Ben Fry on Processing...

http://www.youtube.com/watch?v=z-g-cWDnUdU
An Example

- Mouse 2D Example
  http://processing.org/examples/mouse2d.html
Another Example

http://wearechopchop.com/%E2%80%9Cunnamed-soundsculpture%E2%80%9D/
Reference. Processing was designed to be a flexible software sketchbook.

Structure
- () (parentheses)
- , (comma)
- . (dot)
- /* (multiline comment)
- /** (doc comment)
- // (comment)
- ; (semicolon)
- = (assign)
- [] (array access)
- {} (curly braces)
- catch
- class
- draw()
- exit()
- extends
- false
- final
- implements
- import
- loop()
- new

Shape
- createShape()
- loadShape()
- PShape
- 2D Primitives
  - arc()
  - ellipse()
  - line()
  - point()
  - quad()
  - rect()
  - triangle()
- Curves
  - bezier()
  - bezierDetail()
  - bezierPoint()
  - bezierTangent()
  - curve()
  - curveDetail()
  - curvePoint()

Color
- Setting
  - background()
  - clear()
  - colorMode()
  - fill()
  - noFill()
  - noStroke()
  - stroke()
- Creating & Reading
  - alpha()
  - blue()
  - brightness()
  - color()
  - green()
  - hue()
  - lerpColor()
  - red()
  - saturation()
### Examples

Short, prototypical programs exploring the basics of programming with Processing.

These examples are running online through p5.js using HTML Canvas for rendering. There are many more examples included with the Processing application; please look there if you don't find what you're looking for here.

### Basic Examples

*Programs about form, data, images, color, typography, and more...*

<table>
<thead>
<tr>
<th>Structure</th>
<th>Image</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statements and Comments</td>
<td>Load and Display Image</td>
<td>Mouse 1D</td>
</tr>
<tr>
<td>Coordinates</td>
<td>Background Image</td>
<td>Mouse 2D</td>
</tr>
<tr>
<td>Width and Height</td>
<td>Transparency</td>
<td>MousePress</td>
</tr>
<tr>
<td>Setup and Draw</td>
<td>Alphamask</td>
<td>Mouse Signals</td>
</tr>
<tr>
<td>No Loop</td>
<td>CreateImage</td>
<td>Easing</td>
</tr>
<tr>
<td>Loop</td>
<td>Pointillism</td>
<td>Constrain</td>
</tr>
<tr>
<td>Redraw</td>
<td>Request Image</td>
<td>Storing Input</td>
</tr>
<tr>
<td>Functions</td>
<td></td>
<td>Mouse Functions</td>
</tr>
<tr>
<td>Recursion</td>
<td></td>
<td>Keyboard</td>
</tr>
<tr>
<td>CreateGraphics</td>
<td><strong>Color</strong></td>
<td>Keyboard Functions</td>
</tr>
<tr>
<td></td>
<td>Hue</td>
<td>Milliseconds</td>
</tr>
<tr>
<td></td>
<td>Saturation</td>
<td>Clock</td>
</tr>
<tr>
<td></td>
<td>Brightness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Color Variables</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Transform</strong></td>
</tr>
<tr>
<td>Form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Points and Lines</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Examples

Short, prototypical programs exploring the basics of programming with Processing.

These examples are running online through p5.js using HTML Canvas for rendering. There are many more examples included with the Processing application; please look there if you don't find what you're looking for here.

### Basic Examples

Programs about form, data, images, color, typography, and more...

<table>
<thead>
<tr>
<th>Structure</th>
<th>Image</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statements and Comments</td>
<td>Load and Display Image</td>
<td>Mouse 1D</td>
</tr>
<tr>
<td>Coordinates</td>
<td>Background Image</td>
<td>Mouse 2D</td>
</tr>
<tr>
<td>Width and Height</td>
<td>Transparency</td>
<td>MousePress</td>
</tr>
<tr>
<td>Setup and Draw</td>
<td>Alphamask</td>
<td>Mouse Signals</td>
</tr>
<tr>
<td>No Loop</td>
<td>CreaitImage</td>
<td>Easing</td>
</tr>
<tr>
<td>Loop</td>
<td>Pointillism</td>
<td>Constrain</td>
</tr>
<tr>
<td>Redraw</td>
<td>Request Image</td>
<td>Storing Input</td>
</tr>
<tr>
<td>Functions</td>
<td>Color</td>
<td>Mouse Functions</td>
</tr>
<tr>
<td>Recursion</td>
<td>Hue</td>
<td>Keyboard</td>
</tr>
<tr>
<td>CreateGraphics</td>
<td>Saturation</td>
<td>Keyboard Functions</td>
</tr>
<tr>
<td></td>
<td>Brightness</td>
<td>Milliseconds</td>
</tr>
<tr>
<td>Form</td>
<td>Color Variables</td>
<td>Clock</td>
</tr>
<tr>
<td>Points and Lines</td>
<td>Transform</td>
<td></td>
</tr>
</tbody>
</table>
Hello Processing!

Dan Shiffman

http://hello.processing.org/
The Sketch

- Integrated Development Environment (IDE)
- Run/Stop
- Name of sketch
- Programming area (editor)
- Program
The Sketch

```
BasicSketch
1  // circles
2  // D. Thiebaut
3  void setup() {
4      size( 500, 500 );
5      smooth();
6  }
7  void draw() {
8      ellipse( mouseX, mouseY, 80, 80 );
9  }
10```

D. Thiebaut, Computer Science, Smith College
The Sketch

```
// circles
// D. Thiebaut

void setup() {
  size( 500, 500 );
  smooth();
}

void draw() {
  ellipse( mouseX, mouseY, 10, 10);
}
```
The Sketch

```java
BasicSketch

1 // circles
2 // D. Thiebaut
3
4 void setup() {
5   size(500, 500);
6   smooth();
7 }
8
9 void draw() {
10   ellipse(mouseX, mouseY, 80, 80
11 }
12
```
// circles
// D. Thiebaut
// displays circles following the
// mouse pointer.

void setup() {
    size( 500, 500 );
    smooth();
}

void draw() {
    ellipse( mouseX, mouseY, 80, 80 );
}

- Comments
- Functions
- `setup()`: once
- `draw()`: many times/sec
void setup() {
    size( 500, 500 );
    smooth();
}

void draw() {
    ellipse( mouseX, mouseY, 80, 80 );
}
Program Organization

- Comments
- Functions
- `setup()`: once
- `draw()`: many times/sec
void setup() {
    size(500, 500);
    smooth();
}

void draw() {
    ellipse(mouseX, mouseY, 80, 80);
}
// circles
// D. Thiebaut

void setup() {
  size(500, 500);
  smooth();
}

void draw() {
  ellipse(mouseX, mouseY, 80, 80);
}

- Comments
- Functions
- `setup()`: once
- `draw()`: many times/ sec
Program Organization

// circles
// D. Thiebaut

void setup() {
  size( 500, 500 );
  smooth();
}

void draw() {
  ellipse( mouseX, mouseY, 80, 80 );
}

• Comments
• Functions
• setup(): once
• draw(): many times/sec

Animation Loop
Understanding `mouseX` & `mouseY`
Understanding \texttt{size(w,h)}
Understanding `background()`