

Computational Design Solutions Pt.1

RHINOSCRIPTING

LECTURE 1

'Introduction

- Computers are man-made devices
- Mimics the way humans read and think
- therefore code is read from left to right (English); line by line

Each line of code it tells the computer to do "something"

example:

```
first line of code  
second line of code  
some function()  
continue code
```

```
some function()
```

The basic principle of scripting or programming is to extend the design horizon of possibilities and KNOW when one should apply scripting

'Syntax

'Syntax- syntax is language specific

[msdn2.microsoft.com/en-us/library/sh9ywfdk\(en-US,VS.80\).aspx](https://msdn2.microsoft.com/en-us/library/sh9ywfdk(en-US,VS.80).aspx)

TYPES:

- numbers: int (-3, 1, 0, 254), float (3.1416, -2.39)
- string: "foo" "-bar" "_foo5" "9"
- boolean: true or false

'Variables

'Variables- a concept that is used in any language or scripting tools

Variables: giving character or purpose to an instant

Variable names shall address what you are attempting to name or do

A variable is allocating space for an item

- dim - allocate space for a variable
- redim - allocat space for an array

dim can be strings, integers, doubles, floats, (or a class type)

$$2x + 1 = 5$$

we know that variable $x = 4$

example: (calculator example)

$$2x + 1 = y$$

x is representing an instant, so is y

therefore you want the results of y to be influenced by x

example: In order to write a simple calculation

'Looping and Conditionals

'Looping and conditional statements- a concept that is used in any language or scripting tools

Purpose of loops and conditional statements

- 1. Need to do something for a certain period of time
- 2. Need to do something if a condition fails or to prevent a condition from happening (ERROR)
- 3. Need to do something to break out of another condition

```
If(condition = TRUE)
    do something
End If
```

```
If(condition > some_Variable)
    do something
End If
```

```
If(condition < some_Variable)
    do something
End If
```

```
If(condition != some_Variable)
    do something
End If
```

```
ex.
If(n=20)
    BE SILENT
End If
```

Exercise in PseudoCode using Conditionals:
Use weather as a variable get dressed

```
' '=====
' ' BREAK
' '
' ' if (you = "hungry") then
' '   eatLunch()
' ' end if
' '
' '=====
```

'Looping Continued...

```
For(a certain condition)
    do something
End For
```

ex.

```
For(n=0; n<20; n++)
    LAUGH louder
End For
```

Arrays: a collection of objects
objects can be strings, characters, integers, doubles, floats,
(and even classes)

Purpose of arrays:
IMPORTANT!!!

- 1.To keep track of objects in program and in scene
- 2.Giving an item a "known" address. Otherwise, item is unallocated into some unknown address. You can see the object, but you cannot perform actions
- 3.For iterating or recursion makes it easier to iterate through an array for the purpose of applying a function/method

'Final Tips

- Introduce U, V local coordinates for objects
- What does that error message really mean?
- Debugging: the use of print statements
- How to do the homework