

CAREERS THROUGH MATHS: VIDEO EDITOR



JOB DESCRIPTION

A Video Editor is a creative professional responsible for assembling recorded raw material into a finished, coherent product suitable for broadcasting across various platforms. Their daily work involves collaborating with directors and producers to realise a creative vision, which requires a meticulous and technically proficient approach. A typical day might involve editing a promotional video for a British high-street brand, a documentary for the BBC, or social media content for a UK-based influencer or company. The work environment is often a fast-paced edit suite, either within a post-production house like The Mill or Framestore in London, or remotely as a freelancer for clients across the UK.

Key duties include cutting and sequencing footage, adding music, sound effects, and graphics, and ensuring the colour and audio levels are consistent and broadcast-quality. This is far more than just dragging and dropping clips; it requires a deep understanding of narrative pacing, visual storytelling, and technical specifications. For instance, an editor working on a series for Channel 4 must adhere to strict delivery requirements, including specific file formats, bitrates, and durations, all of which are governed by mathematical principles.

Mathematics is central to the role, underpinning nearly every technical and creative decision. From calculating the precise timing of cuts to match a musical beat, to understanding the complex algorithms behind video compression and colour grading, a Video Editor uses maths to solve practical problems. Whether it's ensuring a 30-second advertisement fits its exact time slot on ITV or using data

analytics to determine the most engaging segment of a YouTube video for a UK client, mathematical thinking is indispensable for precision, efficiency, and innovation in the edit suite.

HOW MATHEMATICS IS USED

- **Temporal Mathematics and Rhythm:** The foundation of editing is timing. Editors use fractions, ratios, and arithmetic to calculate the exact duration of shots and sequences. A key task is beat-matching, where an editor calculates the Beats Per Minute (BPM) of a track and determines the frame-accurate cut points. For example, in a 120 BPM track, a beat occurs every 0.5 seconds. In a UK broadcast standard of 25 frames per second (fps), this translates to a cut every 12.5 frames. Editors also work with timecode (hours:minutes:seconds:frames) constantly, performing calculations to sync multi-camera footage from a live event at the O2 Arena or to ensure a programme's runtime precisely matches the BBC's scheduling requirements, down to the exact frame.
- **Spatial Mathematics and Geometry:** This involves the composition and movement of visual elements within the frame. Editors use coordinate geometry to position text, graphics, and overlays accurately. When creating a picture-in-picture effect for a Sky Sports analysis segment, the editor must calculate the X and Y coordinates to place the inset video without obscuring crucial action. Aspect ratio calculations are also vital; conforming footage from a widescreen 16:9 ratio to a vertical 9:16 ratio for TikTok requires mathematical scaling and recomposition to avoid distorting the key visual elements.
- **Colour Science and Algebra:** Colour grading is a mathematical process. Editors work in colour spaces like Rec. 709 (standard for HD) and Rec. 2020 (for UHD) and manipulate RGB (Red, Green, Blue) values using algebraic formulas. Each colour is represented by numerical values, typically from 0-255 or 0-1023. To correct a colour cast, an editor might add or subtract values from specific colour channels. More advanced operations involve using curves and graphs to adjust luminance and contrast, which are essentially visual representations of algebraic functions that transform the image data.

Data Rates and File Management: *Video files are large, and managing them requires an understanding of data maths. An editor must calculate the total storage*

needed for a project based on the data rate of the footage (e.g., ProRes 422 HQ is approximately 220 Mbps). For a one-hour project, this requires calculating: $220 \text{ Mbps} / 8 = 27.5 \text{ MB/s}$; $27.5 \text{ MB/s} \times 3600 \text{ seconds} = 99,000 \text{ MB}$ or ~99 GB per hour. They also use bitrate calculations for export, balancing file size with quality for different delivery platforms, such as a high-bitrate file for Netflix and a compressed, lower-bitrate file for a corporate client's website.

- **Statistical and Analytical Methods:** In the modern digital landscape, editors often use performance data to inform their work. For a UK marketing agency, an editor might analyse the audience retention graph from a previous YouTube campaign. By identifying the exact point where 30% of viewers dropped off, they can use this statistical insight to restructure the edit, placing key messages earlier or changing the pacing to improve engagement for the next video, applying a data-driven approach to creative storytelling.

KEY SKILLS & TOOLS

Skill/Tool	Application
Non-Linear Editing (NLE) Software (e.g., Adobe Premiere Pro, DaVinci Resolve)	Used for the entire editing workflow. Editors use the timeline, a visual representation of time, to perform frame-accurate edits. They apply mathematical effects like time remapping (e.g., creating a 50% slow-motion effect by calculating new frame intervals) and use the essential tools for calculating aspect ratios and scaling footage for different UK broadcasters.
Colour Grading Software (e.g., DaVinci Resolve)	This software provides deep mathematical control over colour. Editors use RGB parade scopes and waveform monitors, which are graphical displays of luminance and colour values, to make precise adjustments using curves and colour wheels, ensuring consistency across a series for a streamer like Amazon Prime Video.
Data Management & Analytics Platforms (e.g., Google Analytics, YouTube Studio)	Editors process and analyse performance data from published videos. They interpret metrics like average view percentage and audience retention graphs to perform A/B testing on thumbnails or intro sequences, using statistical analysis to determine what resonates best with a UK audience.

Scripting & Automation (e.g., Python, Adobe ExtendScript)	Used for automating repetitive, mathematically-intensive tasks. A freelancer might write a Python script to batch-rename thousands of video clips based on timecode metadata, or use ExtendScript to automatically generate multiple versions of an advert for different regional ITV broadcasts, calculating and adjusting durations and graphics for each.
Audio Editing Software (e.g., Adobe Audition, Fairlight)	Used for sound design and mixing. Editors work with decibel (dB) levels, a logarithmic unit, to balance dialogue, music, and sound effects. They perform mathematical normalisation to bring audio to a consistent level, such as the -23 LUFS standard required for UK broadcast television.
Client & Collaboration Platforms (e.g., Frame.io, Wipster)	Editors present their work and receive timecode-specific feedback from clients and directors. They communicate the mathematical rationale behind an edit, such as explaining why a cut was made on a specific frame to solve a pacing issue, ensuring clear and precise collaboration with UK-based production teams.
Quality Control (QC) Software (e.g., Telestream Switch, Vantage)	Before delivery, videos undergo automated QC checks. This software uses mathematical algorithms to scan the final file for technical errors like black frames, audio dropouts, or colour space violations, ensuring the product meets the stringent technical delivery specifications of UK broadcasters like the BBC or Channel 4.

Typical Pathway: A strong foundation in Maths and a creative subject like Media Studies or Art at GCSE and A-Level is highly beneficial. Many Video Editors complete a university degree, such as a BA (Hons) in Film and Television Production from institutions like Bournemouth University, the University of Westminster, or the National Film and Television School (NFTS). Others may take a more vocational route through an apprenticeship in Creative Digital Media or a diploma from a specialist college like MetFilm School. Entry-level positions include Runner or Assistant Editor at a post-production house, where one learns the technical and logistical ropes. Career progression leads to Editor, Senior Editor, and ultimately, Head of Post-Production. Key UK qualifications include certified training in software like Avid Media Composer or DaVinci Resolve, and ongoing professional development is offered by organisations like the British Film Institute (BFI) and ScreenSkills.

Industry Demand: The UK's creative industries are a major economic driver, with the film and TV sector alone contributing billions to the economy. Demand for Video

Editors remains strong, driven by the boom in streaming services (Netflix, Disney+ producing content in the UK), corporate video marketing, and social media. According to ScreenSkills, there is a consistent need for skilled post-production talent, particularly those who are adept with the latest digital tools and data-driven content strategies. The ability to work with high-resolution formats (4K, 8K) and immersive technologies (VR/AR) also presents growing opportunities.

Real-World Impact: Video Editors are at the heart of the UK's world-renowned creative sector. They bring to life the content that entertains and informs millions, from BAFTA-winning dramas like *The Crown* to groundbreaking natural history series from the BBC's Natural History Unit. Their work drives marketing campaigns for British brands like Burberry and Innocent Drinks, contributing directly to the UK economy. By ensuring technical excellence and crafting compelling narratives, Video Editors play a crucial role in maintaining the UK's global reputation for high-quality media production and cultural output.