

Section B

Unit #8

Date &

Time



Unit #8 Time

Sketch B8.1	seconds count
Sketch B8.2	a second look
Sketch B8.3	what a year
Sketch B8.4	milliseconds of time
Sketch B8.5	in the blink of an eye



Introduction

A brief look at how you can incorporate the time and date, and using the `millis()` function to measure the passage of time.

Unit #8 Time

Now is the time

This unit is about getting the time and date from your computer. What it also serves is to look at some other features like text align. One challenge that you could try is to create a seven segment display using the time and a lot of code.



Sketch B8.1 seconds count

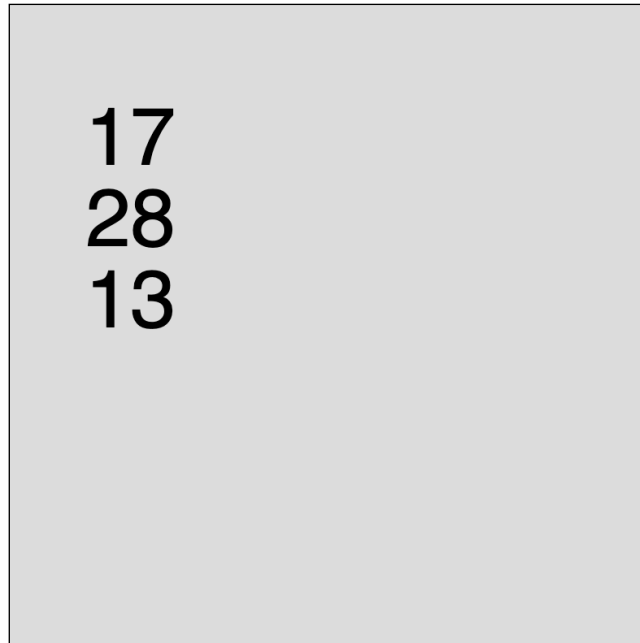
Getting hour, the minute and seconds of the current time

```
let h
let m
let s

function setup()
{
  createCanvas(400, 400)
  textSize(50)
}

function draw()
{
  background(220)
  h = hour()
  m = minute()
  s = second()
  text(h, 50, 100)
  text(m, 50, 150)
  text(s, 50, 200)
}
```

You get the time in hours, minutes and seconds



Notes

Gives the hour (24 hour clock), the minutes and the seconds. Notice that it gives the minutes and seconds in single figures for below 10.



Time functions

hour() gives you the current hour
minute() gives you the current minutes
second() gives you the current seconds

Challenge

How would you put text in front (hint: `text('hours: ' + h, 50, 100)`)



Sketch B8.2 a second look

A better looking clock

```
let h
let m
let s

function setup()
{
  createCanvas(400, 400)
  textSize(50)
}

function draw()
{
  background(220)
  h = hour()
  m = minute()
  s = second()
  text(h, 50, 100)
  if (m < 10)
  {
    text('0' + m, 50, 150)
  }
  else
  {
    text(m, 50, 150)
  }
  if (s < 10)
  {
    text('0' + s, 50, 200)
```



```
}  
else  
{  
    text(s, 50, 200)  
}  
}
```

Puts a zero before the 3



17
31
03

Notes

Improves the look by putting the 0 in front of the digit if less than 10 for minutes and seconds.

Challenge

Now put 0 before the hour (if earlier than 10 o'clock)



Sketch B8.3 what a year

Adding the date

```
let d
let m
let y

function setup()
{
  createCanvas(400, 400)
  textSize(50)
}

function draw()
{
  background(220)
  d = day()
  m = month()
  y = year()
  text(d, 50, 100)
  text(m, 50, 150)
  text(y, 50, 200)
}
```

Gives us the date, the month and the
year



20
11
2021

Notes

Gives the day in numbers. The month in numbers and also the year



Date functions

day() gives you the current day (as a number)

month() gives you the current month (as a number)

year() gives you the current year

Challenge

Using the date and time how creative could you be in showing all this information graphically



Sketch B8.4 milliseconds of time

Milliseconds of time represented differently, as a float, an integer and as seconds

```
function setup()
{
  createCanvas(400, 400)
  textSize(30)
}

function draw()
{
  background(220)
  text(millis(), 50, 50)
  text(int(millis()), 50, 100)
  text(int(millis())/1000, 50, 150)
}
```

Milliseconds as a float, integer and just
seconds

7153.299999713898

7153

7

Notes

The `millis()` returns the number of milliseconds have elapsed since the programme started running as a float. Uses `int` to stop the numbers having too many decimal points. The last one counts the number of seconds.

Challenge

Create a stopwatch effect where the loop (`noLoop()`) stops when you click the mouse



Sketch B8.5 in the blink of an eye

A long winded way of a blinking (every second) sketch but it demonstrates how it can be done.

```
let a = 0
let b = 0
let c = 0
let value = 255

function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  b = millis()
  c = b - a
  fill(value)
  circle(width/2, height/2, 100)
  if (c <= 1000)
  {
    value = 255
  }
  if (c >= 1000)
  {
    value = 0
  }
  if (c >= 2000)
  {
    a = b
  }
}
```

```
}  
}
```

Notes

A simple blink programme. Uses a bit of simple maths to count 1000 milliseconds (1 second).

Challenge

Make it blink faster or slower



Sketch B8.6 alternative modulo

This does the same thing where modulo returns the remainder

```
let value = 255

function setup()
{
  createCanvas(400, 400)
  background(220)
}

function draw()
{
  fill(value)
  circle(width/2, height/2, 100)
  if (millis() % 2000 <= 1000)
  {
    value = 255
  }
  else if (millis() % 2000 >= 1000)
  {
    value = 0
  }
}
```

Notes

The same result, the circle blinks black and white every second