

ALGORITHMIC DRAWING WITH P5.JS

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London Pattern Club

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WHAT WE'LL COVER BEFORE THE BREAK

Introduction to algorithmic drawing and p5.js

- * what is algorithmic drawing with examples
- * what is p5 and how it relates to JavaScript
- * intro to the code editor
- * documentation
- * looking for resources
- * further learning resources

Coding demo:

- * how to draw a circle
- * how to change colour
- * add mouse interaction
- * conditional ("if") statements
- * "for" loops
- * custom functions

WHAT IS ALGORITHMIC DRAWING?

ALGORITHM - DEFINITION

Encyclopedia Britannica ([brittanica.com](https://www.brittanica.com))

- * systematic procedure that produces — in a finite number of steps — the answer to a question or the solution of a problem.

Cambridge English Dictionary (dictionary.cambridge.org)

- * a set of mathematical instructions or rules that, especially if given to a computer, will help to calculate an answer to a problem.

Merriam-Webster Dictionary ([merriam-webster.com](https://www.merriam-webster.com))

- * a procedure for solving a mathematical problem (as of finding the greatest common divisor) in a finite number of steps that frequently involves repetition of an operation
- * broadly: a step-by-step procedure for solving a problem or accomplishing some end.

ALGORITHMIC DRAWING

- * Using a specific and finite set of instructions to produce a drawing.**
- * We're focusing on computational algorithmic drawing using coding, but it can also be done manually - as long as you have a clear instruction to follow.

WALKING by ***LAURIE FRICK***

<https://www.lauriefrick.com/walking/>

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WOVEN TEXTILES by ***ANNI ALBERS***

<https://publicdelivery.org/wp-content/uploads/2018/01/Anni-Albers-Wall-Hanging-1926-mercerized-cotton-silk-2032-x-1207-cm.jpg>

<https://www.artsy.net/artwork/anni-albers-red-and-blue-layers>

<https://www.dailymail.co.uk/home/event/article-6553757/Tate-Moderns-retrospective-Anni-Albersshows-shes-weaving-spell-90-years-on.html>

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JACQUARD MACHINE

https://www.scienceandindustrymuseum.org.uk/sites/default/files/styles/embedded_image/public/2019-06/Jacquard-cards-2.jpg?itok=VEt8vIUj

<https://www.weavetec.com/wp-content/uploads/2021/07/jacquardweaving1-scaled.jpg>

WHAT IS P5.JS?

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In community words

p5.js is a **friendly tool for learning to code and make art**. It is a **free and open-source JavaScript library** built by an inclusive, nurturing community. p5.js welcomes artists, designers, beginners, educators, and anyone else!

p5.js prioritizes **accessibility, inclusivity, community, and joy**.

<https://p5js.org/about/>

P5 AS A JAVASCRIPT LIBRARY

- * for creative and educational applications
- * can be used with limited technical knowledge of general JavaScript and web development due to its great documentation, community, and online editor
- * maintained by the Processing Foundation
- * centred around community, education, and inclusivity

A FEW TECHNICAL BITS ABOUT JAVASCRIPT

- * for dynamic web applications
- * used with HTML and CSS
- * dynamically typed, garbage-collected, interpreted, executed line-by-line
- * can be good for working with media, unless too computationally heavy

***beginner coders, you don't need to know all of this
to make beautiful and fun things with p5 <3**

WHEN YOU MAY WANT TO USE P5?

- * algorithmic drawing, modelling and animation - 2d and 3d
- * working with images - glitch effects, collage, etc.
- * graphics mixing different elements such as algorithmic drawing, images, text, etc.
- * simple works involving sound
- * simple browser-based games
- * learning and teaching to code
- * other artistic and educational applications

WHEN YOU MAY WANT TO NOT USE P5?

- * **very complex animations** that need to run **in real time**, although for putting interactive stuff online p5 and threejs are still your best shots. If it's computationally heavy and can be offline, check out Processing (Java-based) or OpenFrameworks (C++ based), or Unreal Engine, or TouchDesigner.
- * for some **advanced animations**, you may be able to **combine p5 (or threejs) with shaders in GLSL**
- * more **advanced sound projects** (as a JS alternative, I'd recommend maximillian)
- * **advanced 3d work** with **complex lighting and textures** (as a JS alternative, I'd recommend threejs - it's also the industry standard for commercial work)

P5 PROJECT EXAMPLES

ZEN POTS by ***NEWYELLOW***

<https://p5js.org/sketches/2036000/>

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PADRÃO GEOMÉTRICO

by ***GUILHERME VIEIR***

<https://p5js.org/sketches/2225777/>

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GENERATIVE SUCCULENTS

by ***NEWYELLOW***

<https://p5js.org/sketches/1957050/>

GEODATA WEAVING

by ***KASPAR***

<https://p5js.org/sketches/2219842/>

OTHER PROJECT EXAMPLES

MUSIC VIDEO FOR MAX COOPER'S PENROSE TILING

by ***JESSICA IN***
(made in Processing)

<https://www.youtube.com/watch?v=j8SNmGHhfs>

<https://www.instagram.com/shedrawswithcode/>

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BARBARIANS by ***JACEK MARKUSIEWICZ*** (made in JavaScript)

<https://verse.works/artworks/03ebceb6-9cbb-4f50-9734-c853566ff239/90>

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WORLD-MAKING* by *SAGE JENSON

(made in C++ with OpenFrameworks)

<https://www.instagram.com/mxsage/>

<https://www.sagejenson.com/>

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OTHER COOL ARTISTS

- * **Lauren Lee McCarthy (the creator of p5.js)**

<https://lauren-mccarthy.com/>

- * **Zach Lieberman**

<https://www.instagram.com/zach.lieberman/>

- * **Matt Des Lauriers**

https://www.instagram.com/mattdesl_art/

- * **Tyler Hobbs**

<https://www.instagram.com/tylerxhobbs/>

- * **Casey Reas**

<https://reas.com/>

Let's do some drawing!

Demo 1 starter code:

<https://editor.p5js.org/marysiatanska/sketches/mttZ385he>

Demo 2 starter code:

https://editor.p5js.org/marysiatanska/sketches/VhBPo_aDd

Demo 3 starter code - we will duplicate the finished Demo 2

LET'S HAVE A LITTLE BREAK