Weekly Planner: AP CSP week of 2.10.20

BIG IDEA for the week:

3- ALGORITHMS AND PROGRAMMING

Day	
Mon 2.10	-Abstraction vs. NOT abstraction in our coding. -The importance of commenting/documentation. https://studio.code.org/projects/applab/YhHVC1HRzDqsQQH7x_67Uwd_2F-uY0IRr_T-veyL1yw/edit https://studio.code.org/projects/applab/fsr0NBim3fsap0N2_qd5NeNSIT1-EflPPiHobO9VPqo/edit **1-fix quiz (make actual program using functions), then email me.** **2- Finish up to lesson 9** **3-Finish ALL unit 1 and unit 3 HW on schoology** **4- Your app. Move to app lab and make sure it has 2 functions and 1 parameter.** **5- GET CODE BADGE!!!!!**
Tues 2.11	-Loops vs. Functions…use in our coding. -The importance of commenting/documentation. **1-fix quiz (make actual program using functions), then email me.**

	2- Finish up to lesson 9 3-Finish ALL unit 1 and unit 3 HW on schoology 4- Your app. Move to app lab and make sure it has 2 functions and 1 parameter. Email to adrienne.evans@sccnc.edu 5- GET CODE BADGE!!!!!
Wed 2.12	1-fix quiz (make actual program using functions), then email me. 2- Finish up to lesson 9 on code.org 3-Finish ALL unit 1 and unit 3 HW on schoology 4- GET CODE BADGE!!!!!
Thurs 2.13	1-fix quiz (make actual program using functions), then email me. 2- Finish up to lesson 9 on code.org 3-Finish ALL unit 1 and unit 3 HW on schoology
Friday 2.14	UNIT 3 Test

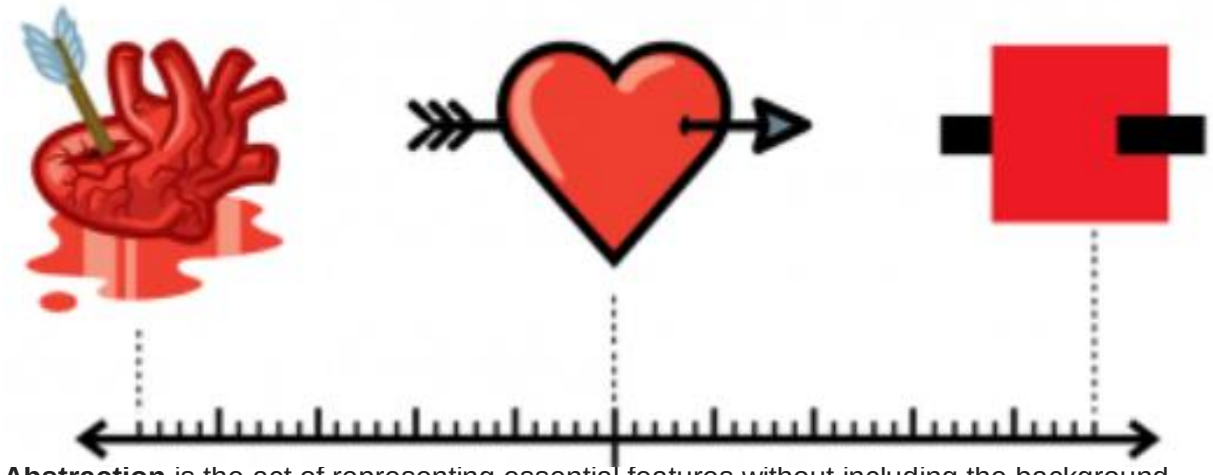
Warm up activities!

https://www.flippity.net/rp.asp?k=12CjhCA0jTq2jUcyMPs_W44wjadnS8YRDn-2paoY9M0s

Monday 2.10.20-

https://evansccca.weebly.com/

Define abstraction in terms of CSP.



Abstraction is the act of representing essential features without including the background details or explanations;
-the **abstraction** principle is used to reduce complexity and allow efficient design and implementation of complex software systems.

Tuesday 2.11.20-

What is one important naming convention of functions?

A. A function name should indicate how long the function takes to run.

B. Two functions with similar behavior should be given identical names to indicate the relationship between them.

C. A function name should be as descriptive as possible to indicate what the function doe

D. Function names should be organized alphabetically.

E. The function name should begin with a number that indicates the order in which it should be executed.

Wednesday 2.12.20-

Which of the following will call the function drawStar?

A.
```
drawStar;
```

B.
```
drawStar();
```

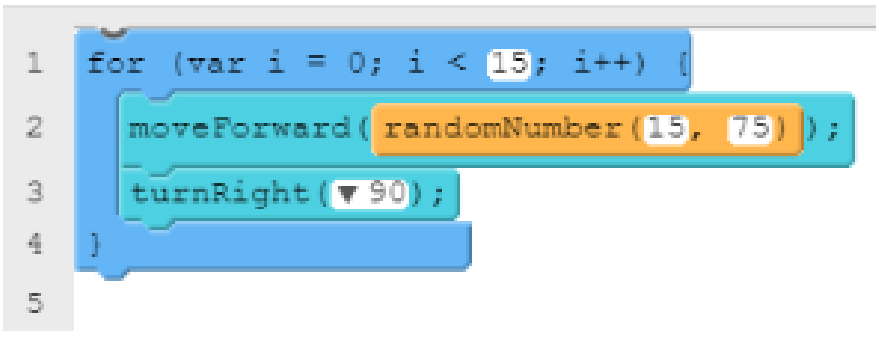
C.
```
function drawStar(){
   for(var i = 0; i < 5; i++){
     moveForward(100);
     turnLeft(36);
   }
}
```

D.
```
function drawStar;
```

E.
```
function drawStar();
```

Thursday 2.13.20-

What design would the turtle make with this program?

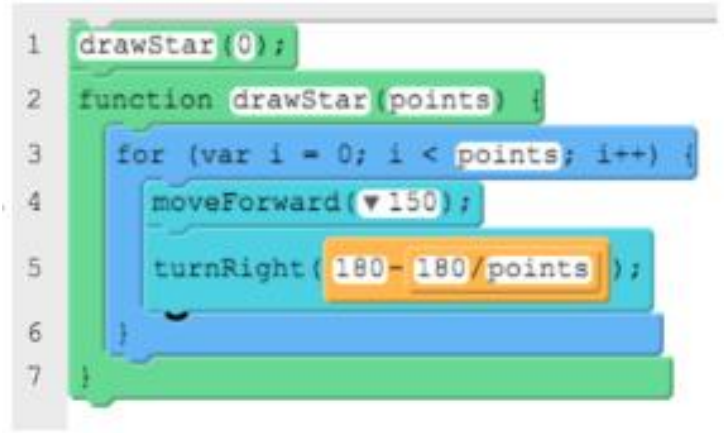


Going through the given chunk of code line by line:

- Line 1: A for loop is written. Given the beginning "i = 0" and the condition "i < 15", the code inside the loop will run 15 times.
- Line 2: The robot will move forward somewhere between 15 and 75 steps, the number of steps is chosen at random.
- Line 3: The robot turns 90 degrees to the right.

Friday 2.14.19- Unit 3

What would be the outcome of this code?



Good news= you won't get an error, bad news= ??

Looking at the 3rd line, a for loop is written but since a parameter of zero is passed in, the loop will repeat the code zero times

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Evans: https://www.youtube.com/watch?v=mxkovzExN8k

https://www.youtube.com/watch?v=eISWp6ABL4Y&list=PLmpmyPywZ442rc2vfQw9ywf944DwTJK99

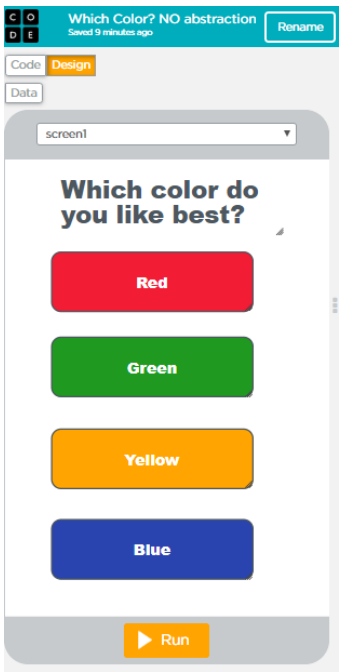
citing code

https://www.youtube.com/watch?v=yKayXNaperY&list=PLmpmyPywZ442rc2vfQw9ywf944DwTJK99&index=7

*Abstraction activity: open AppLab and make this design

Name it: Which Color? NO abstraction

Copy this Code and paste in yours:




```
onEvent("redButton", "click", function(event) {

 hideElement("whichColor");

 hideElement("redButton");

 hideElement("greenButton");

 hideElement("yellowButton");

 hideElement("blueButton");

 for (var x = 0; x < 15; x++) {

  write("Your Favorite Color is Red!");

 }

});
```

Now write the code WITH abstraction:

```
onEvent("redButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Red");
});

onEvent("greenButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Green");
});

onEvent("yellowButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Yellow");
});

onEvent("blueButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Blue");
});

function makeAllStuffDisappear()
{
  hideElement("whichColor");
  hideElement("redButton");
  hideElement("greenButton");
  hideElement("yellowButton");
  hideElement("blueButton");
}

function sayYourFavoriteColorIs(color) {
  for (var x = 0; x < 15; x++)
  {
    write("Your Favorite Color is" + color);
  }
}
```

OR:

```
onEvent("redButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Red");
});

onEvent("greenButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Green");
});

onEvent("yellowButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Yellow");
});

onEvent("blueButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Blue");
});
```

```
//THIS FUNCTION REPLACES MULTIPLE LINES OF CODE ABOVE TO HIDE ELEMENTS
function makeAllStuffDisappear()
{
  hideElement("whichColor");
  hideElement("redButton");
  hideElement("greenButton");
  hideElement("yellowButton");
  hideElement("blueButton");
}

// THIS FUNCTION HAS A PARAMETER TO REPLACE NAME WITH A STRING, IT ALSO CONTAINS A
CONTROL TO WRITE MULTIPLE TIMES
function sayYourFavoriteColorIs(color) {
  for (var x = 0; x < 15; x++)
  {
    write("Your Favorite Color is" + color);
  }
}
```

OR:

```
onEvent("redButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Red");
});

onEvent("greenButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Green");
});

onEvent("yellowButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Yellow");
});

onEvent("blueButton", "click", function(event) {
  makeAllStuffDisappear();
  sayYourFavoriteColorIs(" Blue");
});

//THIS FUNCTION REPLACES MULTIPLE LINES OF CODE ABOVE TO HIDE ELEMENTS
function makeAllStuffDisappear()
{
  hideElement("whichColor");
  hideElement("redButton");
  hideElement("greenButton");
  hideElement("yellowButton");
  hideElement("blueButton");
}

// THIS FUNCTION HAS A PARAMETER TO REPLACE NAME WITH A STRING, IT ALSO CONTAINS A CONTROL TO WRITE THE STRING MULTIPLE TIMES
function sayYourFavoriteColorIs(color) {
  for (var x = 0; x < 15; x++)
  {
    write("Your Favorite Color is" + color);
  }
}
```

Parameters with starfish and seagrass mine

```
hide();
penUp();

drawBackground();

moveTo(150,400);
drawStarfish(65);
moveTo(50,420);
drawStarfish(40);

moveTo(50,450);
turnTo(0);
drawSeagrass();
moveTo(100,450);
turnTo(0);
drawSeagrass();

moveTo(100,100);
drawFish();
moveTo(200,200);
drawFish();

function drawBackground(){
  penColor("DarkBlue");
  dot(1000);
}

function drawStarfish(size){
  penRGB(255,0,255);
  penWidth(20);
  penDown();

  turnTo(0);
  moveForward(size);
  turnRight(144);
  moveForward(size);
  turnRight(144);
  moveForward(size);
  turnRight(144);
  moveForward(size);
  turnRight(144);
  moveForward(size);
  turnRight(144);

  penUp();
}

function drawSeagrass(){
  penRGB(0,255,0);
  penWidth(10);
  penDown();
  arcLeft(30,100);
  arcRight(60,100);
```

Parameters with starfish and seagrass yours

```
// Prepare Turtle to Draw
hide();
penUp();

// First draw the background
drawBackground();

//draw all starfish
moveTo(150,400);
drawStarfish(120);
moveTo(250,400);
drawStarfish(60);

// Draw all the seagrass on bottom of screen
moveTo(50,450);
turnTo(0);
drawSeagrass();
moveTo(90,450);
turnTo(0);
drawSeagrass();

// Draw all the fish
moveTo(100,100);
drawFish();
moveTo(250,170);
drawFish();

// Make the background by drawing a large dot
function drawBackground(){
  penColor("DarkBlue");
  dot(1000);
}

// Draw a five pointed star with a wide pen.
//Draw all the starfish
function drawStarfish(Size){
  // Setting up the pen
  penRGB(255,0,255);
  penWidth(20);
  penDown();

  turnTo(0);
  moveForward(60);
  turnRight(144);
  moveForward(60);
  turnRight(144);
  moveForward(60);
  turnRight(144);
  moveForward(60);
  turnRight(144);
  moveForward(60);
  turnRight(144);
  penUp();
```

```
  arcLeft(60,100);
  arcRight(60,100);
  penUp();
}

function drawFish(){
  penRGB(250,125,0);
  penWidth(30);
  penDown();

  dot(30);
  turnTo(90);
  moveForward(30);

  turnLeft(30);
  moveForward(30);
  turnRight(120);
  moveForward(30);
  turnRight(120);
  moveForward(30);
  turnRight(120);

  penUp();
}
```

```
}

// Switches between left and right arcs to make
sea grass
function drawSeagrass(arcSize){
  // Setting up the pen
  penRGB(0,255,0);
  penWidth(10);
  penDown();

  // Draw four arcs to make grass
  arcLeft(30,100);
  arcRight(60,100);
  arcLeft(60,100);
  arcRight(60,100);

  penUp();
}

// Draw a single fish at current turtle location
function drawFish(){
  // Setting up the pen
  penRGB(250,125,0);
  penWidth(30);
  penDown();

  // Fish body
  dot(30);
  turnTo(90);
  moveForward(30);

  // Fish tail
  turnLeft(30);
  moveForward(30);
  turnRight(120);
  moveForward(30);
  turnRight(120);
  moveForward(30);
  turnRight(120);

  penUp();
}
```