FLINN SCIENTIFIC

Name_____

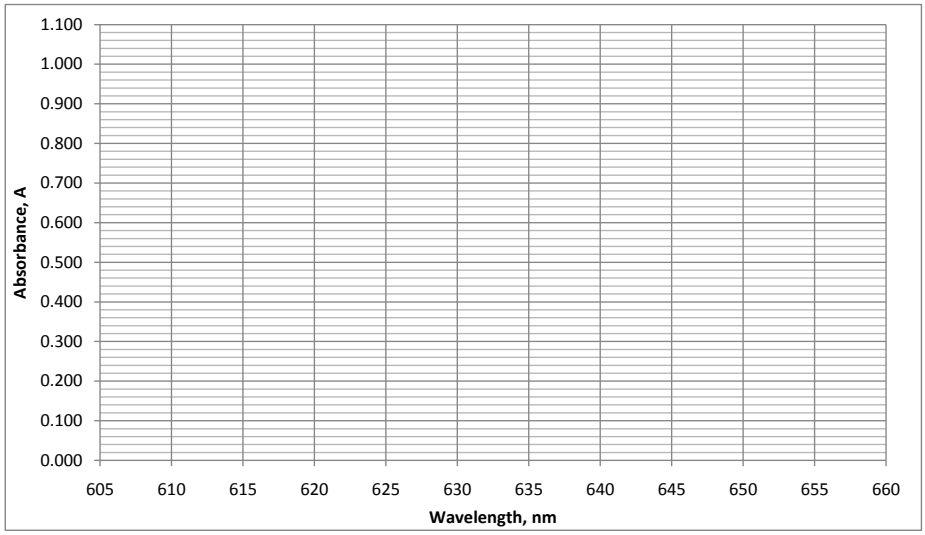
Quantitative Determination of Food Dyes Worksheet

Data Tables

Part A. Determining λ_{max}

Blue Dye No. 1

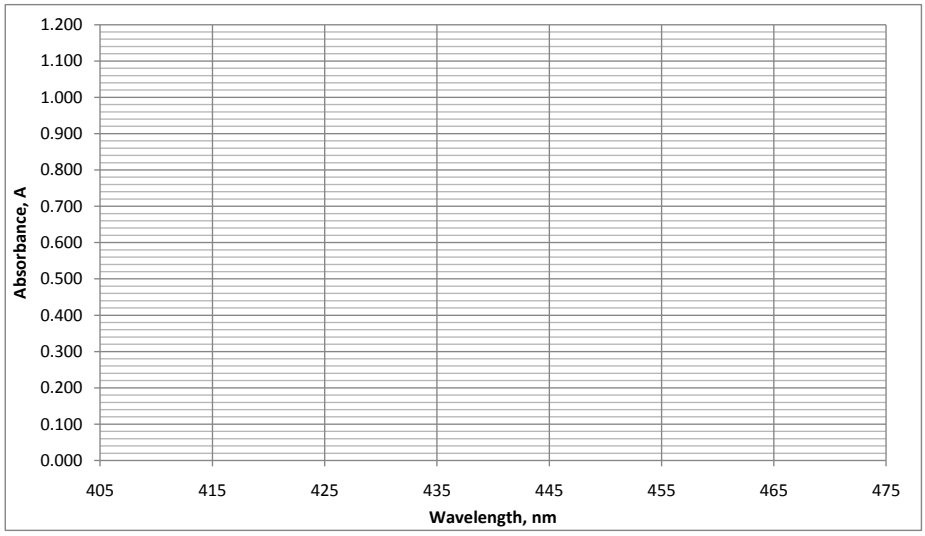
λ, nm	Absorbance, A
610	
615	
620	
625	
630	
635	
640	
645	
650	
655	



λ_{max} _____ nm

Yellow Dye No. 5

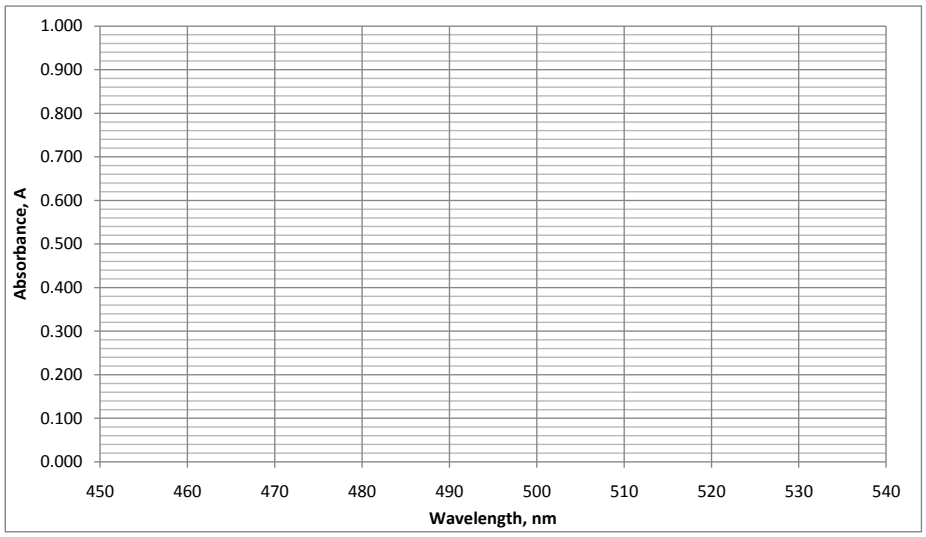
λ, nm	Absorbance, A
410	
415	
420	
425	
430	
435	
440	
445	
450	
455	
460	
465	
470	
475	



λ_{max} _____ nm

Red Dye No. 40

λ, nm	Absorbance, A
460	
465	
470	
475	
480	
485	
490	
495	
500	
505	
510	
515	
520	
525	
530	

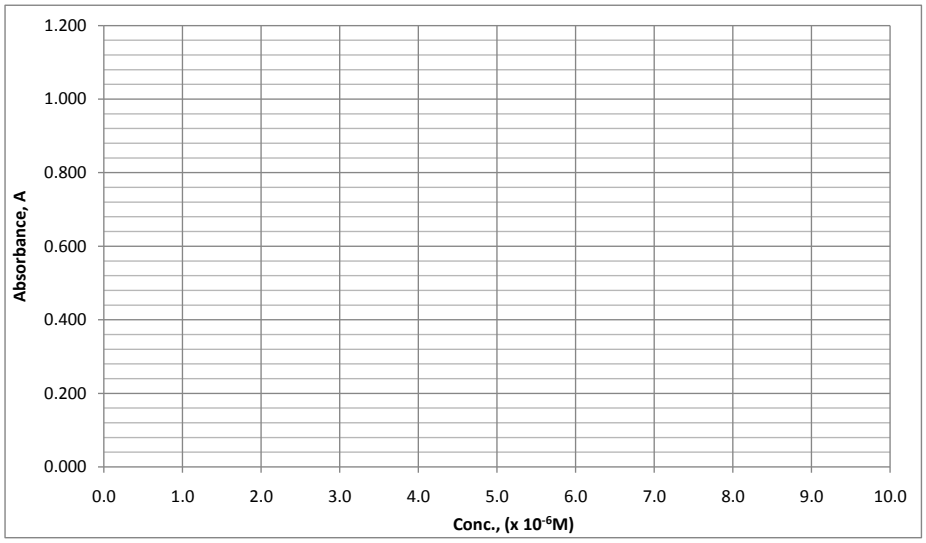


λ_{max} _____ nm

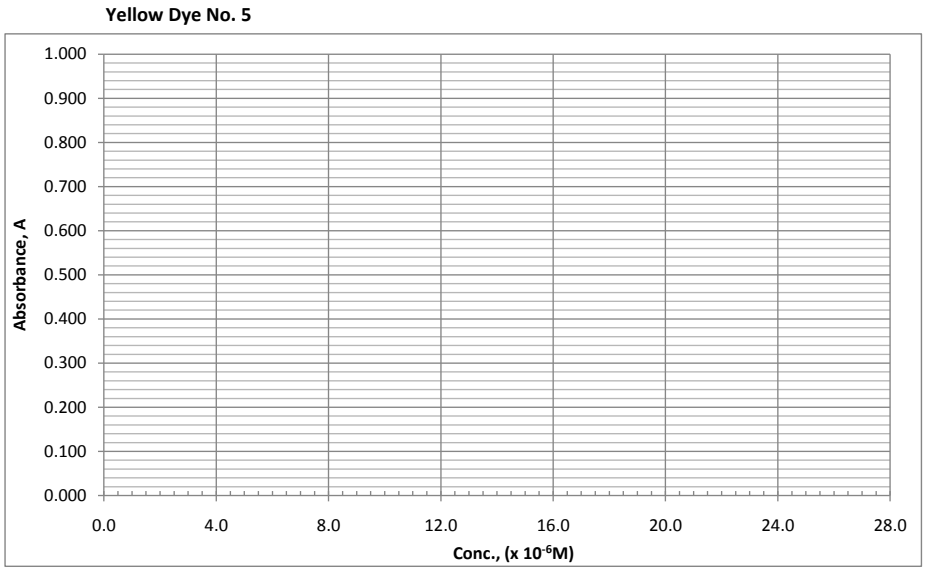
Part B. Calibration Curve

Conc. ($\times 10^{-6}$M)	Absorbance A
1.0	
3.0	
5.0	
7.0	
9.0	

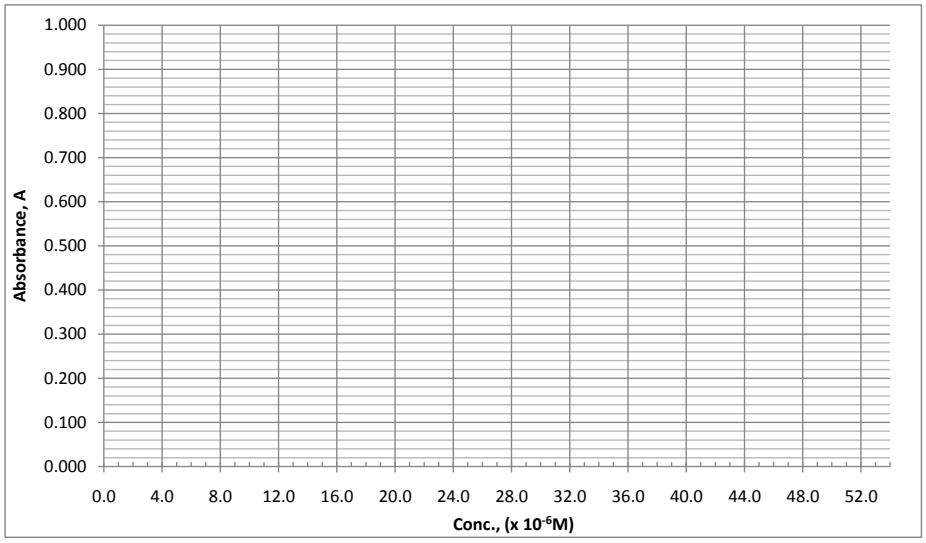
Blue Dye No. 1



Conc. ($\times 10^{-6}$M)	Absorbance A
2.8	
8.4	
14	
20	
25	



Conc. ($\times 10^{-6}$M)	Absorbance A
4.6	
12	
23	
32	
42	



Part C. Determining Drink Mix Solution Absorbances

Drink Mix	Absorbance		
	Blue λ_{max}_____nm	Yellow λ_{max}_____nm	Red λ_{max}_____nm
Cherry			
Grape			
Lemon-lime			

Post-Lab Analysis

1. Determine the concentration of Blue Dye #1, Yellow Dye #5, and Red Dye #40 in each of the drink mixes.

2. From your instructor, obtain the total volume of each drink mix solution and the mass of granular drink mix added to the solution. Calculate the concentration of the three dyes, in %, by weight, in each of the granular drink mixes. The molar mass of the dyes are below.

Blue Dye #1 — 792.9 g/mol

Yellow Dye #5 — 534.3 g/mol

Red Dye #40 — 496.4 g/mol