

<http://www.khanacademy.org/cs>

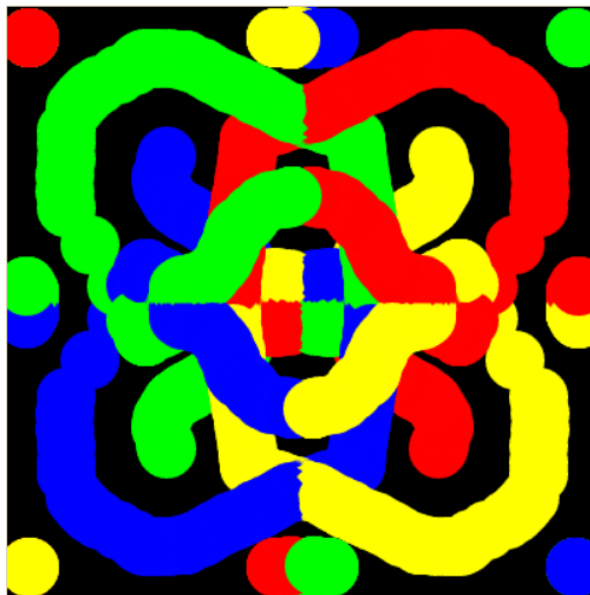
(Poziom liceum i uzdolnionych uczniów gimnazjum)

4 kolory

<http://www.khanacademy.org/cs/4kolory/1014906210>

```
//comments in Polish
noStroke(); //bez obwódki
background(0, 0, 0);
var r = 40; //promień kółek, które rysują

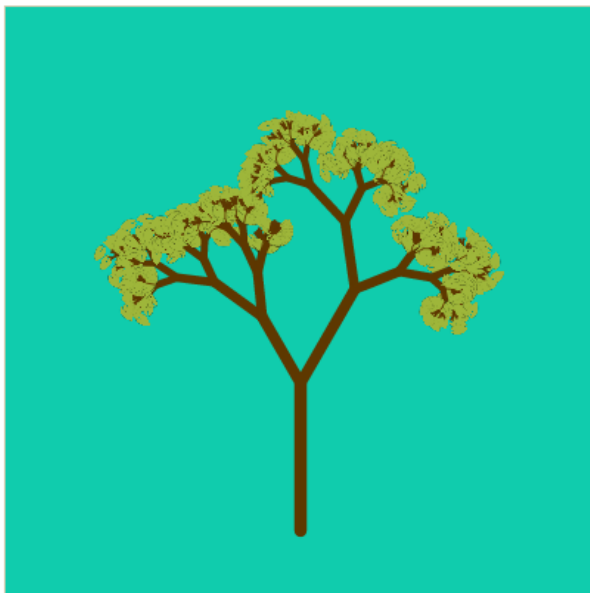
//petla rysowania
var draw = function() {
  if (mouseIsPressed) //po naciśnięciu lewego przycisku
  myszy
  { fill(0, 0, 255); //pod myszką - niebieski
    ellipse(mouseX, mouseY, r, r);
    fill(255, 255, 0); //odbity wzgl. osi pionowej - żółty
    ellipse(400-mouseX, mouseY, r, r);
    fill(255, 0, 0); //po przeciwnej - czerwony
    ellipse(400-mouseX, 400-mouseY, r, r);
    fill(0, 255, 0); //odbity wzgl. osi poziomej - zielony
    ellipse(mouseX, 400-mouseY, r, r);}
};
```



Losowe drzewo binarne

<http://www.khanacademy.org/cs/drzewbinlos/1014877709>

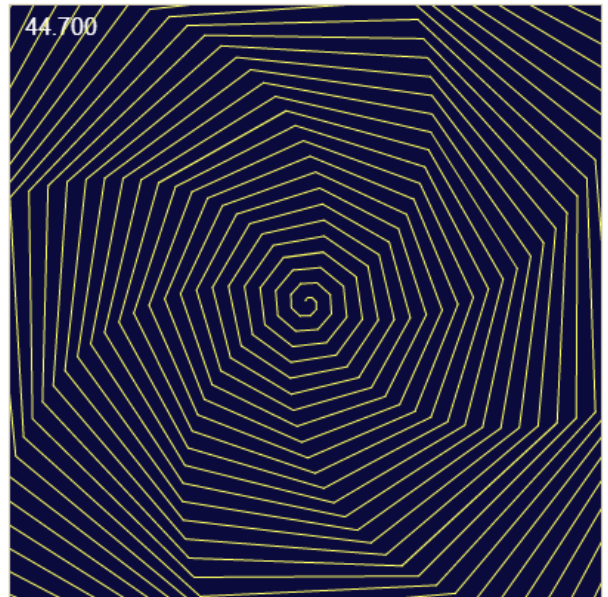
```
var alfa = 30; //kąt skretu (miedzy gałęziami *2)
var skala = 0.6; //zmniejszenie kolejnego poziomu
var dPocz = 100; //długość pnia
var nPoz = 10; //liczba poziomów
stroke(94, 56, 0);
//grafika żółwia
var forward = function(distance) {line(0, 0, 0, -distance);
  translate(0, -distance);};
var back = function(distance) {forward(-distance);};
var right = function(angle) {rotate(angle*PI/180);};
var left = function(angle) {right(-angle);};
var leaf = getImage("avatars/leaf-green"); //obrazek liscia
//rekurencyjne drzewo binarne z losowymi długościami i kątami
var drzewoLos = function(n, d, alf) {
  if (n === 0) { image(leaf, get, get, 13, 13); return; }
  strokeWeight(n/1.2); forward(d); left(alf);
  drzewoLos(n - 1, d * skala*random(70, 130)/100, alf*random
(70, 130)/100);
  right(2*alf);
  drzewoLos(n - 1, d * skala*random(70, 130)/100, alf*random
(70, 130)/100);
  left(alf); back(d);};
resetMatrix();
background(16, 204, 173);
translate(200, 355);
drzewoLos(nPoz, dPocz, alfa);
```



Wielospi - zakręty

<http://www.khanacademy.org/cs/wielospi/1024885544>

```
var b=1; //bok początkowy
var a=0; //kąt początkowy
var s=1; //zmiana boku w wielospi
//grafika żółwia
var forward = function(distance) {line(0, 0, 0, -distance);
  translate(0, -distance);};
var back = function(distance) {forward(-distance);};
var right = function(angle) {rotate(angle);};
var left = function(angle) {right(-angle);};
//rekurencyjne spiralowanie
var wielospi = function (bok, alf)
  {if (bok > 300) {return;}
  forward (bok); right (alf);
  wielospi (bok+s, alf);};
//rysowanie kolejnych spiral, wypisywany kąt
var draw = function () {
  resetMatrix(); background(10, 10, 60);
  textSize(16);
  text(a, 10, 20);
  stroke(255, 255, 100); translate (200, 200); //kolor spi.
  wielospi (b,a);
  a+=0.05;      };
```



Spadek swobodny

<http://www.khanacademy.org/cs/elipsa/1014433526>

```
// spadek swobodny (g=10)
var g = 10; //przyspieszenie
var y0 = 50; //wys. początkowa
var dt = 0.1; //krok czasowy
var r = 50; //promień piłki
var t = 0;
fill(0, 0, 255);
ellipse(200,y0,r,r);
//petla rysowania
var draw = function () {
  var y = y0 + g*t*t/2; // ruch jedn. przysp.
  if (y > 400-r/2) {dt = -dt;} // do góry (odwr. czasu)
  t +=dt;
  background(255, 255, 255); //wymazywanie poprz. poz.
  ellipse(200,y,r,r);
  textSize(36); //wyswietlanie wysokosci
  text(round(400-y), 20,40);
};
```

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Wielospi - zakręty

<http://beta.scratch.mit.edu/projects/10037995/>

The image shows a Scratch project titled "spirale" by Witek (shared). The stage displays a blue fractal spiral. A slider for "kąć" is set to 74. The code is organized into two scripts. The first script, triggered by a green flag click, defines "wielospi bok kąt" and contains a loop that moves the pen forward by "bok" and turns it by "kąt" degrees, repeating this 50 times. The second script, triggered by a "kiedy otrzymam spirala" event, sets the pen to the origin, sets the direction to 0, and then calls the "wielospi" function with "bok" set to 2 and "kąt" set to 72. It also includes a "czekaj 1 s" block and a "zmień kolor pisaka o 10" block.

Drzewo binarne

<http://beta.scratch.mit.edu/projects/10020737>

The image shows a Scratch project titled "Duszek" by Witek (shared). The stage displays a green binary tree. A slider for "n" is set to 7, and a slider for "długość" is set to 175. The code is organized into two scripts. The first script, triggered by a green flag click, sets "number1" to 0 and "number2" to 175. It then enters a loop that repeats 10 times, where it checks if the left mouse button is clicked. If clicked, it sets the pen direction to 0, moves the pen to (-175, 0), and calls the "drzewo" function with "number1" set to -1 and "number2" set to "number2 / 2". The second script, triggered by a "kiedy duszek kliknięty" event, sets the pen direction to 0, moves the pen to (0, -175), and calls the "drzewo" function with "number1" set to -1 and "number2" set to "number2 / 2".

Płatek Kocha

<http://beta.scratch.mit.edu/projects/10056253>

The image shows a Scratch project titled "Duszek" by Witek (shared). The stage displays a blue Koch snowflake. Sliders for "stopień" (set to 5) and "wielkość" (set to 300) are visible. A slider for "kąć" is set to 60. The code is organized into two scripts. The first script, triggered by a green flag click, defines "Koch n bok alfa" and contains a loop that repeats 3 times, where it moves the pen forward by "bok" and turns it by "alfa" degrees. The second script, triggered by a "kiedy duszek kliknięty" event, sets the pen direction to 0, moves the pen to (0, 0), sets the pen size to "wielkość / sqrt z 3", and calls the "Koch" function with "n" set to 1, "bok" set to "wielkość / 3", and "alfa" set to "stopień".