East-West   Name:
AP CSP/Mr. Grant-Knight   Date:
<u>**Lesson 5.2**</u>: Lists Investigate

Aim: What is the purpose of the **list scrolling pattern** and **random list access pattern**?

Answer to Aim (End of Class):

List scrolling pattern -> Used for apps that need to go one-by-one through a list
Random list access pattern -> Used for apps that involve picking a random element in a list

SEL Check-Ins (each lesson includes these check-ins)

How confident are you in your answer to the Aim? (1-5, 1 is not at all, 5 is very):   _____

Write one adjective that describes how you felt today (ex: happy, bored, etc.):   _____

Lesson Homework:
    ☐ Video Notes due by end of Idea

<u>**Lesson structure**</u>**:**
Vocabulary
List - an ordered collection of elements

Element - (same as value, item) an individual value in a list that is assigned a unique index

Index - (0, 1, 2, 3…) a common method for referencing the elements in a list or string using numbers

Lists Investigation Questions (Lesson 2, #3)
Lines 1-2: Why does this program use two lists? What is each one storing?

Lines 4-5: Why does this program include the variables topsIndex and bottomsIndex? What would happen if these variables were removed from the program?

Lines 10-15: Write a short description of what this event handler does.

Line 18: What is the conditional statement topsIndex < topsList.length - 1 checking? What would break if it was instead topsIndex < topsList.length?

Lines 38-43: Find all the places that the updateScreen function is called. What changes about the way the app runs if any of these calls were removed?

Review Questions and Annotate Code Pt 1

```
var index = 0;
var myList = ["banana", "apple", "pear"] ← → ;

onEvent(▼"leftButton", ▼"click", function() {
    if( index > 0 ){
        index = index - 1 ;
    }
    +
    updateScreen(); →
}
);

onEvent(▼"rightButton", ▼"click", function() {
    if( index < myList.length - 1 ){
        index = index + 1 ;
    }
    +
    updateScreen(); →
}
);

function updateScreen() { →
    setProperty(▼"fruitLabel", ▼"text", myList[index] );
}
```

Add a picture of the list in "box form" to connect to first lesson on lists.
Goal is to emphasize the purpose of the if-statements

Review Questions and Annotate Code Pt 2

Lines 1-2: Why are there two lists in this app instead of 1?

Lines 4-5: Why is "Sideways Monkeys" always the first band name shown?

Line 10: What would break if this line read randomNumber(0,nounList.length) instead of randomNumber(0,nounList.length-1)?

Lines 17-20: Write a short description of what each line in this function is doing.

Random List Access Pattern

```
var index = 0;
var fruitList = ["banana", "apple", "pear"] ⊟ ⊟ ;

onEvent( ▼ "randomFruitButton", ▼ "click", function( ){
    index = randomNumber(0, fruitList.length - 1 ) ;
    updateScreen( ); ⊟
}
);


function updateScreen(){⊟
    setProperty( ▼ "fruitLabel", ▼ "text", fruitList[index] );
}
```

Add a picture of the list in "box form" to connect to first lesson on lists.
Goal is to emphasize the randomNumber and the purpose of list.length - 1

Summary

Answer the aim and compare answers with a table partner