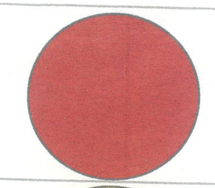
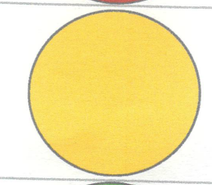
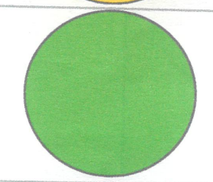
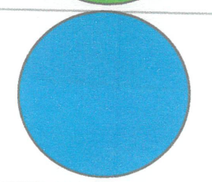
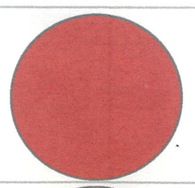
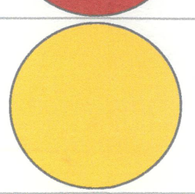
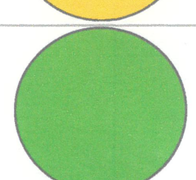
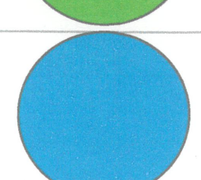
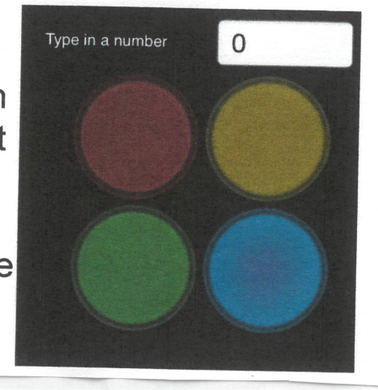
Colors	Numbers that makes the light light up	Numbers that makes don't the light light up
	1,6,11,16	2,3,4,5,7,8,9,10,12,13,14,15,17,18,19,20
	1,3,6,10,15	2,4,5,7,8,9,11,12,13,14,16,17,18,19,20
	2,4,6,8,10,12,14,16,18,20	1,3,5,7,9,11,13,15,17,19
	1,4,9,16	2,3,5,6,7,8,10,11,12,13,14,15,17,18,19,20

Colors	Rules to make them light up
	Always add 5
	First add 1 then 2 then 3 then 4.....
	No odd numbers
	Add odd numbers in order

So, I have chosen to work on the light the lights nrich problem for our math homework. I had to answer to 2 questions :
What are the four rules? and What is the smallest number which lights them all up? The answer to the first question is shown on the left page. And the answer to the second question is just beneath this text. This is how the problem works: the four colors are in a square that looks like this: And you have to type in a number in the space that right now has a 0 in it. When you type in a number 1 or more of the lights are going to light up!



So, to get the answer to question 2 my dad and my mom helped me out. My dad saw I was in difficulty so he came up to me and offered me some help, I explained how the problem worked and I had already found out. He pointed out that we knew it couldn't be an odd number since it would break the green rule. I then pointed out that it could only finish by 1 or 6. My mom called everyone since dinner was ready and I explained everything to her, she directly told me that it couldn't finish by 1 since 1 is an odd number. So just after dinner I went on my iPad and I wrote 2 digit numbers that finished by 6 in the number box. It didn't take me long since the answer was 36 !!! There was a party going on in my head ! I was so happy that I got the answer !

(Sorry if the title is at the bottom (I didn't have space for it) (I kind of forgot it too!))

Light the hights Again !

	red	blue	yellow	green
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Adams m

Method
① collect Data AS per table
② look for Patterns + rules for each color
③ test patterns + rules with different Number to check if Coret

pattern	rule	Number to check	correct?
5, 7, 13 = No lights	Prime # Number = no lights	11, 17, 23	NO 11=red
1, 6, 11 = red light	Numbers ending in 1 or 6. = red	31, 4, 556, 36	yes √®
0, 1, 3, 6, 8 = green	Equal Numbers = green	4, 6, 34, 36	yes √⑥
5, 1, 3, 6, 10 = yellow	+1, +2, +3, +4, +5	15, 21, 28, 36	yes √④
3, 1, 4, 9 = blue	+1, +3, +5, +7, +9 +11. ..	16, 25, 36	yes √⑬

36 is the smallest Numbe that Light's all the lights