Alaska Computer Science Standards

Vocabulary Word List

HS Level 1 & Level 2

This is vocab that is used with the [Code program](https://studio.code.org) (code.org)

**Vocabulary Word Definition**

==The equality operator (sometimes read: "equal equal") is used to compare two values, and returns a Boolean (true/false). Avoid confusion with the assignment operator "="

**Abstraction** a simplified representation of something more complex. Abstractions allow you to hide details to help you manage complexity, focus on relevant concepts, and reason about problems at a higher level.

**Accessibility** The design of products, devices, services, or environments for people who experience disabilities. Accessibility standards that are generally accepted by professional groups include the Web Content Accessibility Guidelines (WCAG) 2.0 and Accessible Rich Internet Applications (ARIA) standards.

**Aggregation** a computation in which rows from a data set are grouped together and used to compute a single value of more significant meaning or measurement. Common aggregations include: Average, Count, Sum, Max, Median, etc.

**Algorithm** A list of steps to finish a task.

**Analog** Any continuously changing signal that is not restricted to finite set of values. For example, the wave forms of spoken words are an analog signal.

**Animation** a series of images that create the illusion of motion by being shown rapidly one after the other

**Antivirus Software** usually keeps big lists of known viruses and scans your computer looking for the virus programs in order to get rid of them.

**API** a collection of commands made available to a programmer

**App** A type of application software designed to run on a mobile device, such as a smartphone or tablet computer. Also known as a mobile application.

**Array** A data structure in JavaScript used to represent a list

**Artifact** Anything created by a human. See computational artifact for the definition used in computer science.

**Artificial Intelligence (A.I.)** The branch of computer science dealing with the simulation of intelligent behavior in computers.

**ASCII** American Standard Code for Information Interchange; the universally recognized raw text format that any computer can understand

**Asymmetric encryption** used in public key encryption, it is scheme in which the key to encrypt data is different from the key to decrypt.

**Audience** Expected end users of a computational artifact or system.

**Authentication** The verification of the identity of a person or process.

**Bandwidth** Transmission capacity measure by bit rate

**Behavior** An action that a sprite performs continuously until it’s told to stop.

**Big Data** a broad term for datasets so large or complex that traditional data processing applications are inadequate.

**Binary** A way of representing information using only two options.

**Binary Alphabet** The two options used in your binary code.

**Bit** A contraction of "Binary Digit"; the single unit of information in a computer, typically represented as a 0 or 1

**Bit rate** (sometimes written bitrate) the number of bits that are conveyed or processed per unit of time. e.g. 8 bits/sec

**Block‐based** Using pre‐programmed “blocks” of instructions to teach kids coding.

**Boolean** A single value of either TRUE or FALSE

**Boolean Expression** in programming, an expression that evaluates to True or False.

**Bug** Part of a program that does not work correctly.

**Caesar Cipher** a technique for encryption that shifts the alphabet by some number of characters

**Callback function** a function specified as part of an event listener; it is written by the programmer but called by the system as the result of an event trigger

**Canvas** a user interface element to use in HTML/JavaScript which acts as a digital canvas, allowing the programmatic drawing and manipulation of pixels, basic shapes, figures and images.

**Cipher** the generic term for a technique (or algorithm) that performs encryption

**Circuit** A device that provides a path for an electric current to flow, often modifying that current. In computers, circuits allow for simple logical and mathematical operations using electricity.

**Citation** A quotation from or reference to a book, paper, or author, especially in a scholarly work.

**Click** Press the mouse button

**Code** (v) to write code, or to write instructions for a computer.

**Command** An instruction for the computer. Many commands put together make up algorithms and computer programs.

**Comment** A note in the source code of a computer program that helps explain the code to people who read it

**Computationally Hard** a "hard' problem for a computer is one in which it cannot arrive at a solution in a reasonable amount of time

**Concatenate** to link together or join. Typically used when joining together text Strings in programming (e.g. "Hello, "+name)

**Condition** A statement that a program checks to see if it is true or false. If true, an action is taken. Otherwise, the action is ignored.

**Conditionals** Statements that only run under certain conditions.

**Constant** A variable used throughout a program that never changes value

**Copyright** the exclusive legal right to print, publish, perform, film, or record literary, artistic, or musical material, and to authorize others to do the same

**Cracking encryption** When you attempt to decode a secret message without knowing all the specifics of the cipher, you are trying to "crack" the encryption.

**Creative Common**  A collection of public copyright licenses that enable the free distribution of an otherwise copyrighted work, used when an author wants to give people the right to share, use, and build upon a work that they have created

**Critique** To critically evaluate in a detailed and constructive manner

**Crowdsourcing** Getting help from a large group of people to finish something faster

**CSS** Cascading Style Sheets; a language used to describe how HTML elements should be styled

**CSS Class** An identifier that allows multiple elements in an HTML document to be styled in the same way

**CSS Selector** the part of a CSS rule-set that defines which HTML elements the style should be applied to

**Cyberbully** Using technology tools to deliberately upset someone else.

**Cyberbullying** Doing something on the internet, usually again and again, to make another personal feel angry, sad, or scared.

**Data Type** All values in a programming language have a "type" - such as a Number, Boolean, or String - that dictates how the computer will interpret it. For example 7+5 is interpreted differently from "7"+"5"

**DDoS Attack** Distributed Denial of Service Attack. Typically a virus installed on many computers (thousands) activate at the same time and flood a target with traffic to the point the server becomes overwhelmed.

**Debugging** Finding and fixing problems in an algorithm or program.

**Decode** to change how information is represented so that it can be read by a person

**Decrypt** to change information so that its hidden meaning is shown

**Decryption** a process that reverses encryption, taking a secret message and reproducing the original plain text

**Define** Figure out the details of the problems that you are trying to solve

**Digital** Data or signals represented by a finite number of values. Analog signals (which can have infinite values) must be converted to digital in order to be computed with

**Digital Citizen** Someone who acts safely, responsibly, and respectfully online

**Digital Footprint** The collected information about an individual across multiple websites on the Internet.

**DNS** short for Domain Name System, this system translates domain names (like example.com) to IP addresses (like 93.184.216.34)

**Documentation** a description of the behavior of a command, function, library, API, etc.

**Double-Click** Press the mouse button very quickly

**Drag** Click your mouse button and hold as you move the mouse pointer to a new location

**Drop** Release your mouse button to "let go" of an item that you are dragging

**DSL/Cable** A method of sending information using telephone or television cables.

**Empathy** In design, paying attention to a user's feelings and needs when designing a product.

**Encode** to change how information is represented so that it can be read by a computer

**Encrypt** to change information so that its meaning is hidden

**Encryption** a process of encoding messages to keep them secret, so only "authorized" parties can read it

**Event handling** an overarching term for the coding tasks involved in making a program respond to events by triggering functions.

**Event listener**  a command that can be set up to trigger a function when a particular type of event occurs on a particular UI element.

**Event** An action that causes something to happen.

**Event-driven program** a program designed to run blocks of code or functions in response to specified events (e.g. a mouse click)

**Expression** Any valid unit of code that resolves to a value

**Feature** An individual functional element of a software item, such as the ability to do something new, work across multiple platforms, or perform more efficiently

**Fiber Optic Cable** A connection that uses light to transmit information

**Firewall** software that runs on servers (often routers) that only allows traffic through according to some set of security rules.

**For Loop** Loops that have a predetermined beginning, end, and increment (step interval).

**Frame** a single image within an animation

**Frame Rate** the rate at which frames in an animation are shown, typically measured in frames per second

**Frustrated** Feeling annoyed or angry because something is not the way you want it.

**Function** A named group of programming instructions. Functions are reusable abstractions that reduce the complexity of writing and maintaining programs

**Global Variable**  A variable whose scope is "global" to the program, it can be used and updated by any part of the code. Its global scope is typically derived from the variable being declared (created) outside of any function, object, or method.

**Heading** A title or summary for a document or section of a document.

**Heuristic** a problem solving approach (algorithm) to find a satisfactory solution where finding an optimal or exact solution is impractical or impossible.

**Hexadecimal** A base-16 number system that uses sixteen distinct symbols 0-9 and A-F to represent numbers from 0 to 15

**High Level Programming Language** A programming language that captures only the most primitive operations available to a machine. Anything that a computer can do can be represented with combinations of low level commands.

**HTML** Hypertext Markup Language, a language used to create web pages

**HTML Element** A piece of a website, marked by a start tag and often closed with an end tag

**HTML Tag** The special set of characters that indicates the start and end of an HTML element and that element's type

**Hyperlink** A link from a HTML file to another location or file, typically activated by clicking on a highlighted word or image on the screen.

**Identity Theft** When a thief steals someone’s private information in order to pretend to be that person.

**IETF** Internet Engineering Task Force - develops and promotes voluntary Internet standards and protocols, in particular the standards that comprise the Internet protocol suite (TCP/IP).

**If-Statement** The common programming structure that implements "conditional statements".

**Image** A type of data used for graphics or pictures.

**Indentation** The placement of text farther to the right or left of the surrounding text, making it easier to understand the program's structure

**Innovation** A new or improved idea, device, product, etc, or the development thereof

**Input** A device or component that allows information to be given to a computer

**Intellectual Property** A work or invention that is the result of creativity, such as a piece of writing or a design, to which one has rights and for which one may apply for a patent, copyright, trademark, etc.

**Internet** A group of computers and servers that are connected to each other

**IP Address** A number assigned to any item that is connected to the Internet

**Iterate** To repeat in order to achieve, or get closer to, a desired goal.

**Key Event** “in JavaScript an event triggered by pressing or releasing a key on the keyboard. For example: "keyup" and "keydown" are event types you can specify. Use event key - from the "event" parameter of the on Event callback function - to figure out which key was pressed.

**Latency** Time it takes for a bit to travel from its sender to its receiver

**Library** a collection of commands / functions, typically with a shared purpose

**Local Variable**  A variable with local scope is one that can only be seen, used and updated by code within the same scope. Typically this means the variable

**Loop** The action of doing something over and over again.

**Lossless Compression** a data compression algorithm that allows the original data to be perfectly reconstructed from the compressed data.

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**Lossy Compression** (or irreversible compression) a data compression method that uses inexact approximations, discarding some data to represent the content. Most commonly seen in image formats like .jpg.

**Metadata** is data that describes other data. For example, a digital image may include metadata that describe the size of the image, number of colors, or resolution.

**Models and Simulations** a program which replicates or mimics key features of a real world event in order to investigate its behavior without the cost, time, or danger of running an experiment in real life.

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**Modulo** a mathematical operation that returns the remainder after integer division. Example: 7 MOD 4 = 3

**Moore's Law** a predication made by Gordon Moore in 1965 that computing power will double every 1.5-2 years, it has remained more or less true ever since.

**Net Neutrality** the principle that all Internet traffic should be treated equally by Internet Service Providers.

**Network Redundancy** having multiple backups to ensure reliability during cases of high usage or failure

**One-pager** A business/corporate term for a one-page document that summarizes a large issue, topic or plan.

**Online** Connected to the internet

**Output** Any device or component that receives information from a computer

**Packets** Small chunks of information that have been carefully formed from larger chunks of information.

**Pair Programming** A method of programming in which two programmers write code using a single computer. One programmer in the "driver" role uses the mouse and keyboard to actually write the code while a second acts as a "navigator", keeping track of the big picture, catching errors, and making suggestions. Programmers switch roles frequently and communicate throughout the process.

**Parameter** An extra piece of information passed to a function to customize it for a specific need

**Parameter** An extra piece of information passed to a function to customize it for a specific need

**Persistence** Trying again and again, even when something is very hard.

**Personal Information** Information that can’t be used to identify you

**Phishing Scam** a thief trying to trick you into sending them sensitive information. Typically these include emails about system updates asking you send your username and password, social security number or other things

**Pivot Table**  in most spreadsheet software it is the name of the tool used to create summary tables.

**Pixel** short for "picture element", the fundamental unit of a digital image, typically a tiny square or dot that contains a single point of color of a larger image

**Prepare** Figure out the details of the problems that you are trying to solve

**Private Information** Information that can be used to identify you

**Private Key** In an asymmetric encryption scheme the decryption key is kept private and never shared, so only the intended recipient has the ability to decrypt a message that has been encrypted with a public key

**Program** An algorithm that has been coded into something that can be run by a machine

**Programming** The art of creating a program

**Property** Attributes that describe an object's characteristics

**Protocol** A set of rules governing the exchange or transmission of data between devices.

**Prototype** A first or early model of a product that allows you to test assumptions before developing a final version.

**Public Key Encryption** Used prevalently on the web, it allows for secure messages to be sent between parties without having to agree on, or share, a secret key. It uses an asymmetric encryption scheme in which the encryption key is made public, but the decryption key is kept private.

**Random Substitution Cipher** an encryption technique that maps each letter of the alphabet to a randomly chosen other letters of the alphabet

**Reflect** Carefully think back on something with the intention of improving the outcome in the future

**Register (Online)** To enter your information in order to sign up and get access to a website.

**Relevant** Closely connected or appropriate to the matter at hand

**Repeat** Do something again

**Return Value**  A value sent back by a function to the place in the code where the function was called form - typically asking for value (e.g. get Text(id)) or the result of a calculation or computation of some kind. Most programming languages have many built-in functions that return values, but you can also write your own.

**RGB** the RGB color model uses varying intensities of (R)ed, (G)reen, and (B)lue light are added together in to reproduce a broad array of colors.

**Search Engine** A program that searches for and identifies items in a database that correspond to keywords or characters specified by the user, used especially for finding particular sites on the World Wide Web

**Selection** A generic term for a type of programming statement (usually an if-statement) that uses a Boolean condition to determine, or select, whether or not to run a certain block of statements.

**Sequencing** Putting commands in correct order so computers can read the commands.

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**Servers** Computers that exist only to provide things to others

**Sprite** A graphic character on the screen with properties that describe its location, movement, and look.

**SSL/TLS**  Secure Sockets layer / Transport Layer Security - An encryption layer of HTTP that uses public key cryptography to establish a secure connection.

**String** Any sequence of characters between quotation marks (ex: "hello", "42", "this is a string!").

**Summary Table** a table that shows the results of aggregations performed on data from a larger data set, hence a "summary" of larger data. Spreadsheet software typically calls them "pivot tables".

**Top Down Design** a problem solving approach (also known as stepwise design) in which you break down a system to gain insight into the sub-systems that make it up.

**Trustworthy** Able to be relied on as honest or truthful

**Try** Attempt to do something

**Turtle Programming** a classic method for learning programming with commands to control movement and drawing of an on-screen robot called a "turtle". The turtle hearkens back to early implementations in which children programmed a physical robot whose dome-like shape was reminiscent of a turtle.

**UI Elements** on-screen objects, like buttons, images, text boxes, pull down menus, screens and so on.

**Until** A command that tells you to do something only up to the point that something becomes true.

**URL** An easy-to-remember address for calling a web page (like www.code.org)

**Usability** How easy, efficient, and satisfying it is to use a human-made object or device (including software)

**User** Someone who uses an object, including software and hardware.

**User Interface** The visual elements of a program through which a user controls or communicates with the application. Often abbreviated UI.

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**Variable** A placeholder for a piece of information that can change.

**Variable Scope** dictates what portions of the code can "see" or use a variable, typically derived from where the variable was first created. (See Global v. Local)

**Virus** a program that runs on a computer to do something the owner of the computer does not intend.

**Website** A collection of interlinked web pages on the World Wide Web

**Website Content** The raw text, images, and other elements included in a web page

**Website Structure** The purpose of different pieces of content in a web page, used to help the computer determine how that content should be displayed

**While Loop** A loop that continues to repeat while a condition is true.

**Whitespace** Any character that shows up as a blank space on the screen, such as a space, a tab, or a new line; helps separate different parts of the document to make it easier to read

**Wi-Fi** A wireless method of sending information using radio waves