











- 1  **TV TERMINOLOGY 101:**
PART 1
 Eric Moore
 Computer Users Group of Greeley
- 2  **Flat-panel Technology**
 - ▣ Plasma
 - Each pixel consists of three gas-filled cells
 - Electric current ionizes the gas, emitting UV that stimulates the cells' phosphors
 - Unlimited viewing angle
 - Excellent color and contrast
 - Glossy finish is not as good for bright rooms
 - Found mainly in display sizes exceeding 43"
 - ▣ LCD (Liquid Crystal Display)
 - Electric current causes crystals to polarize, blocking the backlight
 - Unblocked pixels allow light to pass through
 - Lower energy consumption than plasma
 - Limited viewing angle
 - Less fluid motion (suffers from "motion blur")
 - Matte finish is better for bright rooms
 - Wide selection of display sizes
- 3  **Backlight Technology**
 - ▣ Fluorescent
 - Uses fluorescent light source
 - Lower color and contrast quality than LED
 - ▣ LED (Light-Emitting Diode)
 - Electrical component called a "diode" generates light for every pixel
 - Lower energy use than fluorescent backlight
 - Used in newer LCD TVs
 - "Local dimming" provides better contrast and more fluid motion
 -
- 4  **OLED Displays**
 - ▣ Organic LED is used in small electronics and some newer LCD TVs
 - ▣ Thin-film transistor layer contains circuitry for every pixel
 - ▣ Thinner display—no separate backlight required
 - ▣ More energy efficient than plasma or LCD
 - ▣ Excellent color and contrast
 - ▣ Unlimited viewing angle
 - ▣ Fluid motion
 - ▣ New kid on the block: 55" displays currently run between \$9,000 and \$10,000
- 5  **Specifications**
 - ▣ Aspect ratio: display size—expressed as a ratio of the number of pixels horizontally vs. vertically
 - ▣ Color resolution: the number of distinct colors that may be represented
 - ▣ Contrast ratio: the difference between the darkest blacks and brightest whites
 - ▣ Frame rate: the number of still frames that may be displayed per second (measured as fps)
 - ▣ Light output: the amount of light produced by the display as measured in lumens
 - ▣ Viewing angle: the maximum angle from which the display may be watched without loss of detail

- ▣
- 6  **Scanning Specifications**
 - ▣ Interlaced scan: the “lines” in the display are “drawn” in two sweeps—first the odd-numbered, then the even-numbered
 - Indicated by “i” after the vertical measurement (e.g. 1080i)
 - ▣ Progressive scan: the “lines” in the display are “drawn” all in one sweep; doubles the frame rate of interlaced scan
 - Indicated by “p” after the vertical measurement (e.g. 1080p)
- 7  **High Definition TV**
 - ▣ High definition (HDTV): specifies a display size of:
 - 1920x1080p
 - 1920x1080i
 - 1440x1080i
 - 1280x720p
 - ▣ Ultra-high definition (UHD): specifies a display size of:
 - 2160p (4K UHD)
 - 4320p (8K UHD)
- 8  **Resolution Adjustment**
 - ▣ Downconversion: process by which a TV scales down the picture resolution
 - Example: reducing 1080 down to 720
 - Picture detail is lost
 - ▣ Upconversion: process by which the picture is scaled up to a higher resolution
 - Example: increasing 720 to 1080
 - Can result in some “pixelation” of the image
- 9  **Other TV Technologies**
 - ▣ Smart TV: TV that is linked to a local network or network
 - Networking may be built into the set or achieved with a separate set-top box
 - Supports streaming content such as Netflix, accessing on-screen programming guides, and user interaction
 - ▣ 3D TV: TV that creates the illusion of depth and distance
 - Some require special glasses (active shutter 3D or polarized 3D)
 - Some are autostereoscopic (no glasses required)
- 10  **Questions?**