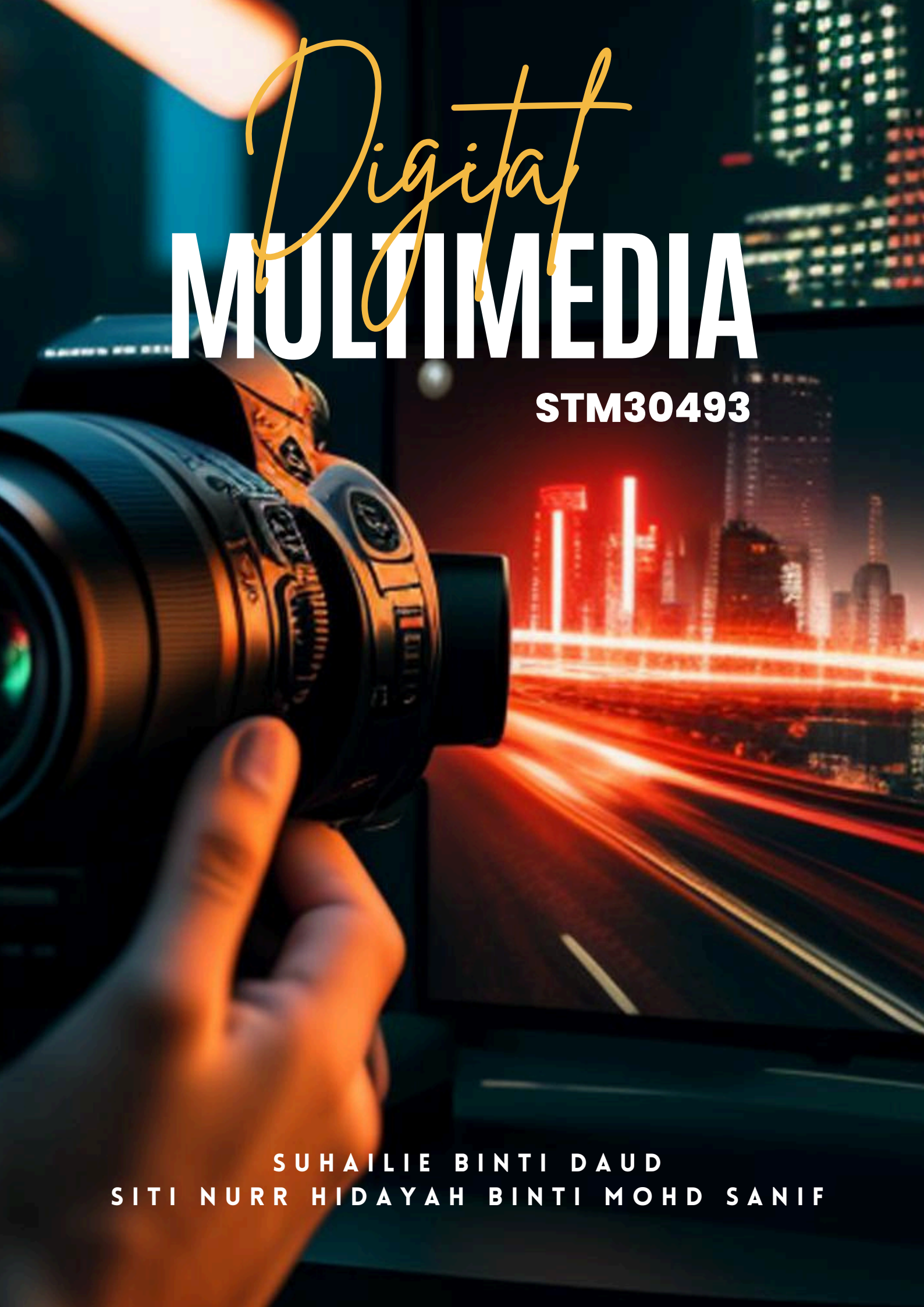




Digital **MULTIMEDIA**

STM30493

**SUHAILIE BINTI DAUD
SITI NURR HIDAYAH BINTI MOHD SANIF**

Digital **MULTIMEDIA**

STM30493

Authors:

SUHAILIE BINTI DAUD
SITI NURR HIDAYAH BINTI MOHD SANIF

Editor:

SHAHARIZAH BINTI JAMALUDIN



Digital Multimedia

STM30493

e ISBN 978-967-188871-6-5

Copyright © 2024

All right reserved. No part of this publication can be reproduced, stored in retrieval system or transmitted in any forms or by any means, electronic or mechanical including photocopying, recording or otherwise without the prior permission of the copyright owner.

Perpustakaan Negara Malaysia

Published by:

Kolej Komuniti Segamat 2

KM4, Jalan Jementah

85100 Batu Anam,

Segamat, Johor

Tel : +6 07 949 8227

Fax : +6 07 949 8700

Email : contact_us@kksegamat2.edu.my

Website : <https://kksegamat2.mypolycc.edu.my>

Authors' Preface

Assalamualaikum w.h.b.

We are delighted to present this interactive eBook on Digital Multimedia for the subject STM30493. This eBook is designed to serve as a valuable teaching aid for instructors and a comprehensive learning resource for students. By integrating the fundamental concepts and applications of multimedia, we aim to provide a rich, engaging, and flexible learning experience.

The content of this eBook encompasses a wide array of multimedia elements, including text, graphics, sound, video, animation, and various interactive applications. Each section is carefully crafted to illustrate the principles and applications of multimedia in an interactive environment, making it accessible and understandable for students at any time and place.

We extend our heartfelt gratitude to our colleagues and collaborators who contributed their expertise and insights, ensuring the quality and comprehensiveness of this eBook. We hope that both instructors and students will find this resource to be an invaluable tool in their educational journey.

Thank you for choosing our eBook. We wish you a fruitful and enlightening learning experience.

Sincerely,

Suhailie binti Daud

Siti Nurr Hidayah binti Mohd Sanif

TABLE OF CONTENT

Authors' Preface	i
Table of Contents	ii
01 INTRODUCTION TO MULTIMEDIA	1
Components of Digital Multimedia	2
Construct the storyboard in multimedia design	13
Exercise 1	17
02 VIDEO AND AUDIO EDITING	18
What is Video?	20
How video Works	21
Why Video?	22
9 Reasons Why Video Content is So Powerful	23
Frame Rate	24
Frame Size	25
Color Spaces	26
Best Professional-Level Free Video Editing Software	27
Video Implementation	28

TABLE OF CONTENT

What is Image?	32
How to Hold a Camera	33
Exercise 2 and 3	42
References	43
Authors' Biography	44

TOPIC 1:

INTRODUCTION TO MULTIMEDIA



multimedia
digital
users audio
used
images
video
dynamic
content experience
animation

engaging applications learning created websites process drawings mobile convey basic words interact music information multimedia: various features sounds touch enhance photos Digital Digital video games commands compared presentations depict clicks apps motion pictures main graphics tool moving allow recorded Digitally use accompanied interactivity

Components of Digital Multimedia

Digital multimedia refers to the integration of various digital media formats, such as:

1. Text
2. Images
3. Audio
4. Video
5. Animation
6. Interactivity

To create interactive and engaging content. It encompasses the use of computers and digital technologies to manipulate and present these media elements in a cohesive and compelling way.



1. Text



- Text provides the narrative, instructions, and factual data that form the core of multimedia content.
- It can be presented in various formats, from simple plain text to rich, formatted text with different fonts, styles, and sizes.
- Text can be integrated seamlessly with other components, enhancing the overall understanding and accessibility of multimedia experiences.

2. Images

- Images add visual appeal, enhance storytelling, and provide visual context to the multimedia content.
- Images can be static or dynamic, with the latter offering animation and interactivity.



2. Images

- There are various types of images used in digital multimedia, each with its own characteristics and applications. Some common types include:
 - Photographs
 - Illustrations
 - Digital Paintings
 - 3D Renderings
 - Vector Graphics

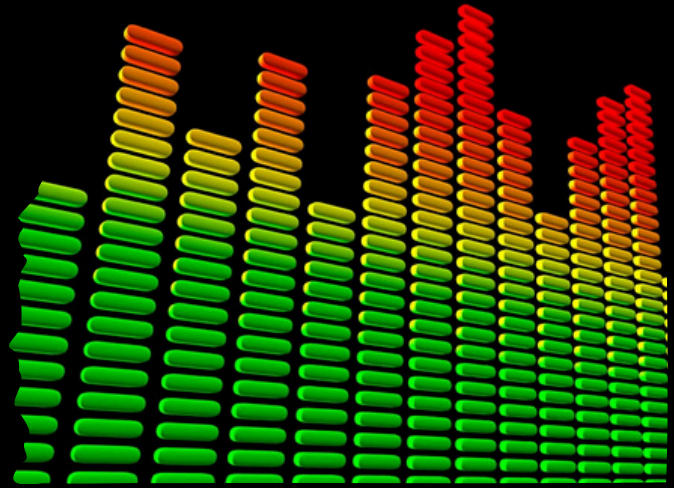
Source: www.behance.net & www.lapa.ninja



3. Audio

- Audio adds another layer of depth, emotion, and engagement to digital multimedia.

- It can be:
 - Music
 - Narration
 - Sound effects
 - Voiceovers



Source: www.vectorstock.com

- Each contributing to the overall atmosphere and impact of the multimedia experience.



Source: www.vectorstock.com

- Audio can guide the user, set the mood, and enhance comprehension.

4. Video



Source: www.deviantart.com

- Video brings motion and life to multimedia:
 - Content
 - Capturing real-world events
 - Animations
 - Simulations
- It can be:
 - Live or recorded
 - Used to convey information
 - Tell stories
 - Entertain

4. Video

- Video can be integrated with other components like text and audio, further enriching the multimedia experience.



Source: www.deviantart.com

5. Animation

- Animation adds a sense of:
 - Dynamism and interactivity
 - Bringing static images and objects to life.



Source: www.vulture.com

- It can be used to:
 - Explain complex concepts
 - Illustrate processes
 - Simply add visual flair to the multimedia content.
- Animation can enhance engagement and make the multimedia experience more memorable.

5. Animation

- Categories of animation:
 - Traditional Animation
 - Hand-drawn or stop-motion techniques



Source: www.wow-how.com

- Computer Animation
 - Software programs to generate and manipulate images

Source: www.abbeycode.com



5. Animation

- Motion Graphics
 - Creating visual effects, logos, and text-based animations for videos and presentations.
- 3D Animation
 - Create three-dimensional models and environments, enabling realistic and immersive experiences.
- Motion Capture
 - Recording real-life movements and translating them into digital animation using specialized suits and sensors.

6. Interactivity

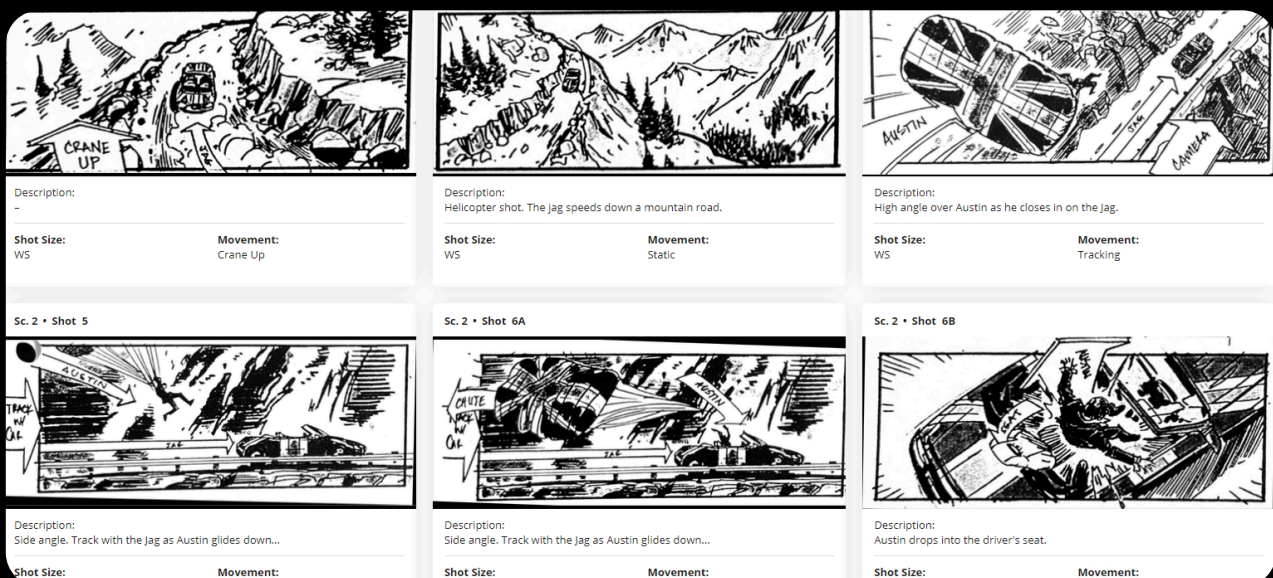
- Interactivity allows the user to engage with the:
 - Multimedia content
 - Actively participating in the experience rather than passively consuming it.
- This can take various forms, from simple buttons and menus to complex, immersive simulations.
- Interactivity makes multimedia experiences more:
 - Engaging
 - Personal
 - Educational

Construct the storyboard in multimedia design

- A storyboard is a visual representation of the sequence of events in a multimedia project.
- It is a critical tool for planning and organizing the content and flow of the project.
- A storyboard can be used for a variety of:
 - Multimedia projects
 - Websites
 - Presentations
 - Videos
 - Mobile apps
- A well-crafted storyboard can help to ensure that the multimedia project is engaging, informative, and easy to understand.

Construct the storyboard in multimedia design

- Here are some of the key elements of a storyboard:
 - Frames:
 - Each frame represents a different moment in the project.
 - Visual elements:
 - This includes the images, graphics, and text that will be displayed in each frame.



Source: app.studiobinder.com

Construct the storyboard in multimedia design



Source: app.uxstudioteam.com

- Audio elements:
 - This includes the sound effects, music, and voiceover that will be used in each frame.
- Transitions:
 - This includes the way that the user moves from one frame to the next.

Construct the storyboard in multimedia design



- **Planning Stage**

Outline the overall storyline, including the project's key elements, sequences, and intended message.

- **Visual Design**

Sketch rough layouts for each frame, including visual elements, composition, and transitions.

- **Content Integration**

Plan the integration of text, graphics, audio, video, and animation into the storyboard, ensuring a cohesive and engaging multimedia experience.

Exercise 1

Scan the QR code to answer the question.



SCAN ME

TOPIC 2:

VIDEO AND AUDIO EDITING



Process in video editing

Construct the development



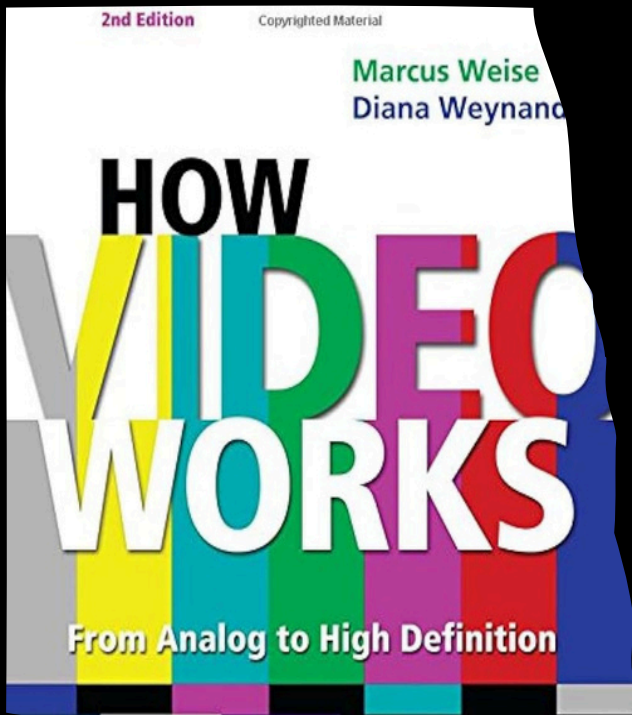


What is **VIDEO?**

“Video as a medium for capturing and displaying moving images, which can be recorded either digitally or on film. The OED provides a broad view, including both traditional film and modern digital formats, reflecting the versatility of video as both a historical and contemporary technology” ([Oxford English Dictionary, 2024](#))

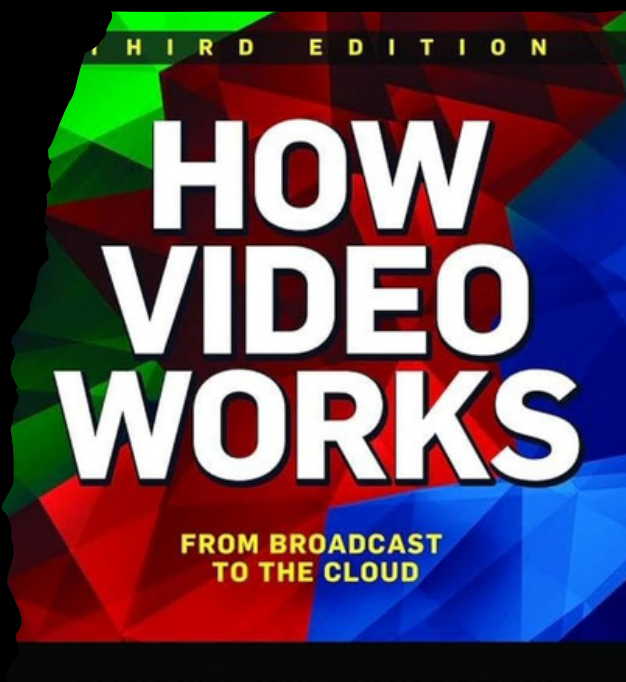
"A technology used for recording, playing back, and displaying moving visual images and sound. Videos are typically stored in digital formats like MP4 and streamed or played on various devices” ([TechTerms, 2024](#))

How video WORKS



Understanding the process of how video works from capture to delivery is crucial for content creators to ensure the best quality and appropriate specifications for various uses.

Weise, M., & Weynand, D. (2024). How video works. Routledge.



Digital video technology has revolutionized the way we capture, edit, and distribute video content, making it essential for creators to understand both the creative and technical aspects of production.

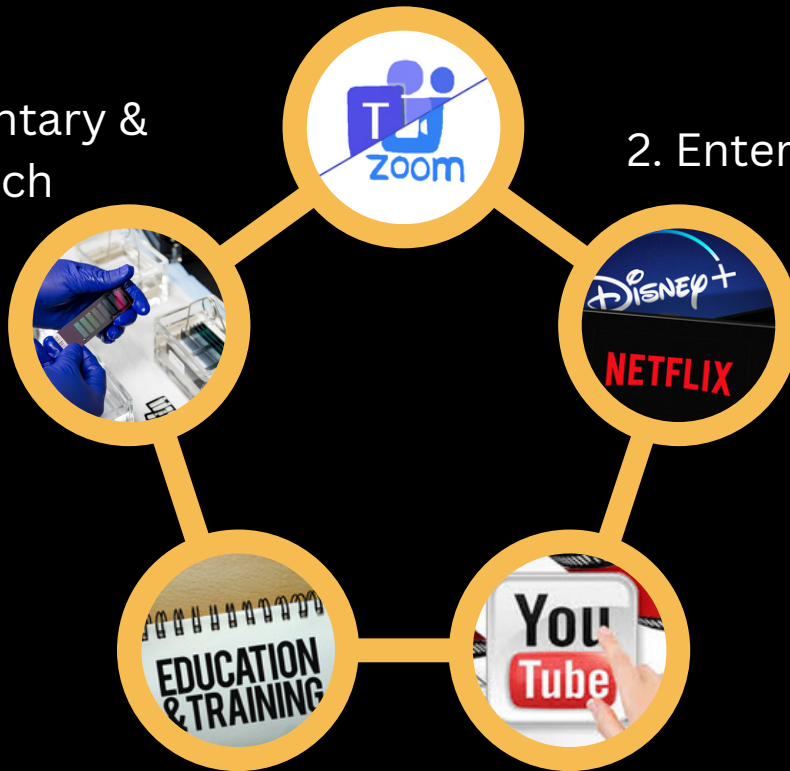
Weynand, D., & Wolf, M. J. (2024). How video works: From broadcast to the cloud (7th ed.).

Why VIDEO?

1. Communication &
Information
Dissemination

2. Entertainment

5. Documentary &
Research



4. Training and
Education

3. Marketing and
Advertising

9 Reasons Why Video Content is So Powerful

1.

Everyone Enjoys
Video Content

2.

Video Increases
Sales & Revenue

3.

Video Content
Improves Seo

4.

A Great
Storytelling
Medium

5.

Explain Anything
With Video

6.

Video Is Versatile

7.

Video Content Is
Memorable

8.

Video Builds
Confidence And
Trust

9.

Social Media
Favours Video
Content

Frame Rate



“The higher the number of frames per second, the more detail we can see with fast-moving objects in the video.”

60 fps

Would all be considered high speed and are typically used for slow-motion video.

50 fps

Closer to that of film in theatrical motion pictures.

120 fps

Convert videos into ultra-slow motion without sacrificing quality

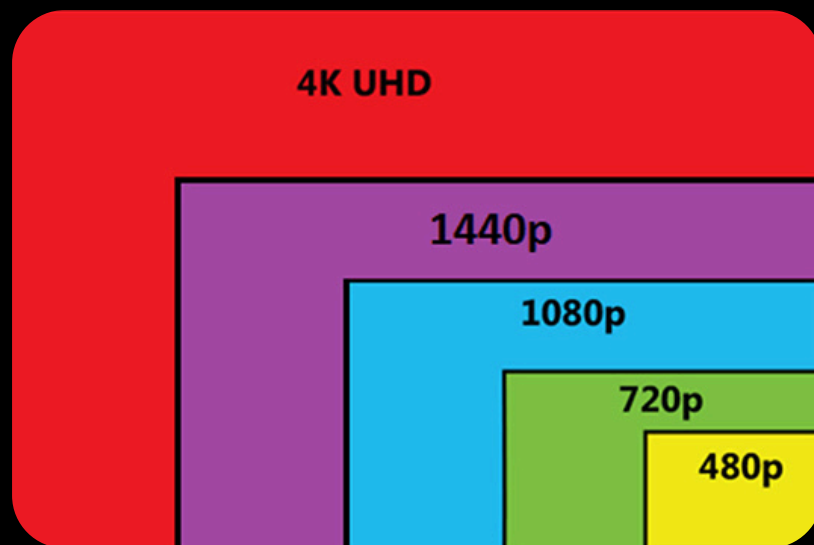
30 fps

Mostly used for live TV like news programs, concerts, sports, and soap operas.

Frame Size



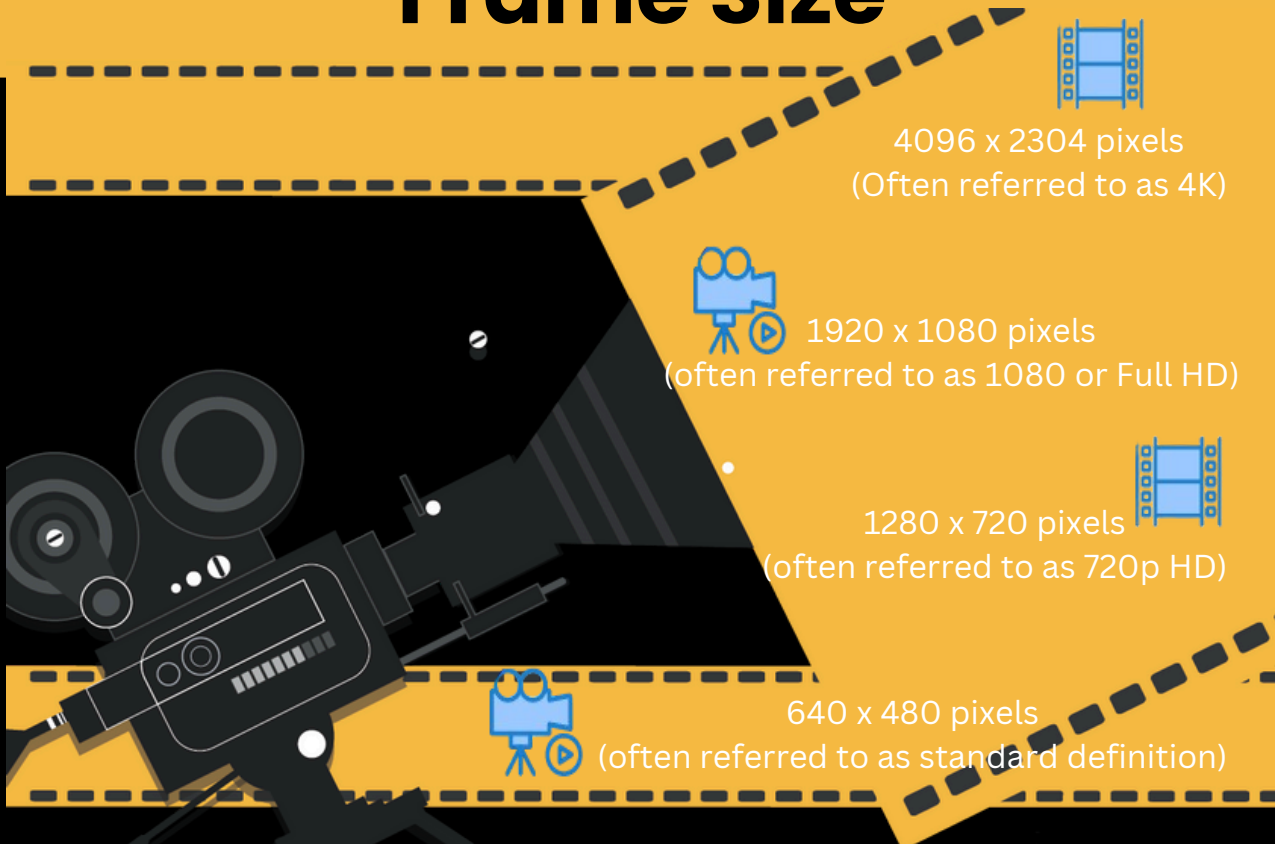
When we work with video files, we need to specify a frame size for the captured video file. This is very similar to the image size when working with photos. There are typically three choices when working with video files.



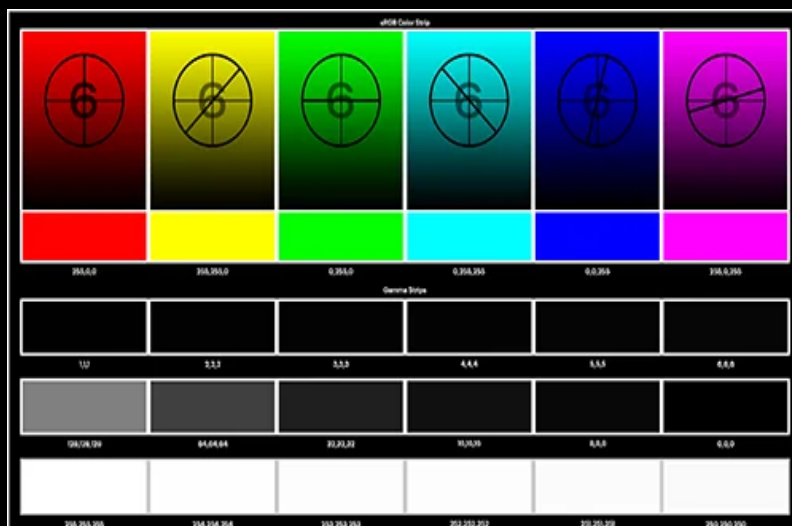
“ a higher resolution results in a better-quality image.”

- Richard Harrington & Peter Krogh, 2015 -

Frame Size



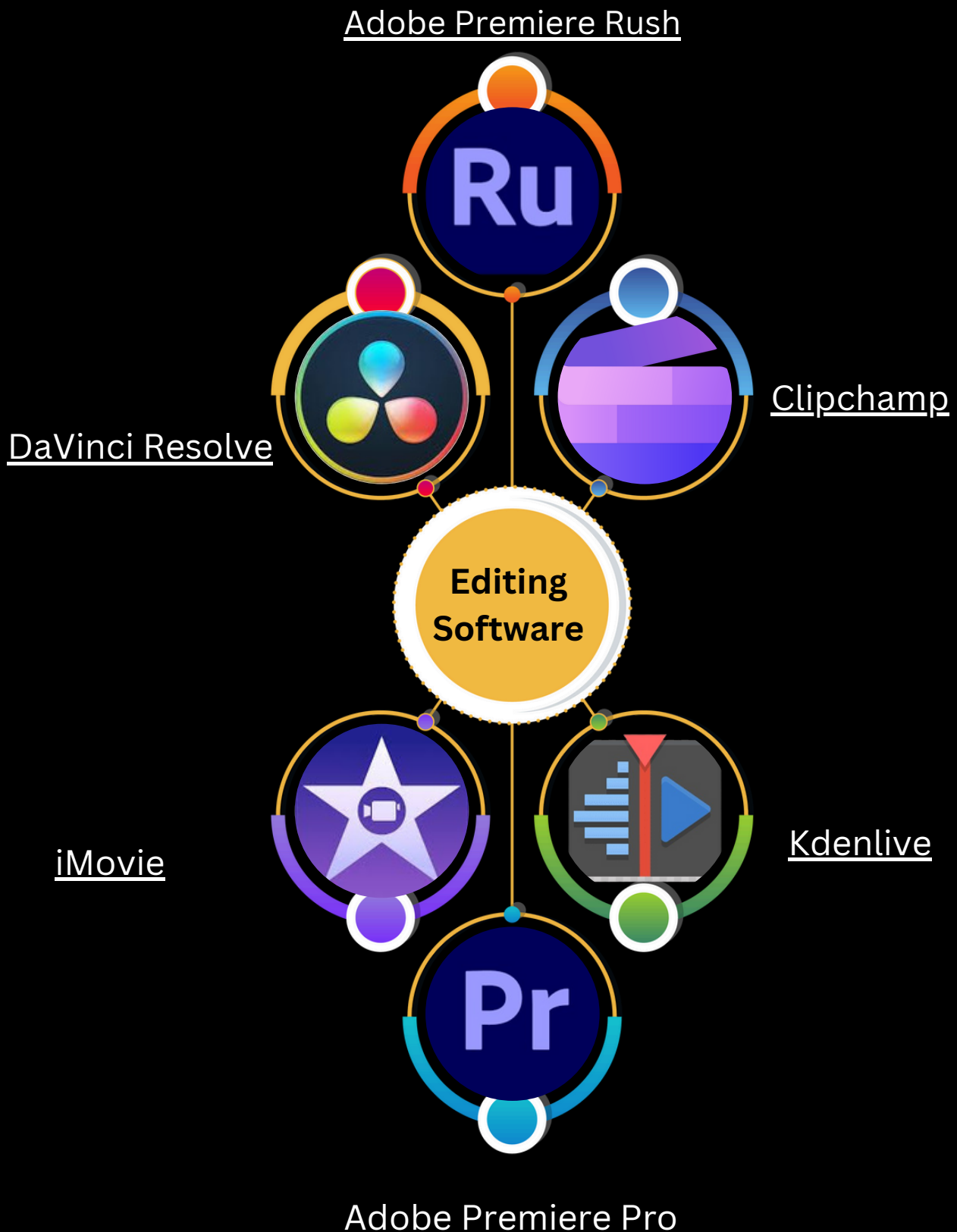
Color Spaces



Any color in this space is represented as a combination of **red**, **green**, and **blue**

-Nikolay S., 2022-

Best professional-level free video editing software



Video Implementation



Cadbury Dairy Milk - Aliens



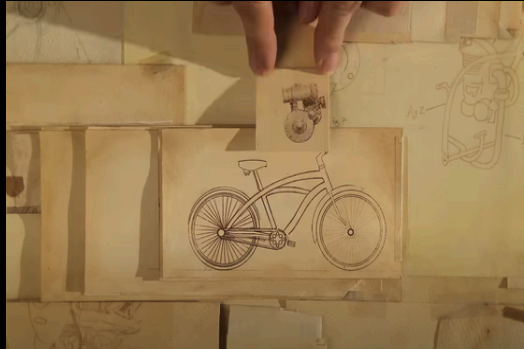
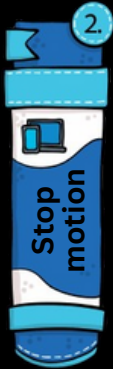
*Aquafresh toothpaste
(family - animated)*



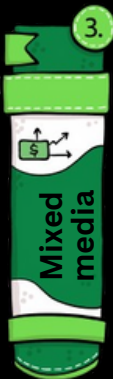
Wallace & Gromit Movies



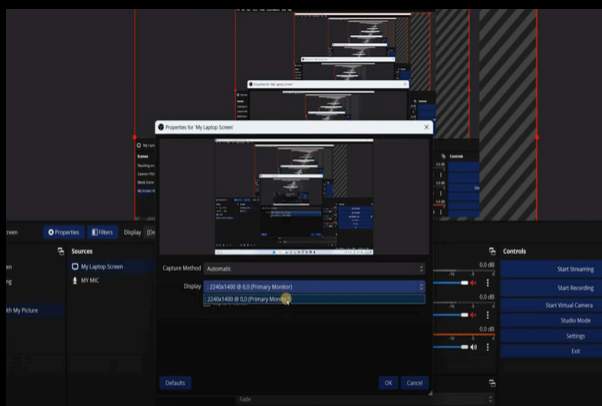
Video Implementation



Honda "Paper" by PES



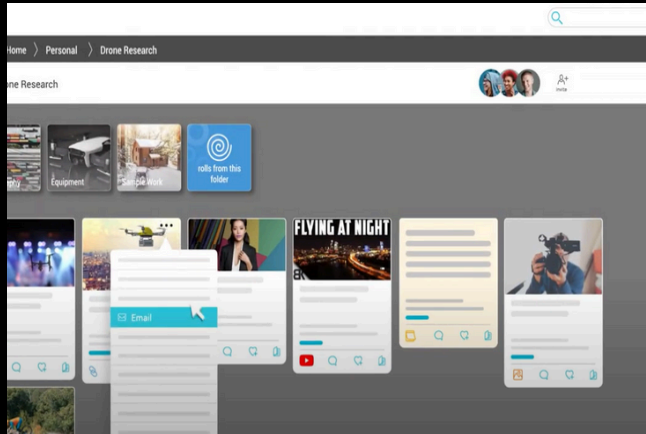
14 Explainer Video Styles for 2024



OBS Screen Recording with Your Face At the Corner



Video Implementation



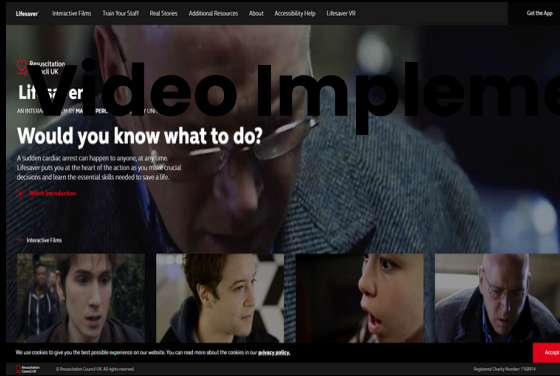
How to Organize Online Research with Bublup



Lessons From Writing 3,000+ Video Scripts



SURIA FM-LIVE Radio



Livesaver



The History of
Marriage -
Whiteboard
Animation



Attract
Explain
Support

Wyzowl Brand Update
Video





What is Image?

“An image is a picture or visual representation that was created or copied and stored in electronic form. Learn about standard digital image file formats.”

1. JPEG (Joint Photographic Experts Group)

JPEG uses lossy compression, reducing image quality with each save. It is ideal for digital photos with many colors and has a small file size, perfect for web use.

2. GIF (Graphics Interchange Format)

GIF uses lossless compression and is limited to 256 colors, making it suitable for simple graphics and animations. It supports transparency and animation but is less suitable for detailed images.

3. PNG (Portable Network Graphics)

PNG uses lossless compression, preserving image quality. It supports transparency and is ideal for high-quality web graphics but typically has a larger file size than JPEG.

4. TIFF (Tagged Image File Format)

TIFF can use lossless or lossy compression and is used in printing and professional photography for high-quality images. It supports high-resolution images and multiple layers but has a large file size, making it unsuitable for web use.

How to Hold a Camera

1. Composition

Rule of Thirds

- Easy trick.
- Beautiful composition.
- Attracting attention to the shortcut method.
- The main subject is positioned off-center.
- Use $\frac{1}{3}$ or $\frac{2}{3}$ of the entire video.
- Place the subject on any of the grid lines (image A) or at the intersection points of the grid (image B).

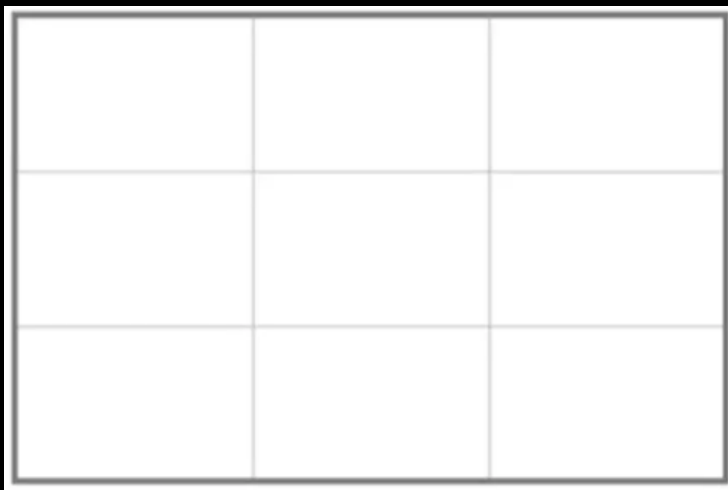


Image A

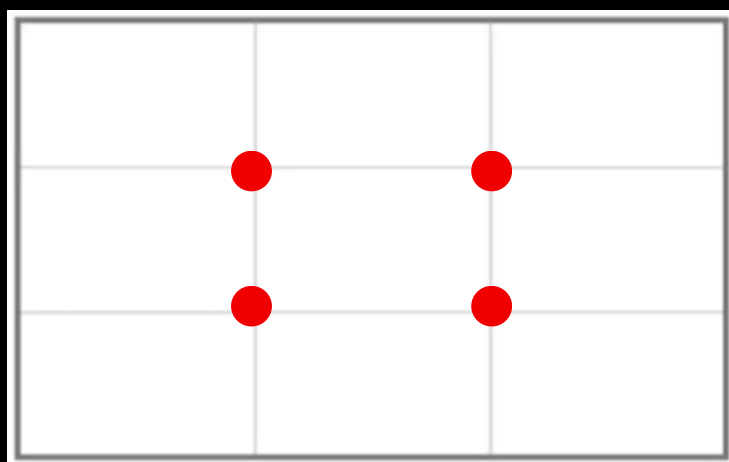
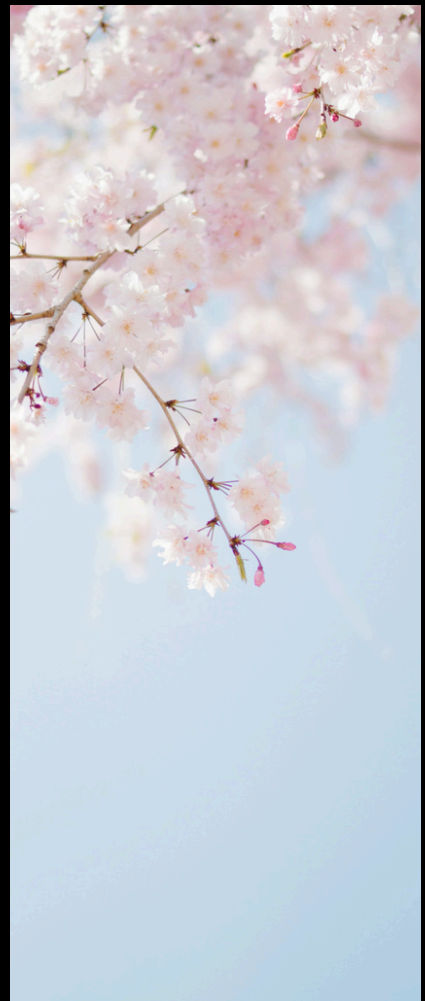


Image B

2. Background

- Keep the background as simple as possible.
- To be safe, select a white or plain colour to highlight the subject.
- **TRICK:** Use a light background for brightly coloured products (contras).



Source: "www.unsplash.com"

2. Background

- To avoid drawing attention away from the subject, choose a repeating, uncluttered design for the background.
- Can also blur the background.
- Props can be used as long as they do not overwhelm the main subject (including accessories or models).
- **TRICK:** Try a pattern or prop that can highlight the advantages or uses of the product.



3. Best Time To Take Beautiful Pictures

1. Sunrise

- Sunrise Light is cooler because there are fewer particles in the air.



Source: "Saiful Nang Academy"

2. Sunset

- When it comes to sunsets, it have a multicolored nature.
- When the lights go out in the city, the city lights go out in the evening, and the city lights go out in the evening.

3. Best Time To Take Beautiful Pictures

3. Golden Hour

- The Golden hour is one hour after sunrise and one hour before sunset.

- The sky is so beautiful, always have to be ready.

- Blue Hour happens 2 times a day, but only for 15-20 minutes.

4. Blue Hour

- The Blue Hour comes before sunrise and after sunset.



Source: "Saiful Nang Academy"

3. Best Time To Take Beautiful Pictures

- If it rains, it will rain the night before or the day before.

5. After The Rain

- For example, when it rains that night, tomorrow morning go to shoot sunrise, confirm the beautiful sky.



Source: "Saiful Nang Academy"

3. Lighting

- It is safe to use soft light for all kinds of videos, particularly product and portrait shots.
- Soft light concentrates on the entire video and colour and eliminates distracting features such as excessive shadows, glare, and so on.
- The video became pleasant to the eyes.
- **TRICK:** Record videos in the morning, early afternoon, or late afternoon.



<https://aftershoot.com/productivity/hard-light-vs-soft-light/>

3. Lighting

- Hard light is frequently used to produce dramatic effects in video.
- Clear shadows will give the video a contrasted impact and make it look more quality.
- Hard lighting is rarely used since it is difficult to regulate and does not allow the subject in the video to stand out fully.
- **TRICK:** Take pictures in the heat of the day (2 p.m.).

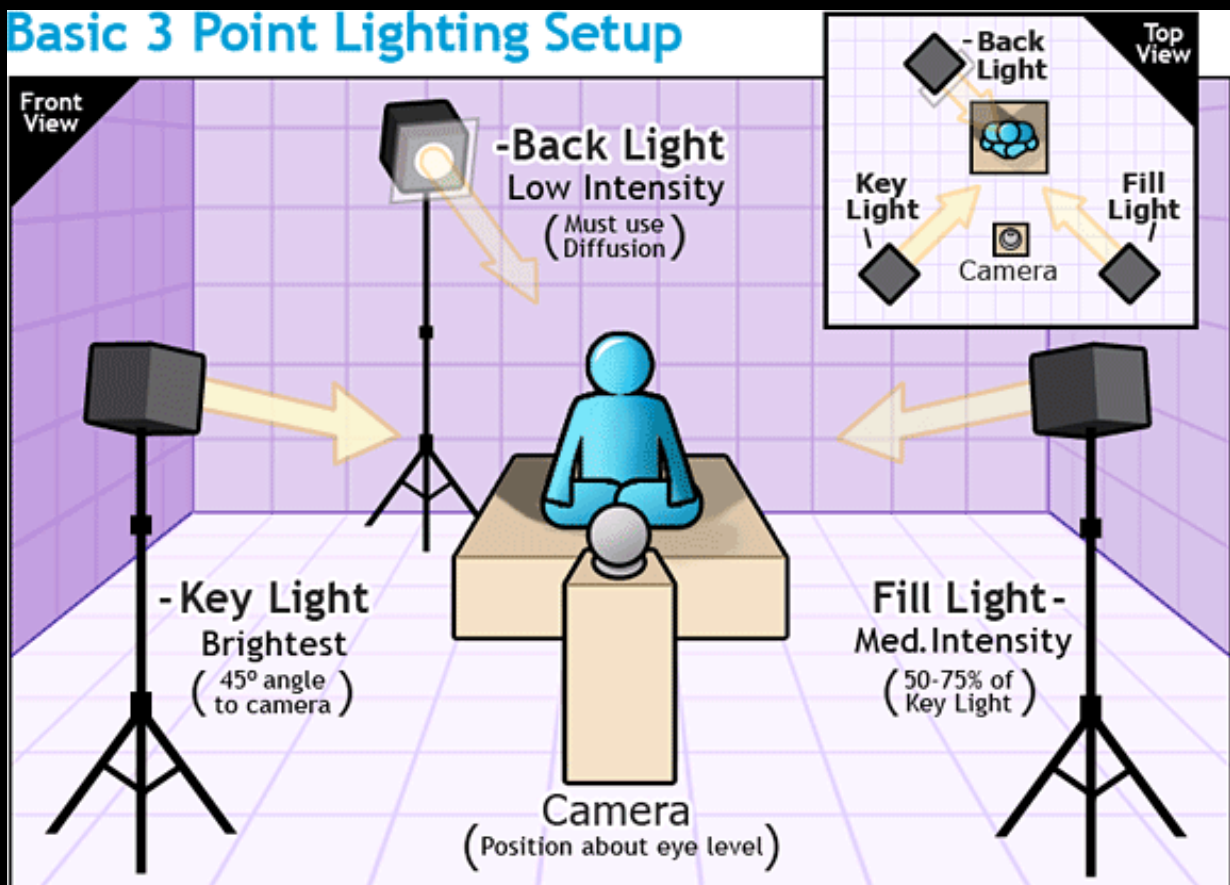


<https://www.studiobinder.com/blog/what-is-hard-light-photography/>

3. Lighting

3 Point Lighting

- Camera (smartphone)
- Microphone (test recording or check audio)
- Lighting (3 point lighting)
- Back light (low intensity)
- Fill light (med intensity)
- Key light (brightest 45 angle to camera)



Source: <https://www.vidsaga.com/>

Exercise 2

Scan the QR code to answer the question.



SCAN ME

Exercise 3

Scan the QR code to answer the question.



SCAN ME

REFERENCES

Li, N., Z., Drew, S., M. & Liu, J. (20 21). Fundamentals of multimedia . Springer Charm. Yes. (ISBN 978-3-030-62123-0)

Morgan, A. (2024). Making Videogames: The Art of Creating Digital Worlds. HarperCollins. (ISBN 978-0008498313).

Wang, X. (Ed.). (2023). Digital Multimedia Communications: 19th International Forum, IFTC 2022, Revised Selected Papers. Springer. (ISBN 978-981-990855-4).

Faulkner, A., & Chavez, C. (2023). Adobe Illustrator Classroom in a Book (2023 release). Adobe Press. (ISBN 978-0137621211).

Cohen, R. M., & Kenny, R. F. (2022). Multimedia Foundations: Core Concepts for Digital Design. Routledge. (ISBN 978-0367485365).

Chaudhury, S., Mallik, A. & Ghosh, H. (20 20). Multimedia ontology representation and applications . Crc Press. (ISBN 978-0-367-44582-9)

Godse, A., D. & Godse, P., A. (20 20). Computer graphics and multimedia . Unicorn Publishing Group. (ISBN 978-9-333-22336-2)

Author Biography

SUHAILIE BINTI DAUD

The author currently serves as Pegawai Pendidikan Pengajian Tinggi (DH44) at Kolej Komuniti Segamat 2. Holding both a Bachelor's and Master's degree in the field of Multimedia, and with over 13 years of experience in education, particularly in multimedia, she has made significant contributions to the development of this field.



SITI NURR HIDAYAH BINTI MOHD SANIF

The author has dedicated 16 years to teaching the Certificate of Information Technology at Kolej Komuniti Segamat 2. With a strong educational background, the author holds a Bachelor's degree in Information Technology and a Master's degree in Technical and Vocational Education.

This blend of extensive teaching experience and academic qualifications underscores the author's expertise and commitment to advancing education in the field of multimedia.





e ISBN 978-967-18871-6-5



9 789671 887165