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SHEET No. 2¹

Activity 3. Coloured shadows by coloured lights

3a. What is colour, coloured light and coloured shadow?

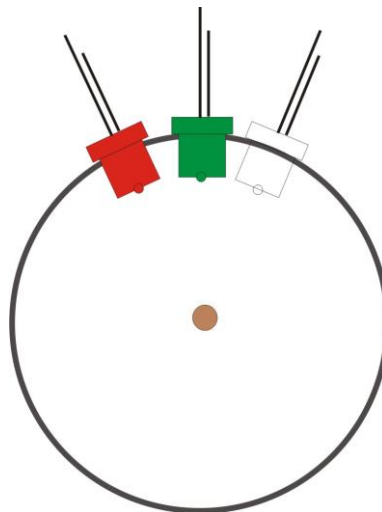
3b. Obtain colour mixer and verify the following simple rules of colour algebra:

$$\mathbf{R + G + B = W} \quad \mathbf{R + G = Y}$$

$$\mathbf{G + B = C} \quad \mathbf{R + B = M}$$

(red (R), green (G), blue (B), cyan (C), magenta (M), yellow (Y), white (W)); see also “Additive colour mixing” schema on separate sheet).

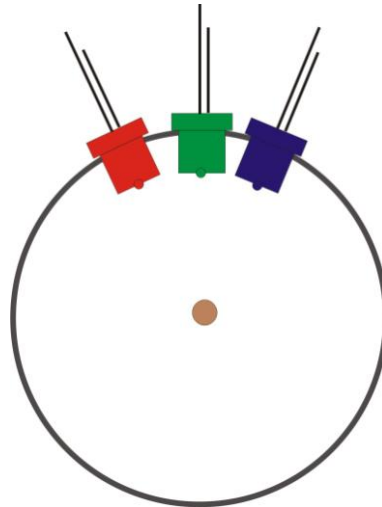
3c. Predict what you will see when red (R) and green (G) LEDs are switched-on and a toothpick is inserted into the colour mixer. Sketch below shows the arrangement of the LEDs and the toothpick as seen from the top of the colour mixer.



Perform the experiment and discuss similarities and differences between the results and prediction.

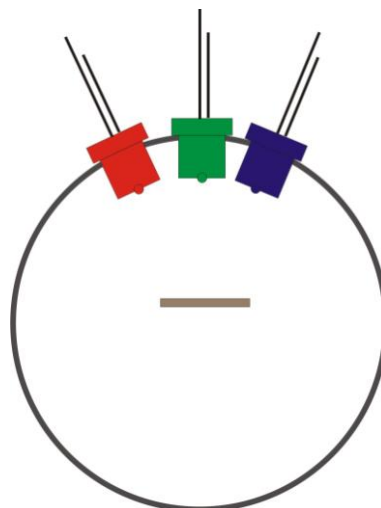
¹ The MUSE group (G. Planinsic, E. Sassi, L. Viennot) takes responsibility for the content of this paper (July 2011). The intellectual property remains with the authors.

3d. Predict what you will see when R, G and blue (B) LEDs are switched-on and a toothpick is inserted into the colour mixer.



Perform the experiment and discuss similarities and differences between the results and prediction.

3e. Predict what you will see when R, G and B LEDs are switched-on and a strip of black paper is inserted into the colour mixer.



Perform the experiment and discuss similarities and differences between the results and prediction.