Camcorder Parts:
Main Buttons:
- Select Camera or VCR
- Record - Camera
- Play / Rew / Pause / Stop / FF / Rec - VCR buttons

Camera:
Lens:
- Focus:
  - Auto
  - Manual (Button +):
    - Ring
    - Buttons
    - Lock

Focal Length:
- Wide Angle (short focal length)
- Normal (standard focal length)
- Telephoto (long focal length)
- Zoom (variable focal lengths)
- Digital Zoom (non-optical – by enlarging a small area of pixels on the CCD – (usually activated in menu)

Iris / Aperture – (an adjustable opening in a lens that lets in light through the lens used to control exposure):
- Speed of lens:
  - Fast – large aperture (hole) lets in more light (f/1.4) faster/decreases depth of field
  - Slow – small aperture lets in less light (f/64) slower/increases depth of field

Exposure:
- Auto
- Manual:
  - F-stops (on the lens)
  - Button or in the menu

Shutter Speed – usually changed in menu:
- Normal – 60fps (there are 30 frames per second is US video)
- High speed reduces blur of moving objects (needs more light)
- Slow shutter speeds (digital) increases blur of movement

Program Mode or Program AE (Auto Exposure) is in menu
- Usually combines Shutter speed and iris
- In some camcorders it is the only way to control:
  - Shutter Speed
  - Iris

Imaging Device:
- CCD – charged coupled device or chip – (A small solid-state silicon chip that contains thousands or millions (megapixel) of light sensitive pixels that translate the light energy into a corresponding electrical charge that can be translated into an image)
- 3 Chip

White Balance:
- Kelvin Scale:
  - 3200 K - Tungsten light – orange
  - 4800 K (vary greatly) - Florescent light – greenish
  - 5600 K – Daylight /overcast – blue/white
- Auto
- Manual

Monitor / viewfinder

Power Source:
- AC – Adapter to plug camera into outlet/charge battery
- DC – Battery:
  - NiCad – (old) Memory Lock - drain battery completely before recharging.
Lithium-ion – It is recommended that you drain battery at least once a year to keep it functioning correctly.

Other

Recording/Playback Device – Camera / VCR (VTR):

Formats:

- NTSC – *(National Television System Committee)* US standard – 30i fps / (60 fields interlaced) / 4:3 aspect ratio
- Analog:
  - VHS / SVHS / VHS-C
  - 8mm / High-8
  - Others
- Digital:
  - miniDV
  - Digital 8
  - DVD
  - Flash Drive / Card
  - Others (dvCam, DVCPro, DigiBeta, etc.)
- Pal – *(Phase Alternating Line)* European standard - 25fps (50 fields) / 4:3 aspect ratio
- HDTV 16:9 aspect ratio (US or European frame rates)
  - 720p.
  - 1080i or 1080p

24 p – 24 fps progressive scanned video used to translate to film (either aspect ratio)

Features Buttons:
- Steady Shot
- Night Shot
- Menu
- Display and other

Tripod Mount Nut

In and Outs:
- AV – audio / video
- Firewire
- USB (2) – often just for stills (on camcorders with memory stick camera function).

Types of Digital Cameras / Camcorders:

- Consumer (Digital 8, miniDV, DVD):
  - One chip CCD (some 3 chip)
  - Extremely small
  - Auto features - with limited manual overrides
  - $200 - $1500

- Industrial (miniDV, or DVCam, or HD):
  - 3 chip CCD
  - Better lenses (sometimes interchangeable)
  - Better manual controls including a focus ring, white balance, shutter speeds, sometimes f stops
  - $1,600 - $5,000

- Professional (pro formats):
  - Separate camera from recording deck, sometimes an interchangeable docking deck,
  - Interchangeable Lenses (sharper, faster and wider).
  - Shoulder mount.
  - Generally no Auto focus
  - $5,000 - $50,000

Depth (Z-axis):

- Critical Point of Focus – the point along the z-axis that is in focus no matter what focal length you are using on a zoom lens:
  - Finding the Critical Point of Focus (Calibrating Focus): Point the camera at the object you want to be critically focused, zoom all the way in, focus.

- Depth of Field – the area along the z-axis that is in focus:
  - Things that affect Depth of Field:
    - Shallower:
Long lenses (telephoto)
Closer to the critical point of focus (macro focus give you an extremely shallow
Depth of Field)
Iris/Less light (so you need a larger iris):
   Night
   Indoors
   Higher shutter speeds reduce the amount of light
Deeper:
   Short lenses (wide angle)
   Further from the critical point of focus
Iris/More light (so you need a smaller iris):
   Outdoor
   Daylight
   Slower shutter speeds increase the amount of light

Microphones:
   Camera.
   Auxiliary:
      Omni-directional:
         Microphone Types:
            Dynamic:
               No batteries
               Rugged
            Condenser:
               Power by batteries
               Finer tuned
               Delicate
            Ribbon:
               High quality and sensitive
               Rich warm sound
               Extremely delicate (to temperature, loud sounds)
            Lavaliere (either dynamic or condenser) – small clip on mic
            Unidirectional (usually condenser mic):
               Cardiod
               Hypercardiod (shotgun mic, telephoto mic)

Compression:
   Loseless
   Lossy
   Codecs:
      DVNTSCPRO – 720 x 480 / 30fps / 48khz / 16 bit / Stereo
      MPEG-2

TV Director Cues
   Tilt up – To reveal what is in the upper off-screen space or to increase headroom
   Tilt down – To reveal what is in the lower off-screen space or to decrease headroom
   Center it – To center an object
   Pan left – To reveal left off-screen space
   Pedestal up or Boom up [with a jib or crane] – To raise the camera height
   Pedestal down or Boom down [with a jib or crane] – To lower the camera height.
   Dolly in – To move the camera closer.
   Dolly out – To move the camera farther away
   Zoom in or Push in – To zoom to a tighter shot
   Zoom out or Pull out – To zoom to a looser shot
   Truck left – To move the camera left with the lens pointing at the scene
   Truck right – To move the camera right with the lens pointing at the scene
   Cant left – To tilt the camera sideways to the left
   Cant right – To tilt the camera sideways to the right
   Arc left – To move the camera in a slight left curve
   Arc right – To move the camera in a slight right curve