

Key Vocabulary & Concepts

0d space - a single point with no dimension

1d space - one single axis

3d Space - a space defined any three perpendicular axes

2d - two axes perpendicular to one another

3d - three axes perpendicular to one another

3:4:5 triangle - a right triangle where the sides are in the ratio of the integers, 3:4:5

Algorithm - a well-defined procedure that allows a computer to solve a problem

Array - items such as objects, numbers, etc. arranged in rows and columns

Axis/Axes - a reference line drawn on a graph

Base-10 Number System - a number system where there are 10 possible values for each digit: 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9

Binary - also called base-2; a number system where there are only two possible values for each digit: 0 and 1

C# - pronounced C Sharp; a high level programming language developed by Microsoft; it is one of the languages that can be used to code behaviors in Unity

Cross Product - also called a vector product; a binary operation on two vectors in three-dimensional space. It results in a vector which is perpendicular to both of the vectors being multiplied and therefore normal to the plane containing them.

Compiler - a computer program that turns high level language into machine language

Coordinates - set of values that show position in 2d or 3d space

Data - information processed or stored by a computer

Direction - where something is pointing

Dot Product - also called a scalar product; an algebraic operation that takes two equal-length sequences of numbers (usually coordinate vectors) and returns a single number.

High level language - allows a programmer to write largely independent of specific hardware or device; more closely resembles human language

Inputs - a device that gives information to the computer; can also be software

Line - a segment of a single axis

Low level language - a programming language that is very close to the commands and functions run at the hardware level; a type of low level language is assembly

Machine language - binary

Magnitude - size of a mathematical object

Matrices - an array of numbers

Memory - also called storage; device that stores information for immediate or later use

Normal - to be at right angles; a vector at a right angle to a plane

Outputs - data generated by a computer; this can be physical (a printed document) or data produced by software (the result of a calculation)

Peripherals - electronic equipment connected to a computer wirelessly or by cable; can include both input and output devices

Plane - a space defined by any two perpendicular axes

Point - a location with no direction or dimension

Programmer - a person who writes computer programs

Processor - the component of a computer that performs the basic operations (processing data) of the system; it exchanges data with a systems memory and peripherals; manages the system's other components

Program - a collection of instructions that performs a specific task when executed by a computer

Proof - a deductive argument for a mathematical statement; the physical proof of the Pythagorean Theorem shows - physically - how the principles work

Pseudocode - a simple way of writing programming code in human language; it uses programming structure, but is not concerned with syntax

Rotation - a circular movement around one or more axes

Scale - the ratio (or relationship) of the length in a drawing or model to the length of the real thing; that length can be along any of an object's axes

Syntax - is the set of rules that defines the combinations of symbols that are considered to be a correctly structured document or fragment in that language

Transformation - changing a space using turn, flip, slide, resize; translation is a kind of transformation; rotation is a kind of transformation; scaling is a kind of transformation

Translation - sliding or moving a shape without rotating or flipping it

Vectors - a mathematical structure that has a magnitude and a direction

class

comment

bracket

curly brace

method

syntax

declaration
body
codeblock
keyword
modifier
variable
camelcase
syntax
terminator
string
parameter
convention
assignment
integer
floating point
char
boolean
naming convention
assignment operator
operator