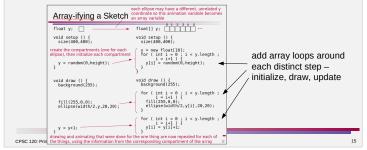
Array-ifying a Sketch

Be careful not to sweep up too much into one array loop -

- add a separate array loop around each distinct step that applies to all of the things
- do not include setting or updating non-array animation variables in an array loop



Array-ifying a Sketch - Example 2

```
float x, xspeed; // position
                                // every ellipse starts with the same x coordinate
                                x = new float[20]:
oid setup () {
                                for ( int i = 0; i < x.length; i = i+1 ) {
 size(400, 400);
                                  x[i] = 10;
 xspeed = random(0, 5);
                                // every ellipse has a random speed
                                xspeed = new float[20];
                                for ( int i = 0; i < xspeed.length; i = i+1 ) {
/oid draw () {
                                  xspeed[i] = random(0, 5);
 background(255);
 ellipseMode(CENTER);
                                // every ellipse starts with the same x coordinate
 // draw ellipse
 fill(255, 0, 0);
                                x = new float[20];
                                xspeed = new float[20];
 ellipse(x, 10, 20, 20);
                                for ( int i = 0; i < x.length; i = i+1 ) {
                                  x[i] = 10;
 // move ellipse
                                  xspeed[i] = random(0, 5);
```

- initialization can be viewed as several steps initialize x, initialize xspeed – or as one step – initialize ellipse
- \rightarrow can have a separate array loop to initialize each array or a single array loop to initialize all of the arrays

Array-ifying a Sketch – Example 2

```
float x, xspeed; // position and speed of ellipse
void setup () {
 size(400, 400);
 x = 10:
 xspeed = random(0, 5);
void draw () {
                                 // draw all the ellipses
 background(255):
                                 for ( int i = 0; i < x.length; i = i+1 ) {
 ellipseMode(CENTER);
                                   fill(255, 0, 0);
                                  ellipse(x[i], 10, 20, 20);
 // draw ellipse
 fill(255, 0, 0);
 ellipse(x, 10, 20, 20);
                                 // move all the ellipses
                                 for ( int i = 0; i < x.length; i = i+1 ) {</pre>
 // move ellipse
                                  x[i] = x[i]+xspeed[i];
 x = x + x speed:
```

- two distinct steps applying to all the things draw and move
 - → separate array loop around each
 - original sketch had two steps draw ellipse, move ellipse
 - array-ified sketch has two steps draw all ellipses, move all ellipses

Array-ifying a Sketch – Example 3

```
float x, xspeed; // position and speed of ellipse
float red;

√∠ color of ellipse

void setup () {
                               float[] x, xspeed; // position and speed of ellipses
 size(400, 400);
                                                // color of ellipses
                               void setup () {
 xspeed = random(0, 5);
                                size(400, 400);
 red = 255;
                                // every ellipse starts with the same x coordinate
                                // and a random speed
void draw () {
                                x = new float[20];
 background(255);
                                xspeed = new float[20];
 ellipseMode(CENTER);
                                for ( int i = 0; i < x.length; i = i+1 ) {
                                  x[i] = 10:
 // draw ellipse
                                  xspeed[i] = random(0, 5);
 fill(red, 0, 0);
 ellipse(x, 10, 20, 20);
 red = 255;
 if ( red > 0 ) {
  red = red-1:
```

 same color for all ellipses → red does not become an array variable and does not go into the initialization array loop

Array-ifying a Sketch – Example 3 float x, xspeed; // position and speed of ellipse float red; // color of ellipse // move all the ellipses and update color if not black void setup () { // *** INCORRECT! size(400, 400); // Interest in the content of the co x = 10; xspeed = random(0, 5); red = 255; void draw () { background(255); ellipseMode(CENTER); // move all the ellipses and update color if not black if (red > 0) { for (int i = 0; i < x.length; i = i+1) {</pre> x[i] = x[i]+xspeed[i]; // draw ellipse fill(red, 0, 0); ellipse(x, 10, 20, red = red-1; if (red > 0) { // move ellipse // update color // update color // move ellipse amif (red > 0) {/ odate color if not black} x = x+xspeed; red = red-1; same color for all ellipses → update of red cannot go into an array loop