

Career and Technical Education: Software Options

A CTE space needs to prepare students for an uncertain future with jobs that have not even been conceived of yet. A diverse array of powerful software options is crucial to developing the 21st century skills that can be applied to a variety of career possibilities.

2D Design

Overview: This category includes image creation and editing apps that work with both vector and bitmap artwork, as well as software for page layout design and more. In some cases, applications in this category have limited 3D animation and modeling capabilities as well.

Paid

- Adobe Illustrator CC (vector-based)
- Adobe Photoshop CC (pixel-based bitmap)
- Adobe InDesign CC (page layout)
- Affinity Designer
- Corel Paintshop Pro
- Sketch (vector-based alternative to Illustrator)
- QuarkXpress (page layout)
- Clip Studio Paint (pixel and vector)

Free

- GIMP
- Pixlr
- Sumo Paint (free or \$/month)
- Inkscape (vector)
- BoxSVG (vector)

3D Design

Overview: Most professional or “prosumer” grade 3D software packages contain integrated modules for modeling, texture mapping and animation at a minimum. They may also include additional functionality in areas such as particle systems, rendering engines, fabric, environments and much more. There are many third-party providers such as Red Giant and Video Copilot supplying these add-ons with costs and compatibility that can vary greatly.

Animation

Paid

- Autodesk Maya
- Autodesk 3D Studio Max
- Maxon Cinema 4D (standalone or bundled with Adobe After Effects CC)
- Autodesk MotionBuilder

Free

- Blender
- Clara.io
- Houdini (Apprentice version free with limitations)
- Daz 3D Studio

Modeling and Texture Mapping (for 3D printing, Computer Numerical Control (CNC) machines, laser cutters)

Paid

- Autodesk Maya
- Autodesk 3D Studio Max
- Maxon Cinema 4D (bundled free with Adobe After Effects)
- Pixologic ZBrush
- Autodesk Mudbox (digital sculpting and painting)
- Rhino 3D

Free

- Blender
- Sketchup (free to \$299/year)
- Daz 3D Studio

2D Motion Graphics

• Overview: This Visual Effects (VFX) category is commonly seen in openers for TV, film and presentation video projects. It can sometimes incorporate 3D or faux 3D elements as well. Resulting files are commonly incorporated as part of larger video or film projects.

Paid

- Adobe After Effects CC (vector-based)
- Maxon's Cinema 4D (standalone app or with Adobe After Effects)
- SideFX Houdini (commercial and free Apprentice versions)
- Adobe Animate CC (pixel-based bitmap)
- ToonBoom Harmony (2D animation and storyboarding)

Free

- Black Magic Design's Fusion
- Blender
- Pencil 2D

CAD/CAM

Overview: Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) is a broad category encompassing product design, architecture, interior design and other disciplines. These apps can often export to standard Stereolithography File Format (STL) for 3D printing.

Paid

- Autodesk AutoCAD
- Autodesk Inventor
- Solidworks by Dassault Systèmes
- Catia Dassault Systèmes
- Creo
- Fusion 360
- Rhino

Free

- FreeCAD
- TinkerCAD
- BlocksCAD
- OpenSCAD

Photography

Overview: Photo editing software allows users to optimize and work with a wide range of image files and formats. These apps usually include a number of built-in tools for creative image manipulation and compositing.

Paid

- Adobe Lightroom CC
- Adobe Photoshop CC
- Luminar
- DXO Photo Lab (includes former Nik Collection)
- Affinity Photo
- ON1 Photo Raw
- Capture One Pro

Free

- PhotoLemur (free with watermark or paid)
- Raw Therapee
- Dark Table

Sound Editing

Overview: Software apps in this category are capable of both editing and optimizing audio files. This includes voiceover narration, music and sound effects. The end result is sometimes a pure audio file used in podcasts or book narration, but equally often are composited into video or film.

Paid

- Adobe Audition CC
- Steinberg CuBase Pro
- Reaper
- Avid Pro Tools

Free

- Audacity

Video Editing

• Overview: Software apps in this category allow users to edit various kinds of video and still imagery together with sound files in order to create a variety of end products. These include everything from YouTube Vlogs to broadcast commercials to feature-length films.

Paid

- Adobe Premiere CC
- Adobe Premiere Rush
- Final Cut Pro X
- Vegas Pro 15
- Avid Media Composer
- Corel Video Studio Ultimate

Free

- DaVinci Resolve
- Lightworks (free and paid versions)
- Shotcut
- Movie Maker
- iMovie (Mac)

UI/UX Design

• Overview: User Interface (UI) and User Experience (UX) design have become indispensable elements in virtually every type of web or software application design. Apps in this category allow users to create and test designs or workflows before committing to final development.

Paid

- Adobe XD CC
- Omnigraffle (Mac only)
- Balsamiq (free and paid versions)
- Wireframe.cc
- Mockplus
- Mockplus iDoc (free and paid versions)

Free

- Balsamiq (free and paid versions)
- Moqups (free and paid versions)

Apparel and Textile Design

Overview: This category encompasses a number of different—yet related needs and workflows. It ranges from mood boards and rough sketches to patterns and pattern grading used in actual garment and accessories manufacture.

Paid

- Digital Fashion Pro
- Optitex (pattern making)
- Browzwear (3D fashion design)
- Clo 3D (garment design and pattern-making)

- PatternSmith by Autometrix
- Cameo V6 by Wild Ginger Software
- Tailornova
- Adobe Illustrator
- Autodesk Sketchbook Pro

Code Editors and IDEs

Overview: Writing and editing front-end code such as HTML and CSS typically requires a far simpler app than other types which need to be compiled before they can be used (C++ and C#). The latter type is more often some kind of Integrated Development Environment (IDE) whereas the former are more or less specialized text editors.

Paid

- Microsoft Visual Studio
- Sublime Text (\$70)
- Coda (Mac only)
- Adobe Dreamweaver (WYSIWYG editor)

Free

- Text Wrangler (Mac)
- Adobe Brackets
- Notepad (comes with Windows OS)
- TextEdit (comes with Mac OS)
- Atom (from GitHub)