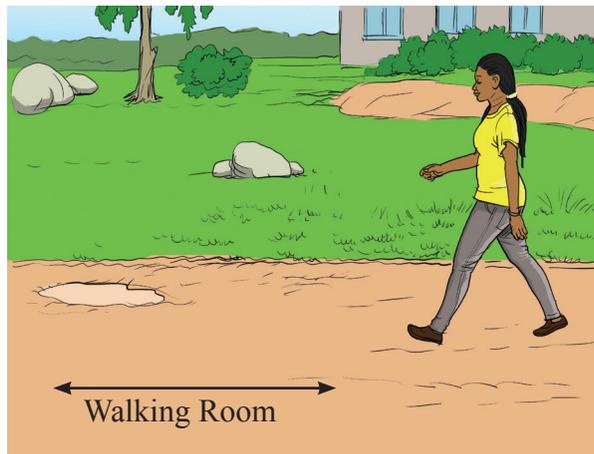
**Figure 4:43:** *Headroom*

A talking room, also known as Nose Room or Looking Room, is an area between the side of the frame and the face of the subject looking to one side. If a person is talking to another person on camera, this is shown as space between them. We assume this creates an area of interest outside the screen area and helps the viewer to connect to the part outside the frame-interest-area. Figure 4:44 shows the position of Looking Room.



**Figure 4:44:** *Looking Room*

Walking Room/Leading Room is the area that is left in the shot about the action of walking. Figure 4.45 shows the Walking Room.



**Figure 4:45:** *Walking Room*

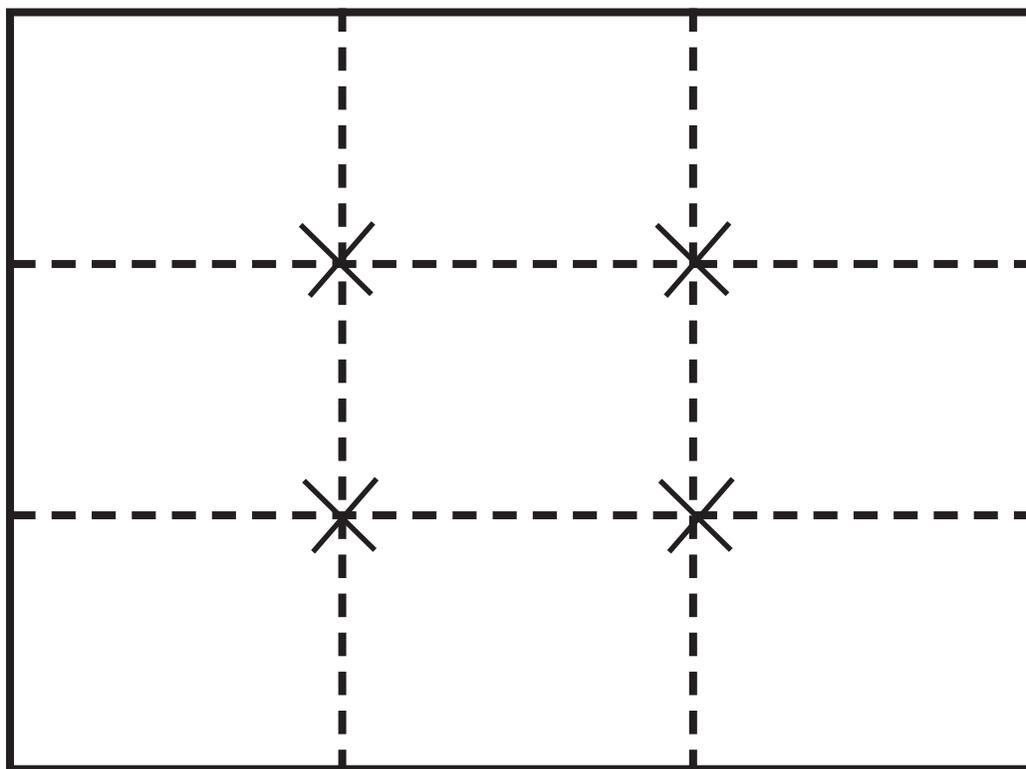
2. *Find and use the natural lines:* Use the vertical and horizontal natural lines to level/balance your picture. Look for horizontal and vertical lines in the frame (e.g., the horizon, poles, etc.). Make sure that horizontal lines are aligned well with the right and left edges of your frame. They should be aligned with the down and top edges of the frame and the vertical lines unless you are purposely going for a tilted effect.
3. *The subject at the centre:* Place the most important things at the centre of the screen. The smaller the picture on the screen, the lesser the effect. Maintain stable/steady pictures; stable pictures cater for the psychic and eyes of a human being.

### Rules of framing a shot

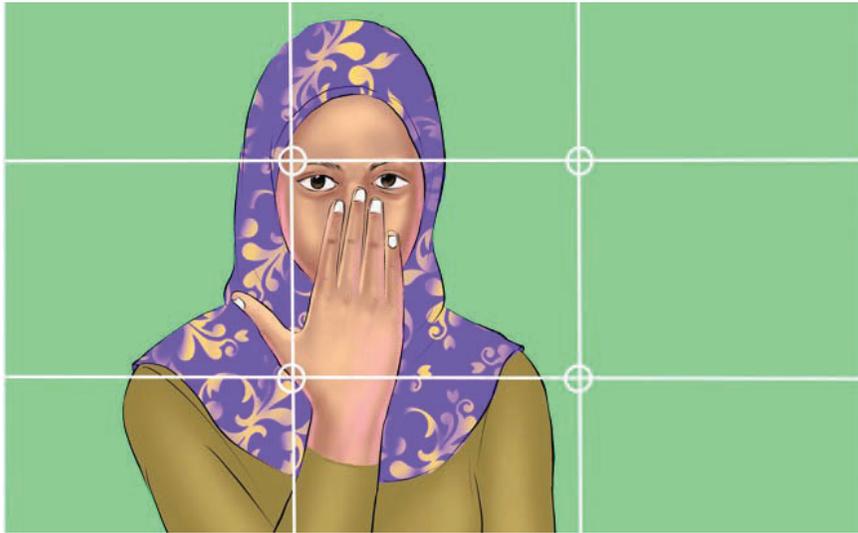
It is important to pay attention to the rules of framing, when you are shooting a video. One of the basic rules of framing is the Rule of Thirds.

#### *Rule of Thirds*

A basic rule of framing is the rule of thirds (see Figure 4.46 and Figure 4.47). This rule gives you an idea of where to place your subject within a frame. Though you may be inclined to position a subject at the centre of the screen, applying the rule of thirds will give you a more compelling picture. First, imagine that two vertical and two horizontal lines divide your view finder into thirds. The rule of thirds suggests that the main subject in your shot should fall on one of the points where these imaginary lines intersect. The resulting image will be more compelling than if you simply place your subject in the cross hairs.

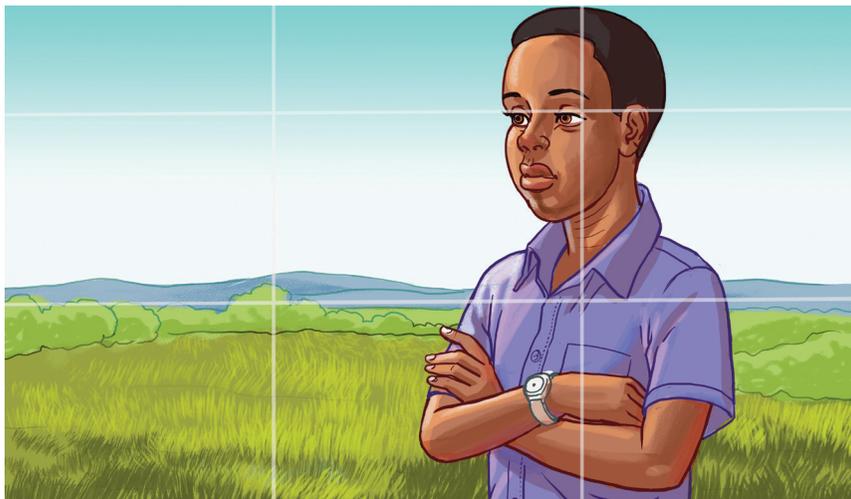


**Figure 4.46:** Place your subject on any of the two points where the lines intersect



**Figure 4.47:** *A short framed using the rule of thirds*

When shooting a person using a camera, that person's eyes are your main focal point. Whether using a wide shot or a close up, compose the shot so that the person's eyes fall on one of the uppermost imaginary intersections. The intersection you choose does not make affect to the position and direction of where a person is looking. Whether someone is looking from the left or right third of the screen, the frame should always point on the eyes for better result. However, this places the subject slightly off centre and brings in another principle of composition called **looking or talking room** (Figure 4.48) as described before.



**Figure 4.48:** *The looking room in relation to the rule of third*

Points (or lines) of interest occur around 1/3 or 2/3 of the way up (or across) the frame, rather than at the centre. Like many rules of framing, this is not always necessary (or desirable), but it is one of those rules you should understand well before you break it.

In most “people shots”, the main line of interest is the line going through the eyes. In this shot, the eyes are placed approximately 1/3 of the way down the frame. Depending on the type of shot, it is not always possible to place the eyes like this and the sky takes up the rest. This could be a “weather shot”, in which the subject is the sky.

#### *Leading room/walking room in relation to Rule of Third*

As stated previously, it is important to leave a space between someone’s face and the screen, but, equally important, when shooting or moving animation like in a moving cartoon, a space should be left between a moving subject and the screen. The space left between the moving subjects and the screen is called **Leading Room or Walking Room**. Figure 4.49 shows the leading room in relation to the Rule of thirds.



**Figure 4.49:** *Leading room in relation to the Rule of Thirds*

Generally, allow extra space in front of a moving cartoon so that the viewer can see that it has some place to go. Without this visual padding, the cartoon’s forward progress will seem impeded.

### *Backgrounds*

Many pitfalls of composition lie in the subject's environment. Trees and phone poles, as well as pictures on walls may all cause problems. Be aware of lampposts, trees or other such objects that are directly behind your subject. A flagpole protruding from the top of an actor's head looks ridiculous, as does a vase that may seem to be balanced on someone's shoulder. Likewise, a power line running through the frame may appear to be going in one of your subject's ears and out of the other. It is best to avoid any such visual distractions. Even if these objects are not directly behind your subject, they can still cause problems. A lamppost running vertically through the middle of the frame will not only disrupt the balance achieved by the rule of thirds, it will also isolate or box in the subject.

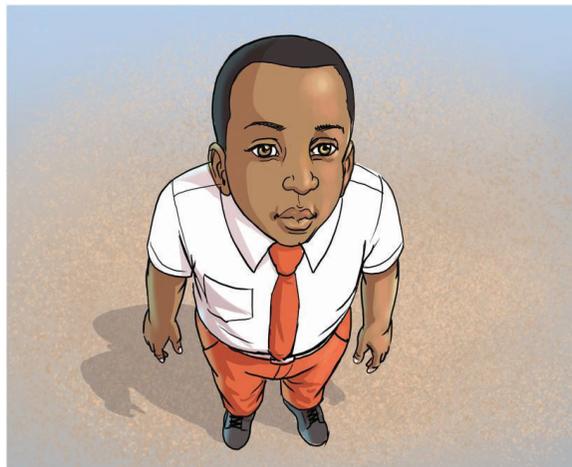
### **Camera angles**

A camera angle is the level from which you look at the subject through the camera. It describes the position/height from which the audience will be looking at the objects or subjects.

### **Types of Camera Angle**

There are four types of cameras angles: high angle, eye-level angle, low angle and bird eye-view angle.

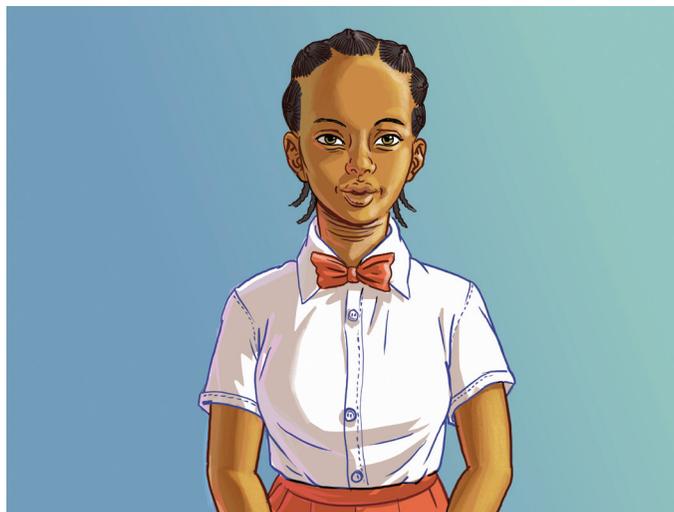
*High Angle:* A high angle also called upshot, is when a camera is placed 45 degree above the subject's head. The camera looks down on the subject. The subject becomes like inferior, helpless, and defeated. It gives the audience a sense of power over the subjects. Figure 4.50 shows an example of high angle shot.



**Figure 4.50:** *An example of a high angle shot*

*Eye-level angle:* It is a normal viewpoint, in which a camera is placed at the same level with an eye of the subject. It is a perspective that is most familiar to human beings because we usually see things at our own eye-level. It is advised to shoot

at the eye-level of the subjects, not yours. Figure 4.51 shows an example of a eye-level angle shot.



**Figure 4.51:** An example of eye level angle shot

*Low Angle:* A low angle shot also called down shot, is when a camera is placed below the subject. The camera looks up on the subject that becomes important, powerful, and superior. Figure 4.52 shows an example of a low angle shot.



**Figure 4.52:** An example of a low angle shot

*Bird Eye View:* A camera is placed 90 degrees above the subject. It is over the head angle of shot and may be used to emphasize pattern and movement. It can also reveal isolation and congestion. The bird eye-view angle shots are to be taken by using helicopter, airplanes or drone cameras. Figure 4.53 shows an example of bird eye view angle shot.



**Figure 4.53:** *An example of a birds eye view angle shot*

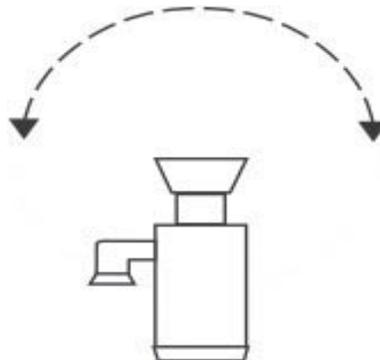
### Camera Movements

A video camera should move to avoid a boring experience to the audience caused by a static camera. There are three types of camera movement, which are physical, mechanical, and mobile camera movements.

#### Physical camera movements

##### *Panning*

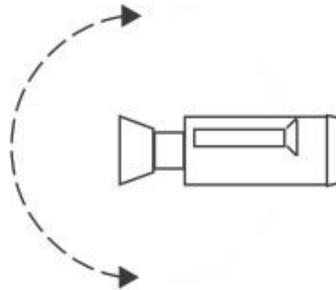
Panning is a physical movement of a camera from left to right side of a frame and vice versa on a horizontal plane (see Figure 4.54). Panning enables a camera lens to scan the scene, providing the viewer with scene elements that would be difficult to capture in a wide-angle shot. By following a moving object, panning can show scene information as required. Panning should start and end smoothly. Neither a jerk at the start nor a sudden ending should be entertained. The tension and drag on a tripod head should be adjusted, to ensure smooth panning.



**Figure 4.54:** *Camera panning movement*

### *Tilting*

Tilting is a physical movement of a camera up and down and vice versa on a vertical plane (see Figure 4.55). You can tilt the camera up to show the height of an object or subject. The relationships between objects in a scene can be shown by tilting the camera from one object to another. To add emotions to an event, tilt upward to create a sense of hope, expectation, or interest, and tilt downward to create a sense of sadness or disappointment.



**Figure 4.55:** *Camera tilting movement*

### **Mechanical camera movement**

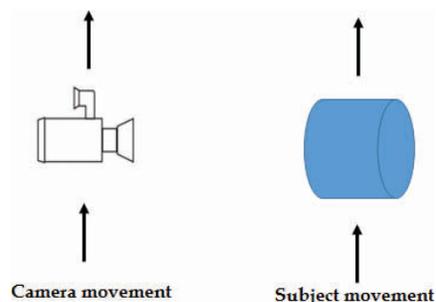
#### *Zoom In and Zoom Out*

A zoom camera movement is created by increasing or decreasing the angle of view. It is a change in the perspective of the subjects. A zoom movement allows you to show context and then push in to show detail. There are two types of Zoom movement: **Zoom In** is when you are tightening a shot and **Zoom Out** is the movement when you are loosening a shot.

### **Mobile Camera movements**

#### *Tracking*

Tracking means moving a camera along with a moving subject or moving the camera parallel to the scene (Figure 4.56). Tracking is similar to what will happen if a camera was to move along with a person walking along a sidewalk. The person would seem stationary in the picture, but the background would appear to be moving. Tracking creates a feeling of observation or inspection.



**Figure 4.56:** *Camera tracking movement*

### *Dolling*

Dolling means moving a camera towards or away from a subject (see Figure 4.57). The direction of a dolly draws different types of attention from the viewer. When a dolly moves towards the subject, the viewer's interest is increased. In a horror movie, a camera dollied towards a sleeping young lady on a dark stormy night indicates that something is about to happen. Add a scary music, and you know something is about to happen. When a camera is dollied away, interest in the subject is lowered, and tensions are relaxed.



**Figure 4.57:** *Camera dolling movement*

### **Activity 4.5:** Shooting a short video

Take a five-minute video using any available device and observe camera movement. Discuss your video recording experience with your friend.

### **Principles of video production**

It is easy to shoot a good video, if you follow the principles. To shoot a good video, you must abide to nine (9) video shooting principles.

#### **Principle number one:** *You should not fire hose*

Fire hosing means using a camera the way a fireman uses a fire hose on a fire. A running camera is panned from side to side or tilted up and down to record everything and anything. This results in a footage that is sickening to watch. It simply annoys a viewer. To avoid fire hosing, frame each shot, record long enough so that the viewer knows what is going on, stop recording, and then look for the next shot and record it.

**Principle number two:** *You should have proper headroom*

Improper headroom is one of the most common faults of videographers and photographers. Look at a few photos that you or a friend took. Chances are that many of them will have too much space above a subject. Remember that placing a person's eyes one-third of the way down in the frame will provide proper headroom.

**Principle number three:** *You should stay close to the subject*

Stay close to the subject, and your images will not be shaky and small. Being too far away from a subject is another most common fault. The subject becomes small when the camera is far away. This places more of the scene in the frame than what is needed. The surrounding scene is not important. The subject should dominate the frame. Also, when a camera is too far away, the lens must be zoomed and can create a shaky video. Therefore, stay close to fill the frame with the subject and record some rock-solid video.

**Principle number Four:** *You should not snap shoot*

Snap shooting is recording shots for a very short time in such a way that it is difficult for the viewer to recognise what is happening. Unless you are producing a wild and crazy music video where short, fast-paced shots are normal, stay away from short shots. The viewer must be able to recognise what the shot is about. Additionally, if you are going to edit your production, you will need 3 to 4 seconds of lead-time at the start of the shot and 3-4 tail time seconds at the end of the shot. This extra time is necessary for accurate and precise editing.

**Principle number five:** *You should not headhunt*

Headhunting refers to a situation in which a subject is always placed in the exact centre of the frame. Equal sides, top, and bottom surround a subject. It is as if a subject were in a gun sight. This is why it is called headhunting. The human eye cannot erase the often-large border that surrounds the subject. Headhunting creates a poor composition.

**Principle number six:** *You should not over zoom*

Over zooming occurs because people tend to be lazy. It is easier to zoom than to walk closer or away from a subject. Do not be a zoom monster. Zooming in and out is a poor technique. Plan your shots, especially if you are going to edit them. Shot sequences are better than zooms. However, news coverage and sports require zooming. It is appropriate in these situations. Zooming is also required to

develop a mood or feeling in a scene. Zooming in a slowly opening creaking door in a dark room surely sets a mood. Zooming out from a single person sitting on a chair in the middle of a large hall establishes a feeling.

**Principle number seven:** *You should take the camera off your shoulder*

Take the camera off your shoulder and produce shot variety. Cameras were not meant to stay on your shoulder. They can and should be used at different positions. If an action is low to the floor, then the camera should be down there. If you are in a crowd where you cannot see the subject, then hold the camera over your head to get the shot. To see how camera positions and angles are used in broadcast TV, watch one minute of your favourite TV programme, and count the number of shots and different positions that were used. You will be amazed at how many they are. Remember, these shots were planned, and so should yours.

**Principle number eight:** *You should not walk while shooting*

Walking with a camera while recording is not good. Try to avoid it. If you must walk and handhold a camera, try the following techniques: set the camera to a wide range to eliminate some shakes; think that the camera is a hot cup of coffee that you do not want to spill; keep your arms and legs bent as you walk, to make them act as shock absorbers; move slower than normal; and do not hold the camera against any part of your body, to avoid shaking the camera.

**Principle number nine:** *You should have good audio*

Good audio is a must, because an audio carries the message, and a video supports it. When recording with a microphone built into a camera, use earphones to monitor the audio. Often, a microphone picks up too much sound, and most of it is unwanted noise that could overpower the important audio. When recording an interview using a built-in microphone, stay as close to the speaker as possible. This could eliminate unwanted noise. Ambient or natural sound, background music, and sound effects have different roles to play. However, be careful when using them. They could change an entire meaning of a message.

**Exercise**

**4.4**

1. Explain what an extreme long shot is. Give an example of how it may be used.
2. Why would someone choose to shoot a close-up when shooting a video? Give an example.

3. Describe the Rule of Thirds and its importance in video shooting.
4. What is a leading room? Why would you use a leading room when shooting a shot?
5. Describe what will happen when you zoom-in with a video camera.
6. Why would you use zoom-in to establish a shot?
7. What does a medium shot allow an audience to see?
8. Explain the difference between a low angle shot and a high angle shot.
9. Give an example of an extreme close up shot and explain when and where it should be used.

## Video editing

### Concept of video editing

When you watch a video on a TV programme, you will notice that the performer appears in different locations with different outfits. What do you think was done to make it happen? When shooting a video, the shots may be taken from different places and in different modes. After a video shooting is completed, shots are mixed in a specific arrangement using special software. The process is referred to as video editing.

Video Editing is defined as the process of assembling and creating shots to make a TV programme, film, or video. The process of editing involves assembling of video material, selection of shots, ordering or arrangement of shots, and controlling the duration of shots. It is the process of selecting and arranging scenes so that the result satisfies the set objective. Generally, and in some instances, it is simply the process of selecting certain portions of an event or events and putting them into a meaningful sequence. A video editor is a person responsible for assembling the video material (recorded footages) and manipulating them to make a coherent whole.

### Video editing procedure

**Logging:** The first step is to preview and identify the video clips or tapes that contain the desired video and audio footages for editing.

**Import:** The second step needs an editor to transfer and store the video source material to a computer and store it.

**Editing:** Third, using a specific software, the video editor engages in the process of editing. Some of the key activities include file identification, shot selection, sequencing, applying transition and effects, selecting sound portions, importing new sounds, mixing sound, synchronizing audio and pictures, etc.

**Rendering:** is the process through which the computer changes transitions, special effects, and graphics from computer effects to video effects. This is an important procedure during editing of a video since it enables a smooth playback of all computer effects added on any video editing tool, streaming platform, or playback device.

**Exporting a video file:** After rendering is done, the video editor is supposed to export a video file onto the desired format such as AVI, MOV, MPEG 4 etc., ready for sharing, playback or distribution.

### Using OpenShot software for video editing

As explained in the preceding section, video editing involves the selection and arrangement of useful information from various video clips. Consider a video shot from a five-hour wedding event; a final output of this video may become only two hours long after editing. This means that some events are selected, while others are discarded. In this book, OpenShot video editor will be used for video editing. The OpenShot video editing software is an open-source software, and is downloadable for free.

#### Step 1: Download OpenShot software

Download the OpenShot video editing software from <http://www.openshot.org>. Install the software by following the on-screen instructions. After installation, open the OpenShot video editor. Figure 4.58 shows the default interface of OpenShot video editing software.

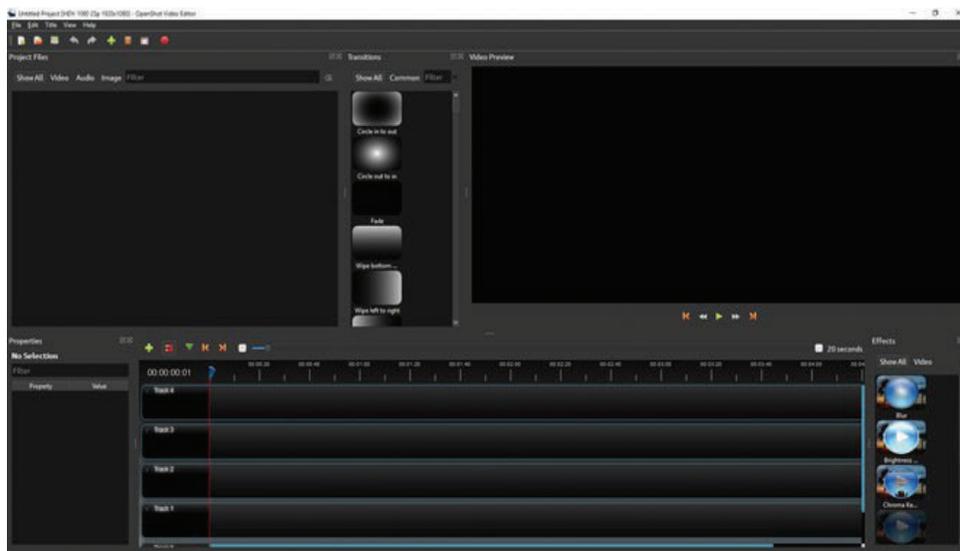


Figure 4.58: OpenShot default interface

You can change the theme (as shown in Figure 4.59) by following the path **Edit tab-> Preferences → Theme**. This will enable you to select a new theme.

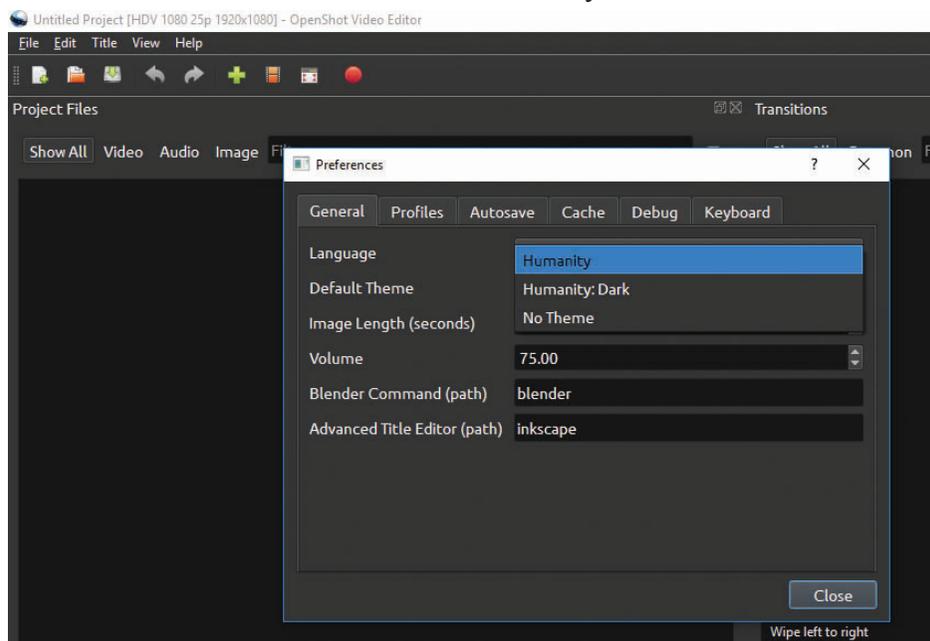


Figure 4.59: Changing a theme in OpenShot

When you open OpenShot for the first time, there is a tutorial that describes the interface. Figure 4.60 shows the description of features on the main interface of OpenShot.

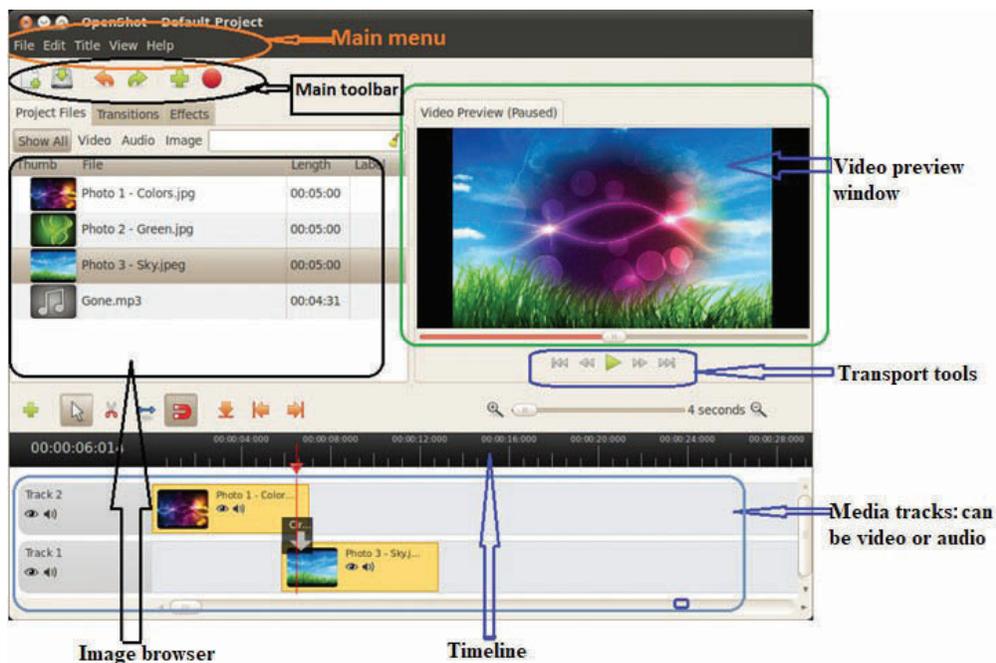
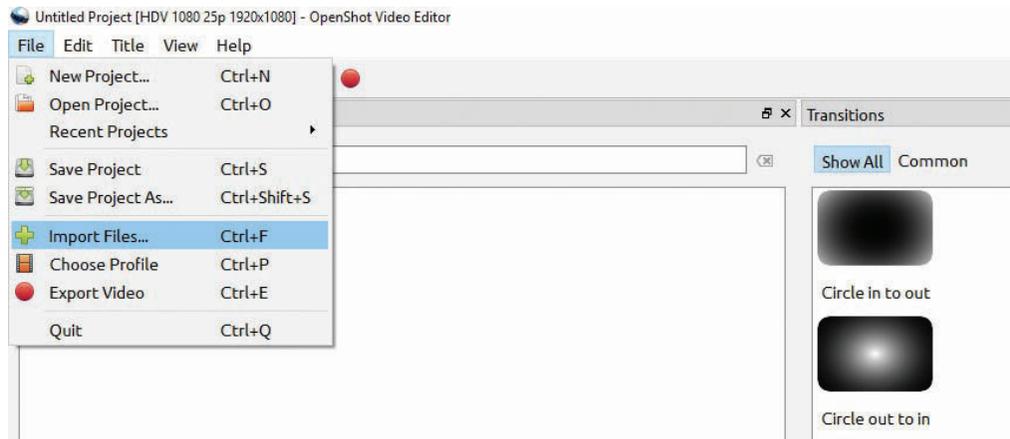


Figure 4.60: OpenShot editing features

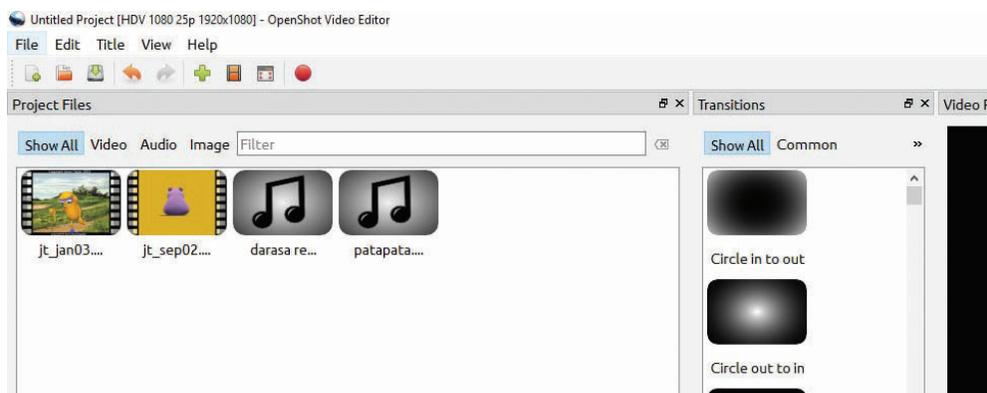
## Step 2: Import a video footage

To edit a video, videos that you have shot must be imported from a video camera or any other source. To import a video, click the **File** tab and select **Import Files** (Figure 4.61).



**Figure 4.61:** *Importing a video footage*

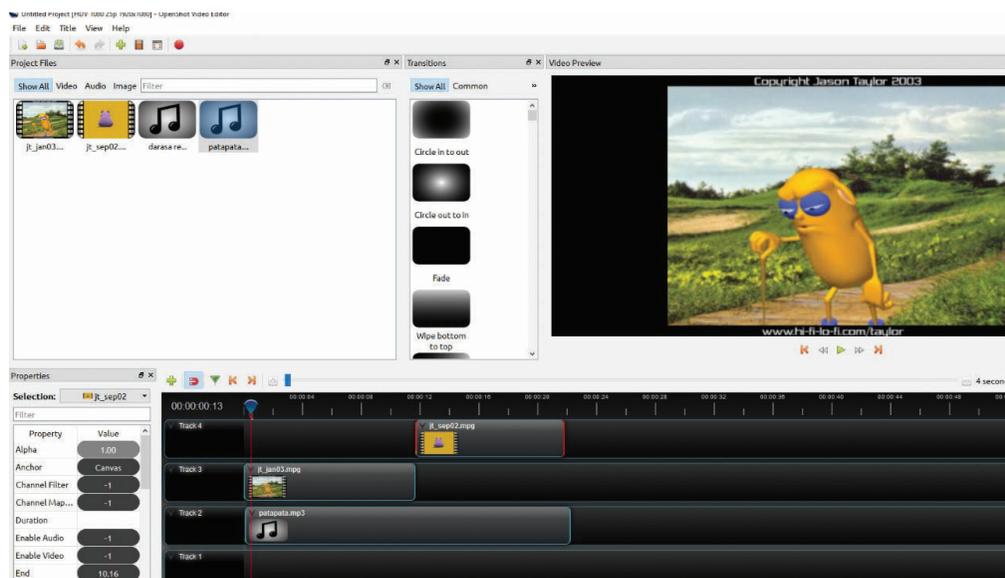
The import file browser will be opened. Select all the footages you want to import. They will appear in the media browser (see Figure 4.62).



**Figure 4.62:** *Imported video and audio files as seen in the media browser*

## Step 3: Arrange the media

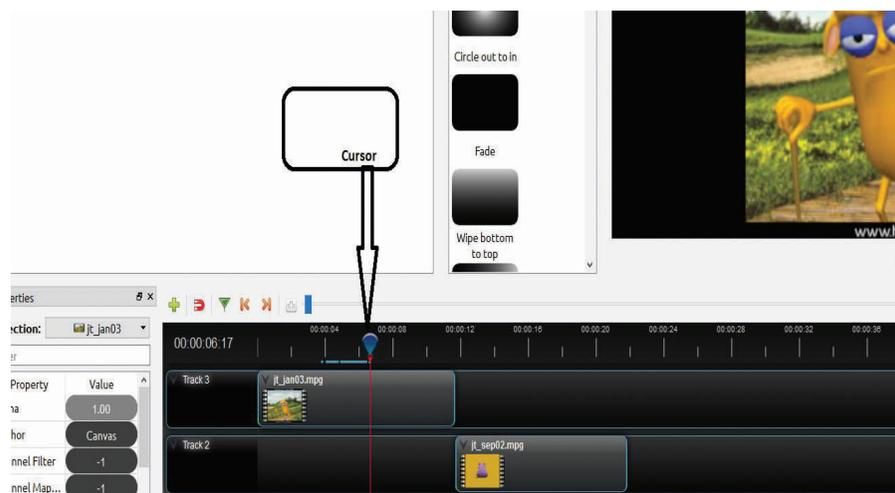
Arrange the video and audio clips on the tracks, following a timeline of the story you want to create (Figure 4.63).



**Figure 4.63:** Timeline displaying the video tracks, media browser, and video preview window

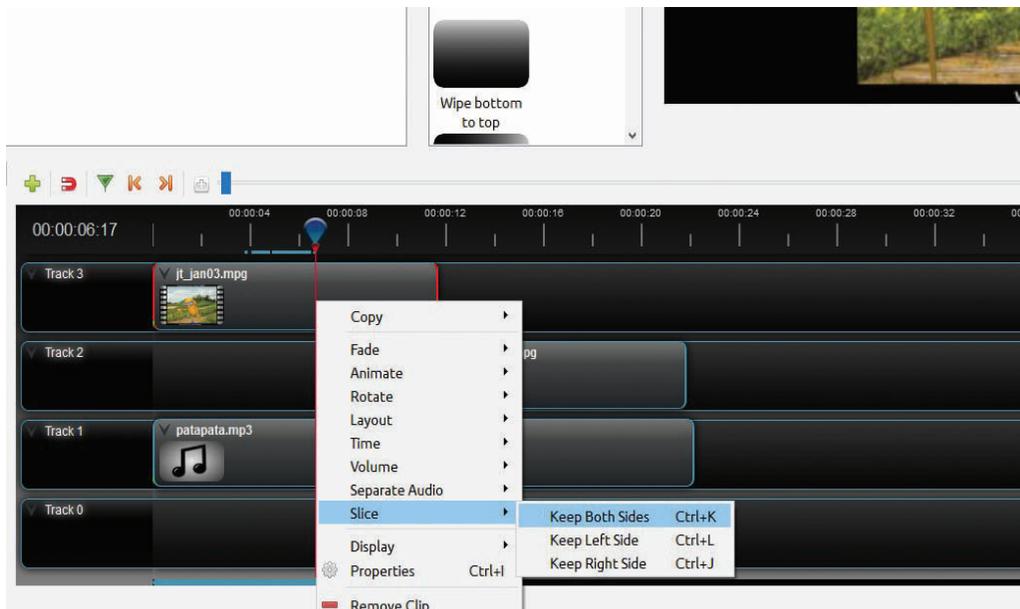
You can preview the video clips you have arranged in the media tracks, to see how they are related.

**Step 4:** Split (cut) and rearrange the video and audio accordingly. To split a media, place the **cursor** on the timeline point at which you want to split a video (Figure 4.64).



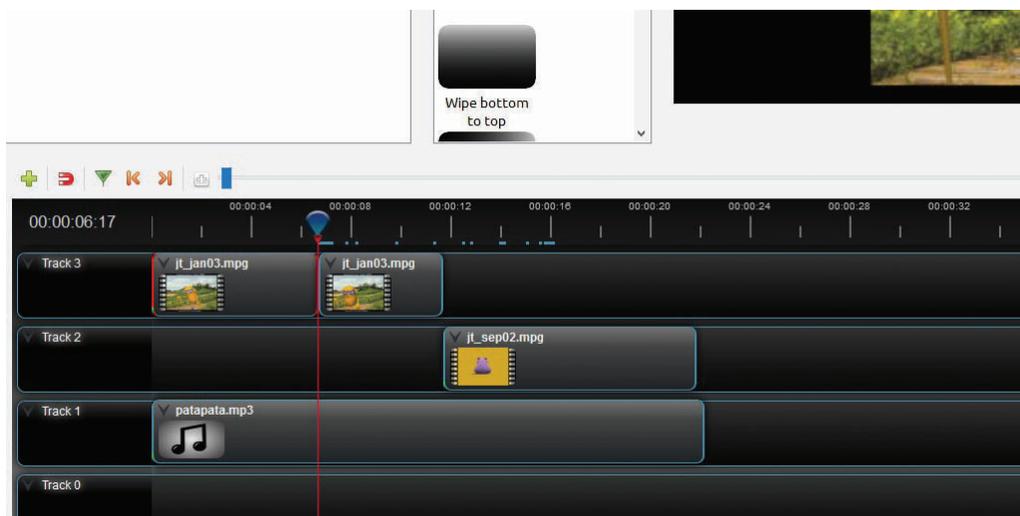
**Figure 4.64:** Cursor placed on the video/audio split point

Select the video or audio you want to split, right-click, and select **Slice** from the drop-down menu, as shown in Figure 4.65.



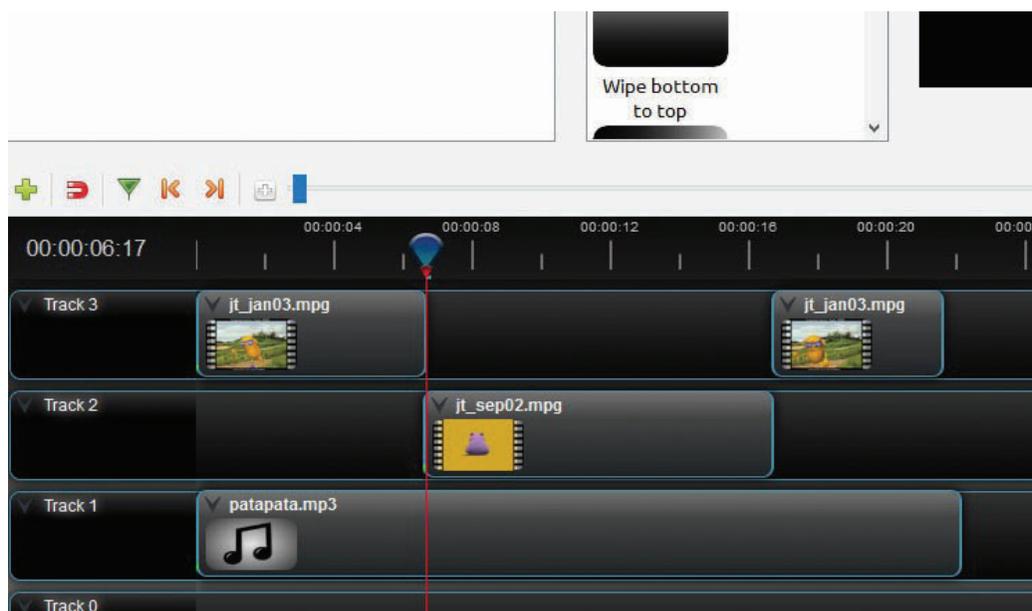
**Figure 4.65:** *Slice sub-menu used to split the video or audio clip*

The video/audio is cut into two pieces as in Figure 4.66.



**Figure 4.66:** *Video cut into two pieces*

You can move and arrange the video content, as shown in Figure 4.67. To move clips, click and drag the clip of interest to a position you want.



**Figure 4.67:** *Split and arranged clips*

### Step 5: Apply Transition

The term transition is not a new term to you as it was used when you learnt about the presentation program (MS PowerPoint). Similarly, video transition is a way you move a viewer from one video clip to another. When two video clips from different events are joined, the resulting video is not continuous. A transition is applied between the two clips to avoid a sudden jump from one video to the next.

Arrange the video clips you separated in **Step 4** and insert another video clip between the two pieces. Arrange all of them on the same track (see Figure 4.68).



**Figure 4.68:** *Rearranged video clips on one video track*

Transitions are of several types. In OpenShot, they are found on a window labelled transitions, similar to the one shown in Figure 4.69.

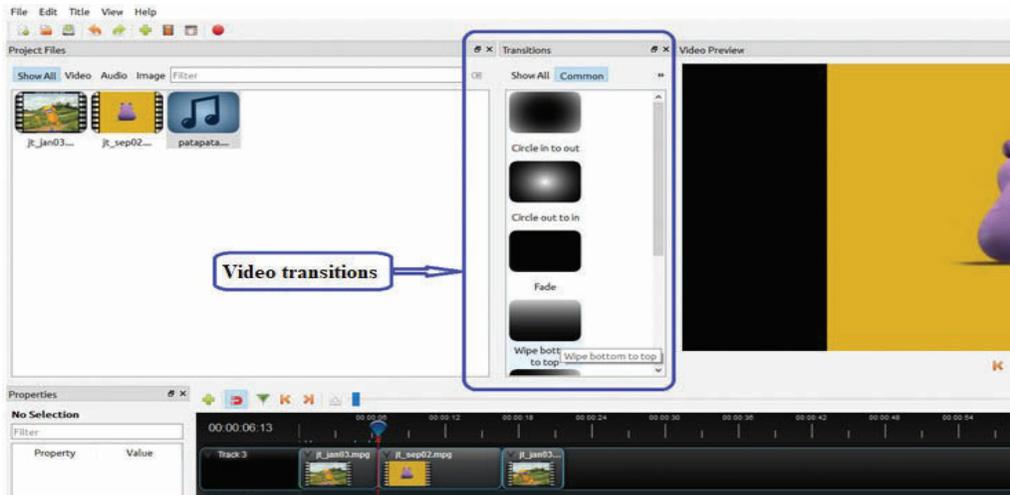


Figure 4.69: Video transitions in OpenShot

Drag and drop a Fade transition from the Transition window to a joint that links the first clip to the second clip (see Figure 4.70). Do the same on the second joint. In the transition's properties, set the duration to two. Preview your video and see if you are happy with the results.

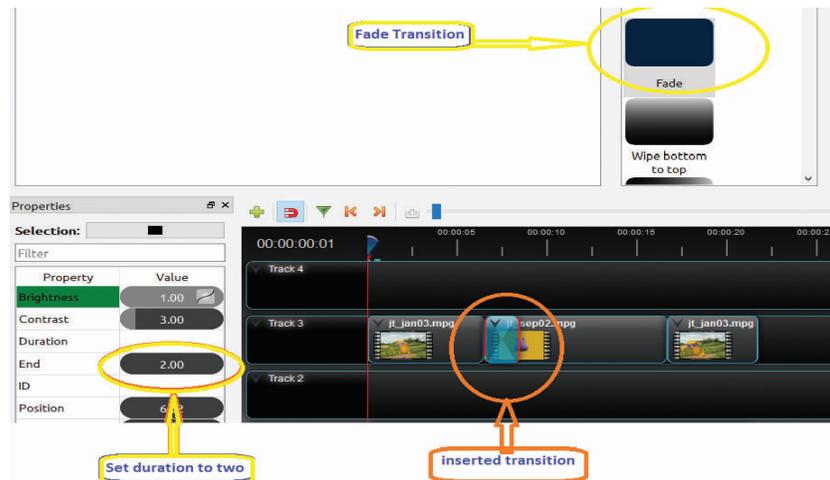


Figure 4.70: Inserting transitions between video clips

### Step 6: Insert titles

In video editing, titles are texts that describe a video. These texts are inserted into

a video for different reasons. It can be to give a name to a video, to give a credit to the creators of a video, to provide a translation from one language to another, etc. To insert a title, select **Title** on the main menu. The title dialog box pops up (See Figure 4.71).

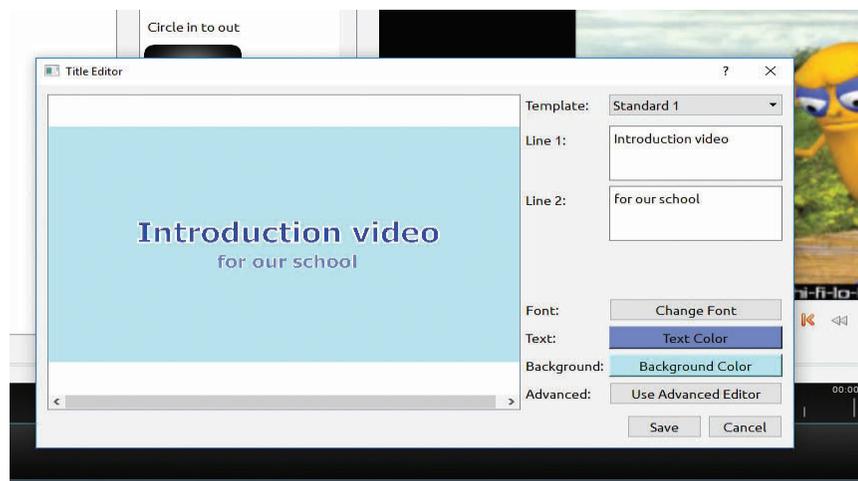


Figure 4.71: Video title dialog box

In the title dialog box, on Template, select **Standard 1**. On line 1, write **Introduction video** in the textbox provided; on line 2, write **for our school** in the textbox provided; on text colour, select **Blue**, and leave the default **background colour**. This will give your video a transparent background. The preview window will show the title as seen in Figure 4.72. Save the title with the name title1. It will appear on the project window. Insert title1 on the track above the video you have created.

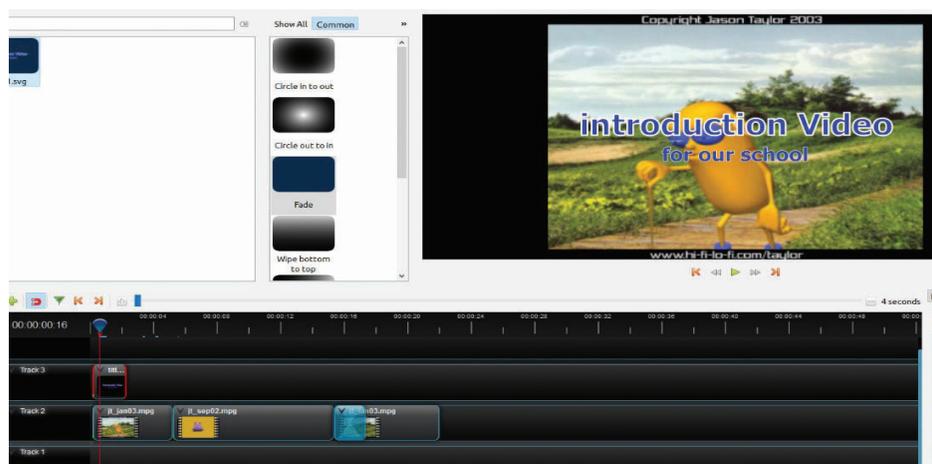
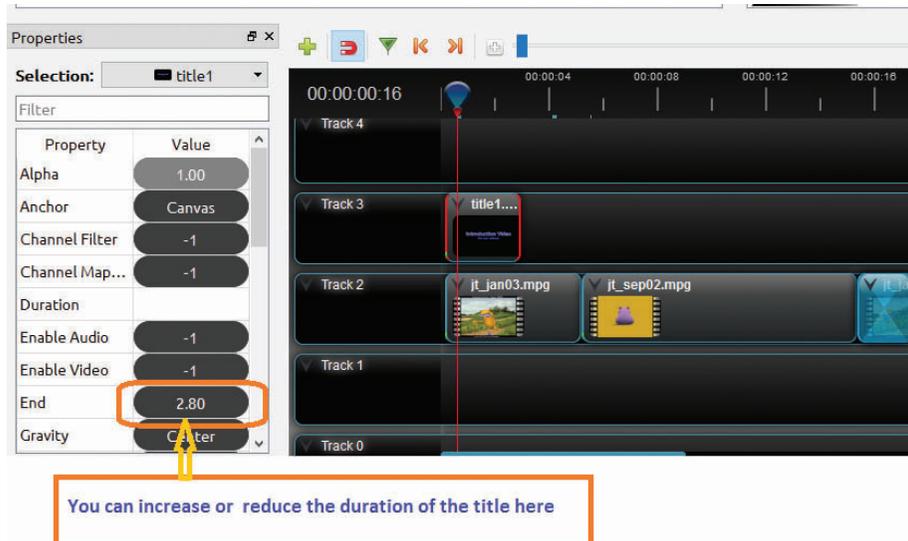


Figure 4.72: Inserting a video title

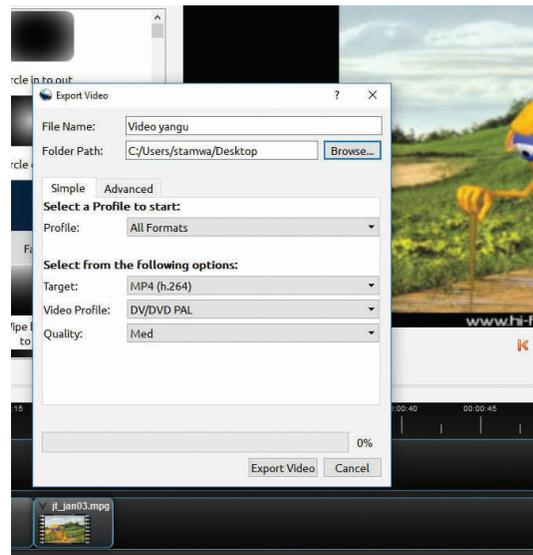
You can also change the duration time of appearance of the title by right clicking on insert titles and then choosing properties, as shown in Figure 4.73.



**Figure 4.73:** Changing the duration of a title

### Step 7: Export your video

After editing your video composition, it is time to export it to a format that will enable a viewer to watch it. Viewers will not view your video on OpenShot. They will view it using their common players such as DVD players or through their smartphones. That is why you need to export it in common video formats. To export your video, click **File-> Export**. The export dialog will pop up, as shown in Figure 4.74.



**Figure 4.74:** Video export dialog box

In the video export dialog box, write *Video yangu* on the **File Name**. In the **Folder Path**, browse to *Desktop*; in **Profile** select *All Formats*, on the **Target**, select *MP4 (h.264)*; on **Video Profile**, select *DVD/PAL*; and on **Quality**, select **Medium**. Click the **Export Video** button located at the bottom of the dialog box to complete the export process.

### Video compression

Video compression reduces and removes redundant video data so that a digital video file can use less storage space on a computer disk, or a video can be easily sent over a network. Using efficient compression techniques, a significant reduction in file size can be achieved with little or no adverse effect on the visual quality.

### Video codecs

A video codec is a software or hardware that can compress and decompress digital video. Compression involves applying an algorithm to a video to create a compressed file for transmission or storage. A compressed file can be played when an inverse algorithm is applied to produce a video that shows virtually the same content as an original video. The time it takes to compress, send, decompress, and display a file is called **latency**. The more advanced the compression algorithm, the higher the latency. **Video Codec (encoder/decoder)** are pairs of algorithms that work together to facilitate encoding and decoding of video files. Video codecs of different standards are usually not compatible. A video content that is compressed using one standard cannot be decompressed using a different standard. However, it is possible to implement different algorithms in the same software or hardware, enabling multiple compression and decompression techniques to work. Interframe prediction algorithms are used in video compressions such as MPEG-4 and H.264 to reduce video data between a series of frames. This involves techniques such as difference coding, where one frame is compared with a reference frame, and only pixels that have changed with respect to the reference frame are coded. In this way, a number of pixel values that is coded and sent is reduced. When such an encoded sequence is displayed, the images appear as in an original video sequence.

There are two types of compression: **lossy** and **lossless**. Lossy compression means that the compressed file has less data than the original file. In some cases, this translates to lower quality files because the information has been lost. However, you can lose a relatively large amount of data before you start to notice

a difference. Lossy compression techniques produce comparatively small files. For example, DVDs are compressed using the MPEG-2 format, making files 15 to 30 times smaller, but we still tend to perceive DVDs as having high-quality pictures.

**Lossless** compression is exactly what it sounds like: compression where none of the information is lost. Lossy compression is a one-way process (once you compress a file you cannot recover the original data). Lossless compression is a reversible process: you can always recover the original data. Normally, lossless compression is used to save a media file that is still being edited, while lossy compression is used to save a final version of a media file. For example, a Video Editor transferring files from one computer to another using a hard drive might choose to use lossless compression to preserve video quality while he/she is working. The commonly used codecs are MPEG, and H.264.

### Video conversion

Video conversion is the process of changing video content from one video format to another. A normal video file in a digital format is made up of two parts: a **codec**, and a **container**. A container is a collection of files that stores information about a digital file. It simply means that there is a combination of both audio and video data in a single file to allow for simultaneous audio- with-video playback. Some popular types of containers are **AVI** (Audio Video Interleave), **FLV** (Flash Video Format), **WMV** (Windows Media Video), **MOV** (Apple QuickTime Movie), and **MPEG-4 (MP4)** (Moving Picture Experts Group 4). Video conversion is usually done by using video converters. Video converters are computer programs that can change the storage format of a digital video. They may recompress the video to another format in a process called transcoding. The disadvantages of transcoding are that there is quality loss when transcoding between lossy compression formats and that the process requires high computer power.

#### Project work

Form a group and prepare a ten-minutes video about one of the following: your school, village, street, city, or any other interesting event of your life.

**Exercise 4.5****Revision questions****A. True/False questions**

1. Newspaper is the first communication medium to use multimedia when communicating information \_\_\_\_\_
2. A television programme is an example of non-linear multimedia \_\_\_\_\_
3. When shooting a video, a medium shot helps viewers to see more object details \_\_\_\_\_
4. A television is the popular multimedia communication media \_\_\_\_\_

**B. Short answer questions**

1. What is multimedia?
2. Briefly explain any four applications of multimedia.
3. Explain why multimedia is essential in the world today.
4. Describe the use of a microphone in a multimedia presentation.
5. Describe two types of multimedia content and give an example of each.
6. Use appropriate examples to describe the types of digital audio formats.
7. What is aspect ratio in video recording? Describe two commonly used values of aspect ratio.
8. What is video editing?
9. Mention any two broadcast video standards and compare their specifications and applications.

10. Describe panning and its importance.
11. Mention four different sounds editing software and, with reason state the one best suit in your environment.
12. What is the importance of software in multimedia?
13. Describe video compression and its importance?
14. Describe two types of compression as used in the video editing world. In what situation can each be used?

## Interactive content

### Introduction

*In the past, people watched cinema that was projected to a screen and controlled by a single person. They also listened to radio and watched television, with no option to stop a scene or control the speed of delivery. Thus, content delivered through radio and television programmes were not interactive, because users were unable to interact with it. Today, some TV and radio programmes can be delivered in an interactive way. Customers can control what they want to watch or listen to. This is also true for other content that allow user interaction. In education, for example, there are software that enable learners to access a lot of learning materials interactively. In this chapter, you will learn about the concept, development, and use of interactive content. The competencies developed will enable you to create and use interactive content.*

### The concept of interactive content

Interactive content is content that allows direct interaction between the user and the content. It requires active engagement from its users or consumers. It empowers users to be more active by being an integral part of a dynamic two-way experience between the user and the content. It necessitates a user to take actions like typing, clicking, or actively engaging with a scene or an event. Possible user actions include rotating and zooming in an interactive multimedia content, answering questions by clicking on specific parts of the content or typing some text, choosing items in a list, and responding to a message via recorded voices. Examples of interactive content include interactive infographics, interactive videos, and interactive e-books; and electronic assessments, mail, polls, surveys, and quizzes. Figure 5.1 shows examples of interactive content.



Figure 5.1: Examples of interactive content

### Importance of interactive content

Interactive content has several benefits including the following.

**Increases awareness and attention of users:** Since the content requires active participation of the user, it increases awareness and attentiveness.

**Greater social engagement:** The content allows more than one individual to interact with it in the form of competition, and hence promoting social interaction among them. Likewise, users can use more than one sensory organ, increasing their activeness.

**Increases exposure:** Because the interaction with content involves more than one sensory organ and hands-on activity, a user becomes familiar with the content very easily, and cannot forget the content easily.

**Reduce risks:** Interactive content can be used in simulation, particularly in learning, instead of real practicals which involve high risks such as experiment with harmful chemicals. In such a case, simulation reduces the risk of accident in practical work.

### Characteristics of interactive content

The following are some characteristics of interactive content.

**User-controlled and adaptable:** Interactive content allows learners/users to control the pace of navigation, for example, speed of audio, video or running simulations.

**Promote active engagement:** Interactive content allows active engagement, for example, a self-instructional mode of learning, whereby a learner performs specific actions required for learning. Learners can provide active responses to puzzles, questions, and answers.

**It has a specific target:** Interactive content is usually designed for a particular target group. Examples of interactive content that target specific groups are keyboard-controlled games, keyboard typing skills programs for beginners, interactive drawing activities for children, children speaking drills, children writing drills, student electronic assessment, and interactive numeracy courses for children.

**Comprehensive:** In teaching and learning, for example, Interactive content often stick to concepts or skills required for learners to gain the intended competences. Sometimes the program scene does not allow users to continue to a next stage before mastering the prerequisites.

**Immediate feedback:** In teaching and learning, for example, Interactive content can provide immediate feedback to learners, giving them insight that can enable them to learn more. An example of immediate feedback is found in interactive electronic assessments.

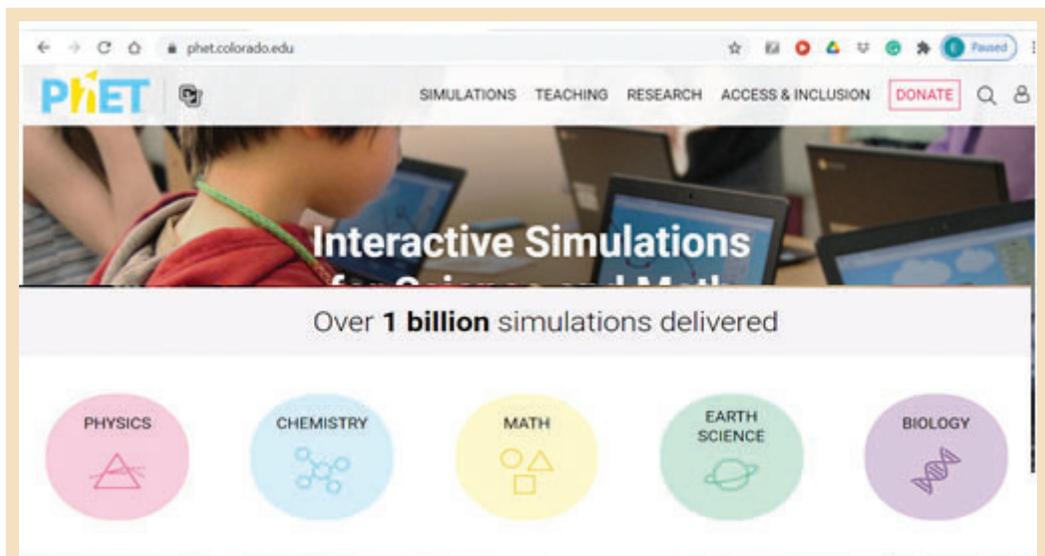
### Accessing and using interactive content

An essential feature of interactive content is that it should actively engage a user rather than making them watch it passively. In this section, you will practice using some interactive content from Physics Education Technology (PhET) Simulations developed by the University of Colorado.

PhET Simulations is an interactive content website founded in 2002 by Nobel Laureate Carl Wineman. The site is owned by the University of Colorado (USA). Originally, the site was designed to contain interactive content to facilitate the teaching and learning of Physics subject, hence its name PhET. Further research has enabled the development of the site to include interactive content for mathematics and other science subjects (Chemistry, Biology, and Earth Sciences). Activity 5.1 guides you to access and use interactive content from PhET simulations.

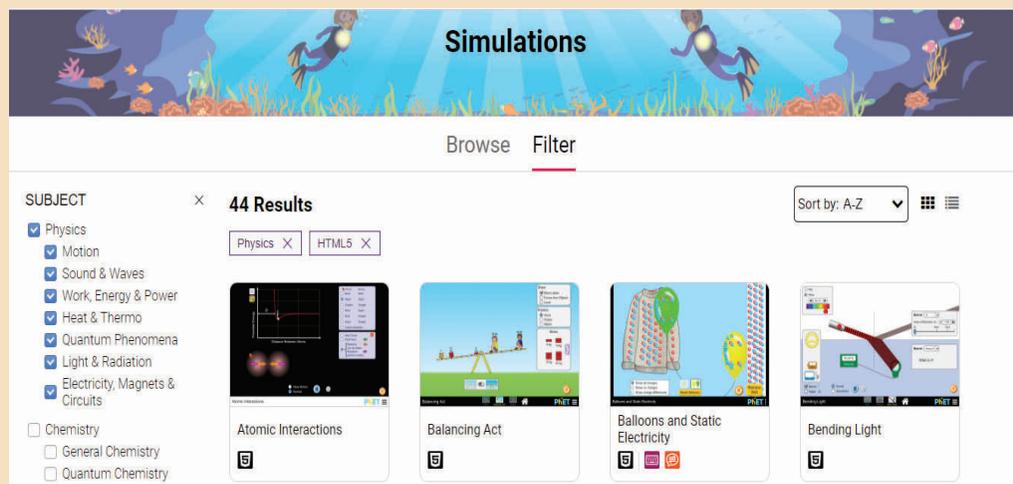
#### Activity 5.1: Accessing and using interactive content from PhET simulations

- (i) Open a web browser, e.g., Google Chrome or Mozilla Firefox.
- (ii) Open the URL [phet.colorado.edu](http://phet.colorado.edu). An interface similar to the one in Figure 5.2 will be displayed.



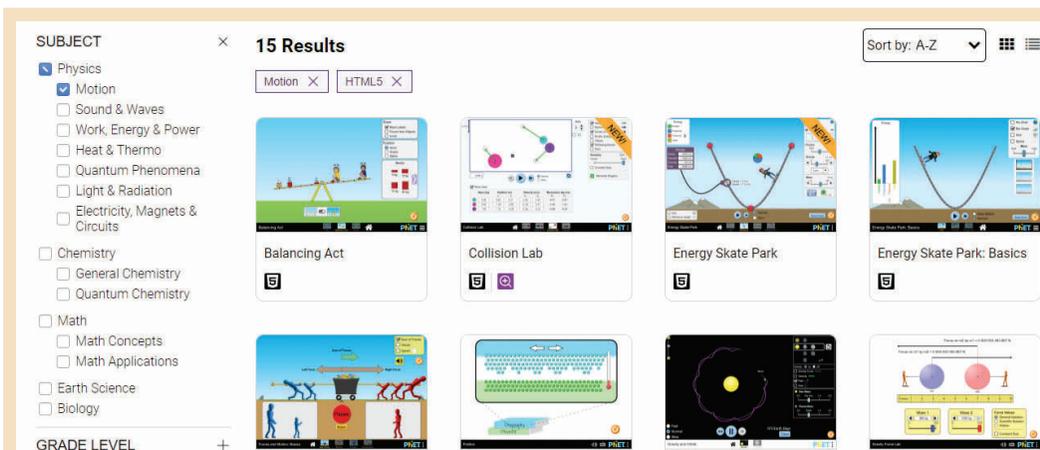
**Figure 5.2:** PhET simulations interface

- (iii) Using the Simulations tab, choose a subject, or click on the icon with the name of the subject you want, e.g., Physics. Different topics will appear, as shown in Figure 5.3.



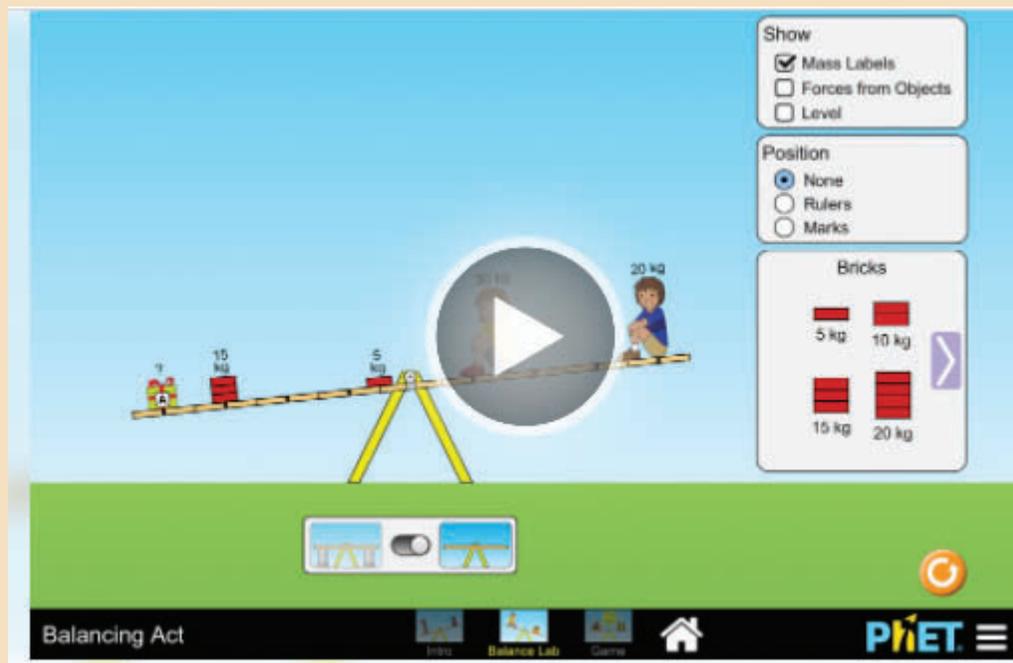
**Figure 5.3:** PhET Interactive Simulations for physics

- (iv) Choose the content under the Motion category: all the available interactive content about motion will be displayed as shown in Figure 5.4.



**Figure 5.4:** Simulations for Motion in Physics

- (v) Click on the **Balancing Act** simulation: an interface similar to the one shown in Figure 5.5 will appear.



**Figure 5.5:** Interface for playing balanced motions

- (vi) Click the Play button (icon): the interface for the balancing act will appear, as shown in Figure 5.6.

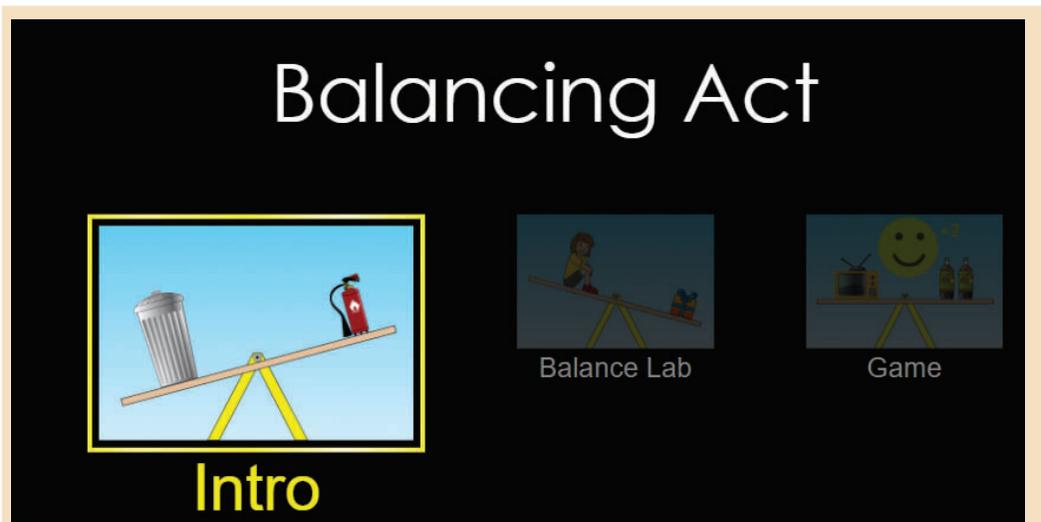


Figure 5.6: Interface for balancing act

- (vii) Click the **Balance Lab** option: the interface for balancing lab will appear as shown in Figure 5.7.

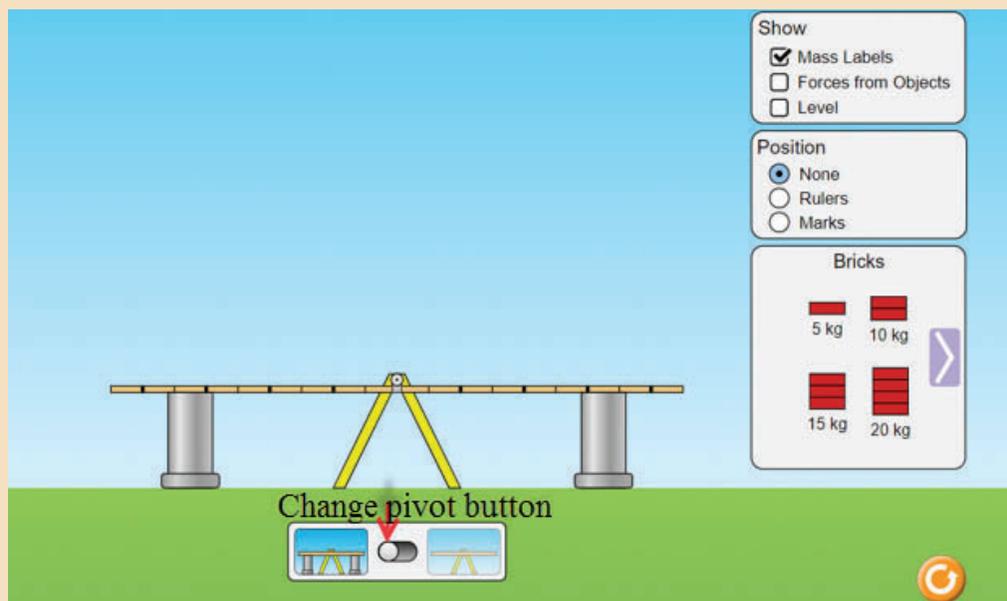
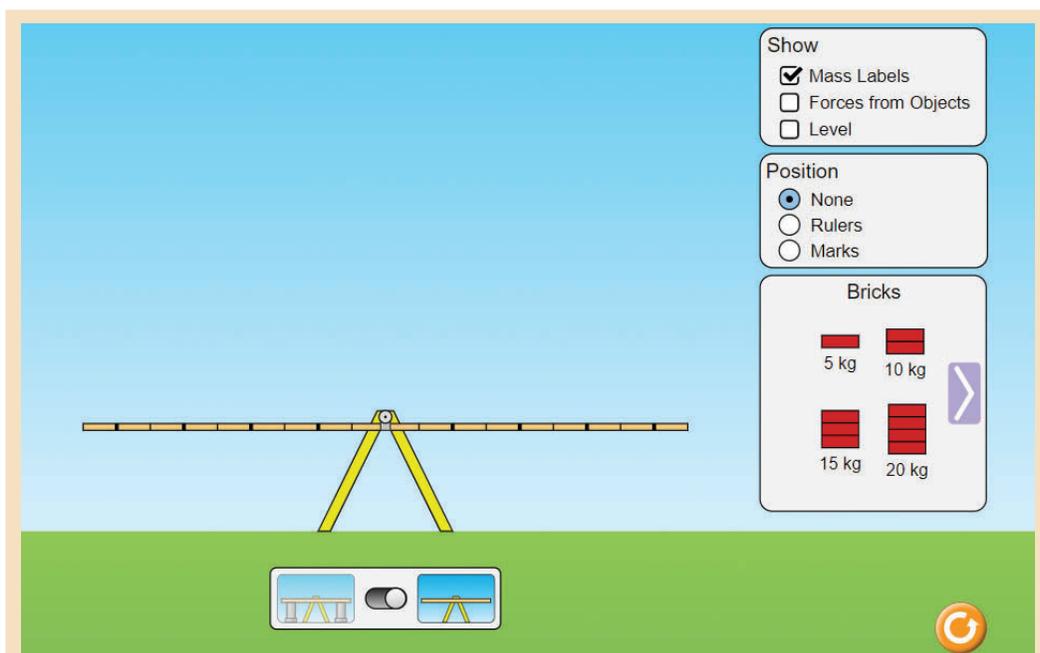


Figure 5.7: Interface for balancing lab

- (viii) Click the Change Pivot button: the interface for load balancing will appear as shown in Figure 5.8.



**Figure 5.8:** Interface for load balancing

- (ix) Play Balancing Act using different weights on two sides as shown in Figure 5.9.

**NOTE:** To start interacting with the Balancing Act, slide the button labelled A to the right (Change Pivot button) in the interface labelled 1, resulting in an interface labelled 2. Choose a load of a certain mass (see the interface labelled 2), drag and drop it on one side (on the left side, in this example) of the lever. The lever will tilt towards one side (see the interface labelled 3). Pick a load of similar mass and drag and drop it on another side (the right side) at a distance equal to that of a load on the left-hand side from the pivot (see an interface labelled 4). The lever will balance because loads of equal mass are placed on both sides, at an equal distance from the pivot. Click at an arrow pointing to **More Masses** in the interface labelled 4 to get more masses and try more interactions with the Balancing Act.

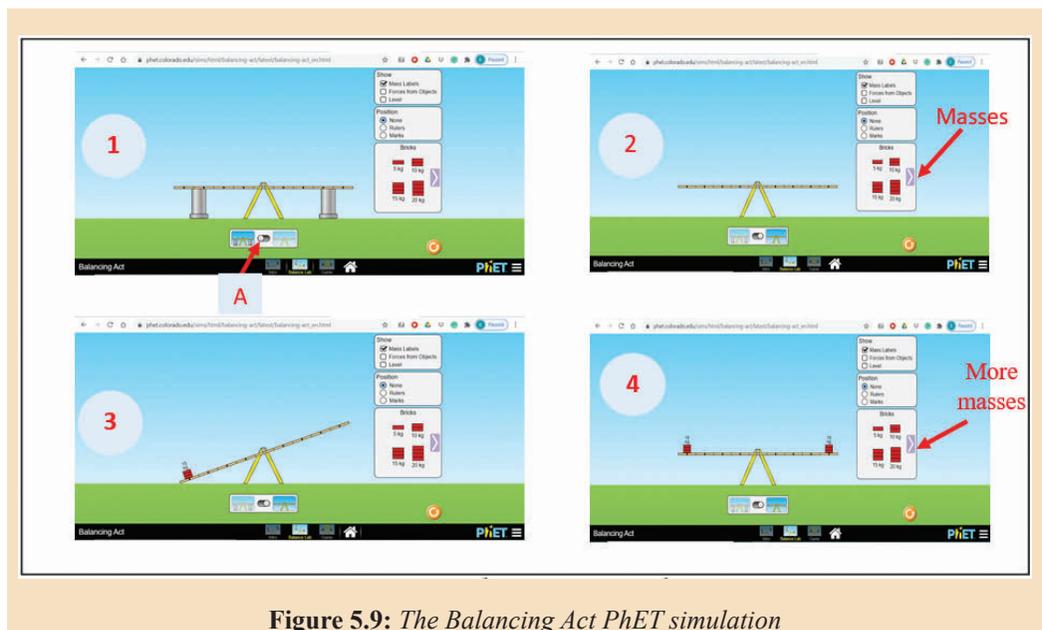


Figure 5.9: The Balancing Act PhET simulation

### Exercise 5.1

By referring to the steps outlined in Activity 5.1, play the following simulations:

1. Three more Physics simulations
2. Four Chemistry simulations
3. Six Biology simulations
4. Three Earth Science simulations
5. Five Mathematics simulations

### Preparing interactive assessments

Assessment uses different tools such as tests, quizzes, and examinations. In traditional classrooms, paper and pen are used when responding to assessment questions. This mode of assessment requires face to face administration of assessments. Teachers perform a series of activities such as test composition, preparation of a marking scheme, test administration, marking of test, and processing of results. This process is tiresome and time-consuming. In this part, you will be oriented on various tasks in interactive assessment.

In interactive assessment, the preparation, administration, and marking of responses to assessment questions is done using content installed on computers, tablets, and smartphones, or online. Through interactive assessments, students

can get instant feedback about their scores and correct responses to the questions asked. There are numerous online tools that can help you compose and administer online assessments. Such tools include Google Forms, Survey Monkey, and Moodle. Activity 5.2 guides you on creating interactive assessments using Google Forms.

### Activity 5.2: Creating interactive assessment

- (i) Using your username and password for Gmail, Sign in to your Google Account,
- (ii) Clicking on **Google Apps**: several apps will appear as shown in Figure 5.10. You will then be able to scroll down to **Forms**.

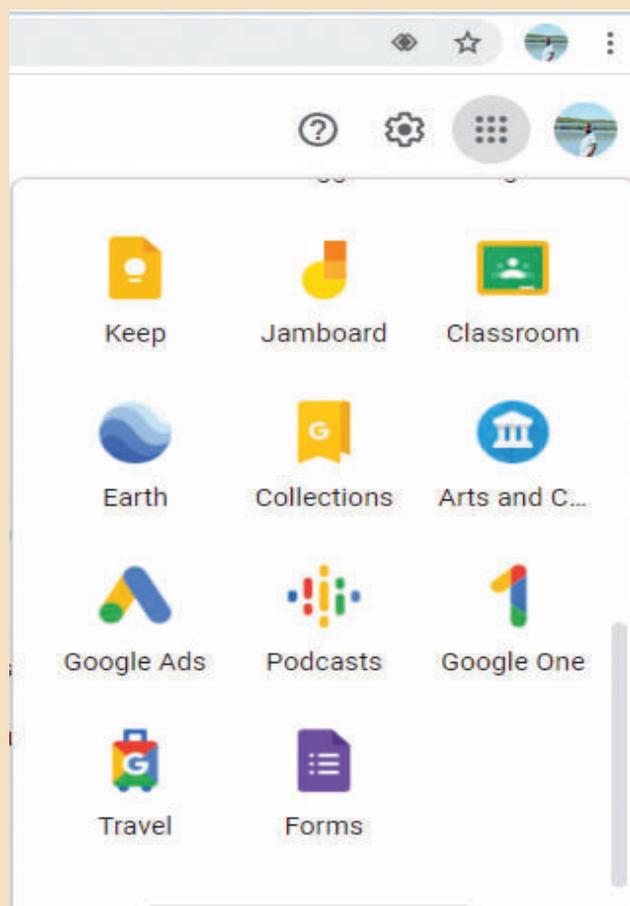
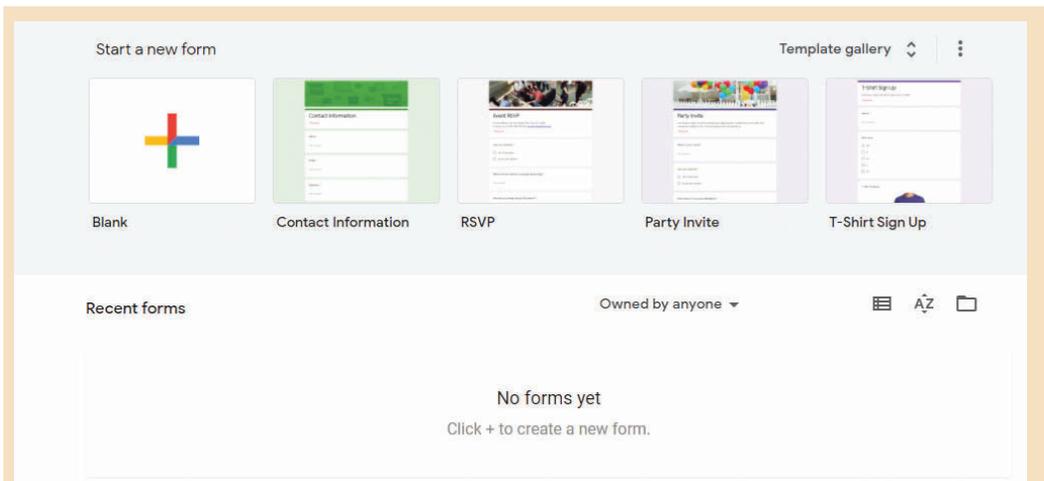


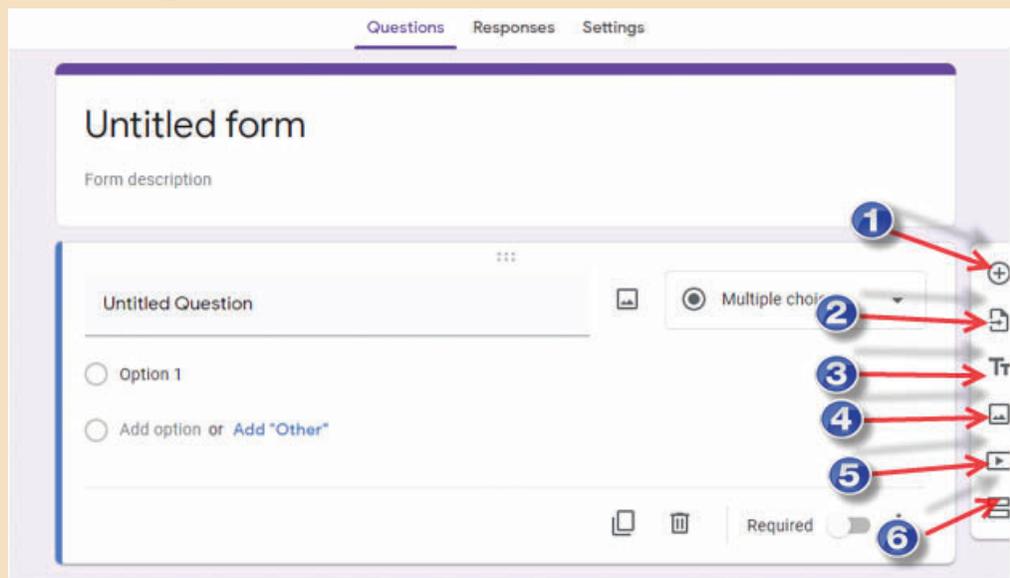
Figure 5.10: Opening Google Forms from a Gmail account

- (iii) Click on **Forms**: a window like the one shown in Figure 5.11 will be displayed.



**Figure 5.11:** Options for creating a new Google form

- (iv) Click on **Blank**: a window labelled **Untitled form** will appear, as shown in Figure 5.12.



**Figure 5.12:** Options available on a Google forms

**Key:**

- |                                   |                      |
|-----------------------------------|----------------------|
| 1 = Add a question                | 2 = Import questions |
| 3 = Add a title and a description | 4 = Add an image     |
| 5 = Add a video                   | 6 = Add a section    |

- (v) Click on **Settings**, and then choose **Make this a quiz**,

**NOTE:** There are various settings that can automatically be applied once you choose **Make this a quiz**. You can change them based on your preference. For example, you can choose how you want to release the grades, whether it should be immediately after submission or later after a review.

- (vi) Click on **Questions** and change the title to **ICS Test for Form Four Students**,
- (vii) Write test instructions on the description area,
- (viii) Add a section to your test by clicking the **Add section** button (number 6 in Figure 5.12),
- (ix) Name the added section as “Student’s Particulars”, (see Figure 5.13), and provide spaces for student’s name and school name.

The screenshot shows a quiz section titled "Section 2 of 2" with the main title "Student's Particulars". Below the title is a "Description (optional)" field. There are two "Short-answer text" input fields. The first is labeled "Name" and the second is labeled "School". To the right of the "School" field is a dropdown menu set to "Short answer". A vertical toolbar on the right side of the form contains icons for adding, deleting, and editing questions.

**Figure 5.13:** *A section for student’s particulars*

- (x) Click the **Add question button**, and start typing your multiple-choice questions, as shown in Figure 5.14,
- (xi) Click on **Option 1** to add the first distractor,
- (xii) Click **Add option** to add the second distractor and do so until all distractors and a correct answer have been added,

The following are visual aids used to enhance non-electronic presentation except:

- Charts
- White board
- Projectors
- Flip chart
- Add option or Add "Other"

Answer key (1 point)      Required

**Figure 5.14:** Adding questions and response options to a Google Form

(xiii) Click on **Answer key** to set the correct answer, as shown in Figure 5.15

Choose correct answers:

The following are visual aids used to enhance non-electronic presentation except: 1 points

- Charts
- White board
- Projectors
- Flip chart

Add answer feedback

**Done**

**Figure 5.15:** Selecting a correct answer and assigning it a score value

- (xiv) Select the correct answer,
- (xv) Set a score value for the answer,
- (xvi) Click on **Done** and you will be taken back to the questions window,
- (xvii) Click **Add new question** to add another question.

**NOTE:** If you want a student to answer each question in a Google form, you must activate the **Required** button provided on each question.

### Previewing a quiz

Once all questions are on the form, you can preview the quiz to see how questions will appear. The procedure in Activity 5.3 guides you to preview a quiz.

#### Activity 5.3: Previewing a quiz

- (i) Click the preview icon as shown in Figure 5.16: a new page that enables you to preview your quiz will appear.

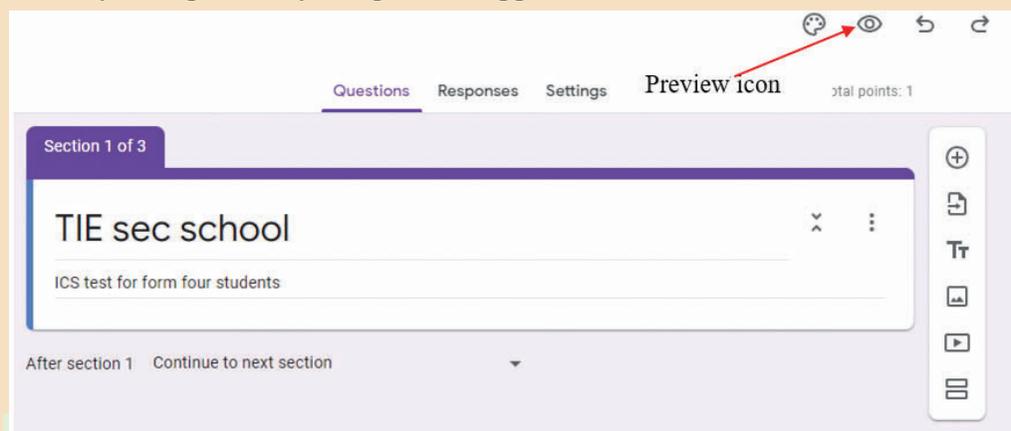


Figure 5.16: Quiz page preview

- (ii) Click on the **Send** button to send your quiz to the intended audience, e.g., students,
- (iii) After sending a quiz to students, click the **Responses** button to see the results.

### Exercise 5.2

Use the procedure in Activity 5.2 to create an online quiz that consists of the following multiple-choice questions.

- One of the following is a software used to prepare and make presentations.
  - MS Word
  - MS Excel
  - MS Publisher
  - MS PowerPoint
- In MS PowerPoint a view used when making a presentation is known as
  - Normal view
  - Slide Show view

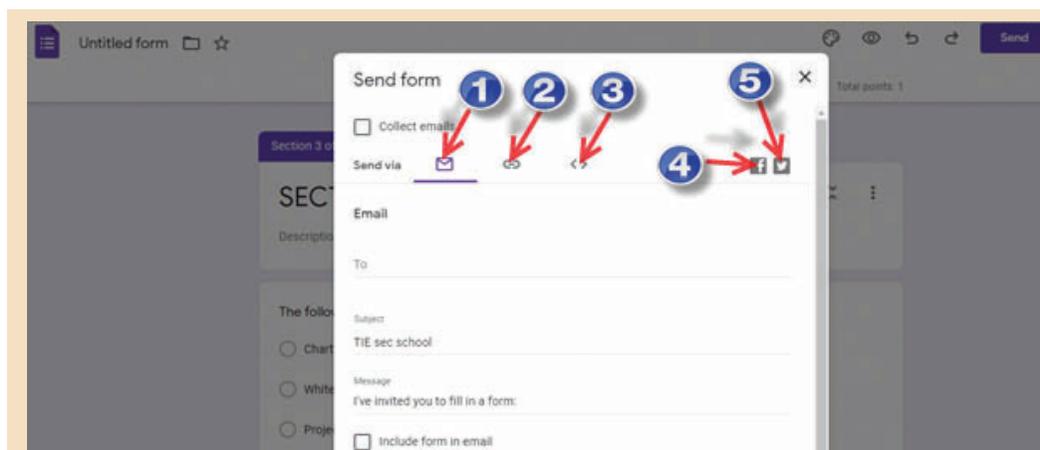
- (c) Outline view
  - (d) Slide Sorter view
3. One of the following is a feature of interactive content.
- (a) Actively engages a learner
  - (b) A recorded video clip
  - (c) Electronic in nature
  - (d) Multimedia in nature
4. The following is a mass media that does not incorporate multimedia:
- (a) Newspaper
  - (b) Television
  - (c) Radio
  - (d) Internet
5. MS Publisher is an application software used to
- (a) Make presentations
  - (b) Prepare publications such as business cards
  - (c) Perform arithmetic operations
  - (d) Prepare documents such as letters

### Administering an interactive assessment

Administration of an interactive assessment is a process of making an assessment task (such as a test) available to those who are being assessed. Unlike traditional assessment tasks, which are typed on papers and administered in classrooms or halls, interactive assessments are administered and done using ICT devices such as computers, tablets, and smartphones. In this section, you will use the forms created in Exercise 5.2 to practice how to administer an interactive assessment. Activity 5.4 guides you to administer your assessment to users.

#### Activity 5.4: Administering an assessment to users

- (i) Open the form for ICS Test for Form Four Students form you created in Activity 5.2,
- (ii) Click **Send**: Send form sub-window will appear as shown in Figure 5.17,



**Figure 5.17:** *Send form window*

**Key:**

1 = E-mail

2 = Link

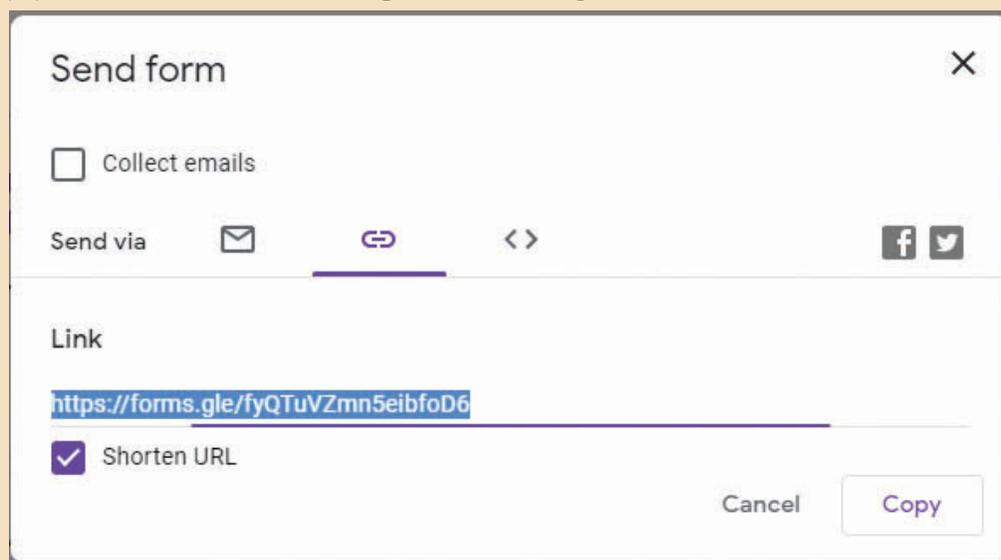
3 = Embed HTML

4 = Facebook

5 = Twitter

**NOTE:** You can share your form either by a link, e-mail or social media such as Facebook and Twitter. In this case, use a link to share your form.

- (iii) Click the **Link** icon: a link will appear as shown in Figure 5.18,
- (iv) Check **Shorten URL** to make the link shorter,
- (v) Click **Copy** to copy the link,
- (vi) Share the link with respondents through e-mail or social media.



**Figure 5.18:** *Sharing a Google Form*

**NOTE:** When sharing a form via e-mail, write email addresses of students on the **IO** field and check the box for **Include form in email**. You can also include a message to introduce a quiz to students. Clicking the **Send** button will share a quiz via email.

### Responding to an interactive assessment

Unlike paper and pen tests in which one is provided with papers containing questions, tests prepared using Google Forms are administered using a clickable link. To have access to the questions, a learner must click the link to open the form and attempt the questions. Where applicable, a student must click the **Next** button to proceed to a next section of a test. Activity 5.5 guides you to respond to interactive assessments.

#### Activity 5.5: Responding to interactive assessments

- (i) Click a link sent to you through e-mail or social media,
- (ii) Write personal information in appropriate fields,
- (iii) Attempt the questions in the form,
- (iv) Click the **Submit** button to send your responses.

### Previewing assessment results

One of the main features of an interactive assessment is that the results can be generated automatically. Thus, you can preview the assessment results as soon as a user submits the responses. The procedure in Activity 5.6 guides you to preview the results of an interactive assessment.

#### Activity 5.6: Previewing the results of an interactive assessment

- (i) Open the Google forms,
- (ii) Click on the **Responses** button (see Figure 5.16) to identify the number of respondents to your assessment tool: the form will display the number of respondents as shown in Figure 5.19,
- (iii) Slide the **Accepting responses** button to the left to stop receiving more responses,

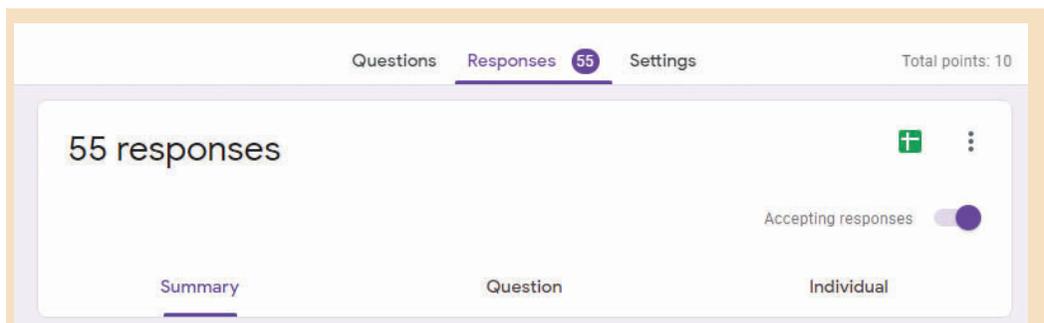


Figure 5.19: Responses window

- (iv) Click the **Summary** tab which is selected by default, to see a summary of responses,
- (v) Scroll down to see different aspects of the summary,
- (vi) Click the **View responses** in the **Sheets** icon,
- (vii) Click on **Create** to tabulate the results for each respondent (in case the tabulation did not appear automatically). Figure 5.20 shows an example of a responses table generated through Google form.

1	A	B	C	D	E	F
Timestamp	Score	Name	One of the following is a	A view in MS PowerPoint	A device used to output	
2	9/26/2021 17:16:41	7 / 10	Victor kanagwa	MS PowerPoint	Slide show view	A projector
3	9/26/2021 17:18:18	8 / 10	Aman Jackson	MS PowerPoint	Slide show view	A projector
4	9/26/2021 17:20:06	7 / 10	BAHATI MDEGELA	MS PowerPoint	Slide show view	A projector
5	9/26/2021 17:20:38	5 / 10	Rajabu M Issa	MS PowerPoint	Slide show view	A projector
6	9/26/2021 17:21:56	7 / 10	Nyemaga Malima	MS PowerPoint	Slide show view	A projector
7	9/26/2021 17:23:15	6 / 10		MS PowerPoint	Slide show view	A projector
8	9/26/2021 17:27:06	6 / 10	Joel	MS PowerPoint	Slide show view	A projector
9	9/26/2021 17:28:29	7 / 10	Nicholas A.M	MS Publisher	Slide show view	A projector
10	9/26/2021 17:28:43	6 / 10	Vb	MS PowerPoint	Slide show view	A projector
11	9/26/2021 17:28:56	7 / 10		MS PowerPoint	Slide show view	A projector
12	9/26/2021 17:29:14	4 / 10	Adam s Irembe	MS PowerPoint	Slide show view	A projector
13	9/26/2021 17:29:30	7 / 10	Joram J Kayila	MS PowerPoint	Slide show view	A projector
14	9/26/2021 17:30:55	6 / 10	Uredi	MS PowerPoint	Slide sorter view	A projector
15	9/26/2021 17:35:03	5 / 10	Salum	MS PowerPoint	Slide show view	A projector
16	9/26/2021 17:35:36	6 / 10	VICKY	MS PowerPoint	Slide show view	A projector
17	9/26/2021 17:37:29	7 / 10	F.J.M	MS PowerPoint	Slide show view	A projector
18	9/26/2021 17:44:40	7 / 10	Hamisi	MS PowerPoint	Slide show view	A projector
19	9/26/2021 17:47:58	7 / 10	Mwamba Ezekiel boniphi	MS PowerPoint	Slide show view	A projector
20	9/26/2021 17:58:15	6 / 10	TABU MASHAKA	MS PowerPoint	Slide show view	A projector
21	9/26/2021 17:58:18	6 / 10	JAPHET	MS PowerPoint	Slide show view	A projector

Figure 5.20: A table preview of interactive assessment results

## Exercise 5.3

Use Google Forms to compose an interactive test of any subject for your choice. The test should contain multiple choice and True/False questions. Administer the test to your fellow students and preview the results.

### Using a software to create simple animation clips

There are various software you can use to create animation clips. Examples of such software are Windows 10 Video Editor, EzVid, VideoLAN, OpenShot, and Wax. This chapter introduces you to the use of Windows 10 Video Editor in creating a simple animation clip. But before creating simple animated clips, you will have to explore the Windows 10 Video Editor to orient yourself about its features.

### Exploring the Windows 10 Video Editor

The Windows 10 Video Editor contains different parts such as preview, timeline, and storyboard, as shown in Figure 5. 21.

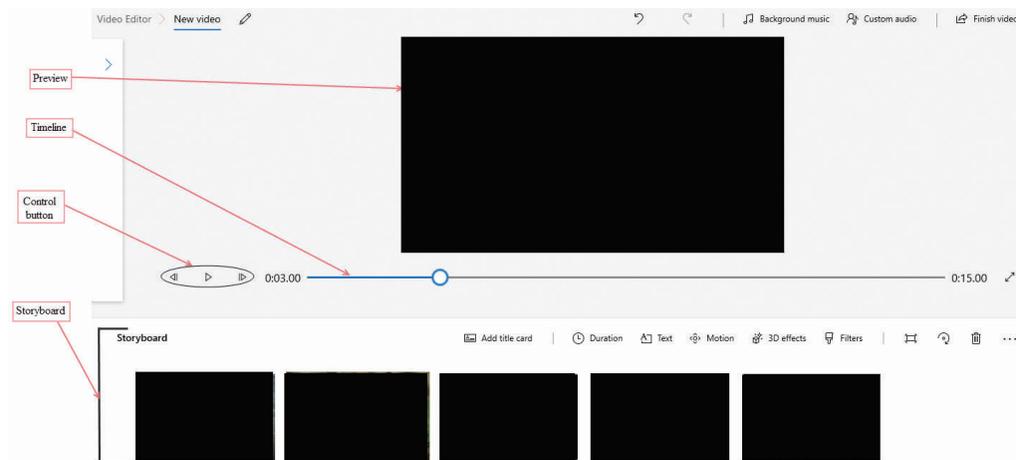


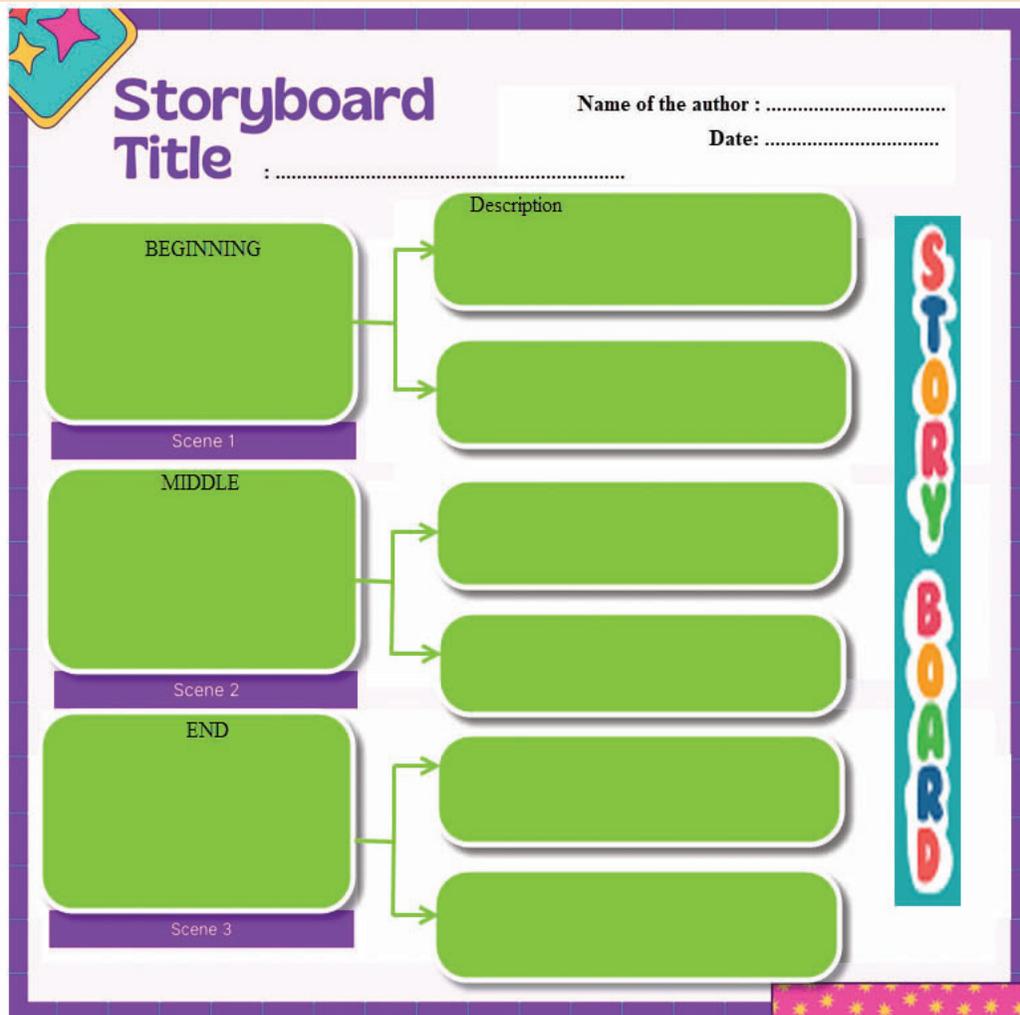
Figure 5. 21: Parts of the Windows 10 Video Editor

**Preview:** Preview allows you to preview the video you are working on. It also includes three control buttons: play, move forward, and move backward.

**Storyboard:** The storyboard allows you to import and arrange images in a sequence. You can also prepare your detailed storyboard in a hand-drawn draft. The storyboard may act as a plan that contains images and instructions to create a video. It allows you to have a clear overview of how the whole video will look like. It gives you instructions on how to create or design a video. Sample templates of a storyboard are available online. The procedure in Activity 5.7 guides you to create a simple storyboard.

**Activity 5.7: Creating a simple hand-drawn storyboard**

- (i) Choose a title, e.g., Leopard hunter,
- (ii) Choose a storyboard template available online. For example, you can use a template similar to the one shown in Figure 5.22.



**Figure 5.22:** An example of a storyboard template

- (iii) Fill the template with your story, providing photos and descriptions as shown in Figure 5.23.

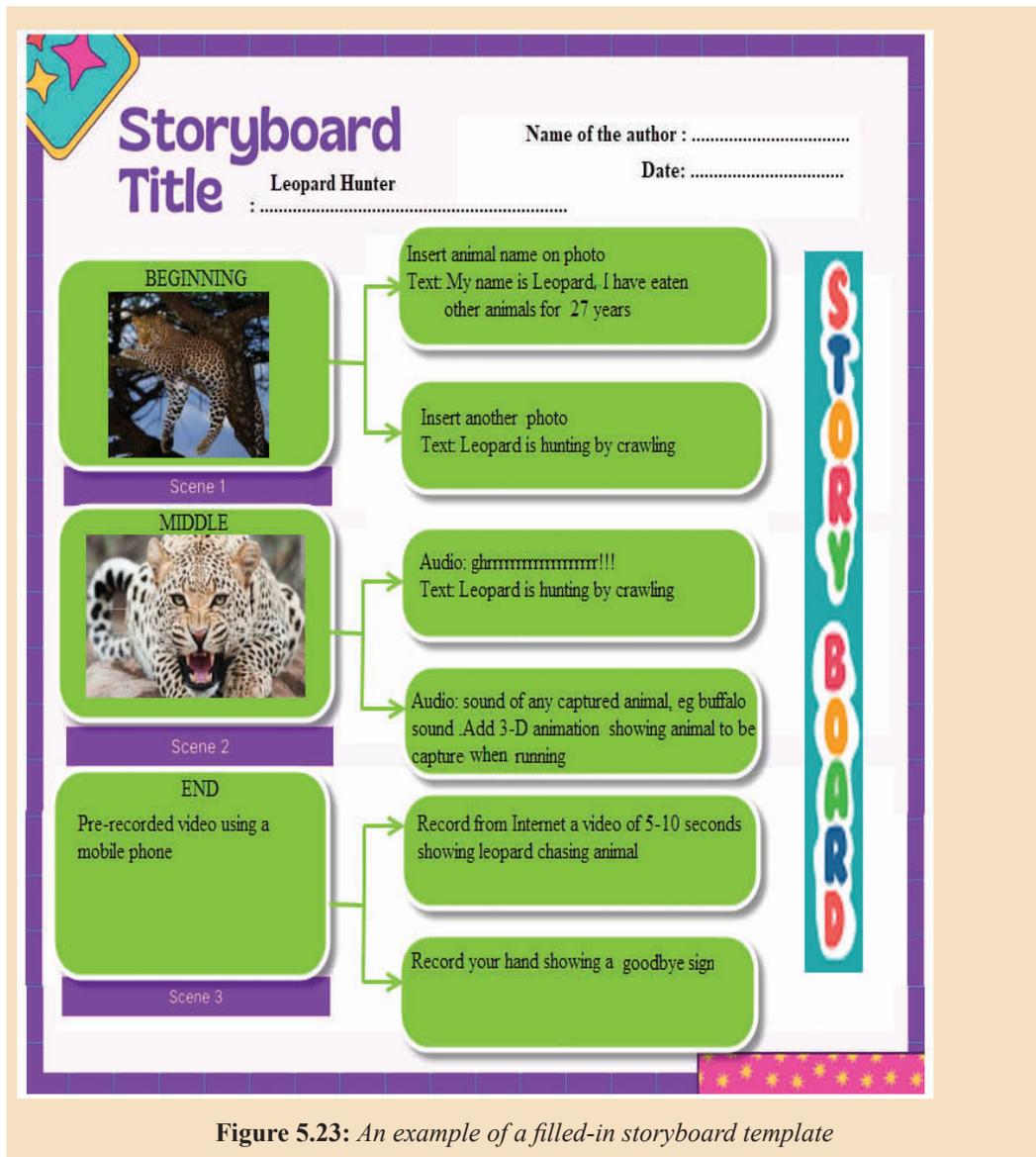


Figure 5.23: An example of a filled-in storyboard template

### Using Windows 10 Video editor to create movie clip

The procedure in Activity 5.8 will guide you to create a simple movie clip using Windows 10 Video Editor.

#### Activity 5.8: Creating a movie clip using Windows 10 Video Editor

- (i) Download two different leopard photos from the Internet and save them on your computer,
- (ii) Open Video Editor by writing 'Video editor' in the search area (see Figure 5.24). A window resembling Figure 5.25 will be displayed.

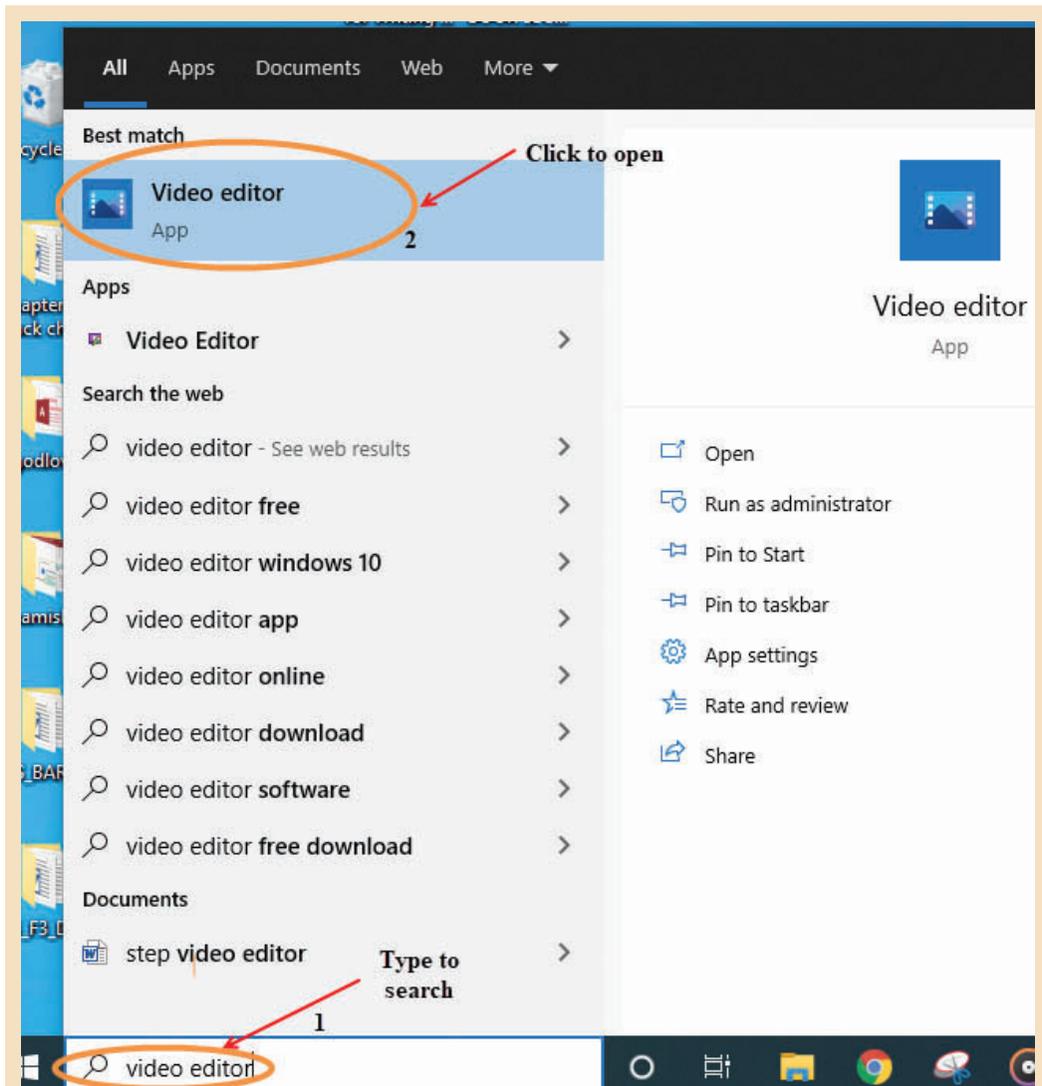
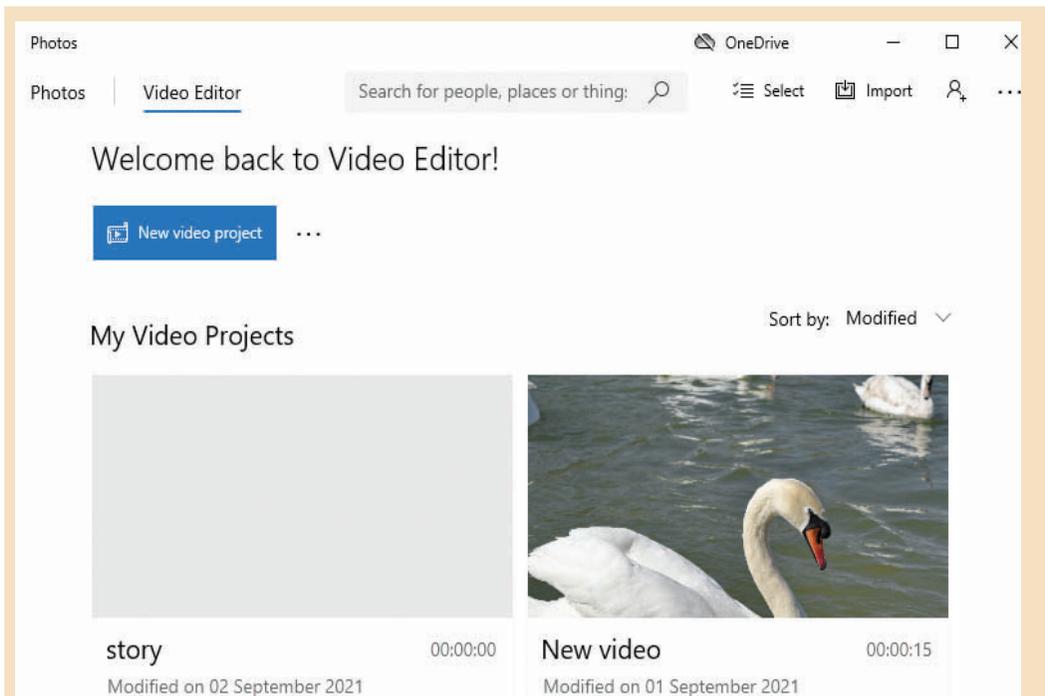
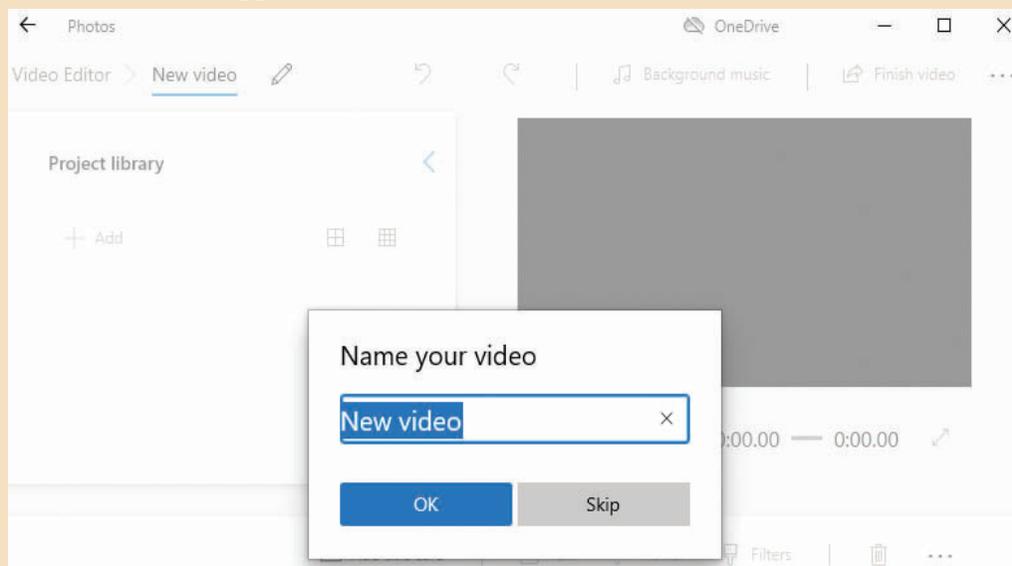


Figure 5.24: Opening a Video Editor through the windows search area



**Figure 5.25:** Interface for Windows 10 Video Editor

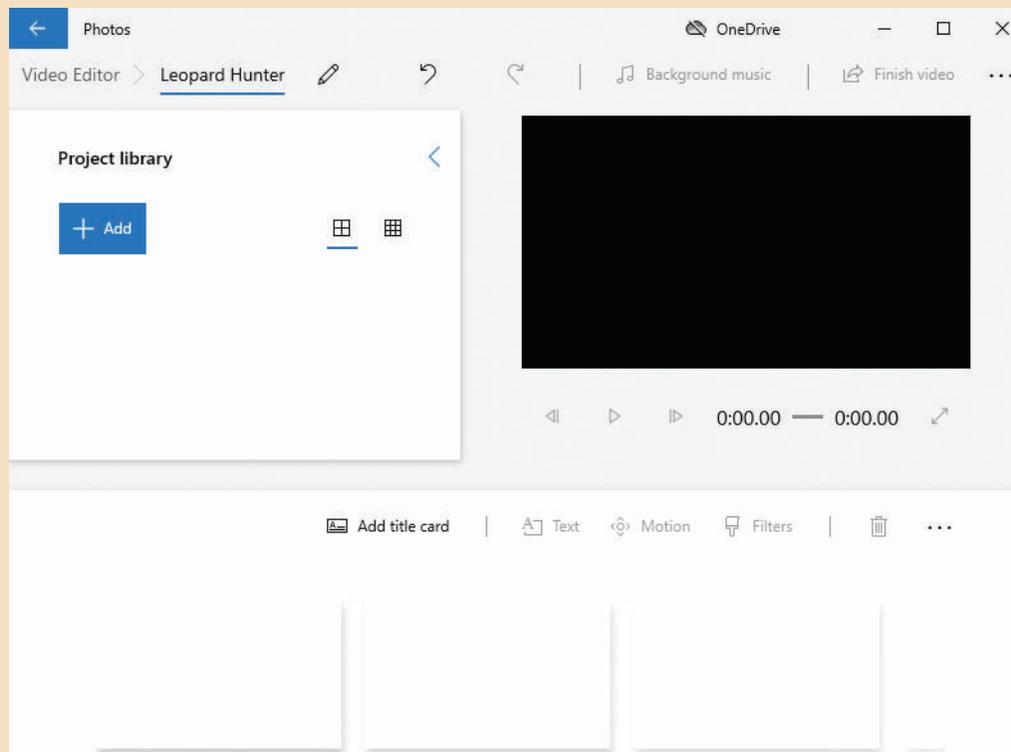
- (iii) Click on New video project. A window similar to the one shown in Figure 5.26 will appear.



**Figure 5.26:** A dialog box for naming a new video project

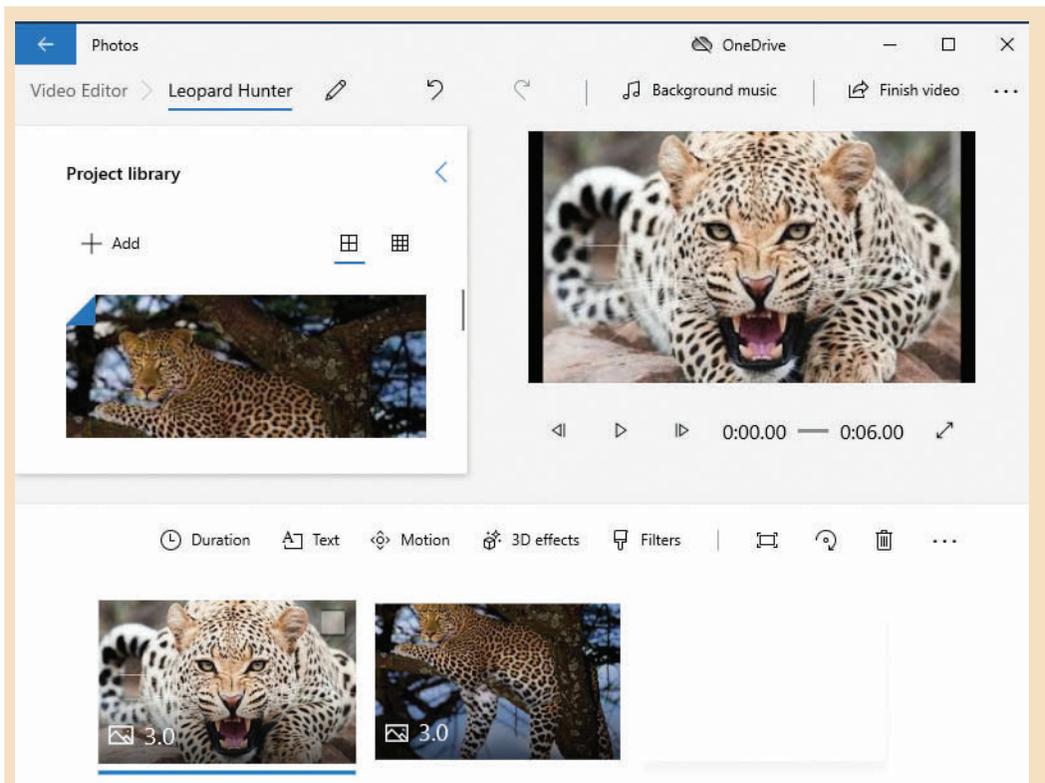
**NOTE:** Review the storyboard to see what you planned to include in the clip, i.e., from the title to photos and audios.

- (iv) Type **Leopard Hunter** as the title for the video clip. The window shown in Figure 5.27 will appear.



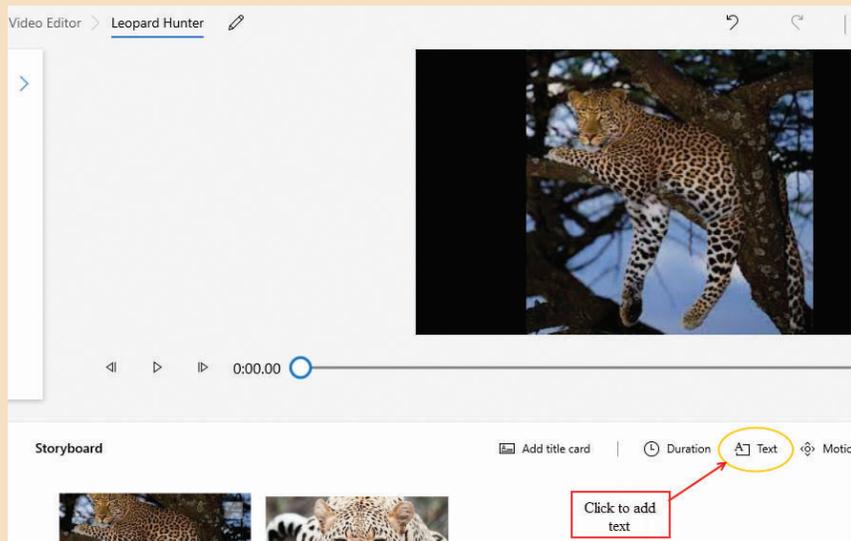
**Figure 5.27:** A window with a video title

- (v) On the **Project library** area, click on **Add** to insert pictures from your computer into a video project.
- (vi) Drag the pictures to the storyboard of the Windows 10 Video Editor: the pictures will appear as in Figure 5.28.



**Figure 5.28:** Pictures added to the storyboard

- (vii) Insert a text over the picture by clicking on add text button as shown in Figure 5.29.



**Figure 5.29:** Using a storyboard to insert text over a picture

The text will appear as shown in Figure 5.30.

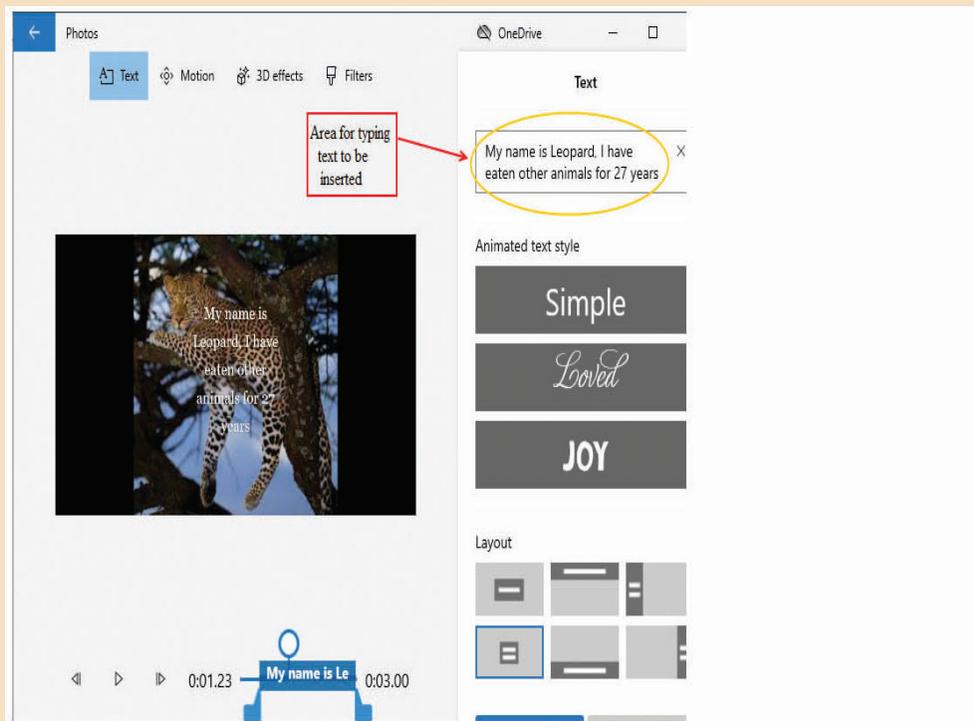


Figure 5.30: Text inserted on a picture

(viii) Insert audio as specified in your storyboard (refer to figure 5.23).

### Challenges of interactive content

Despite the advantages of interactive content for learners, the following are some challenges of interactive content.

1. It can be challenging to take care of the requirements for inclusive learning.
2. Computer skills are required to design and use interactive content.
3. Designing, administering, and using interactive content can be costly.
4. It is difficult to control the behaviours of learners as they learn in isolation.
5. The need for appropriate ICT infrastructure (such as network and computer devices) makes it difficult to perform a comprehensive assessment that covers all materials.

### Project work

1. Choose one subject among the following: ICS, Biology, Physics or Chemistry; use a Google form to create a quiz that consist of twenty multiple choice questions, ten True or False questions, and ten matching item questions.
2. Create a hand-drawn Storyboady about your favourite national park in Tanzania and create a corresponding animated clipboard using Window 10 Video Editor.

### Exercise 5.4

#### Review questions

##### Section A: True/false

Write T for a true statement and F for a false statement

1. A computer typing game is an example of interactive content \_\_\_\_\_
2. Interactive content makes users passive consumers of knowledge \_\_\_\_\_
3. PhET simulations contain interactive content for all subjects \_\_\_\_\_
4. All simulations in PhET can be played through similar procedures \_\_\_\_\_
5. Students can attempt interactive assessments through smartphones \_\_\_\_\_
6. Interactive assessments prepared by Google Forms can be administered using emails and WhatsApp \_\_\_\_\_
7. The Responses tab in Google Forms helps to identify the number of users who have attempted the questions \_\_\_\_\_
8. You can use Windows 10 Video Editor to create animated clips \_\_\_\_\_
9. Interactive content cannot be used in face-to-face teaching and learning contexts \_\_\_\_\_

##### Section B: Matching items

Match an item in **List A** to a corresponding item in **List B** by writing the letter of the correct response beside the item in List A.

List A	List B
1. Google form _____	a. Used to create animated video clips
2. Storyboard _____	b. Open-source software used to create animated video clips
3. Ezvid _____	c. Can be used to organise data collected through Google Forms
4. Google Sheets _____	d. A plan that contains images and instructions to create a video clip
5. Windows 10 Video Editor _____	e. Designs graphics for interactive content
	f. Used to create interactive assessments
	g. Used for marking interactive assessments

### Section C: Multiple choice

Choose the most correct item among the given alternatives and write its letter beside the question number.

- One of the following is not an example of interactive content.
  - Typing Game
  - A solar system simulator
  - A recorded instructional video
  - A Balancing Act Simulator
- One of the following is an important feature of interactive content
  - Engagement
  - Inclusiveness
  - Representativeness
  - Responsiveness
- An interactive content that learners can use to perform experiments online is known as:
  - Simulation
  - Virtual Lab
  - Game
  - PhET Simulations

4. The following are needed to access PhET simulations except:
  - (a) Computers
  - (b) Internet services
  - (c) Gmail Account
  - (d) Internet Browser
  
5. The following are the advantages of interactive assessments except:
  - (a) Easy to mark the question papers
  - (b) Easy to get assessment results
  - (c) Easy to administer
  - (d) Easy to keep assessment records

#### Section D: Short answer questions

Answer the following questions

1. Describe features that make learning content to be regarded as interactive.
2. Does interactive content respond back to users? If your answer is yes, how? If your answer is no, why?
3. Do you think it is good to learn through interactive content? Provide a reason for your answer.
4. Describe the difference between animation and video clips.

## Glossary

<b>Algorithm</b>	A step by step procedure followed to solve a problem, especially by computers
<b>Amplitude</b>	The measure of height of a sound wave, or the maximum displacement of a sound wave
<b>Animation</b>	A technique of making pictures, texts, shapes, and other objects to appear to be moving
<b>Audience</b>	A group of listeners or viewers at an event such as a meeting, a concert, and a play or film
<b>Audio</b>	Anything related to sound in terms of receiving, transmitting or reproducing frequency
<b>Dolling</b>	A technique of moving a camera while shooting a video. It involves moving a camera towards or away from a subject
<b>E-book</b>	Is a book available in digital form, and readable through ICT gadgets such as computers, tablets, and smartphones
<b>Electronic Polls</b>	A system of casting and counting votes through electronic means
<b>Electronic presentation</b>	A presentation that involves the use of special computer programs to prepare and deliver it, using devices such as computers and projectors
<b>Facial expressions</b>	A body language or non-verbal language which expresses one's inner state such as happiness, sadness, anger, surprise, fear, and disgust
<b>Flipchart</b>	A presentation aid consisting of a collection of large paper sheets that a presenter can use to write some key points during a presentation
<b>Framing</b>	Placing or positioning of subjects in a shot during video shooting
<b>Frequency</b>	Refers to the number of times an event is repeated per unit time

<b>Handouts</b>	Printed materials given to the audience during a presentation, to enable them to follow a presentation
<b>Hyperlink</b>	A word, phrase, or image that, when clicked, directs you to another object such as a video clip, audio, image, text, or a document
<b>Hypermedia</b>	A system in multimedia technologies that enables materials such as images, pictures, audio, and texts to be opened by clicking the links in a web browser
<b>Infographics</b>	A visual representation of images such as charts, graphics, and text that enables easy understanding of a topic
<b>Interactive Assessments</b>	Assessment tools prepared, administered and marked using ICT tools such as computers, tablets, and smartphones
<b>Interactive Content</b>	Content which makes users to actively engage with it through performing some-on-screen actions such as clicking and dragging rather than passively following a content
<b>Layout</b>	The arrangement of items on a document to suite different themes such as comparison, differences, and title with content
<b>Master slide</b>	A parent slide in MS PowerPoint, from which other slides in a presentation draw common features such as header, footer, slide number and name of a presenter
<b>Microphone</b>	A device that transform sound energy to electronic signals when recording or speaking
<b>Multimedia</b>	The way of conveying information using more than one medium
<b>Multimedia content</b>	Content that combines various media such as audio, video, text, animation, and graphics to present information

<b>Multimedia Projector</b>	A device that receives multimedia content and displays it on a big screen for the audience to see clearly
<b>Panning</b>	A physical movement of a camera from left to right and vice versa on a horizontal plane during video shooting
<b>Pitch</b>	The measure of how high or low a sound is
<b>Podium</b>	A small platform where a presenter stands by to deliver a presentation
<b>Presentation software</b>	Computer program used to prepare and deliver a presentation. Examples of presentation software are MS PowerPoint and Google Slides
<b>Presenter</b>	A person who delivers a presentation to an audience
<b>Quiz</b>	An assessment tool that enables users to attempt the questions about a certain theme
<b>Scene</b>	Video clips recorded using a camera, and can be joined to get a complete video about an event
<b>Sequence</b>	A collection of scenes that have been joined and arranged to get a complete and coherent video about an event
<b>Slide Show</b>	Viewing the slides of a presentation in full screen mode
<b>Slides</b>	A frame like a page that is used to hold the content of a presentation
<b>Sound</b>	Vibrations that travel through the air or another medium and can be heard when they reach an ear of a person or an animal
<b>Templates</b>	Pre-prepared pages in a computer program which can be used as they are or can be customised to suit one's needs
<b>Tilting</b>	A physical movement of a camera up and down and vice versa on a vertical plane

<b>Tracking</b>	The process of moving a camera along with a moving subject, or moving parallel to a scene, during video shooting
<b>Transition</b>	These are illusions that occur when you move from one slide to another in a presentation software or from one shot to another in an edited video
<b>Video</b>	A group of moving visual images recorded using a video camera
<b>Video Compression</b>	The process of reducing the size or number of bits of a video
<b>Video Conversion</b>	The process of converting a video from one format to another
<b>Video Editing</b>	The process of manipulating video shots, scenes, and sequences to produce a desired video of an event
<b>Wavelength</b>	The distance between similar points on a wave
<b>Whiteboard</b>	A reusable board with a white surface that is used for writing purpose during a presentation. The board can be reused after wiping its content
<b>Zoom in</b>	A mechanical movement of a camera lens that helps to tighten a shot. It is an action of adjusting a camera lens so that the subject seems to be larger
<b>Zoom Out</b>	A mechanical movement of a camera lens that helps to loosen a shot. It is an action of adjusting a camera lens so that the subject seems to be smaller and farther away

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