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| **Unit:** Methodology | **Turn In List:** **1. Terms** |
| *“I will be able to identify and prescribe solutions for various types of errors in a program.”* | |

**Working with Errors: What happens when a program breaks or fails?**

**Content Objectives:** Students will be able to identify and resolve syntax, runtime and logic errors while stepping through an application.

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| **Starter Activity** |
| Use a while loop to accomplish the following result:   |  |  | | --- | --- | | **Code** | **Result** | | // code here:  int i=0;  while (i < width) {  line(0,i,width,i);  i+=5;  } | Macintosh HD:Users:kkapptie:Desktop:Screen Shot 2013-10-03 at 6.49.48 AM.png |   Use a for loop to accomplish the following result:   |  |  | | --- | --- | | **Code** | **Result** | | // code here:  int i=0;  while (i < width) {  line(0,i,width,i);  i+=5;} | Macintosh HD:Users:kkapptie:Desktop:Screen Shot 2013-10-03 at 6.49.48 AM.png | |

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| **Key Terms:** | |
| Syntax Error | A character or string incorrectly placed in a command or instruction that causes failure in the code |
| Runtime Error | A program error that occurs while the code is running |
| Logic Error | A bug in the program that causes it to operate incorrectly, and put out an undesired behavior |
| Break Point | When a program may be interrupted for debugging purposes or manual intervention |
| Iterate or Iteration | Repeating the process of code with a sequence of outcomes |

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| **Assignment:** |
| Complete the code to accomplish the result on the right:   |  |  | | --- | --- | | size(200, 200);  background(255);  float w = 200;  while (w > 0) {  stroke(0);  fill(w);  ellipse(width/2, height/2, w, w);  w = w - 20;  } | Macintosh HD:Users:kkapptie:Desktop:Screen Shot 2013-10-03 at 9.45.11 AM.png |   Complete the code to accomplish the result on the right:   |  |  | | --- | --- | | size(200,200);  background(255);  for(int i =200; i > 0; i = i-20){  stroke(0);  fill(i);  ellipse(width/2,height/2,i,i);  } | Macintosh HD:Users:kkapptie:Desktop:Screen Shot 2013-10-03 at 9.45.11 AM.png |   Use a nested loop to create random filled rectangles inside a canvas (8 lines of code in a for loop):   |  |  | | --- | --- | | size(200,200);  for (int p = 0; p <width; p+=10) {  for(int q=0; q < height; q+=10){  noStroke();  fill(random(255));  rect(p,q,10,10);  }  } | Macintosh HD:Users:kkapptie:Desktop:Screen Shot 2013-10-03 at 7.21.37 AM.png |   **Etch-A-Sketch**  Modify the code below to create an algorithm to write your name.   |  |  | | --- | --- | | int x, y;  void setup() {  size(400, 400);  frameRate(10);  //Set start coords  x=0;  y=0;  }  void draw() {  strokeWeight(2);  //drawName();  //noLoop();  }  //Algorithm for your first name  void drawName() {  moveDown(5);  moveRight(5);  moveLeft(5);  moveUp(5);  }  //Method to draw right line  void moveRight(int rep) {  for (int i=0; i<rep\*5; i++) {  point(x+i, y);  }  x=x+(5\*rep);  }  //Method to draw left line  void moveLeft(int rep) {  for (int i=0; i<rep\*5; i++) {  point(x-1, y);  }  x=x-(5\*rep);  }  //Method to draw down line  void moveDown(int rep) {  for (int i=0; i<rep\*5; i++) {  point(x, y+1);  }  y=y+(5\*rep);  }  //Method to draw up line  void moveUp(int rep) {  for (int i=0; i<rep\*5; i++) {  point(x, y-1);  }  y=y-(5\*rep);  }  void keyPressed() {  if(key == CODED) {  if(keyCode == RIGHT) {  moveRight(1);  } else if(keyCode == LEFT) {  moveLeft(1);  } else if(keyCode == DOWN) {  moveDown(1);  } else if(keyCode == UP) {  moveUp(1);  }  }  } | Mac HD:Users:kkapptie:Desktop:Screen Shot 2014-09-29 at 6.40.57 AM.png | |

Notes (Points of interest, mistakes, lessons learned, web resources, and thoughts):

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