

Changing Speed

- need animation variable for speed

```
float x1, x2, x3; // x position for the t
void setup () {
  size(600, 400);
  // start at the edge of the window
  x1 = 10;
  x2 = 10;
  x3 = 10;
}
void draw () {
  background(255);
  ellipseMode(CENTER);
  // draw circles
  fill(255, 0, 0);
  ellipse(x1, height/4, 20, 20);
  fill(0, 255, 0);
  ellipse(x2, 2*height/4, 20, 20);
  fill(0, 0, 255);
  ellipse(x3, 3*height/4, 20, 20);
  // update position and speed
  x1 = x1+1;
  x2 = x2+1;
  x3 = x3+1;
}
```

```
float x1, x2, x3; // x position for the three circles
float xspeed2, xspeed3; // x speed for circles #2 and 3
void setup () {
  size(600, 400);
  // start at the edge of the window
  x1 = 10;
  x2 = 10;
  x3 = 10;
  xspeed2 = 0; // start at rest
  xspeed3 = 7; // start in motion
}
void draw () {
  background(255);
  ellipseMode(CENTER);
  // draw circles
  fill(255, 0, 0);
  ellipse(x1, height/4, 20, 20);
  fill(0, 255, 0);
  ellipse(x2, 2*height/4, 20, 20);
  fill(0, 0, 255);
  ellipse(x3, 3*height/4, 20, 20);
  // update position and speed
  x1 = x1+1;
  x2 = x2+xspeed2;
  x3 = x3+xspeed3;
  xspeed2 = xspeed2+0.05; // accelerate
  xspeed3 = xspeed3-0.05; // decelerate
}
```

Constrained Motion with Parametric Equations

0 starts at the beginning of the ramp – use a different value to start farther along
 compute current position – ramp equations (substitute your own values for x_0 , y_0 , w , h – or your own equations for a different motion path)
 draw shape using the current position

```
float t;
void setup () {
  size(400, 400);
  t = 0;
}
void draw () {
  // float x = x_0 + t*w;
  // float y = y_0 + t*h;
  ellipse(x, y, 30, 30);
  t = t+.01; // size of update of t controls speed
}
void setup () {
  size(400,400);
}
void draw () {
  background(255);
  fill(0);
  triangle(0, height, 0, height/2, 3*width/4, height);
  {
    float x = 0 + t*3*width/4;
    float y = height/2-12 + t*height/2;
    fill(255, 0, 0);
    ellipse(x, y, 20, 20);
  }
  t=t+.005;
}
```