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| **Date Assigned: 9/26/16** | **Date Due: 9/28/16** |
| **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<100){  line(0,i,width,i);  i=i+10  } | 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:  for(int i=0;i<100;i=i+10){  line(0,i,width,i);  } | Macintosh HD:Users:kkapptie:Desktop:Screen Shot 2013-10-03 at 6.49.48 AM.png | |

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| **Key Terms:** | |
| Syntax Error | Violating the rules of a programming language |
| Runtime Error | A series of events that will break the application while it is being run |
| Logic Error | The application works, but the intended use violates the desired result |
| Break Point | Stops the application at whatever line the user chooses |
| Iterate or Iteration | Doing something on a repeat |

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| **Assignment:** |
| Complete the code to accomplish the result on the right:   |  |  | | --- | --- | | void setup(){  size(200,200);  background(255);  float w = 200;  while(w>=0){  stroke(0);  fill(w-=5);  ellipse(width/2,height/2,w,w);  w-=15;  }  } | 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:   |  |  | | --- | --- | | void setup(){  size(200,200);  background(255);  for(int i=200; i>0;i-=15){  stroke(0);  fill(i-=5);  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 x=0;x<width;x+=10) {  for (int y=0;y<height;y+=10) {  noStroke();  fill(random(255),random(255),random(255));  rect(x,y,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(600,200);  frameRate(10);  x = 0;  y = 0;  }  void draw() {  fill(255);  drawName();  noLoop();  }  void drawName() {  moveRight(1);  moveDown(10);  moveUp(5);  moveDiagonalUp(5);  moveDiagonalUp(-5);  moveDiagonalDown(5);  moveRight(1);  moveUp(10);  moveRight(7);  moveLeft(7);  moveDown(5);  moveRight(5);  moveLeft(5);  moveDown(5);  moveRight(7);  moveRight(1);  moveUp(10);  moveRight(7);  moveLeft(7);  moveDown(5);  moveRight(5);  moveLeft(5);  moveDown(5);  moveRight(7);  moveRight(1);  moveUp(10);  moveRight(7);  moveDown(2);  moveUp(2);  moveLeft(7);  moveDown(10);  moveRight(7);  moveUp(5);  moveLeft(4);  moveDown(2);  moveUp(2);  moveRight(5);  moveLeft(1);  moveDown(5);  moveRight(1);  moveDiagonalUpSharp(10);  moveDiagonalDownSharp(5);  moveDiagonalDownSharp(-11/4);  moveLeft(6);  moveRight(6);  moveDiagonalDownSharp(11/4);  moveRight(1);  moveUp(10);  moveRight(1);  moveDiagonalDownSharp(5);  moveRight(1);  moveUp(10);  }  void moveRight(int rep) {  for(int i=0;i<rep\*10;i++){  point(x+i,y);  }  x=x+(10\*rep);  }  void moveLeft(int rep) {  for(int i=0;i<rep\*10;i++){  point(x-i,y);  }  x=x-(10\*rep);  }  void moveUp(int rep) {  for(int i=0;i<rep\*10;i++){  point(x,y-i);  }  y=y-(10\*rep);  }  void moveDown(int rep) {  for(int i=0;i<rep\*10;i++){  point(x,y+i);  }  y=y+(10\*rep);  }  void moveDiagonalUp(int rep){  for(int i=0;i<rep\*10;i++){  point(x+i,y-i);  }  x=x+(10\*rep);  y=y-(10\*rep);  }  void moveDiagonalDown(int rep){  for(int i=0;i<rep\*10;i++){  point(x+i,y+i);  }  x=x+(10\*rep);  y=y+(10\*rep);  }  void moveDiagonalUpSharp(int rep){  for(int i=0;i<rep\*10;i++){  point(x+i\*1/2,y-i);  }  x=x+(5\*rep);  y=y-(10\*rep);  }  void moveDiagonalDownSharp(int rep){  for(int i=0;i<rep\*10;i++){  point(x+i,y+i\*2);  }  x=x+(10\*rep);  y=y+(20\*rep);  } | 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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