

# CHAPTER 6 VIDEO ELEMENTS AND PRODUCTION

## Multimedia Communications by Marie Rutherford

Except where otherwise noted, this OER is licensed under CC BY-NC 4.0 (<https://creativecommons.org/licenses/by-nc/4.0/>)

Please visit the web version of Multimedia Communications (<https://ecampusontario.pressbooks.pub/multimediacomm/>) to access the complete book, interactive activities and ancillary resources.

### Learning Outcomes

- Outline how video is utilized as a visual aid in communication strategies
- Describe the effective integration of video in multimedia communication
- Explore common video technologies for creating, editing, and hosting
- Review the stages of video production from concept to completion
- Explore, practice and apply effective video creation and development techniques
- Identify key terms related to video design and production

## Video and Multimedia

Videos can be a powerful component when included in a multimedia presentation. Videos often bring concepts to life and enhances the way we communicate. Consider a video is a sequence of moving images, often accompanied by sound, used to tell a story, present information, or entertain and engage. Studies show people retain information provided in a video due to the use of two stimuli; visual and auditory.

## Uses and Types of Videos in Multimedia

1. **Communication:** Videos can convey ideas and provides a communication medium to connect people by sharing information in a interesting and engaging manner. These types are often informational videos.
2. **Education:** Videos are widely used in educational settings to illustrate concepts, demonstrate procedures, and provide visual and auditory learning experiences. These types can be instructional and informational based.
3. **Entertainment:** From movies to online streaming, videos are a primary source of entertainment. They combine visual and auditory elements to create immersive experiences. This type of video is simply classified as an entertainment video.
4. **Marketing and Advertising:** Videos are a powerful tool for marketing, allowing businesses to showcase products, tell brand stories, and engage with customers through visual storytelling. These videos are referred to as promotional videos.
5. **Training and Development:** In corporate and business settings, videos are used for onboarding and training employees, providing tutorials, and these types of videos are considered to be instructional videos.

This chapter explores the usage of videos within the context of a multimedia presentations.

### Chapter Organization and Preview

- Video as a Visual Aid
- Video Production
- Video editing
- Explore, Practice and Apply
- Key Chapter Terms

## Attribution & References

Except where otherwise noted, this page is created by Marie Rutherford, CC BY-NC 4.0

# 6.1 VIDEO AS A VISUAL AID

---

## Video Overview

Video helps you tell a story in the most visually engaging way possible, giving every employee in the company a face-to-face opportunity with the CEO, or allowing for the broadcast of team meetings and gatherings.



### Tip

Making a video that features the employees who work at your company can “humanize” the company’s image, a valuable tool when communicating with investors and other external stakeholders.

Videos are an excellent visual media choice when communicating things like,

- The features of a new facility or office the company has opened
- The details of a new product or service the company has introduced
- Instructions for a new company process, like signing up for benefits or a new 401k plan
- The introduction of a new business idea, plan or merger, especially if the subject is complex or the audience is highly emotional about the announcement
- Webinars and meetings that all attendees might not be able to attend in person

## Consider: Appropriate Uses for Video

### Consider: Appropriate Uses for Video (text version)

In which of the following situations would you NOT use video?

### Responses

1. If several team members won't be able to attend a meeting held by the CEO
2. If information regarding an impending layoff needs to be distributed to those employees remaining at the company
3. If your company has opened a new distribution facility and everyone would like to see it

### Check your answers in footnote<sup>1</sup>

**Activity source:** *Business Communication Skills for Managers*, CC BY 4.0

While videos can be easy and inexpensive to produce these days, it can still be costly to create a professional, polished video. A video made on your camera phone likely won't be appropriate for any medium besides a short post on social media. Beyond the cost and talent associated with creating more complex videos, there are a few roadblocks you might encounter, even when creating a short clip. You might want to reconsider video as a choice in any of the following scenarios:

- Your human subjects are visibly uncomfortable in front of a camera and cannot deliver a message effectively in that manner
- Your subject requires the display of a lot of data, and the audience will require time to review, contemplate and study the information
- Your video is longer than fifteen minutes and viewers are likely to tune out after a while
- You're covering a sensitive topic or the topic of discussion shouldn't be made public in any recorded format, written or visual

Video can be used to accompany text, or it can stand alone as its own communication. Consider where your audience will access the video, what information will accompany that video and in what format, and how they'll work together when you start to plan the creation of your video.

**Watch the video *What is the Best Explainer Video Style for Your Business?* (2 min) on YouTube (<https://www.youtube.com/watch?v=dp3NK7TMMzw>)**

## Attribution & References

Except where otherwise noted, this page is adapted from Video as a Visual Aid In *Business Communication Skills for Managers* by Freedom Learning Group / Lumen Learning, CC BY 4.0

- Video as a Visual Aid: Overview. **Authored by:** Freedom Learning Group. **Provided by:** Lumen Learning. **License:** *CC BY: Attribution*

## Notes

1. **1.** This is an appropriate use of video. A video isn't a face-to-face discussion but it can be close—a video of a meeting will help you convey the same message the attendees received to those that couldn't be there. **2.** This is **not** an appropriate use of video. Sensitive information should be passed along verbally to those who need to know, and certainly not in a medium as easy to share as video. A video may seem like a good option to distribute to remote employees, but a video conference would be more secure, more personal, and more specific. **3.** This is an appropriate use of video. A video tour of the new facility will allow team members to see it who might not otherwise travel there.

---

## Introduction to Video Production

Creating a video project can seem daunting at first because it combines all of the elements of visual design and sound design, along with the unique challenges of video. However, getting started on a video project can actually be a surprisingly straightforward and effective way to communicate an idea, tell a story, or show off your work.

### Three steps of video creation

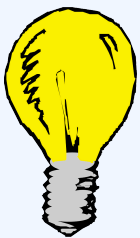
There are three major phases as you create your video:

- **Pre-production:** All of the planning work that happens before you actually start recording.
- **Production:** All recording (filming and audio) as well as gathering any assets you are not recording yourself (such as stock footage).
- **Post-production:** Where the footage all comes together and is enhanced with video/audio editing to create the final product.

## Pre-Production

### Pre-production: Planning

Before anything is filmed, it is all planned out. Here is where you start with an idea: what is it that you want to do? You may write a script and/or create a storyboard to plan out your shoot.



#### **Tip: Plan Ahead**

It can be tempting, on smaller video projects, to skip the planning stage. You should always at least have a rough written outline or storyboard even on small projects. It can help you keep things organized and ensure that no shots get missed.

The planning stage is critical for setting your project up for success. By giving yourself a clear outline of what

you want to accomplish, you will have not only a clearer path to getting there, but also an understanding of what you will need to get there.

## Consider: Planning your project

1. Do you need a specific filming location?
2. Do you have to track down music or other audio elements?
3. Are you going to be recording vocals?

All of these questions will help shape what your production phase looks like.

Likewise, your access to production elements like equipment, time, and location will need to be considered while you are still in the planning stage. It's all well and good to have an elaborate tree-top scene in your video project, but that won't mean much if you don't have safe access to a suitable location, or the equipment and training needed to capture it.

## Pre-production: Techniques

Filming can be a daunting task, so here are some of the steps taken in the pre-production phase of a project:

1. **Finalize your script:** If you have any dialogue, here is where you can finalize it before planning out your shots. This can always change as you go, but you still need that starting point.
2. **Storyboard and shot list:** Here is where you begin to plan the visual interpretation of the script. The storyboard helps you lay out the script scene-by-scene, helping you decide what shots to use.
3. **Finding crew and location scouting:** So you have the visual guideline to your script, the next step is finding the right people and the locations. You may find that you need to tailor your shots to fit different locations.
4. **Gear:** Now that you have figured out your shots and locations, it's time to finalize what gear you need to make your project happen.
5. **Budget:** If your project is big enough to require one, here is where you need to finalize your budget and stick to it. Often, things will change and this is where you may need to find creative ways to achieve your goals while sticking to the budget.
6. **Casting:** Now, all there is left to do before you film is find the right actors to bring your script to life.

Normally, this is done by holding auditions.

## Production

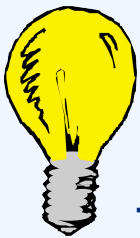
### Lights, camera, action!



A cartoon of a video director sitting in a chair, with a megaphone, in front of a video camera.

**Source:** *Liberated Learners*, CC BY-NC 4.0

This is where the shoot actually happens and your plans from pre-production are fully realized. Here, you will be using your equipment to record the video and audio that you will then edit in post-production.



#### **Tip: Be Picky with your Filming**

It can be tempting to come into filming with the “I’ll fix it in post” mentality, where, if something in a shot is not the way you want it, you will just fix it in editing. It is MUCH EASIER to get things as close to perfect as possible while recording. You will always achieve better results by being picky with your filming.



## Framing

Framing is a way for you as the filmmaker to convey your vision by guiding your audience with your shot. You can manipulate the composition, angles, and size of your shots to say something (without actually saying anything!).

The rule of thirds is a “rule of thumb” for composing/framing visuals. The guideline proposes that an image should be imagined as divided into a 3×3 grid, which equally divides the image into nine parts, and that the important elements should be placed along these lines or their intersections. Smartphone cameras usually have this feature, you may just need to turn it on.

Here are the most common types of shots and their uses:

### **Wide/Long Shot (WIDE)**

This shot is usually used to establish a time or place for the audience. It can also be used to show where the character or object is positioned relative to the environment. The frame usually includes the whole body of the person, or may be a wide frame of the environment (e.g. the New York skyline).

### **Medium Shot (MED)**

This shot is framed from the waist up, allowing the audience to see the character(s) more closely, but far enough to see their gestures and movement. This is a useful shot when more than one person is on screen.

### **Close-Up (CU)**

This is usually framed from the neck upwards, and allows the audience to see the emotions and expressions on the character’s face. It is usually used to convey the emotion of a scene.

### **Extreme Close-Up (ECU)**

Similar to the close-up, this shot is usually used to emphasize a particular object or area of interest. This is used to narrow the attention of the audience to a specific subject.

## Lighting

Lighting is another element used in video making to convey the tone or vision of a scene. Lighting helps to really motivate a scene, complementary to framing. One of the most common ways to set up lights is by using 3-point lighting. This approach includes the following setup:

- **Key Light:** The main area of interest, usually off to one side of the camera.
- **Fill Light:** placed usually opposite to key light, it is used to “fill” in the shadows created by the key light by softening them.
- **Back Light:** Usually placed in the back, above the subject. This is used to separate the object of interest

from the background and to create more depth.

The 3-point setup is essential to achieving certain looks, but it does not have to be strictly followed. Here are some other common types of lighting and what they are used for:

- **Natural lighting:** As implied, this type of lighting that uses a natural light source or look (e.g. sunset, dawn). This is usually done using the lighting already available at location.
- **Practical lighting:** This type of lighting refers to sources of light that are on screen (e.g. a lamp, candle, fire). It is usually used in wide shots to create some depth-of-field.
- **Motivated lighting:** This is the type of lighting that uses studio lights to imitate natural light sources (e.g. moonlight, sunshine). This is done by diffusing or bouncing studio lights, and controlling the temperature (colour) of those lights.

### **A few short explainer videos about lighting:**

- Using natural lighting ([https://www.youtube.com/watch?v=AT\\_eHJ663kQ](https://www.youtube.com/watch?v=AT_eHJ663kQ))
- One light (<https://www.youtube.com/watch?v=qLEqPCjNLYM>)
- 3-point lighting (<https://www.youtube.com/watch?v=EBGuQZo0g94>)

## **Sound**

Sound is the audio element used in video creation that ties all the visuals together to finish the storytelling medium. Depending on the shot, you might want to give actors individual microphones to ensure that their voices can be heard. If you want narration, you'll record the audio separately and place it in the right spot during the editing phase.

While you can create your own sound effects, it's usually easier to find free ones in a sound library. The University of Washington has a guide to open sound libraries (<https://guides.lib.uw.edu/research/openresources/music>) that you might find helpful. Double check any free content to see if attribution is required, before using.

## **Screen-casting**

One of the most popular (and easiest) video formats to create is the screencast or stream. Basically, you are recording your screen and narrating what's on screen. Using a webcam is optional. The same three stages apply, as it's good to have a plan before you begin, and you'll need to edit the video to create something polished. But when it comes to the production, you don't need a studio or cameras – just your computer.

**Watch Screencasting – Make a Video in Under 3 mins (2 mins) on YouTube**  
(<https://youtu.be/-9WqzvByE04>)

Links from the video:

- Screencastify (<https://www.screencastify.com/>)
- Audacity (<https://www.audacityteam.org/>)
- OBS Studio (<https://obsproject.com/>)
- Videopad Editor (<https://www.nchsoftware.com/videopad/index.html>)

***Note:** These are only suggestions, and not the only options available. For audio and video editing, other suggestions can be found in this module. For screen casting, there are many options out there. If you're unsure, reach out to your library and see if they have any suggestions or resources available.*

## Post-Production

Post-production is where it all comes together. You have your plan, all of your raw footage and audio, and now it's time to put it all together in video editing software.

What is editing? It is the ability to take footage and tell a visual story by manipulating elements of the footage and audio.

## The Language of Editing

Here are some terms to familiarize yourself with before you begin to edit:

- **Cut:** This refers to the clean transition from one clip into another.
- **Continuity Editing:** A type of edit where different shots are cut together to create an uninterrupted flow. This is usually done with multiple-angle shots of the same action. This type of cutting seeks to maintain a continuous sense of time and space.
- **Dissolve:** A type of transition where the end of one shot overlaps with the beginning of the next, creating a gradual fade. Note: Dissolve is the proper term used for fading between 2 shots. Fade is the proper term for another kind of transition, see below.
- **Fade:** A transition where there is gradual brightening or gradual change into a color at either the beginning or ending of a shot. This is usually used to establish a new time and place.
- **Jump Cut:** A sudden cut that creates lack of continuity in a sequence by ruining the flow. Often it can

be seen as a mistake in editing, but if used with purpose, can be used to disorient the audience.

- **Cutaway:** A cut that interrupts the flow of a sequence with another shot that is, in principle, related to it.
- **Split edit:** This is when the visual and the audio of a scene cut at different times during the transition from one shot to another.

## Video Editing Functions

There are many elements that can be manipulated in editing for a desired effect, here are some of the things you can play with:

- **Exposure:** This is how bright or dark footage is.
- **Colour:** This could be the shades, or hues you perceive, along with the temperature (warm/cold).
- **FPS:** Frames Per Second. Certain frame rates will make desired effects easier to pull off. For example, if you record at 60FPS and then slow it down to 30FPS, you will get a much smoother slow-mo, because there are more frames to work with. The higher the frame rate, the more frames there are per second.
- **Opacity:** This measures how transparent an image is. You can transition from one scene to another with a dissolve.

## Editing Audio

It is important when in pre-production (planning) to have a rough idea of what sounds you think will go best with the visuals you have planned. That makes it easier to tie it all together in the end, audio-wise.

Have an idea of where you can get the audio from. The cool thing about audio is it's literally all around us and can be pulled from any source, whether naturally (natural sound), stock audio (pre-recorded audio from an audio database), or audio that you create using your own sound effects.

When creating video, it is important to note that audio is added in post-production (editing). Once you have the audio you need, ensure when in post-production that it is in its own track, that way it runs parallel to whatever visual you've chosen and won't overlap with anything else. No matter the software you choose, the principles of editing are the same: if you learn one you can learn them all. The differences will be in commands and layout.

## Putting it all together

Here are some software tools that are free and available for most computer systems, and some for your phone:

**Davinci Resolve**

Davinci Resolve (<https://www.blackmagicdesign.com/products/davinciresolve/>)

- Great free video editor for advanced editors.
- Powerful enough to handle high resolution video formats like H.264 and RAW.
- Is used by industry professionals as well.
- Has more complex features like facial recognition and effects.
- Tutorials (<https://www.youtube.com/user/CaseyFaris777/featured>)

## Lightworks

Lightworks (<https://www.lwks.com/>)

- Intuitive interface, great for beginners.
- Offers a collection of detailed tutorials.
- Comes with a suite of stock footage and stock music to use.
- Quick export presets optimized for social media.
- Tutorials ([https://www.youtube.com/channel/UCPJ\\_XP8jRi8ug4rsV2CdgEg](https://www.youtube.com/channel/UCPJ_XP8jRi8ug4rsV2CdgEg))

## OpenShot

OpenShot (<https://www.openshot.org/>)

- Easy to use interface that is great for beginners.
- Customizable title-card templates.
- Unlimited layers for video and audio.
- Powerful key-frame animation capabilities for creating animated videos.
- Quick export presets optimized for social media.

## VideoPad

VideoPad (<https://www.nchsoftware.com/videopad/index.html>)

- Simplified layout, one of the best options for beginners.
- Pre-made, customizable transitions.
- Large library of video transitions and visual effects to customize videos.
- Tutorials

## HitFilm Express

HitFilm Express (<https://fxhome.com/product/hitfilm-express>)

- One of the best all-in-one free video editors available.
- An auto-stabilizer to make shaky footage look smooth.
- Audio mixer for fine tuning sound for professional quality output.
- Ability to copy a group of attributes from one clip and apply them directly to another or to a whole project.
- Tutorials

## Shotcut

Shotcut (<https://www.shotcut.org/>)

- An open-source, cross-platform video editor.
- Includes a vast collection of tutorial videos.
- Supports a variety of large formats, including 4K, ProRes, DNxHD, etc.
- Has advanced audio filters like balance, bass and treble, compressor, and more.

## WeVideo

WeVideo (<https://www.wevideo.com/>)

- A cloud-based online video editor that can be accessed from anywhere as long as there is an internet connection.
- Stock library with images, videos, and music.
- Ability to export videos in 4K resolution.
- Easy to create branded templates with a logo, making it great for businesses.
- Unlimited cloud storage.
- The free version contains watermarks.

## Video editing apps for your phone:

Video editing apps on phones by nature will be far more limited than anything that can be used on a computer. Most free versions of these apps come with a watermark. All common mobile devices have a built-in editor. Most social media apps allow you to edit uploaded footage and re-download the edit.

## Dig Deeper

Some ideas for where to find some more stuff for your videos.

### Where to Source Free Stock Footage

While free to use content may be available on these sites, you are responsible for checking the terms of use and / or licensing requirements. You may be required to provide attribution, reference, or other credit in order to satisfy the licensing requirements for the free content. For more information, see the Openly Licensed, Public Domain, and Free to Use section of Chapter 10.

- Mixkit.co (<https://mixkit.co/>)
- Pexels (<https://www.pexels.com/>)
- Pixabay (<https://pixabay.com/>)
- Videvo (<https://www.videvo.net/>)
- Splitshire (<https://www.splitshire.com/category/video/>)
- Videezy (<https://www.videezy.com/>)

### Where to Source Free Music/Sound Effects

While free to use content may be available on these sites, you are responsible for checking the terms of use and / or licensing requirements. You may be required to provide attribution, reference, or other credit in order to satisfy the licensing requirements for the free content. For more information, see the Openly Licensed, Public Domain, and Free to Use section of Chapter 10.

- Mixkit.co (<https://mixkit.co/>)
- Freesound (<https://freesound.org/>) (must create account but free)
- Free music archive (<https://freemusicarchive.org/>)

## An Example

See an example storyboard for a video here. (link will open in a new tab) (<https://drive.google.com/>)

file/d/1bykDVxEoAV6nIFYyz0kFOCCWds5PzjA/view?usp=sharing)

## Attribution & References

Except where otherwise noted, this page is adapted from Video Production In *Liberated Learners* by Terry Greene et al., CC BY-NC 4.0 . / Streamlined content, removed extra activities and some graphics specific to original text.



## 6.3 VIDEO EDITING

---

### A Guide to Video Editing

Thanks to video sharing platforms, it is easier than ever to share videos over the internet. But how do you actually create a video?



A black and white photo shows a laptop set up, with video editing software displayed on the external monitor. **Source:** Image by Amar Preciado, Pexels license.

If you're making a viral 10 second video of your cat, then you can just pick up your phone, hit record, and then upload the video to the site of your choosing. However, you might want to cut together a *few* videos of your cat, and maybe put some explanations between the recorded footage about how your cat is technically able to make those impressive leaps.

This page explores approaches to working with digital video, starting by noting how many of the principles that apply to image and audio editing also apply here. We'll also consider technical aspects like frame rate and resolution.

When making a video, you'll want to plan out your approach. You'll need to create or find different media, and then edit them together in a video editing tool before exporting your finished film to an appropriate filetype and generating subtitles.

Along with all of this, you can review Video Editing 101 video (<https://subjectguides.york.ac.uk/media/video#s-lg-box-wrapper-19165226>) to go over the essentials and the slide decks for two topics, Introduction to filmmaking and Video editing skills, which will take you through the key considerations and tips for choosing and using the right tools.

### Haven't we seen this somewhere before?

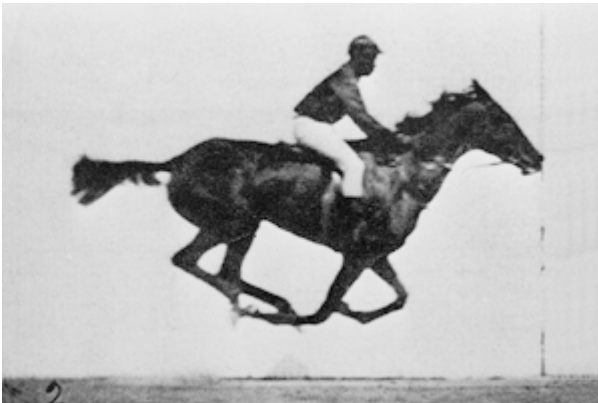
Video may generally be thought of as a series of still images arranged together, one after the other, to give the illusion of movement. This is literally true of something like film where a string of photographic images are displayed in quick succession.

Digital video follows a similar model, but with raster images rather than celluloid. As such, most of the content on our section about images will be very relevant, albeit with the added dimension of time.

Since video is usually accompanied by audio too, and since a lot of the principles of digital audio extend to digital video, we'd also suggest taking a look at the audio page.

## Frame rate

Frame rate is the speed at which one still image replaces another on the screen. The higher the frame rate, the smoother the illusory movement will appear.



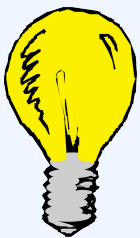
Galloping horse, animated using photos by Eadweard Muybridge. **Source:** Animated gif. Photos taken by Eadweard Muybridge, animated by Waugsberg, PDM

This animated gif is made up of 15 still images (numbered 2-16) animating at 10 frames per second (10 fps or 10 Hz). Most cinema film animates at 24 fps (24 Hz): that's sufficient to trick the eye for most humans, but you'll often see higher frame rates than that.

Most digital video, like film, uses 'progressive scan' ([https://en.wikipedia.org/wiki/Progressive\\_scan](https://en.wikipedia.org/wiki/Progressive_scan)): a posh way of saying that one still image appears after another.

The most common framerate in digital recording is 30fps: **30p** (where the 'p' stands for 'progressive scan'). That's because it's aligned to what American television does (but more of that below). If you're wanting to keep

file sizes down, you should be able to get away with **25p**, or even as low as **10p** if you're just recording a desktop application on a computer screen.

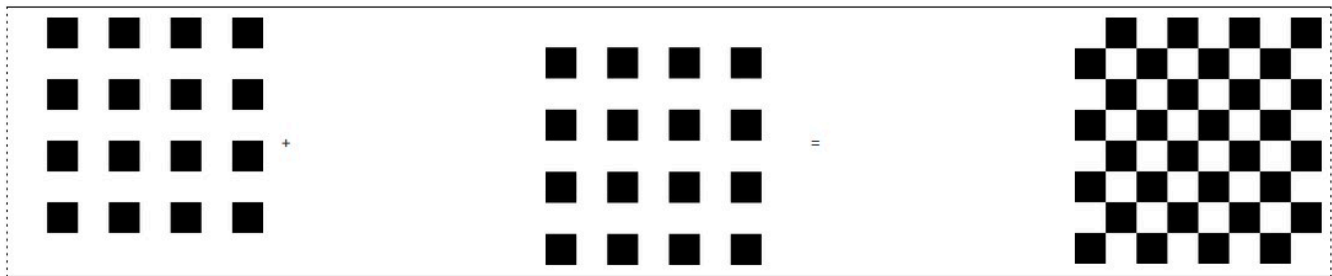


### Tip: Framerates

The lower your framerate, the smaller your video file, but too low and your video will look jerky.

## Interlace

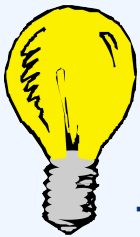
Unlike film, television (even digital television) typically uses a technique called 'interlace' ([https://en.wikipedia.org/wiki/Interlaced\\_video](https://en.wikipedia.org/wiki/Interlaced_video)): the odd-numbered rows of an image get sent first, and then the even-numbered rows (it's a process derived from how cathode ray tubes scanned the image, back when television used cathode ray tubes, but that's not important right now). Take this chess-board for instance:



Odd-numbered rows of chess board squares plus even-numbered rows (in quick succession) gives the illusion of all rows. **Source:** *A practical guide to media editing* by University of York, CC BY-NC-SA 4.0.

If you see an ‘interlace’ setting, that’s what it does: It fillets your frames to half their size and interweaves them. This is great if your image is still but can be messy if things are moving about. If you ever work with television footage you’ll have to worry about something called deinterlacing (<http://www.avwoman.co.uk/aview/ivan/signal/digi6.html>) which can prove to be a bit of a nightmare.

PAL television (the standard in the UK) uses 25fps (25Hz) but those 25 frames are interlaced meaning that you actually get an (albeit half-resolution) image 50 times per second: what’s referred to as **50i** (where the “i” stands for “interlaced”). NTSC television (the American standard) works the same but at 30/50 fps: **60i**. That’s why **30p** is the predominant framerate for digital video.



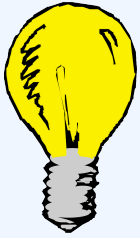
### Tip: Interlacing

Interlacing will reduce your file size by playing tricks with the vertical resolution, but that might create distortions if there’s a lot of movement in your video.

## Groups of pictures

Not every frame of a digital video is necessarily a full image in its own right. The vast majority of digital video formats utilise something called Group of Pictures ([https://en.wikipedia.org/wiki/Group\\_of\\_pictures](https://en.wikipedia.org/wiki/Group_of_pictures)) (GOP) – sometimes referred to as key frame distance. At its simplest, this works rather like JPEG compression, but in a third dimension: one frame of video (a “key frame” or “I-frame”) is an actual image, and the next few frames are rendered from that reference image using maths. The larger the GOP, the greater the risk of distortion artifacts. This is why flocks of birds tend to look rubbish on digital television, and why it

takes a while for the picture to appear when you change channels (the television needs to wait for the next I-frame before it can show anything). A GOP that's twice the framerate (in other words, one I-frame every two seconds) tends to be standard. So if your framerate is 30fps, you'd want a key frame every 60 frames. But that's just a guide, and if the content of your frame doesn't change that much, you can afford a much longer gap.



### Tip: Key Frame Distance

The larger your GOP / key frame distance, the smaller your video file, but you'll get more distortion the bigger you go, and you'll also not be able to fast-forward as precisely.

## Resolution and aspect ratio

As with digital images, size matters. But video has a very different history to that of the still image: a history wrapped up with that of television broadcasting. While a still image can be pretty much any size you like (within reason), there are certain standards to be aware of in video, and a whole new set of terminology for describing them.

Then there's the fact that video resolution is usually expressed solely in terms of its height...

YouTube supports a range of standard sizes of video: **240p**, **360p**, **480p** (equivalent to American standard definition TV), **720p**, **1080p** (equivalent to UK high definition TV), **1440p** (also known as 2k), **2160p** (4K ultra high definition – digital cinema standard), and **4320p** (8k) — the 'p' refers to the 'progressive scan' method we mentioned above. In each case the value is the height of the picture in pixels.

Most monitors on campus (at the time of writing, at least) are 1920x1080px, which is also the most common monitor size more generally (again at the time of writing), so making videos at a higher resolution than 1080p is a waste of time unless you're going for a theatrical release. But even 1080p will probably be excessive. A lot depends on the content of the video and what equipment your audience might be using to view it. After all, the higher the resolution the larger the file — some devices might struggle with high definition video content, and mobile devices are potentially going to be wasting their data on whatever you're sharing.

That said, YouTube and Google let you choose a lower playback resolution than the original file, so the more prestigious your video, the higher you'll want to set the resolution for the file you're uploading. Still, the time's you'll need to go beyond 1080p will likely be few and far between.

## So what about width? — aspect ratios

It's complicated, and tied up with ratios... **4:3** (four units wide by three units tall) is the old television ratio but has now largely fallen out of use, having been replaced by **16:9** which is the standard widescreen TV ratio. 16:9 is also the most common ratio for a computer monitor, as well as being the ratio favoured by YouTube.

But those are just the two most common ratios, and the history of film is littered with others. The width of a 4:3 video should be 1.33...× its height, while for 16:9 it should be 1.77...× its height:

**4:3**

**16:9**

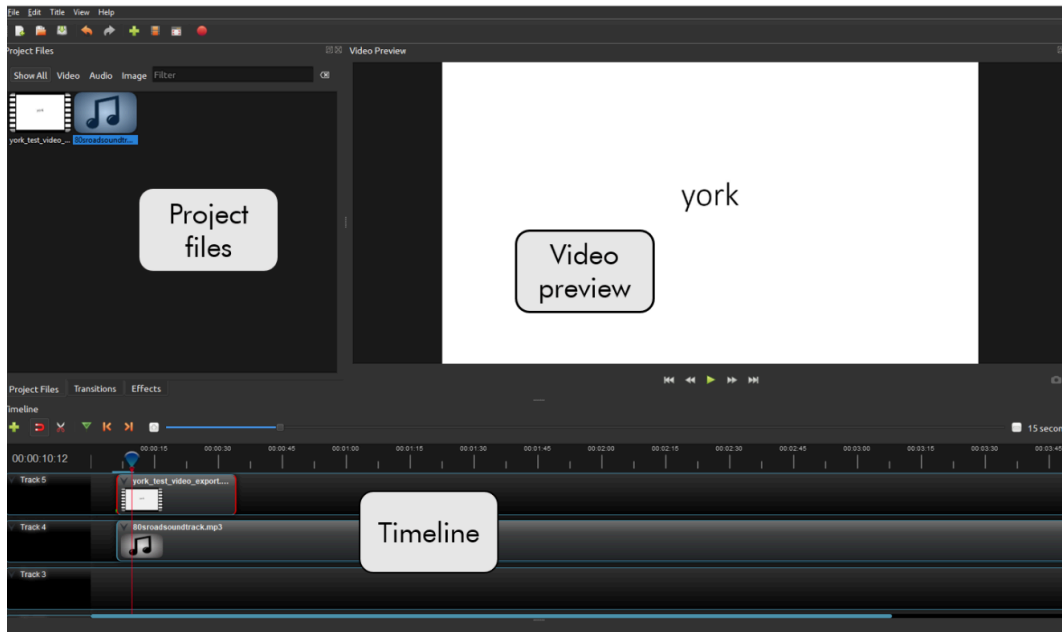
Standard definition (SD) television has a height of **576** pixels in Europe (PAL) or **480** pixels in America (NTSC). The number of pixels making up the width is not the same as the number of pixels you see on your screen: on Freeview (the UK's main SD TV platform) it can be anything from 544px to 720px which then gets stretched to 768px for 4:3 and 1024px for 16:9 (widescreen).

High definition (HD) TV comes in two flavours: **720px** height, or **1080px** height (sometimes called FHD). Widths of 960 and 1440 have been common for 1080 broadcasts, though a full-width 1920px is increasingly seen as standard.

Then there's Ultra High Definition (UHD), also known as 4K (confusingly a reference to its width!). 4K is **2160px** high (twice that of HD). It's 3840px wide (a natural 16:9), or 4096px wide in cinemas (hence the 4K). Videos of this size require a lot of processing so can be difficult to run on older devices. But a modern phone may well be able to record at that scale, so pay attention to your settings.

## A typical video editor

Most video editing software follows the same basic layout conventions, though some programs will have more options and control panels than others. Here's a typical example:



OpenShot's default layout is fairly typical of most video editors, with a screen divided into sections showing the main video, a section for assets/project files, and a section for timeline/editing.

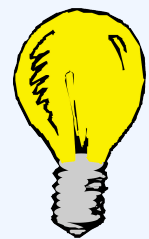
**Source:** © OpenShot, captured for *A practical guide to media editing* by University of York, CC BY-NC-SA 4.0.

As well as the main features outlined below, there will be some options (either at the top or in a File menu) for modifying your project's settings and for exporting your video into a final format. There also tends to be a range of mysterious buttons and options — hover over these to see a tooltip about what they do, or open a test project and try them out!

Most video editing tools will have built-in help from a menu, and may also have a walkthrough when you first open the application. Searching online for the name of the tool and what you're trying to do can also be a good way to find help, particularly as there may be multiple methods of achieving the same result.

## Tip: Confirming Settings

You may be asked to confirm the settings of your new *project* when you first open your video editor. You can generally go with the defaults, but you might want to modify certain settings if you've got a particular end in mind (for instance, if you're going to need a higher resolution).



Let's take a closer look at those typical main areas of the workspace:

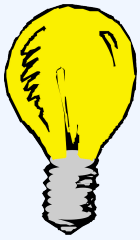
## Project files (assets)

To edit together a video, you need 'assets' — the media files you will be using in your video. Your assets might

just consist of a single video file you've recorded. But you could also import multiple video files, audio files or image files. It's generally a good ideal to store all of your assets in a single folder and to give them sensible names.

If your assets are in common filetypes you should be able to import them into a video editing tool. There's usually a section for assets somewhere to the left of the screen. Be sure to check that any images and video are of an appropriate resolution for the video you're wanting to create (about the same as your frame size or bigger).

Once you've imported your assets you can drag them onto the **timeline** to add them to the video you're creating.



### Tip: Timeline

Anything you do on the timeline is only happening on the timeline — the underlying assets are unaffected. If you chop the end off of a video clip in the timeline, the end will still be there in the original asset.

## Timeline

The **timeline** is the main part of your workspace: it's where you compile and arrange the various parts of your video.

You can add an asset to your timeline by just dragging it into place. Often added items will 'jump' to the end of the timeline, but you can then reposition them to start at a specific **timecode** along your timeline. An item on a timeline is generally known as a **clip**. How fine you can position a clip will depend upon your framerate, so typically it will be to something like a 25th or a 30th of a second. Clips may 'snap' to other clips, but you can generally control this behaviour in the settings or perhaps avoid it by zooming further into your timeline.

## Tracks

The timeline consists of multiple **tracks** which follow a **layer** principle whereby video (and image) items on tracks at the top of the timeline will cover up items on tracks lower down — you can have multiple tracks running at the same time, but only one of them can be visible on the screen.

You can add more than one item to the same track, but be careful of overlapping them in the same track — it might cause strange things to happen.

If you add an image to the timeline it will be converted into a video clip with default play length

(sometimes ten seconds) which you can then modify (usually from a right-click context menu or by dragging the right-hand edge of the clip to the duration you want).

Audio may be separated from a video file and run as its own track. This can give you a bit more control over the sound of your video. Audio tracks can often be edited using the sort of techniques we looked at in the audio section, and a lot of the conventions of multitrack editing apply here too.

## Video preview

The **preview** area is where you get to see how your video is actually looking at a given point along the timeline. There will usually be a traditional set of video playback controls here, but you can also use the **playhead** marker on the timeline to adjust the playback position.

## Editing video

Having got your assets into your timeline, you'll probably want to do something with them.

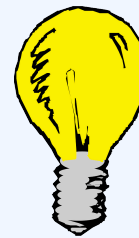
Let's take a look at some basics:

### Trimming and splitting

Just as with cutting and pasting in text, the language we use around video editing dates back to analogue days when film would literally be **trimmed** or **clipped** (with scissors) to a certain length (measured in feet, hence **footage**).

Just as with analogue film, the digital clips you add to your timeline might be too long, or they might need cutting into pieces and rearranging. Typically you'll want to trim the start and end to remove unnecessary footage. To trim, you usually hover over one end of the clip until your cursor changes, then click and drag the cursor inwards to remove the start or end.

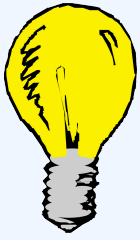
To split a clip, you typically need to use the playhead — the marker on the timeline that shows the current point that is being played. Move this to the point you want to split the clip (using the video preview to help you know where you're at in the video), then there should be a scissors icon or 'Split' button you can use to split the clip at that point. You can then move around the separated clips (including onto separate tracks) or delete unnecessary parts.



#### Tip: Zoom

Use the Zoom controls on the timeline if you need more precise trimming.





### Tip: Undo

Undo (CTRL + Z) will be your friend. You'll probably have to use it quite a lot as you get used to the drag and drop interface and ways of trimming and splitting clips.

## Transitions and effects

A **transition** is a visual effect that joins together two clips — for example a dissolve ([https://en.wikipedia.org/wiki/Dissolve\\_\(filmmaking\)](https://en.wikipedia.org/wiki/Dissolve_(filmmaking))) or a wipe ([https://en.wikipedia.org/wiki/Wipe\\_\(transition\)](https://en.wikipedia.org/wiki/Wipe_(transition))).

A dissolve transition mixes between two clips.

You may want to add transitions between different clips, or between images and clips. You can even add special **effects** over a clip. Most video editors will have a selection of built-in transitions and effects, but you'll probably want to use these sparingly unless you're wanting something that looks like a cheap 1980s pop video — you don't want to distract from your message and content.

To use a transition or effect, drag it onto the timeline over the relevant clip. You can then usually modify the properties of that effect to suit exactly what it is you want it to do.

## Adding text

You could import an image or video with text on it, but most video editors also have built-in options for adding text. Text can be added over clips or over a blank background, for example for credits (and if you've used any third-party materials then you'll probably want to provide some credits). Locate the text options in your tool then drag onto the timeline. You may edit the text in the video preview pane or when you insert it. You might need to use different tracks to get the text to appear exactly as you want, such as an overlay.

Be careful about how much text you add, and make sure you use an appropriately sized font so your audience can read it.

## Saving, exporting, and sharing your video

Video editing requires a lot of your computer. Video files can be very big, so working with a lot of media at high resolutions will be a big drain on your computer's memory and resources. Unless you have a particularly flashy computer, be prepared for video editing to take time.

Because video editing is so resource intensive, there's a higher than average likelihood of your program crashing, so we'd suggest saving your project regularly. Whenever you're happy with an edit you've made, hit

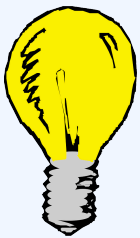
the save button, and if you've made a significant change you might even want to save as a new project file, just so you can go back to the earlier state of things if you change your mind.

## Exporting your video

Once you've edited your video together, it will need to be exported from the video editing tool into a single video file. There will be an **Export** (or **Share**) option, probably in the File menu or as its own button. You'll be faced with a number of settings determining the kind of file you want to export, as well as its name and where you want to save it to.

Many video editors will give guidance around what each format is best for what use, and there may be some ready-made profiles you can use. For general use, **MPEG-4 / H.264 / .mp4** are typically what you might want for a video you want to share or upload to a website. There will also be different quality options, and these will affect file size: higher quality videos can be very large files, so you might need to compromise quality in order to have a video that isn't taking up obscene amounts of disc space, especially if you need to upload it to the internet. Take a look at our technical advice at the top of the page for a look at the various settings you're likely to encounter.

Once you've chosen your format, there'll be a button to select to start your export. It may take quite a while, depending on your video length and the encoding quality — the software will have to go through your entire video to create the file, so exporting might even take as long as if you were playing back your video from beginning to end; it may even take a lot longer!



### Tip: Exporting

Exporting a video might require a lot of your computer, so you're probably best leaving it alone for a while rather than trying to do something else on it at the same time. Go and get a cuppa and a good book.

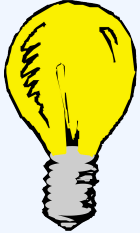
Take a look at your exported video when it's finished exporting. You might find that you need to try some different export options. I'll put the kettle on, shall I?

## Uploading and sharing a video

If you're wanting to share your video on the internet in some way, you're going to have to upload it. As we've said a few times now, videos are usually pretty big files, so uploading is going to take some time. It's going to

be a lot quicker on the campus network where we have much higher upload speeds than you're likely to get on a home connection.

Given that uploading can be a slow process, this is another reason to ensure that you're being as efficient as your use-case demands when exporting your video.



### Tip: Uploading

Be prepared to have to step away from the computer again while your video uploads. If you're uploading from home, you're probably going to need another book!

Be sure to check the online copy of your video once it's uploaded. It may take a while for whoever is hosting the video to process it before you can watch it. So be prepared to have to do *even more* waiting...

Videos uploaded to your **Google Drive**, or to a **YouTube** account will each have specific sharing permissions, that you can customize.

## Subtitling

Subtitles are blocks of transcribed text that appear at the bottom of a video. Whether you're deaf, struggling with an accent, watching the video in a distracting environment, or just don't have the sound on, subtitles allow you to read the speech and sound of the video.

## Containers and codecs

Video files ([https://en.wikipedia.org/wiki/Video\\_file\\_format](https://en.wikipedia.org/wiki/Video_file_format)) contain both video and audio data, so a lot of video filetypes are quite relaxed about how that data is encoded so long as they're wrapped up in a way that's recognisable: they're basically 'containers ([https://en.wikipedia.org/wiki/Digital\\_container\\_format](https://en.wikipedia.org/wiki/Digital_container_format))' for different types of encoded video and audio which are then decoded by a coder-decoder ('codec' (<https://en.wikipedia.org/wiki/Codec>')) program.

Encoding digital videos can therefore be a bit confusing: there are a lot of options, and a lot of codecs to choose from (not all of which are widely installed on people's computers). So what video format should you choose?

## H.264

By far the most common video format, H.264 (also known as Advanced Video Coding (AVC)) uses lossy compression that works in a similar sort of way to that of JPEGs and MP3s. It's used in Blu-Ray discs, on most streaming platforms, and in an increasing amount of digital television broadcasting. It's mostly used with the **.mp4** container.

## Other formats

There are a range of other formats and codecs to choose from, some of which have more adoption than others. Most formats can be played using VLC Media Player.

## Sourcing video

Always bear in mind that published video is always subject to copyright law, so you can't just use any sound you want.

### Consider: Checking guidelines for videos

When creating videos for a particular purpose, you will often have guidelines or advice you will need to follow. Check this from the start, so you know if it affects your planning, filming, or editing. If you're creating a video for an assessment, check how long it needs to be and how you need to submit it.

1. What guidelines will you need to follow for video projects at school?
2. What guidelines might be applicable if you're creating a video for work purposes?

## Attribution & References

Except where otherwise noted, this page was adapted from "Video" In *A practical guide to media editing* by

University of York, CC BY-NC-SA 4.0. / Adaptations: removed links to University of York specific resources, cleaned up formatting, streamlined.

## 6.4 EXPLORE, PRACTICE AND APPLY

---

### Overview: Explore, Practice and Apply

Activities found on this page are designed to provide opportunities to explore, practice, and apply concepts presented in chapter 6.

#### Explore

##### Explore Activity 1

Review the list of of weblinks found in this section. These tools assist locating stock footage. Choose any of the three links to explore further. Select a topic. Use this topic to locate stock footage (video) that you would include in a multimedia presentation on the topic selected. Note: While free to use content may be available on these sites, you are responsible for checking the terms of use and / or licensing requirements. You may be required to provide attribution, reference, or other credit in order to satisfy the licensing requirements for the free content. For more information, see the Openly Licensed, Public Domain, and Free to Use section of Chapter 10.

- Mixkit.co (<https://mixkit.co/>)
- Pexels (<https://www.pexels.com/>)
- Pixabay (<https://pixabay.com/>)
- Videovo (<https://www.videvo.net/>)
- Splitshire (<https://www.splitshire.com/category/video/>)
- Videezy (<https://www.videezy.com/>)
- Coverr.co (<https://coverr.co/stock-video-footage>)

## Explore Activity 2

Explore video communication breakdown. Pick any video you like (could be a YouTube ad, tutorial, or even a fun viral clip). Write a few sentences about how the video uses visuals and sounds to get its message across. Is it engaging? How do the visuals and sounds help keep you interested?

## Explore Activity 3

Explore video production stages. Ever wondered what goes into making a video? Let's break it down. Make a simple flowchart of the video production process. From coming up with an idea to editing the footage, write down the major steps involved

## Practice

### Practice Activity 1

Locate or obtain a video clip. Using a video editing program available conduct the following steps:

- Explore how to import the video clip
- Import the video clip
- Select a portion of the video to trim and trim it
- Add background music to the video clip
- Export the newly edited video clip

Remember, you may need to provide credit or attribution for the video clip you use. For more information, see the Openly Licensed, Public Domain, and Free to Use section of Chapter 10.

### Practice Activity 2

Tech tools roundup. Check out some tools you can use for video production—there are tons out

there! Pick 3 tools for making or editing videos (like iMovie, Adobe Premiere, or Canva), and list what makes them awesome and what they're best used for.

## Apply

### Apply Activity 1

Create a short video. Time to try your hand at making a video! Pick any topic that interests you. Using any video tool (there are lots of free ones), make a 30-60 second video. Keep it simple but focus on making the visuals and audio work well together. When you're done, think about what went well and what could've been better.

### Apply Activity 2

Working in a group. Create a short promotional video for a fictional product or event. You can create this using your phone as well as locating pre-existing media available. Document the following steps:

#### **Brainstorming and Planning:**

- Brainstorms ideas for a fictional product or event to promote.
- Create an outline the key parts of the video

#### **Scriptwriting:**

- Compose a brief script for the promotional video, including dialogue, voiceovers, and key actions.

#### **Filming:**

- Record video footage or locate footage to edit

#### **Editing:**



- Import the recorded footage into the video editing software
- Arrange the clips on the timeline to create a coherent sequence.
- Add transitions, text overlays, and effects as needed
- Incorporate background music and sound effects to enhance the video.

Present your production to your class or another group in the class for feedback or submit for evaluation.

## Attribution & References

Except where otherwise noted, this page is created by Marie Rutherford, CC BY-NC 4.0

# 6.5 KEY CHAPTER TERMS

---

## Chapter 6 Terms

### Aspect ratio:

The proportional relationship between the width of a video image compared to its height (Homes, 2023, para. 1).

### Assets:

Media files to be used in a video.

### Cutaway:

An editing term for a cut that interrupts the flow of a sequence with another shot that is related to it.

### Dissolve:

An editing term for a transition where the end of one shot overlaps with the beginning of the next, creating a gradual fade.

### Exposure:

How bright or dark footage is.

### Fade:

An editing term for a transition where there is a gradual brightening or gradual change into a color at either the beginning or ending of a shot.

### Framing:

Manipulation of a shot in order to convey a vision to the audience.

### Interlace:

A technique television uses to display its image where odd numbers of a row get sent first, and then even numbers.

### Opacity:

How transparent an image is.

### Resolution:

The number of pixels contained in each frame (Leonard & Kurniawan, n.d., para. 1)

### Screen casting:

A video format where the filmmaker records their computer screen and narrates over it.

### Split edit:

An editing term for when the visual and audio of a scene cut at different times during the transition from one shot to another.

### Timeline:

Where parts of a video are compiled and arranged.

### Tracks:

Layers in the timeline where media can be placed.

### Transitions:

A visual effect that joins together two clips.

## Attribution & References

Except where otherwise noted, Terms and definitions are adapted from the pages and original sources cited within chapter 6, CC BY-NC 4.0.

### References for terms from outside sources

Holmes, T. (2023, January 4). What is Aspect Ratio? <https://wistia.com/learn/production/what-is-aspect-ratio>

Leonard, M., & Kurniawan, M. (n.d). A beginner's guide to video resolution. <https://www.adobe.com/ca/creativecloud/video/discover/video-resolution.html>

Transitions