

Media Arts

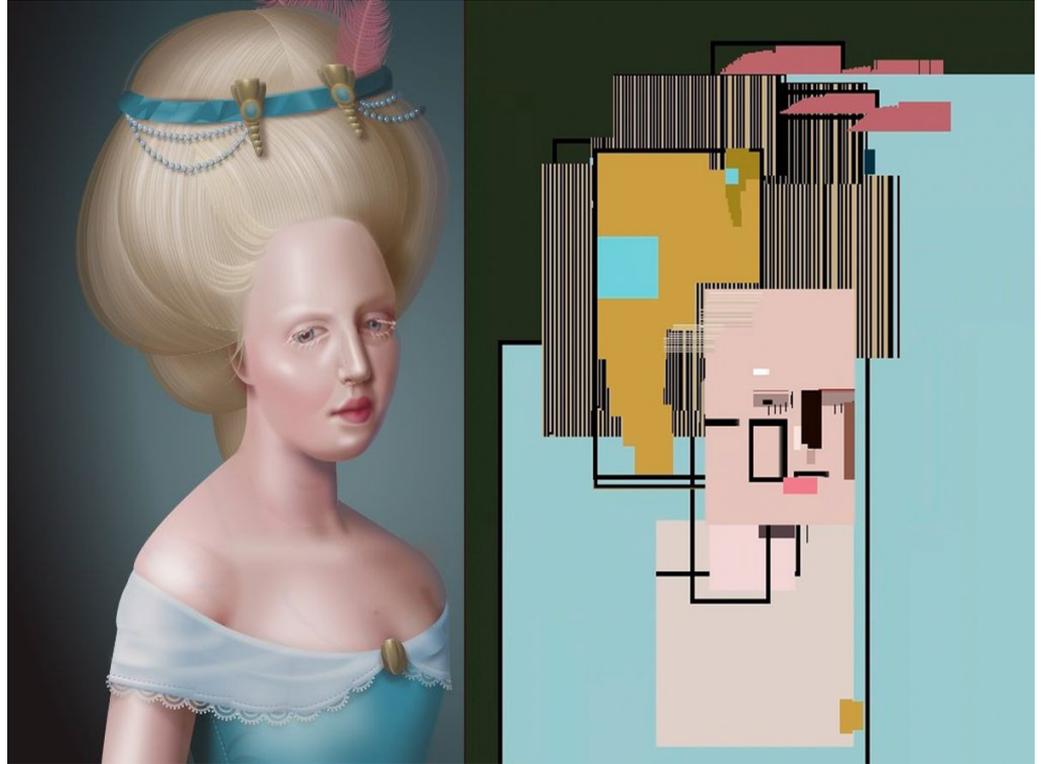
- *Web-based media art is art created by an artist using the internet as a tool of creation.*
- *Artists can also use computer programs as a tool to create art.*
 - *Photoshop*
 - *Gimp*
 - *InkScape*
- *Artists can also write their own code using a programming language to create their own programs or tools to create art.*
 - *HTML*
 - *Python*
 - *C++*
 - *Java*

Media Arts

- The actual art created on the internet/computer/device, sometimes only exists on the internet/computer/device.
- Some of the art created on or for the internet cannot exist elsewhere (in the same form) because of the hyper-linking or various technologies involved.
- The internet, with its multi-functions, is the tool for the artist, just as the brush, the paint, the charcoal, the pencil, or other media is.
- The programs used become the medium.
- The advantage of creating an internet or computer-based art work is that the tools used to create it also become the gallery to display the artwork.

Computer Coded Illustrations (from ASCII art to code)

- Programming developer and artist, Diana A. Smith, uses only code and style sheets (rules that tell a web page how to display your code) to create a computer art series where she creates gorgeous, rich illustrations where all the elements are hand-typed rather than drawn.



What is Coding?

- **Code**
 - *The instructions in a computer program.*
 - *Instructions written by a programmer in a programming language are often called source code.*

What is Coding?

- **Program**
 - *The process of developing and implementing various sets of instructions to enable a computer to do a certain task.*
 - *These instructions are considered computer programs and help the computer to operate smoothly.*
 - *The language used to program computers is not understood by an untrained eye.*

What is Coding?

- **Algorithm**
 - *a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.*

Coding is...



Telling the
computer exactly
what to do... by
giving it step by
step instructions
to follow

WHAT IS CODING?

- Coding is about logical reasoning skills, creative problem solving and discovery of new solutions, as well as creating new solutions – innovations.
- It is about breaking bigger problems into smaller ones to be able to solve the bigger problems and create bigger solutions.
- Coding is commanding computer what to do; programming and instructing, so that it knows what, how and when to do the things needed.

Types of Coding

- *Draw Programming (beginner)*
- *Block Programming (intermediate)*
- *Text Based Coding (Advanced)*

Draw Programing (beginner)

- *The simpler method of programming.*
- *Users draw lines to program their robot and can modify speed and colour.*

Ozobot (Drawing based coding)



Ozobot (Drawing based coding)



Color code reference chart:

OzoCodes

ozobot

For best results, use OzoCodes on black lines and sections of straight lines.

SPEED



SNAIL (DISE)



SLOW



CRUISE



FAST



TURBO



NITRO BOOST

DIRECTION



GO LEFT



GO STRAIGHT



GO RIGHT



JUMP LEFT



JUMP STRAIGHT



JUMP RIGHT



U TURN



U TURN (LINE END)

TIMERS



TIMER ON (30 SEC. TO STOP)



TIMER OFF



PAUSE (3 SEC.)

COOL MOVES



TORNADO



ZIGZAG



SPIN



BACKWALK

WIN/EXITS



WIN/EXIT (PLAY AGAIN)



WIN/EXIT (GAME OVER)

COUNTERS

FIVE DOWN TO STOP



ENABLE X-ING COUNTER



ENABLE TURN COUNTER



ENABLE PATH COLOR COUNTER



ENABLE OZOFILL COUNTER



OZOFILL +1



OZOFILL -1

Ozobot (Drawing based coding)

Tips: Drawing Codes



X
Codes on
colored lines



X
Different
sizes



X
White
spaces



X
Overlapping
colors



X
Too dark



✓
Codes on
black lines

Ozobot (Drawing based coding)

Tips: Drawing Lines



X

Too Thin!



X

Too Thick!

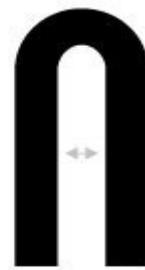


X

Inconsistent!

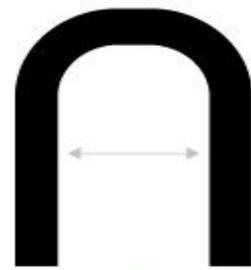


Just Right



X

Too Close!



Just Right



X

Too Sharp!



Just Right



Just Right

Block Programming (intermediate)

- *Coders can utilise the familiar block-based drag and drop interface to code their robot.*
- *Pre-programmed blocks allow for a wide variety of actions and variables.*

Scratch (block programming/coding)



Scratch (block programming/coding)

The image shows the Scratch programming environment. At the top, the Scratch logo is on the left, and navigation options like 'File', 'Edit', and 'Tips' are in the center. On the right, there are 'Sign in to save' and 'Sign in' buttons. Below the navigation bar, the main workspace is divided into three sections:

- Stage:** Displays the 'Full 16 Frame Scratch Cat Walk Cycle' by griffpatch. The cat is currently in a walking pose on a green field with trees and grass. The coordinates are X: 240, Y: -180.
- Scripts Panel:** Contains a list of block categories: Motion, Looks, Sound, Pen, Data, Events, Control, Sensing, Operators, and More Blocks. The 'Events' category is selected, showing blocks like 'when green flag clicked', 'when space key pressed', 'when this sprite clicked', 'when backdrop switches to...', 'when loudness > 10', 'when I receive message1', 'broadcast message1', and 'broadcast message1 and wait'.
- Script Editor:** Shows the code for the 'when green flag clicked' event. The script consists of:
 - A 'forever' loop containing:
 - 'wait 0.02 secs'
 - 'next costume'
 - 'when this sprite clicked' event:
 - 'set size to 50 %'
 - 'go to x: -195 y: -123'
 - 'clear'
 - 'switch costume to Walk1'
 - 'repeat 8' loop:
 - 'stamp'
 - 'change x by 55'
 - 'next costume'
 - 'set size to 120 %'
 - 'go to x: 0 y: 55'

- Sprites Panel:** Shows the 'Scratch Cat' sprite selected. Other sprites include 'Tree_3', 'Glass-Tal...', 'grass3', 'grass2', and 'Tree_2'. The 'Stage 1 backdrop' is also visible.

Sphero EDU app (block programming/coding)

The screenshot displays the Sphero EDU app's block programming interface. At the top left, there is a menu icon and a blue 'Run' button with a play icon. The main workspace contains several light blue blocks: a 'Strobe' block with a grey circle, '1ms', and '0'; a 'Delay' block with '500ms'; a 'Spin' block with '0°' and '0ms'; another 'Strobe' block with a grey circle, '0ms', and '0'; a 'Back LED' block with '0'; a 'Roll' block with '1000ms', '190', and '181°'; and a final 'Back LED' block with '0'. A callout bubble on the right says 'Drag code here to delete it' with a hand icon. The bottom toolbar features icons for 'Roll', 'Set Speed', 'Set Heading', 'Stop', 'Raw Motor', 'Spin', 'Set Color', 'Back LED', 'Fade', and 'Strobe'. A watermark 'www.thanksmailcarrier.com' is visible in the lower right.

Actions

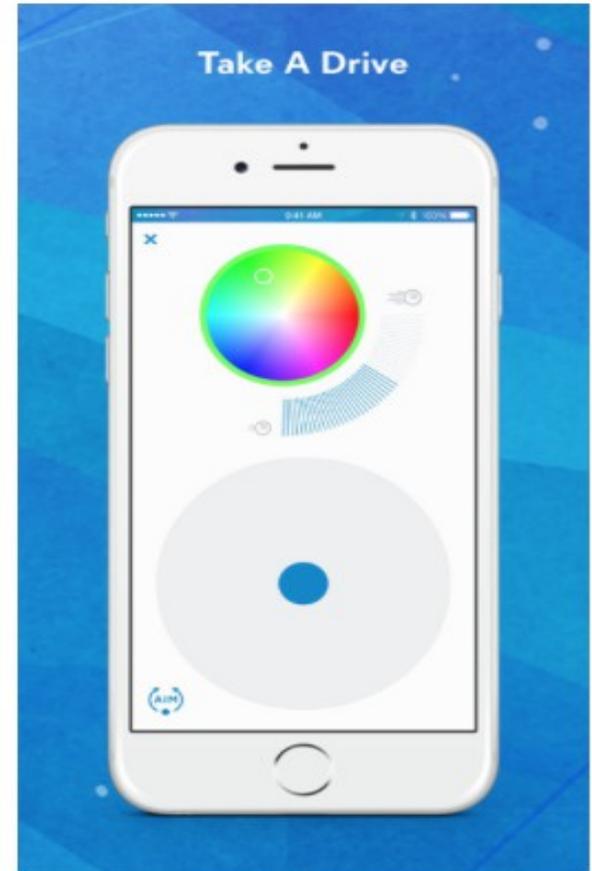
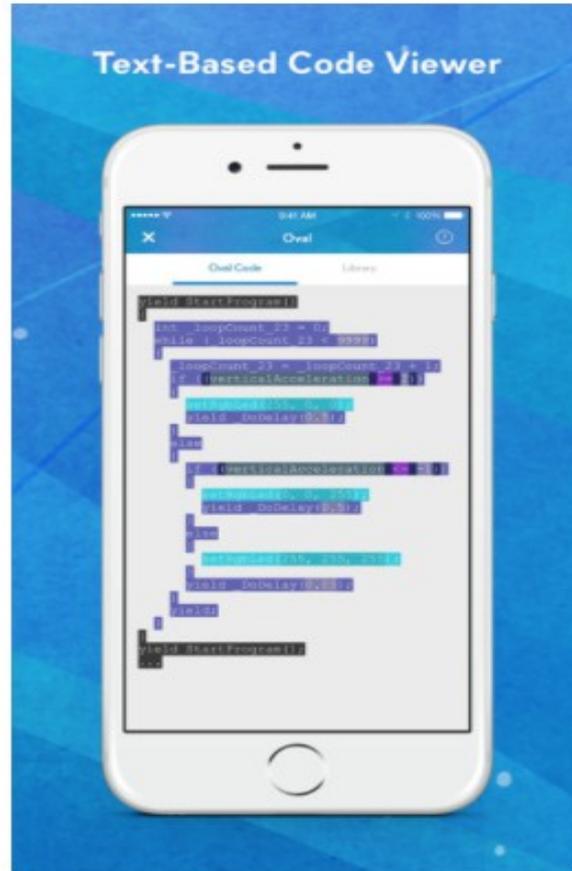
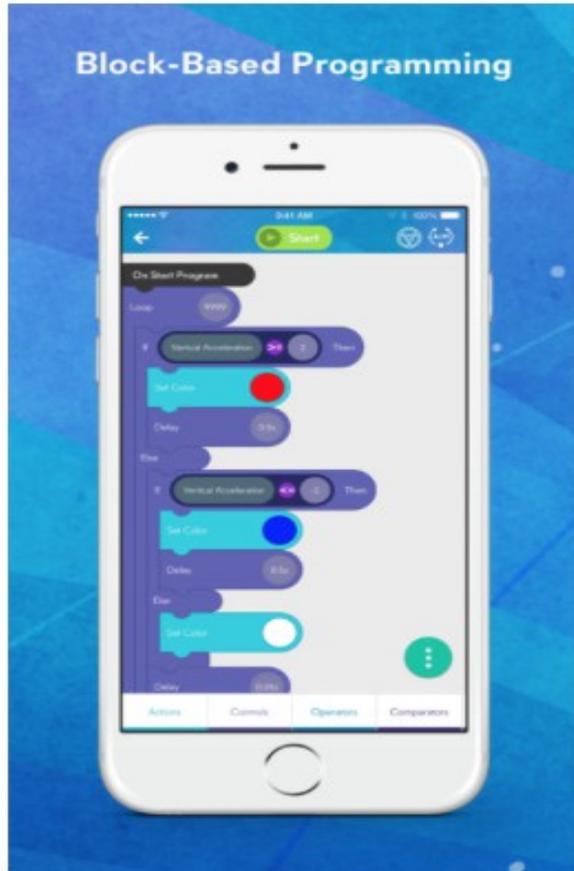
Events

Sensors

Controls

Operators

Sphero EDU app (block programming/coding)



Text Based Coding (advanced)

- *Users can program with a text editor to write custom syntax.*
- *An integrated "wiki" will support users graduating from blocks to text; the same type of tool real developers use.*

HTML (Text based code)

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<link rel="shortcut icon" type="image/x-icon" href="favicon.ico">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<title>*</title>

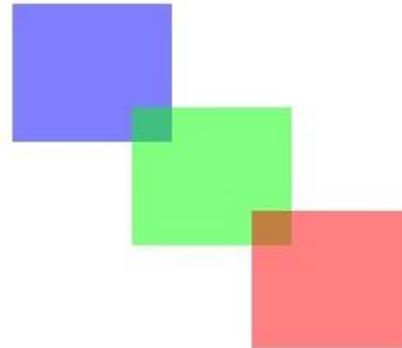
<style type="text/css">
body{
  font-family:"Lucida Grande", "Lucida Sans Unicode", Verdana, Arial, Helvetica, sans-serif;
  font-size:12px;
  background-color:#585858;
}
p, h1, form, button{border:0; margin:0; padding:0;}
.spacer{clear:both; height:1px;}
/* ----- Form ----- */
.myform{
margin:0 auto;
width:400px;
height:190px;
padding:12px;
margin-left: auto ;
margin-right: auto ;
margin-top: auto;
}
/* ----- basic ----- */
#basic{
border:solid 2px #DEDEDE;
}
#basic h1 {
font-size:14px;
font-weight:bold;
margin-bottom:8px;
}
#basic p{
font-size:11px;
color:#666666;
margin-bottom:20px;
border-bottom:solid 1px #dedede;
padding-bottom:10px;
}
#basic label{
display:block;
font-weight:bold;
text-align:right;
width:140px;
float:left;
}
```

Code Monster (Text based code)



A big `clearRect()` erases everything. Uncomment the big `clearRect()` (remove the `//`) and see what happens.

```
1 var size = 80;
2 var offset = 20;
3 var w = c.canvas.width;
4 var h = c.canvas.height;
5
6 c.fillStyle = "rgba(0, 0, 255, 0.5)";
7 c.fillRect(offset, offset, size, size);
8 offset = offset + 60;
9 c.fillStyle = "rgba(0, 255, 0, 0.5)";
10 c.fillRect(offset, offset, size, size);
11 // c.clearRect(0, 0, w, h);
12 offset = offset + 60;
13 c.fillStyle = "rgba(255, 0, 0, 0.5)";
14 c.fillRect(offset, offset, size, size);
15
```



RESET

Erasing

BACK

Python (Text based code)

hoc.codehs.com/hoc_editor.html#course=16#module=103#item=162

Apps 251Tech Animoto AR Atomic BigHugeLabs BrainPOP Diigo EasyTech Ed Tech Glogster Google Apps Primary Google Apps Seco... Google

HOUR OF CODE with CodeHS

STUDENT SIGN UP TEACHER SIGN UP

★ Challenge: Draw Something

DIRECTIONS

Overview

Write a program to draw something fun or creative on the screen.

Requirements:

- You must use at least one line, at least one rectangle, and at least one circle.
- You must use shapes of at least two different colors.
- You must use shapes of at least two different sizes.
- You must have at least five shapes total.
- You must leave a comment at the top of your program explaining what you are trying to do.
- Otherwise, there are no other requirements!

```
1 function start(){
2     var rect = new Rectangle(100, 50);
3     rect.setPosition(getWidth() / 2, getHei
4     rect.setColor(Color.red);
5     add(rect);
6
7     var circ = new Circle(60);
8     circ.setPosition(80 , 80);
9     circ.setColor(Color.green);
10    add(circ);
11
12    var circ = new Circle(60);
13    circ.setPosition(getHeight() - 80 , 80)
14    circ.setColor(Color.green);
15    add(circ);
16 }
```

Python (Text based code)

IF YOU WANT TO:	USE THIS CODE:
make text bold	<code>text</code>
make text italic	<code><i>text</i></code> OR <code>text</code>
underline text	<code><u>text</u></code>
strikethrough text	<code>text</code>
force an extra space	<code>&nbsp;</code>
add a line break	<code>
</code>
make a new paragraph	<code><p></code>
align text within a paragraph	<code><p align="center"></code> (or "left", "right")
insert an image	<code></code>
adjust image size	<code></code>
insert a link	<code>link</code>
direct link to a new tab or window	<code>link</code>
insert a button	<code></code>
insert a table (for archive pages)	<code><table><tbody>all table content</tbody></table></code>
insert a new row within your table	<code><tr>row content</tr></code>
insert a new box within a row of your table	<code><td>box content</td></code>



Everybody in this country should learn how to program a computer...

... because it teaches you how to think.

Steve Jobs

It would be wonderful if every kid wrote computer programs and understood how computers work. It would certainly make you a better thinker.

Bill Gates





In fifteen years we'll be teaching programming just like reading and writing. We'll be looking back and wondering why we didn't do it sooner.

Mark Zuckerberg