Painting with CMY

Go To: https://www.physicsclassroom.com/shwave/paints.html

Overview:

It's your time to order uniforms for the school's football teams. There is one difficulty: the company which you will order from prefers to receive the order in terms of the three primary colors of paints which will be applied to different parts of the uniform. In this activity, you will experiment with the effect of different paint colors on the appearance of the various parts of a football team uniform.

Directions:

Circle the primary paint colors which must be imparted to the following team uniforms in order to create the indicated color appearance:

Team #1: Chicago Titans

Uniform Part	Desired Appearance	Required Paint Colors		
Helmet	Blue	Cyan	Magneta	Yellow
Skin	Magenta	Cyan	Magneta	Yellow
Shirt	Yellow	Cyan	Magneta	Yellow
Pants	Blue	Cyan	Magneta	Yellow
Socks	White	Cyan	Magneta	Yellow
Shoes	Black	Cyan	Magneta	Yellow

Team #2: Washington Knights

Uniform Part	Desired Appearance	Required Paint Colors		
Helmet	Red	Cyan	Magneta	Yellow
Skin	Black	Cyan	Magneta	Yellow
Shirt	Blue	Cyan	Magneta	Yellow
Pants	White	Cyan	Magneta	Yellow
Socks	Red	Cyan	Magneta	Yellow
Shoes	Yellow	Cyan	Magneta	Yellow

Team #3: St. Louis Fliers

Uniform Part	Desired Appearance	Required Paint Colors		
Helmet	Green	Cyan	Magneta	Yellow
Skin	Yellow	Cyan	Magneta	Yellow
Shirt	Green	Cyan	Magneta	Yellow
Pants	Yellow	Cyan	Magneta	Yellow
Socks	White	Cyan	Magneta	Yellow
Shoes	Black	Cyan	Magneta	Yellow

Follow-Up Questions:

1. Indicate the result of mixing the following primary color of paints in equal amounts:

Cyan + Magenta ---->

Cyan + Yellow ---->

Magenta + Yellow ---->

Cyan + Magenta + Yellow ---->

2. What primary paint colors must be imparted to an object to give it the appearance of white?

3. What primary paint colors must be imparted to an object to give it the appearance of black?

4. A primary paint color serves to selectively absorb a specific primary color of light. Whatever light is not absorbed is reflected by that paint. Use your understanding of color addition and subtraction to indicate which primary colors of light are absorbed by each primary paint.

Cyan paint absorbs the primary light color _____.

Magenta paint absorbs the primary light color _____.

Yellow paint absorbs the primary light color _____.

5. Complete the color equations shown below; then indicate what primary paint color(s) are in the object.

a. R + G + B light - _____ light = R + G light = _____ appearance; there is _____ paint in the object.
b. R + G + B light - _____ light = R light = _____ appearance; there is _____ paint in the object.
c. R + G + B light - _____ light = G + B light = _____ appearance; there is _____ paint in the object.
d. R + G + B light - _____ light = _____ light = Magenta appearance; there is _____ paint in the object.
e. R + G + B light - _____ light = _____ light = Black appearance; there is _____ paint in the object.
f. R + G + B light - _____ light = G light = _____ appearance; there is _____ paint in the object.