

# THE DIGITAL MEDIA LIFECYCLE

THE **DIGITAL MEDIA LIFECYCLE** ENCOMPASSES THE PROCESS OF TURNING THE WORLD AS OUR HUMAN SENSES PERCEIVE IT INTO DIGITAL DATA THAT CAN BE STORED, PROCESSED AND TRANSMITTED BACK TO US.



SIGHT



SMELL



HEARING

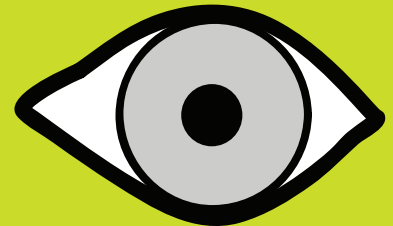


TASTE



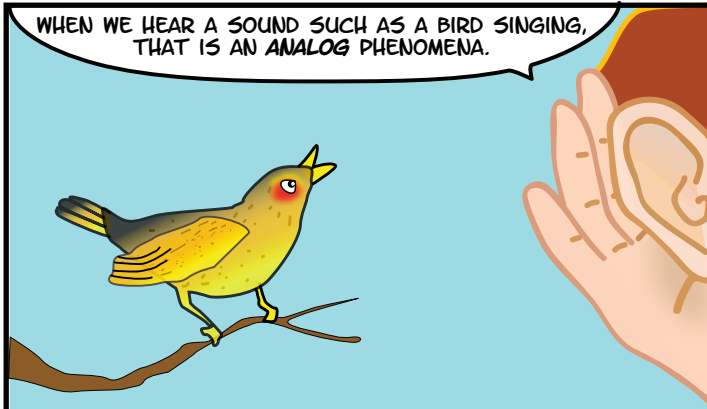
TOUCH

WE START THIS PROCESS WITH SOME KIND OF **STIMULUS** THAT IS PERCEIVED BY ONE OF OUR FIVE SENSES.



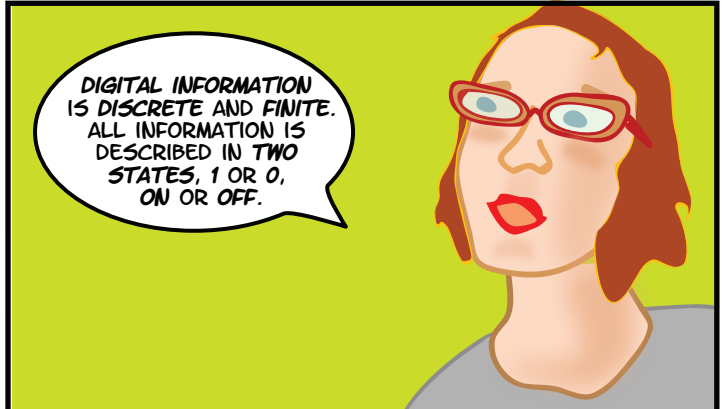
HERE WE WILL TALK MOSTLY ABOUT MEDIA THAT ARE CREATED FROM **STIMULUS** TO OUR EYES AND EARS, THOUGH THERE IS DIGITAL MEDIA THAT USES THE OTHER SENSES.

WHEN WE HEAR A SOUND SUCH AS A BIRD SINGING, THAT IS AN ANALOG PHENOMENA.



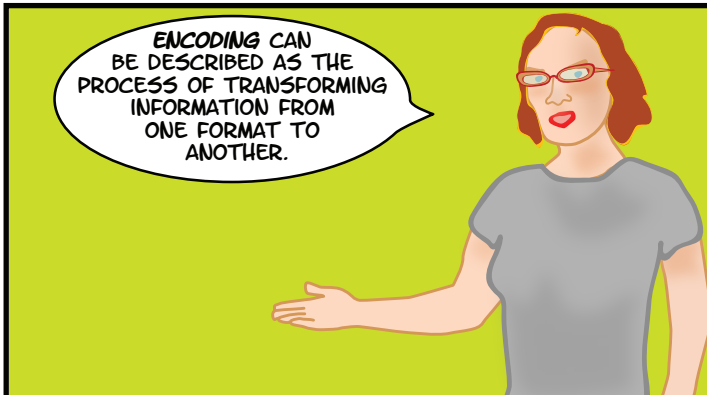
ANALOG INFORMATION IS CHARACTERIZED BY ITS CONTINUOUS NATURE. IT CAN HAVE AN INFINITE NUMBER OF POSSIBLE VALUES.

DIGITAL INFORMATION IS DISCRETE AND FINITE. ALL INFORMATION IS DESCRIBED IN TWO STATES, 1 OR 0, ON OR OFF.




THE QUALITIES OF THE ANALOG WORLD (CONTINUOUS AND INFINITE) CONTRAST WITH HOW DIGITAL INFORMATION IS CHARACTERIZED.

ENCODING CAN BE DESCRIBED AS THE PROCESS OF TRANSFORMING INFORMATION FROM ONE FORMAT TO ANOTHER.

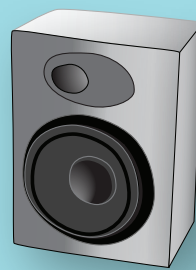


THE PROCESS OF THE DIGITAL MEDIA LIFECYCLE INVOLVES ENCODING ANALOG INFORMATION TO DIGITAL INFORMATION, THEN CONVERTING THAT INFORMATION BACK TO ANALOG SO OUR HUMAN SENSES CAN PERCEIVE IT.

INPUT



OUTPUT



IN THIS PROCESS, WE MATCH INPUTS AND OUTPUTS- DEVICES THAT CAPTURE AND TRANSFORM INFORMATION (INPUTS) WITH ONES THAT PLAY THE INFORMATION BACK TO US (OUTPUTS) .

WHAT ARE SOME EXAMPLES OF INPUT DEVICES? A KEYBOARD, A CAMERA, A MOUSE, A MICROPHONE.

INPUT DEVICES MEASURE ANALOG INFORMATION SUCH AS SOUND WAVES, LIGHT WAVES OR HAND MOVEMENTS. THEY SOMETIMES PRODUCE AN ANALOG ELECTRICAL SIGNAL.

ONCE INFORMATION HAS BEEN CAPTURED BY AN INPUT DEVICE, AN ANALOG TO DIGITAL CONVERTER (ADC) CONVERTS THE ANALOG INFORMATION TO DISCRETE DIGITAL INFORMATION. THERE ARE TWO PARTS TO THIS PROCESS, **SAMPLING** AND **QUANTIZING**.

DURING THE SAMPLING PHASE, SAMPLES OF THE ANALOG INFORMATION ARE TAKEN AT REGULAR DISCRETE INTERVALS, EITHER IN TIME OR IN SPACE.

THE **SAMPLE RATE** IS THE INTERVAL AT WHICH THE SAMPLE IS TAKEN. IT IS EXPRESSED IN FRAMES PER SECOND FOR DIGITAL VIDEO, IN PIXELS PER INCH FOR DIGITAL IMAGING, IN HERTZ (HZ- NUMBER OF CYCLES PER SECOND IN A WAVEFORM) FOR DIGITAL AUDIO.

BINARY NUMBERS (BASE 2) HAVE 2 POSSIBLE NUMBERS, 0 & 1.

A **BIT** IS A BINARY DIGIT. EIGHT BITS MAKE A **BYTE**.

DURING THE QUANTIZATION STEP, THE SAMPLED INFORMATION IS TURNED INTO A FINITE NUMBER OF DISCRETE VALUES REPRESENTED IN BINARY NUMBERS, OR IN **BITS**. **BIT DEPTH** DETERMINES THE LEVEL OF DETAIL IN A DIGITAL FILE.

IMAGE	SOUND	VIDEO	TEXT
.jpeg	.wav	.mov	.txt
.png	.aiff	.avi	.doc
.gif	.mp3	.mpg	.rtf
.raw		.wmv	.html
.tiff			.xml

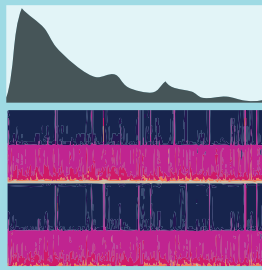
ANALOG INFORMATION CAN BE REPRESENTED DIGITALLY IN MANY DIFFERENT FILE FORMATS. THESE ARE A FEW OF THE MOST COMMON FILE FORMATS, THERE ARE MANY MORE.

### STORAGE




INCREASING STORAGE CAPABILITIES HAS ALLOWED US TO STORE MUCH LARGER FILES.

### PROCESSING

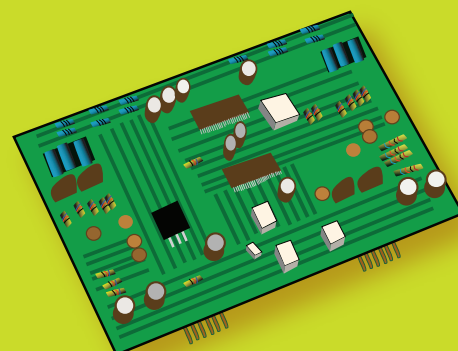


COMMON PROCESSING TASKS INCLUDE COMPRESSION, CONVERSION FROM ONE FORMAT TO ANOTHER, AND ALTERATION

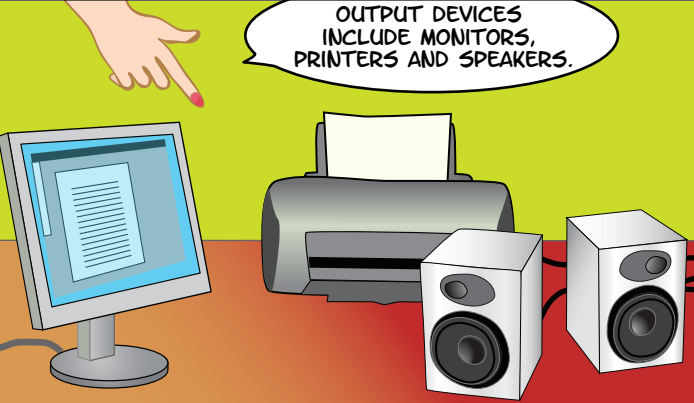
### TRANSMISSION



DIGITAL MEDIA CAN BE TRANSMITTED OVER A NETWORK THROUGH A VARIETY OF TRANSMISSION MEDIA.




THE DIGITAL TO ANALOG CONVERTER (DAC), LIKE THE ADC, IS A SPECIALIZED CHIP THAT CONVERTS DIGITAL INFO INTO ANALOG ELECTRICAL SIGNALS. THESE CHIPS ARE OFTEN BUILT INTO DEVICES THAT PLAY DIGITAL INFORMATION LIKE CD AND DVD PLAYERS.



OUTPUT DEVICES INCLUDE MONITORS, PRINTERS AND SPEAKERS.

OUTPUT DEVICES CONVERT ELECTRICAL SIGNALS INTO SOMETHING THAT CAN BE PERCEIVED BY HUMANS



AN ANALOG STIMULUS, IS CAPTURED BY AN INPUT DEVICE, CONVERTED TO DIGITAL INFORMATION, STORED IN A FILE CONVERTED BACK TO ANALOG AND PLAYED BACK.

A RECAP.

# THE DIGITAL MEDIA LIFECYCLE IN ACTION...

TO VIEW THE LIFECYCLE IN ACTION, CLICK ANYWHERE ON THE PANEL BELOW.

YOU WILL NEED TO HAVE VERSION 9 OF THE FLASH PLAYER INSTALLED.

[HTTP://WWW.ADOBE.COM/GO/BONRN](http://www.adobe.com/go/bonrn)

