

Final Design Document:
Introduction to the Color Wheel

IDT520
Instructional Systems Analysis and Design

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12/7/09

Executive Summary

Title:

Front-end Analysis: Introduction to the Color Wheel

Description:

The goal of this project is to design, create and execute a basic instruction with in 20-30 minutes to a group of adults who are taking this lesson as an enrichment program on their own time.

Needs Assessment

Target Learners:

The target learner will be working adults between the ages of 20 and 60 with some level of post general education with varied backgrounds.

Goal of Project:

This instruction will introduce the learners to the basic concepts of the color concepts including, Primary, Secondary and Tertiary colors as well as Monochromatic, Complimentary, Split-complimentary, Analogous color harmonies.

Rationale:

While the most people know some of the concepts of the color wheel (the primary and secondary colors), few will know the tertiary colors, more still will know little of color harmonies. The learners taking this instruction do not have a background in art or color theories thus do not have an understanding of basic concepts of color. These concepts affect every aspect of our daily lives; a basic understanding of these concepts will help the learner explore how color reacts with the world around them.

Discrepancy Analysis

Desired Performance

The learner will be able to demonstrate knowledge of basic color wheel theory and color harmonies. This instruction will cover basic Color Wheel concepts such as the indentifying and describing the Primary, Secondary and Tertiary colors as well as Monochromatic, Complimentary, Split-complimentary, Analogous color harmonies. At the end of this instruction the learner will be able to accurately demonstrate their understanding of these basic color concepts.

Current Performance

This is an introduction class, it is assumed that the learner has no prior knowledge of the color wheel, color theory or color harmonies. However, the learner will be required to know the definitions of color and color harmony.

General Scope of Learning Content

This instruction will cover basic concepts and definitions of the Primary, Secondary and Tertiary colors as well as Monochromatic, Complimentary, Split-complimentary, Analogous color harmonies

Brief Goal Statement

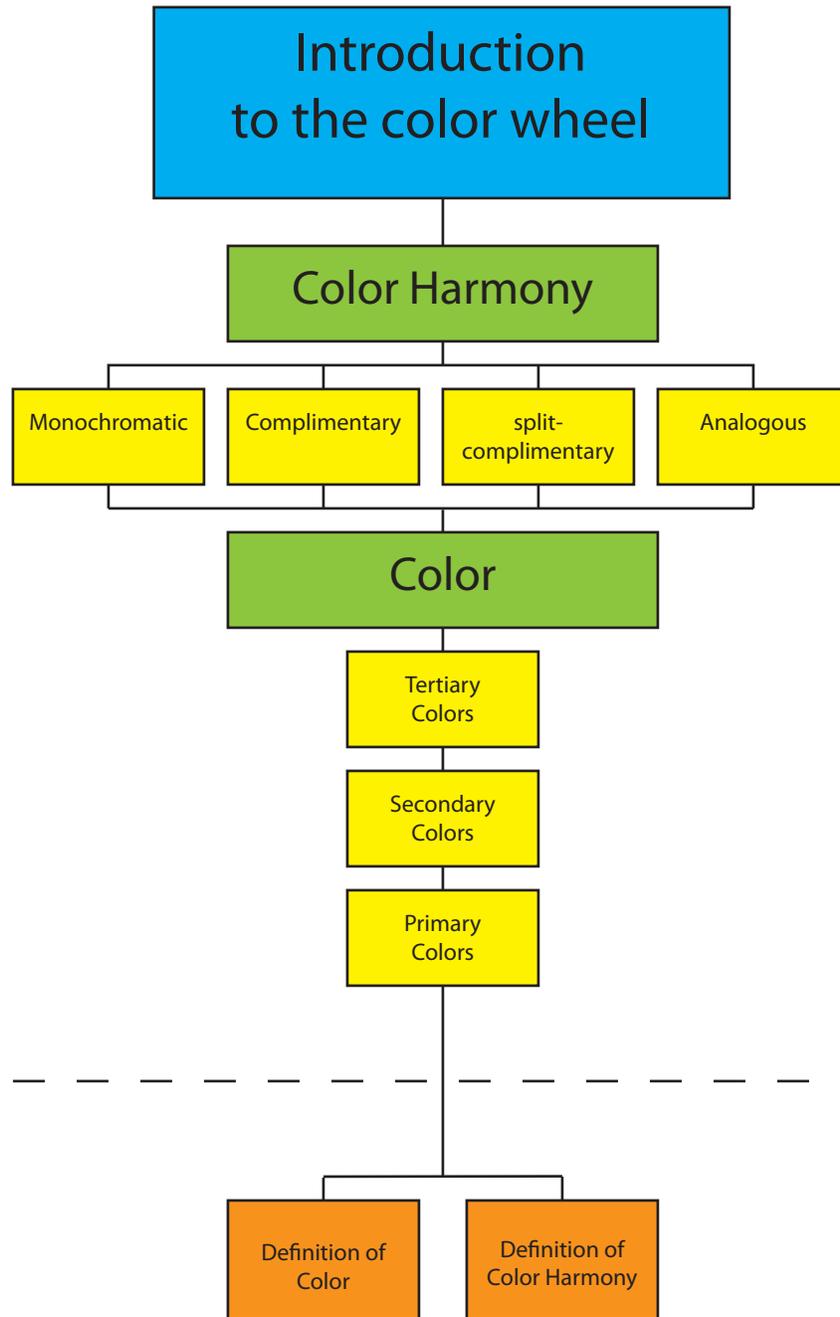
At the end of the instructional system, the learner will be able to demonstrate basic knowledge of the structure of the color wheel as well as the first four principles of color harmony.

Resources:

<http://www.colormatters.com/colortheory.html>

<http://www.worqx.com/color/combinations.htm>

Task Analysis



Goals and Objectives

Instructional Goals	Terminal Performance Objective
At the end of the instructional system, the learner will be able to demonstrate basic knowledge of the structure of the color wheel as well as the first four principles of color harmony.	Given a diagram of the color wheel, the learner will identify primary, secondary and tertiary colors as well as Monochromatic, Complimentary, Split-complimentary, and Analogous color harmonies.
Task Analysis	Subordinate Objectives Upon completing this instruction, every learner should be able to:
Structure of the Color Wheel	
Primary Colors	Given a diagram of the color wheel, the learner will identify Primary Colors with 100 % proficiency.
Secondary Colors	Given a diagram of the color wheel, the learner will identify Secondary Colors with 100 % proficiency.
Tertiary Colors	Given a diagram of the color wheel, the learner will identify Tertiary Colors with 100 % proficiency.
Principles of Color Harmonies	
Monochromatic	Given a set of color harmony diagrams, the learner will be able to match Monochromatic with the corresponding term with 100 % proficiency.
Complementary	Given a set of color harmony diagrams, the learner will be able to match Complimentary with the corresponding term with 100 % proficiency.
Split- Complementary	Given a set of color harmony diagrams, the learner will be able to match Split- Complementary with corresponding term with 100 % proficiency.
Analogous	Given a set of color harmony diagrams, the learner will be able to match Analogous with corresponding term with 100 % proficiency.

Description of learners:

Learners characteristics

Learners who are taking introduction to the color wheel will be working adults between the ages of 20 and 60, who have graduated high school as well as have completed or have taken some college level education. The learner's aptitude for color wheel and color harmony is in the range of novice, intermediate and advanced, with the majority falling within the novice and intermediate level. The learners will have basic computer and web knowledge, they will be able to log onto the internet and navigate the instruction will little effort.

Primary learners

The majority (>50%) of the learners will have minimal understanding of concepts of the color wheel and will not have been exposed to these concepts in several years if at all.

Secondary learners

The minority (<45%) of the learners will know the basic color wheel including but not limited to the concepts of primary, secondary and tertiary colors. Even fewer (<5%) learners will be knowledgeable of color harmony concepts.

Strengths

- Understanding of computer and web usage.
- Exposure to abstract concepts. All of the learners have had some form of higher education training and have been exposed to abstract concepts.
- Willing to learn new concepts
- Motivated to learn concepts in a new format and delivery (CBI, Web).

Weaknesses

- Learners are busy and may not able/willing to find or create time for subject.
- The learners may not be motivated to learn concepts that do not pertain to their jobs.

Potential difficult content

- Difficulties remembering terminology and concepts.
- The Learner may have difficulties indentifying new instances of the color harmonies.

Description of learning Context:

General description

This is a general instruction that is being designed for anyone to take. The learners are working adults who are taking this lesson as part of a self-paced enrichment program.

List of the things with which the instruction should comply (if any).

- Learner should be able to complete the instruction between 20 to 30 minutes.
- Instruction must use web safe colors to accurately display color wheel across multiple browsers.

Advantages

- Learner may access the instruction at their convenience.
- Learner may access the instruction wherever they have internet access (home, work, library, etc).
- Learner may work at their own pace and may review if they wish.

Limitations

- No instructor contact. The learner will not be able to ask questions if they are confused or stuck.
- Learner may have limited or no access to the internet and may have to make special arrangements for completion of instruction.
- Web browsers may not accurately display colors or monitors may not be calibrated properly, which can cause confusion in key concepts.

Assessment Instruments

Formative Assessment Blueprint

Introduction to the Color Wheel

Lee Engeswick

The Student should be able to:

Content Outline		Knowledge		Comprehension		Application		Analysis		Synthesis		LINE TOTALS
Primary Colors				..identify the correct definition of "Primary Colors"								
13%	1			100%	1							100%
Secondary Colors				..identify the correct definition of "Secondary Colors"								
13%	1			100%	1							100%
Tertiary Colors				..identify the correct definition of "Tertiary Colors"								
13%	1			100%	1							100%
Monochromatic				..identify the correct definition of "Monochromatic"								
13%	1			100%	1							100%
Complimentary				..identify the correct definition of "Complimentary"								
13%	1			100%	1							100%
Split-Complimentary				..identify the correct definition of "Split-Complimentary"								
13%	1			100%	1							100%
Analogous				..identify the correct definition of "Analogous"								
13%	1			100%	1							100%
Color		..identify the correct definition of "color"										
5%	1	100%	1									100%
Color Harmony		..identify the correct definition of "Color Harmony"										
4%	1	100%	1									100%

100%	9
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(template created by Whitney Berry)

Summative Assessment Blueprint

Introduction to the Color Wheel

Lee Engeswick

The Student should be able to:

Content Outline		Knowledge	Comprehension	Application	Analysis	Synthesis	LINE TOTALS
Primary Colors			..match the example of Primary Colors to the definition.				
14%	1		100% 1				100%
Secondary Colors			..match the example of Secondary Colors to the definition.				
14%	1		100% 1				100%
Tertiary Colors			..match the example of Tertiary Colors to the definition.				
14%	1		100% 1				100%
Monochromatic			..match the example of Monochromatics to the definition.				
14%	1		100% 1				100%
Complimentary			..match the image of Complimentary to the definition.				
14%	1		100% 1				100%
Split-Complimentary			..match the example of Split-Complimentary to the definition.				
14%	1		100% 1				100%
Analogous			..match the example of Analogous to the definition.				
14%	1		100% 1				100%
	0						0%
	0						0%
	0						0%

98%	7
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(template created by Whitney Berry)

Embedded Items (Formative Assessment)

- EBI_01: QUESTION: What is the correct definition of “Color”?
A: An attribute of things that results from smelling an object
B: An attribute of things that results from touching an object.
C: A visual attribute of things that results from the light they absorb.
D: ANSWER: a visual attribute of things that results from the light they emit or transmit or reflect.
- EBI_02: QUESTION: What is the correct definition of “Color Harmony”?
A: Colors based on a color code.
B: Anyone of a number of color relationships based on Primary Colors only.
C: Combining **ALL POSSIBLE** color combinations evenly to create one color.
D: ANSWER: Anyone of a number of color relationships based on groupings within the color wheel.
- EBI_03: QUESTION: What is the correct definition of “Primary Color?”
A: A Novel of Politics is a 1996 novel
B: Created by **MIXING** Red, Blue and Yellow.
C: The color Black.
D: ANSWER: Any of three colors from which all others can be obtained by mixing.
- EBI_04: QUESTION: What is the correct definition of “Secondary Color”?
A: Created by mixing **ANY TWO** colors.
B: The second color in the book of colors.
C: The colors Red, Blue and Yellow.
D: ANSWER: A mixture of any two primary colors.
- EBI_05: QUESTION: What is the correct definition of “Tertiary Color”?
A: A color produced by mixing a **PRIMARY** and a **SECONDARY** color.
B: The colors Green, Yellow and Orange.
C: Created by mixing **ANY THREE** colors.
D: ANSWER: A color produced by mixing TWO SECONDARY colors.
- EBI_06: QUESTION: What is the correct definition of “Monochromatic Color”?
A: The process of **MIXING ONE** color at a time.
B: The colors Black and White.
C: Mixing all possible colors into one single color.
D: ANSWER: Colors (tints, tones and shades) of a SINGLE HUE.
- EBI_07: QUESTION: What is the correct definition of “Complimentary Color”?
A: Colors which are **ADJACENT** to each other on the color wheel.
B: Colors which look good together.
C: Colors that reside in the Primary, Secondary or Tertiary color positions on the color wheel.
D: ANSWER: colors are any two colors which are DIRECTLY OPPOSITE each other.
- EBI_08: QUESTION: What is the correct definition of “Split-Complimentary Color”?
A: Colors which are **SIDE BY SIDE** on the color wheel.
B: Colors which are **SEPARATED** by two colors.
C: A color which reside **BETWEEN** two colors.
D: ANSWER: a color and the TWO COLORS ADJACENT to its COMPLEMENTARY.
- EBI_09: QUESTION: What is the correct definition of “Analogous Color”?
A: Colors which are a **SHADE** of a single hue.
B: A color which mixed with another color.
C: A color which is used to paint the hands of a clock.
D: ANSWER: colors are any three colors which are side by side on the color wheel.

NOTE: The order of the questions as well as correct answers will be randomized.

Final Exam (Summative Assessment)

FEI_01: QUESTION: This is an example of what type of color?



- A. Tertiary Colors
- B. Secondary Colors
- C. Monochromatic Colors
- D. ANSWER: Primary Colors**

FEI_02: QUESTION: This is an example of what type of color?



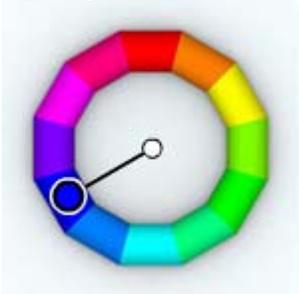
- A. Complimentary Colors
- B. Primary Colors
- C. Tertiary Colors
- D: ANSWER: Secondary Colors**

FEI_03: QUESTION: This is an example of what type of color?



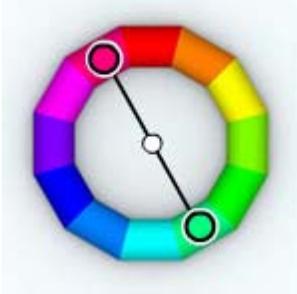
- A. Analogous Colors
- B. Complimentary Colors
- C. Secondary Colors
- D. ANSWER: Tertiary Colors**

FEI_04: QUESTION: This is an example of what type of color?



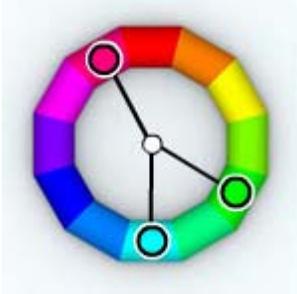
- A. Monochromatic Colors
- B. Primary Colors
- C. Analogous Colors
- D. ANSWER: Monochromatic Colors**

FEI_05:QUESTION: This is an example of what type of color?



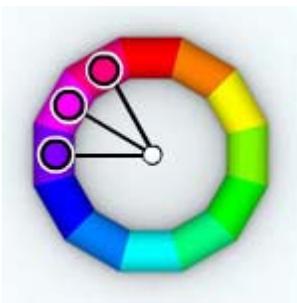
- A. Secondary Colors
- B. Complimentary Colors
- C. Analogous Colors
- D. ANSWER: Complimentary Colors**

FEI_06:QUESTION: This is an example of what type of color?



- A. Analogous Colors
- B. Primary Colors
- C. Secondary Colors
- D. ANSWER: Split-Complimentary Colors**

FEI_07:QUESTION: This is an example of what type of color?



- A. Secondary Colors
- B. Tertiary Colors
- C. Monochromatic Colors
- D. ANSWER: Analogous Colors**

NOTE: The order of the questions as well as correct answers will be randomized.

General Instructional Implications & Instructional Strategies/Activities

General Instructional Implications

- Learners potentially have been out of school for awhile (years), therefore the language of the lesson should be delivered at a 12th grade level.
- The learners are busy adults with families; the lesson should be concise (get to the point) and without under generalizing concepts.
- The subject matter may not pertain to the learner's daily/professional life, using real-life examples will help create a meaningful and memorable experience.
- Visual Impairment including color blindness may make it difficult to identify color and color harmonies.

Underlying Instructional Method

This lesson will focus mainly on conceptual knowledge for colors and color harmonies with use of verbal information for terms and definitions. Terms and definitions will be at the base level of Blooms taxonomy while students will need to show application for key concepts.

Instructional methods will cover Behaviorist as well as Cognitive strategies. Since the students will only need to recall terms and definitions, a Behaviorist approach will be used. Cognitive strategies will demonstrate the application of concepts.

The Matrix

Learning objective	Content		Bloom's Taxonomy	Potential difficulties	Possible causes for the difficulty	Instructional strategies	Assessment
Given a diagram of the color wheel, the learner will identify primary, secondary and tertiary colors as well as Monochromatic, Complimentary, Split-complimentary, and Analogous color harmonies.	Color	Primary Colors	Application Level	N/A	N/A	N/A	EBI_03, FEI_01
		Secondary Colors	Application Level	N/A	N/A	N/A	EBI_04, FEI_02
		Tertiary Colors	Application Level	Possible Trouble understanding how to create Tertiary Colors	Confusion understanding definition.	Highlight Key terms and restating definition while showing example.	EBI_05, FEI_03
	Color Harmonies	Monochromatic	Application Level	Difficultly understanding concept	Difficulty picturing concept.	Highlight Key terms and restating definition while showing example.	EBI_06, FEI_04
		Complimentary	Application Level	N/A	N/A	N/A	EBI_07, FEI_05
		Split-complimentary	Application Level	N/A	N/A	N/A	EBI_08, FEI_06
		Analogous	Application Level	Difficultly understanding concept	Difficulty picturing concept.	Highlight Key terms and restating definition while showing example.	EBI_09, FEI_07

Instructional Plan

List of Material for development

Graphics – Examples of each type of concept of the color wheel will be created. Each of the examples is required to be created in RGB with web safe colors to insure the accuracy of the example.

Examples will be created for the following Learning Objective (LO)

1. Primary Colors
2. Secondary Colors
3. Tertiary Colors
4. Monochromatic Colors
5. Complimentary Colors
6. Split-Complimentary Colors
7. Analogous Colors

The examples will include three main items, Color Example, Position on the Color Wheel, and Real World Example, with three supplementary items. The items will be represented similarly to the following.

Text - The text to be developed will give bullet points of the major points of the LO as well as the title of the topic. NO OTHER TEXT will be used on the page.

Text for assessment will be written at a 12th grade level

Audio - Audio will be used to give explanation of the concept. The scripts for this will be written at a 12th grade level.

Description of Model

Gagne's Nine Events will be used as the model for this instruction.

1. GAIN LEARNER'S ATTENTION
2. INFORM LEARNER OF OBJECTIVES
3. STIMULATE RECALL OF PREREQUISITES
4. PRESENT CONTENT
5. PROVIDE GUIDANCE
6. ELICIT PERFORMANCE
7. PROVIDE FEEDBACK
8. ASSESS PERFORMANCE
9. ENHANCE RETENTION AND TRANSFER

Design overview

Entry Level Learning Task: Definitions of Color		Objectives: 1. Given a Multiple-choice test, the learner will be able to identify the correct definition.
Gagne's Event	Instruction	Event
GAIN ATTENTION	What comes to mind when you hear the word "Color"	
STIMULATE RECALL OF PREREQUISITES	Color is: a visual attribute of things that results from the light they emit or transmit or reflect; "a white color is made up of many different wavelengths of light.	
ELICIT PERFORMANCE		EBI_01
PROVIDE FEEDBACK	Indicate if this is correct. If not restate the definitions	

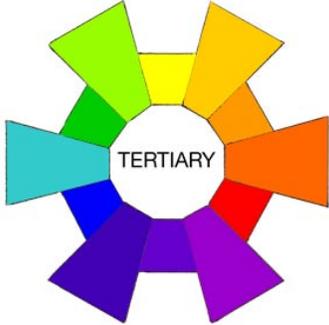
Entry Level Learning Task: Definitions of Color Harmony		Objectives: 2. Given a Multiple-choice test, the learner will be able to identify the correct definition.
Gagne's Event	Instruction	Event
GAIN ATTENTION	What comes to mind when you hear the words "Color Harmony"?	
STIMULATE RECALL OF PREREQUISITES	Color Harmony is: Anyone of a number of color relationships based on groupings within the color wheel. (e.g. Complimentary Colors)	
ELICIT PERFORMANCE		EBI_02
PROVIDE FEEDBACK	Indicate if this is correct. If not restate the definitions	

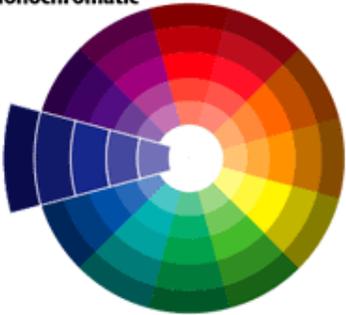
Learning Task: Primary Colors		Objective: Given a diagram of the color wheel, the learner will identify Primary Colors with 100 % proficiency.
Gagne's Event	Instruction	Event
INFORM LEARNER OF OBJECTIVES	In this section you will learn and demonstrate the concept of the Primary Colors.	
PRESENT CONTENT	The Primary Colors are Red, Yellow and Blue. Primary colors are sets of colors that can be combined to make a useful range of colors and whose hues that cannot be produced by mixing other hues	
PROVIDE GUIDANCE		<p>Primary</p> 
ELICIT PERFORMANCE		EBI_03
PROVIDE FEEDBACK	Indicate if this is correct. If not rephrase the definitions	Show additional examples.

Color wheel position images from:
<http://www.happipinoy.com/Happi%20Pinoy%20Color%20Theory.html>

Learning Task: Secondary Colors		Objective: Given a diagram of the color wheel, the learner will identify Secondary Colors with 100 % proficiency.
Gagne's Event	Instruction	Event
INFORM LEARNER OF OBJECTIVES	In this section you will learn and demonstrate the concept of the Secondary Colors.	
PRESENT CONTENT	A secondary color is a color made by mixing two primary colors in a given color space. The Secondary Colors are Green, Orange and Purple..	
PROVIDE GUIDANCE		<p>Secondary</p> 
ELICIT PERFORMANCE		EBI_04
PROVIDE FEEDBACK	Indicate if this is correct. If not rephrase the definitions	Show additional examples.

Color wheel position images from:
<http://www.happipinoy.com/Happi%20Pinoy%20Color%20Theory.html>

Learning Task: Tertiary Colors		Objective: Given a diagram of the color wheel, the learner will identify Tertiary Colors with 100 % proficiency.
Gagne's Event	Instruction	Event
INFORM LEARNER OF OBJECTIVES	In this section you will learn and demonstrate the concept of the Tertiary Colors.	
PRESENT CONTENT	Tertiary Colors are colors that can be created by mixing a primary and a secondary color. The tertiary colors fall between primary and secondary colors on the color wheel. Examples of Tertiary Colors are: red-violet, red-orange, yellow-orange, yellow-green, blue-green, blue-violet.	
PROVIDE GUIDANCE		
ELICIT PERFORMANCE		EBI_05
PROVIDE FEEDBACK	Indicate if this is correct. If not rephrase the definitions	Show additional examples.

Learning Task: Monochromatic Colors		Objective: Given a set of color harmony diagrams, the learner will be able to match Monochromatic with the corresponding term with 100 % proficiency.
Gagne's Event	Instruction	Event
INFORM LEARNER OF OBJECTIVES	In this section you will learn and demonstrate the concept of the Monochromatic Colors.	
PRESENT CONTENT	One color or hue including its tints and shades. Monochromatic colors are made by lightening or darkening a single hue.	
PROVIDE GUIDANCE		<p>Monochromatic</p> 
ELICIT PERFORMANCE		EBI_06
PROVIDE FEEDBACK	Indicate if this is correct. If not rephrase the definitions	Show additional examples.

Color wheel position images from:
<http://www.happipinoy.com/Happi%20Pinoy%20Color%20Theory.html>

Learning Task: Complementary Colors		Objective: Given a set of color harmony diagrams, the learner will be able to match Complimentary with the corresponding term with 100 % proficiency.
Gagne's Event	Instruction	Event
INFORM LEARNER OF OBJECTIVES	In this section you will learn and demonstrate the concept of the Complementary Colors.	
PRESENT CONTENT	Colors that are directly opposite each other on the color wheel, such as red and green, blue and orange, and violet and yellow. When complements are mixed together they form the neutral colors of brown or gray.	
PROVIDE GUIDANCE		<p>Complement</p>
ELICIT PERFORMANCE		EBI_07
PROVIDE FEEDBACK	Indicate if this is correct. If not rephrase the definitions	Show additional examples.

Color wheel position images from:
<http://www.happipinoy.com/Happi%20Pinoy%20Color%20Theory.html>

Learning Task: Split- Complementary Colors		Objective: Given a set of color harmony diagrams, the learner will be able to match Split- Complementary with corresponding term with 100 % proficiency.
Gagne's Event	Instruction	Event
INFORM LEARNER OF OBJECTIVES	In this section you will learn and demonstrate the concept of the Split- Complementary Colors.	
PRESENT CONTENT	One hue and the hues on each side of its complement on the color wheel. Red-orange, blue, green are split complementary colors.	
PROVIDE GUIDANCE		<p>Split Complement</p> 
ELICIT PERFORMANCE		EBI_08
PROVIDE FEEDBACK	Indicate if this is correct. If not rephrase the definitions	Show additional examples.

Color wheel position images from:
<http://www.happipinoy.com/Happi%20Pinoy%20Color%20Theory.html>

Learning Task: Analogous Colors		Objective: Given a set of color harmony diagrams, the learner will be able to match Analogous with corresponding term with 100 % proficiency.
Gagne's Event	Instruction	Event
INFORM LEARNER OF OBJECTIVES	In this section you will learn and demonstrate the concept of the Analogous Colors.	
PRESENT CONTENT	Colors that are next to each other on the color wheel and are closely related. Examples of Analogous colors would be: blue, blue-green, green - or - blue, blue-green, green, yellow-green, yellow	
PROVIDE GUIDANCE		<p>Analogous</p> 
ELICIT PERFORMANCE		EBI_09
PROVIDE FEEDBACK	Indicate if this is correct. If not rephrase the definitions	Show additional examples.

Color wheel position images from:
<http://www.happipinoy.com/Happi%20Pinoy%20Color%20Theory.html>

Learning Task: Primary Colors		Objective: Given a diagram of the color wheel, the learner will identify Primary Colors with 100 % proficiency.
Gagne's Event	Instruction	Event
ASSESS PERFORMANCE		FEI_01
ENHANCE RETENTION AND TRANSFER	This is a real world example of the Primary Colors (Red, Blue, Yellow)	

Learning Task: Secondary Colors		Objective: Given a diagram of the color wheel, the learner will identify Secondary Colors with 100 % proficiency.
Gagne's Event	Instruction	Event
ASSESS PERFORMANCE		FEI_02
ENHANCE RETENTION AND TRANSFER	This is a real world example of the Secondary Colors (Orange, Violet and Green)	

Learning Task: Tertiary Colors		Objective: Given a diagram of the color wheel, the learner will identify Tertiary Colors with 100 % proficiency.
Gagne's Event	Instruction	Event
ASSESS PERFORMANCE		FEI_03
ENHANCE RETENTION AND TRANSFER	This is a real world example of the Tertiary Colors (Red-Orange, Yellow-Orange and Yellow-Green)	

Learning Task: Monochromatic Colors		Objective: Given a set of color harmony diagrams, the learner will be able to match Monochromatic with the corresponding term with 100 % proficiency.
Gagne's Event	Instruction	Event
ASSESS PERFORMANCE		FEI_04
ENHANCE RETENTION AND TRANSFER	This is a real world example of the Monochromatic Colors. The colors change in hue from dark red to white.	

Learning Task: Complementary Colors		Objective: Given a set of color harmony diagrams, the learner will be able to match Complimentary with the corresponding term with 100 % proficiency.
Gagne's Event	Instruction	Event
ASSESS PERFORMANCE		FEI_05
ENHANCE RETENTION AND TRANSFER	This is a real world example of the Complementary Colors (Green and Red)	

Learning Task: Split- Complementary Colors		Objective: Given a set of color harmony diagrams, the learner will be able to match Split-Complementary with corresponding term with 100 % proficiency.
Gagne's Event	Instruction	Event
ASSESS PERFORMANCE		FEI_06
ENHANCE RETENTION AND TRANSFER	This is a real world example of the Split-Complementary Colors (Violet, Yellow, Orange)	

Learning Task: Analogous Colors		Objective: Given a set of color harmony diagrams, the learner will be able to match Analogous with corresponding term with 100 % proficiency.
Gagne's Event	Instruction	Event
ASSESS PERFORMANCE		FEI_07
ENHANCE RETENTION AND TRANSFER	This is a real world example of the Analogous Colors (Blue, Violet and Red)	