

## Hands-On

# Vocabulary Words

### **Animation**

The act, process, or result of imparting life, spirit or motion. The filmmaking technique where the illusion of motion is created frame-by-frame. Animation is achieved due to the phenomenon of “persistence of vision”, and can be created in a number of ways.

### **Aorta**

The largest blood vessel in the body, originating from the left ventricle of the heart and bringing oxygenated blood to all parts of the body. The aorta is an elastic artery (arteries carry blood away from the heart), and as such is capable of stretching to accommodate the pressure of blood coming into it from the left ventricle.

### **Broadcasting (Digital)**

The practice of using digital data rather than analog waveforms to carry broadcasts over television channels or radio. The first regular television broadcasts began in 1937. Broadcasts can be classified as recorded or live.

### **Computer-generated Imagery (CGI)**

The use of computer graphics such as 3D for the purpose of special effects in films, television programs, commercials, video games and printed media. 3D computer animation combines models designed in a coordinate system combined with programmed movement.

### **Digital**

A description of data which is stored or transmitted as a sequence of symbols, usually represented as binary code. Digital signals are more efficient in transmitting information with less interference than analog signals.

### **Film Scoring**

A film score is an alternative word used for the background music of a film. Unlike a soundtrack which may include previously recorded songs in addition to the score, film score is written specifically to accompany a film, by the original film’s composer(s).

### **Haptic Technology**

“Haptic” means pertaining to the sense of touch. The technology uses touch to communicate with the computer or device receiving the signal. Haptic technology may be used to assist in the control of virtual objects, to enhance the remote control of machines and devices and other applications.

### **High Definition Television (HDTV)**

A digital television broadcasting system with higher resolution than traditional television systems (standard-definition TV, or SDTV). HDTV signals are typically transmitted and received in the following ways: over the air through an antenna/ received with an HD tuner, via cable/ received with a set top box, or via satellite/ with receiver boxes.

## **Motion Capture**

A technique in which the actions of an animated character or object are derived from the motion of a real-world actor or object. Sensors attached to key points of the body are used to track and record the position, velocity, acceleration and impulse of a movement. Those measurements are then translated into the movements of an animated character/ object.

## **Nanotechnology**

The field of applied science whose focus is the control of matter on an atomic and molecular scale. One nanometer (nm) is one billionth, or  $10^{-9}$  of a meter. Materials reduced to the nanoscale can show different properties compared to what they exhibit on a macroscale, enabling unique applications.

## **Robot**

A robot is a mechanical device that can perform preprogrammed physical tasks. Robots may act under the direct control of a human (ex. the robotic arm of a space shuttle) or autonomously under the control of a pre-programmed computer.

## **RGB**

Represents a color model in which red, green, and blue light are added together in various ways to reproduce a broad array of colors. The main purpose of the RGB color model is for the sensing, representation, and display of images in electronic systems, such as televisions and computers.

## **Packets**

A formatted unit of data carried by a computer network. A packet consists of two kinds of data: control information and user data (whatever the data is: images, music, text etc.). The control information provides data the network needs to deliver the user data such as source and destination addresses.

## **Sustainability**

In a broad sense, the capacity to endure. In ecology, the word describes how biological systems remain diverse and productive over time. For humans it is the potential for long-term wellbeing, which in turn depends on the wellbeing of the natural world and the responsible use of natural resources.

## **Virtual Surgery**

A program that enables surgeons to practice complex and difficult surgical procedures without the need for an actual patient. Virtual surgery usually involves a screen displaying a 3-dimensional graphic of the organs being operated on, and various surgical tools connected to motion sensors and force-feedback mechanisms (see Haptic Technology).