while

A way to repeat a block of code.

`while` loops are helpful for repeating statements while a condition is `true`. They're like `if` statements that repeat. For example, a `while` loop makes it easy to express the idea "draw several lines" like so:

```
// Declare a variable to keep track of iteration.
let x = 10;

// Repeat as long as x < 100
while (x < 100) {
  line(x, 25, x, 75);

  // Increment by 20.
  x += 20;
}
```

The loop's header begins with the keyword `while`. Loops generally count up or count down as they repeat, or iterate. The statement in parentheses `x < 100` is a condition the loop checks each time it iterates. If the condition is `true`, the loop runs the code between the curly braces `{}`. The code between the curly braces is called the loop's body. If the condition is `false`, the body is skipped and the loop is stopped.

It's common to create infinite loops accidentally. For example, the following loop never stops iterating because it doesn't count up:

```
// Declare a variable to keep track of iteration.
let x = 10;

// Repeat as long as x < 100
while (x < 100) {
  line(x, 25, x, 75);
}

// This should be in the loop's body!
x += 20;
```

The statement `x += 20` appears after the loop's body. That means the variable `x` is stuck at `10`, which is always less than `100`.

`while` loops are useful when the number of iterations isn't known in advance. For example, concentric circles could be drawn at random increments:

```
let d = 100;
let minSize = 5;

while (d > minSize) {
  circle(50, 50, d);
  d -= random(10);
}
```

Examples

```
function setup() {
  createCanvas(100, 100);

  describe('Five black vertical lines on a gray background.');
}

function draw() {
  background(200);

  // Declare a variable to keep track of iteration.
  let x = 10;

  // Repeat as long as x < 100
  while (x < 100) {
    line(x, 25, x, 75);

    // Increment by 20.
    x += 20;
  }
}
```

```
function setup() {
  createCanvas(100, 100);

  // Slow the frame rate.
  frameRate(5);

  describe(
    "A gray square with several concentric circles at the
center. The circles' sizes decrease at random increments."
  );
}

function draw() {
  background(200);

  let d = 100;
  let minSize = 5;

  while (d > minSize) {
    circle(50, 50, d);
    d -= random(5, 15);
  }
}
```

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Related References

class
A template for creating objects of a particular type.

console
Prints a message to the web browser's console.

for
A way to repeat a block of code when the number of iterations is known.

function
A named group of statements.