English for
Art & Design

艺术设计英语

主　审／杨金才
总主编／肖　飞
主　编／张鲁宁

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编　者／刘晓琳
　　　　王雷雷

前 言

根据《大学英语教学指南》的精神，大学英语的课程体系主要由通用英语、专门用途英语和跨文化交际三大类课程组成。

大学专门用途英语系列教材充分体现《大学英语教学指南》的精神，在大学英语教学改革实践的基础上，以培养与专业英语相关的英语能力为目标，将特定的学科内容与英语语言学习相结合，兼顾语言输入与输出训练，帮助学生实现在英语语境下对学科知识的有效输出和应用。

大学专门用途英语系列教材依据以内容为依托的教学理念编写，具有时代感、知识性和实用性。教材所选内容反映学科主线，体现相关学科的基本知识和前沿信息，兼具专业性和可读性。基于课文内容设计的阅读理解、专业词汇和学术英语词汇练习，帮助学生在理解课文的同时掌握文章中重要词汇，同时注重活学活用和适度扩展。此外，教材还提供设计灵活、注重实效的思辨训练和学术技能训练，帮助学生在实践中提高思辨能力、习得学术规范、培养学术研究能力，从而能够有效、得体地使用英语进行学业学习与学术交流。

大学专门用途英语系列教材能满足学生专业发展的需要，同时保证他们在大学期间的英语语言水平稳步提高。丰富的教学内容和多样的练习形式也为实现分类教学和因材施教提供可能，教师可根据实际需要选择教学内容，制定个性化的教学方案。

大学专门用途英语系列教材的编者们恳请使用者对本书中出现的问题提出宝贵意见和建议，以便再版时改进。

大学专门用途英语系列教材编委会

2017.6

Contents

Unit 1

Introduction to modeling

In this unit, you will learn:

- **Subject-related knowledge:** Color theory
  Design sketch
- **Academic skill:** Searching for information
- **Reading strategy:** Dealing with unknown words (Part I)

Section A

Pre-reading

1 Answer the following questions to test how much you know about some basics of color theory.

Q1. What is a primary color?
   A. Any color of the rainbow.
   B. A color made from mixing two others.
   C. A color that cannot be made by mixing any other colors.
   D. A color made by mixing three colors together.

Q2. List the primary colors you know.

   _____

Q3. What do you get when you mix two primary colors together?
   A. A secondary color.
   B. A cool color.
   C. A warm color.
   D. An adjacent color.

Q4. When yellow and purple are used together in a composition, they are referred to as being

   _____.

   A. unbalanced   B. complementary
   C. dull   D. gloomy

Share the reasons for your choice in Q4 with your partner(s).

1 Color theory is a set of principles used to create harmonious color combinations. Understanding color theory in art and design helps our appreciation of the different ways in which artists use this visual element.

2 A primary color is a color that cannot be made from a combination of any other colors. A secondary color is a color created from a combination of two primary colors. A tertiary color is a color made by mixing either one primary color with one secondary color, or two secondary colors, in a given color space.
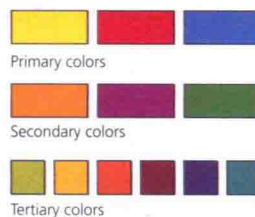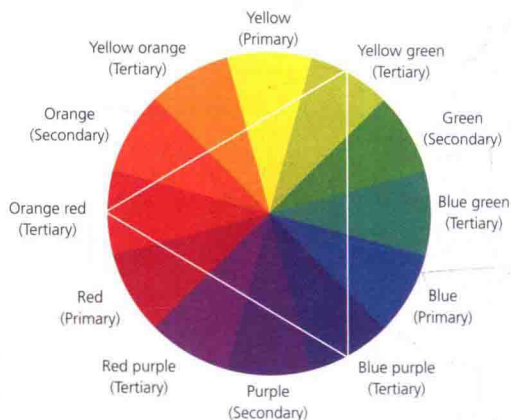
Color theory

3 Printers and artists have different definitions for primary colors. The traditional primary colors that painters have used are red, yellow, and blue. Modern printing press primary colors are magenta, yellow, and cyan. These two primary color systems obviously do not agree. Additive color process and subtractive color process are the two primary methods for reproducing a range of colors.

Additive color

4 Additive color synthesis is the creation of color by mixing colors of light. Human vision relies on light-sensitive cells in the retina of the eye. There are two basic kinds of sensors. They are rods and cones. Rods are cells which can work at very low intensity, but cannot resolve sharp images or colors. Cones are cells that can resolve sharp images and colors, but require much higher light levels to work. The combined information from these sensors is sent to the brain and enables us to see.

5 There are three types of cones. Red cones are sensitive to red light; green cones are sensitive to green light; and blue cones are sensitive to blue light. The perception of color depends on an imbalance between the stimulation level of these three cone types.

6 The three primaries in light are red, green, and blue, because they correspond to the red, green, and blue cones in the eye. Example 1 shows how the light from red, green and blue flashlights would appear if shone on a dark wall.

7 Additive color processes, such as television, work by having the capability to generate an image composed of red, green, and blue light. Since the intensity information for each of the three colors is preserved, the image color is preserved as well. The spectral distribution of the image will probably be
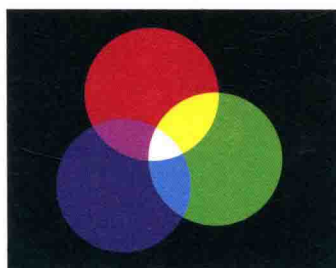
Example 1: additive principle of color combining (light)
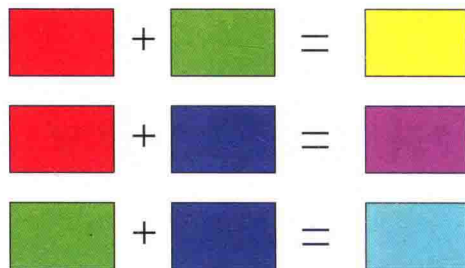
Derivation of additive secondaries from additive primary colors

wrong, but if the degree of intensity for each of the primary colors is correct, the image will appear to be the right color.

Red + Green = Yellow
Red + Blue = Magenta
Green + Blue = Cyan
When all of the colors of the spectrum are combined, they add up to white light.

Subtractive color

8   This type of color is what is used in the art and design world. When learning basic color theory, art students typically use familiar colors like red, yellow, and blue.

9   Subtractive color processes work by blocking out parts of the spectrum. The idea of subtractive color is to reduce the amount of undesired color reaching the eye. If, for example, you want a yellow image, you would need to have a dye that would let red and green reach the eye, and block out blue. The additive secondaries become the printer's subtractive primaries, because each of the additive secondaries will reflect two of the additive primaries, and absorb one of the additive primaries.

10   The three primaries on the artists' color wheel are red, yellow, and blue. Example 2 illustrates subtractive color by showing how primary colors mix on a piece of white paper.
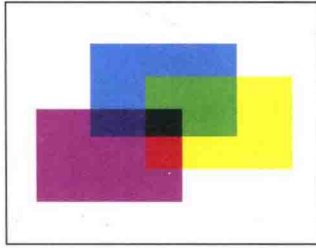
Example 2: subtractive principle of color combining (pigment)
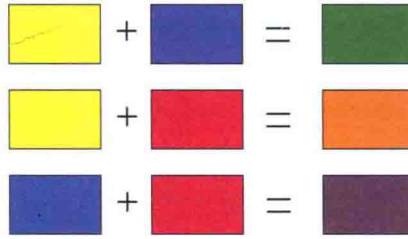
Painting primaries mixing chart

Yellow + Blue = Green

Yellow + Red = Orange

Blue + Red = Violet

When all of the colors are combined, they create black pigment.

Color	Reflect	Absorb
Yellow	Red and Green	Blue
Magenta	Red and Blue	Green
Cyan	Green and Blue	Red

Subtractive primaries / additive secondaries absorption chart

11 With this information, if we wanted red, we would mix magenta and yellow. Magenta would absorb green, and yellow would absorb blue, leaving only red to be reflected back to the eye. For black, a combination of all three would be used, which should block out all light in theory. Printers use black as well, since the dyes used in printing are not perfect, and some light from other parts of the spectrum gets through.

For printers' mixing:

Yellow + Cyan = Green

Yellow + Magenta = Red

Cyan + Magenta = Blue
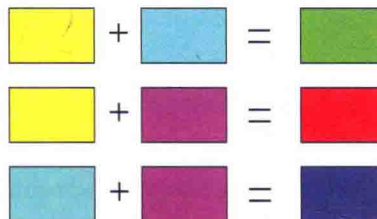
Subtractive primaries mixing chart

Description of color

12 **Hue:** the name of the color itself, the dominant wavelength of light or the choice of pigment.

Lightness (brightness): the lightness or darkness of the color, or the amount of light reflected or transmitted.

Saturation: the level of white, black or grey, ranges from neutral to brilliant (from pastel to full color).

Tint: base color plus white.

Tone: base color plus grey.

Shade: base color plus black.

Value: How light or dark a color is.

Aggressive – aka "warm": the colors of yellow, orange, and red, etc. These come toward the eye more (spatially) and are generally "louder" than passive colors.

Passive – aka "cool": the colors of green, blue, and violet, etc. These recede from the eye more (spatially) and are generally "quieter" than the aggressive colors.

Color schemes

13 **Achromatic:** An achromatic color scheme is one that is colorless – using black, white and gray.

Complementary: A complementary color scheme is one that uses colors directly across from each other on the color wheel. This can be accomplished by using two colors or hues that are opposites such as red and green or violet and yellow. Black and white can also be used. Since you can choose from varying colors and hues which can give a bold and dramatic effect, this color scheme is best used for dramatic, strong, or bold statements.

An example of a complimentary color scheme

Monochromatic: A monochromatic color scheme is a one-color color scheme. However, the color can be neutralized by adding its complement to lower the intensity of the color. Black and white can also be used to darken and lighten the value of the color. It is achieved by using one color or hue, utilizing that color's various tints, tones and shades. Using a monochromatic scheme with multiple textures creates character and maintains unity.

An example of a monochromatic color scheme

Analogous: An analogous color scheme is any three adjacent primary, secondary, or tertiary colors on the color wheel. These schemes can be warm or cool. Each can be neutralized by use of its complement, and black and white can be used. Analogous colors "harmonize" well and produce a definite mood to a composition. This can create a very harmonious color scheme.
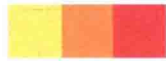
An example of an analogous color scheme

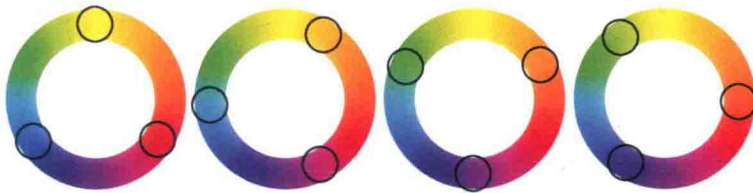**Color triad:** A triadic color scheme is colors that are equally distant from each other on the color wheel. Any three colors equidistant around the color wheel form a triad and can be used in this color scheme (e.g. red, yellow and blue).

An example of a color triad

Color tetrad: The tetradic or rectangle color scheme uses four colors arranged into two complementary pairs.

Color diad: A diadic color scheme is one using two colors that are two colors apart on the color wheel (e.g. red and orange).

Split complementary: A split complimentary color scheme is similar to the complimentary one. But instead of just two colors directly opposite on the color wheel, in the split complimentary color scheme, two of the three colors are adjacent to one of the colors that is opposite.

New words and expressions

magenta /mə'dʒentə/ *n.* 洋红色

cyan /'saɪæn/ *n.* 青绿色

subtractive /səb'træktɪv/ *adj.* 减色法的

synthesis /'sɪnθɪsɪs/ *n.*
the combination of two or more elements or components to create something new 综合；结合

retina /'retɪnə/ *n.* 视网膜

sensor /'sensə(r)/ *n.* 传感器；感应器

rod /rɒd/ *n.* 视杆

cone /kəʊn/ *n.* 视锥

intensity /ɪn'tensətɪ/ *n.*
the strength of light that can be measured（光的）强度

resolve /rɪ'zɒlv/ *v.*
to make clearly visible 分辨

perception /pə'sepʃən/ *n.*
the ability to see, hear or understand 感知能力；认识能力

spectral /'spektrəl/ *adj.* 谱的；光谱的

derivation /ˌderɪ'veɪʃən/ *n.*
the origin of something 起源；由来

spectrum /'spektrəm/ *n.* 光谱

pigment /'pɪgmənt/ *n.* 色料

dye /daɪ/ *n.*
substance used for dyeing 染料

absorb /əb'sɔːb/ *vt.*
to take in 吸收；吸进

absorption /əb'sɔːpʃən/ *n.*
the process of a liquid, gas or other substance being taken in 吸收

hue /hjuː/ *n.*
color 颜色

wavelength /'weɪvleŋkθ/ *n.* 波长

saturation /ˌsætʃə'reɪʃən/ *n.* 色饱和度

neutral /'njuːtrəl/ *adj.* 非彩色的；不鲜艳的

pastel /'pæstəl/ *n.*
a pale soft color 淡而柔和的颜色

tint /tɪnt/ *n.* 色温；色彩

tone /təʊn/ *n.* 色调；影调

aka
also known as 又名；亦称

spatially /'speɪʃəli/ *adv.*
concerning or existing in space 空间地

recede /rɪ'siːd/ *vi.*
appear to be more distant 变模糊；变淡

scheme /skiːm/ *n.*
ordered system 组合

achromatic /ˌækrəʊ'mætɪk/ *adj.* 无色的

complementary /ˌkɒmplɪ'mentərɪ/ *adj.* 补充的

monochromatic /ˌmɒnəʊkrəʊ'mætɪk/ *adj.* 单色的

analogous /ə'næləgəs/ *adj.*
similar to another situation or thing so that a comparison can be made 类似的；相似的

adjacent /ə'dʒeɪsənt/ *adj.*
next to or near something 邻近的；毗连的

triad /'traɪəd/ *n.*
a group or set of three related people or things 三人或三物的组合

equidistant /ˌiːkwɪ'dɪstənt/ *adj.*
at an equal distance 等距离的

tetrad /'tetræd/ *n.*
a group or set of four related people or things 四个一组

diad /'daɪæd/ *n.* 一对；一双

primary color 原色

secondary color 二级色；间色

tertiary color 三级色；复色

printing press 印刷机

spectral distribution 光谱分布

base color 基本色

color scheme 色系

color wheel 色轮；色环

triadic color 三色

tetradic color 四色

diadic color 双色

Reading comprehension

There are eight color schemes mentioned in Text A. Give the names of the color schemes the following pictures symbolize and find the phrases or sentences which help you get the answer from Text A.
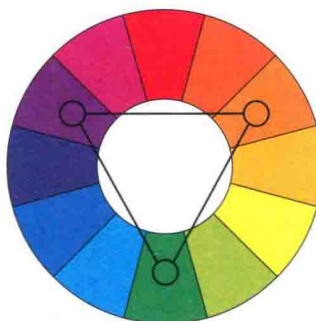
Name: _____

_____

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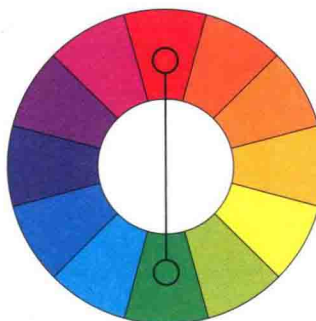
Name: _____

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Name: _____

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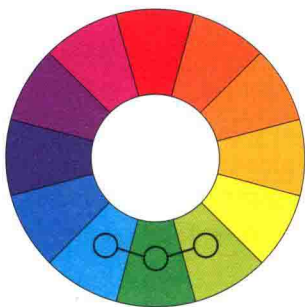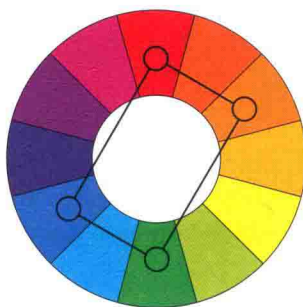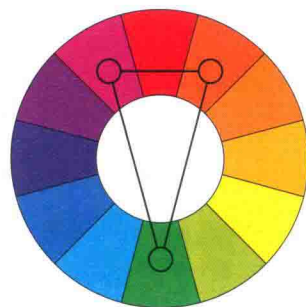
_____

_____

Name: _____

_____

_____

_____

_____

Language focus

1 Match the Chinese on the left and right with the English words in the middle and compare their meanings. Complete the following sentences with appropriate words in the middle. Change the form if necessary.

1. 侵略的	shade	A.（色彩的）明暗程度
2. 安静的	value	B. 暖色调的
3. 作文	aggressive	C. 加色的
4. 价值	additive	D. 暗淡的
5. 背阴处	composition	E. 阴影
6. 添加物	quiet	F. 构图

1. The organization of foreground, middle ground, and background; perspective, cropping, movement, and depth; as well as subject placement and body posture is important in the process of

   _____.

2. Combining _____ colors creates lighter colors, so adding all three primary colors results in a color so "light" that it's actually seen as white.

3. Those women dress in _____ colors so as not to call attention to themselves when they go out.

4. _____ is a measure of how light or dark a color is, without any consideration for its hue.

5. To human eyes, orange is a very hot color, so it gives the sensation of heat. Nevertheless, orange is not as _____ as red.

6. A(n) _____ is simply any color with black added. It is deep, powerful and mysterious. Be careful not to use too much black as it can get a little overpowering.

2 Study the prefixes of numbers. Try to use the correct form of the italicized words given below to complete the following sentences. Change the form if necessary.

one – uni / mono	e.g. *unity, monochromatic*
two – di / bi	e.g. *diad, bicycle*
three – tri	e.g. *triad, triangle*
four – tetra / quadr	e.g. *tetrad, quadrangle*
five – penta	e.g. *pentagon*
six – sex	e.g. *sexfoil*
seven – sept	e.g. *septilateral*
eight – octo	e.g. *octopus*
nine – nona	e.g. *nonary*
ten – deca	e.g. *decade*
half – semi / hemi	e.g. *semi-neutral, semispherical, hemisphere*

1. A(n) _____ color scheme uses colors that are evenly spaced around the color wheel. It tends to be quite vibrant, even if you use pale or unsaturated versions of your hues.

2. In Vincent van Gogh's *Self-Portrait*, both the figure and the background are so overwhelmingly soaked in a pale cornflower blue that the painting is almost a(n) _____ study of dull, cerulean emotion.

3. In the art class, the teacher showed to the students how to draw a(n) _____, a regular five-sided figure, and asked them to draw one by themselves.

4. The _____ of the brains have separate and distinct functions.

5. After years of research, Swedish designers have released the "Hövding", an innovative _____ helmet design in which an airbag is housed

within a stylish collar and engineered to inflate and encompass a cyclist's head during a collision.

6. The _____ color scheme uses four colors arranged into two complementary pairs. This rich color scheme offers plenty of possibilities for variation.

3 Complete the following sentences with the words given below. Some of the words may not be used. Change the form if necessary.

subtractive   composition   tint   saturation   intensity
complementary   shade   additive   lightness

1. If we are working on a computer, the colors we see on the screen are created with light using the _____ color method. When we mix colors using paint, or through the printing process, we are using the _____ color method.

2. A color can be toned down, neutralized, or desaturated by adding a bit of the _____ color (opposite on the color wheel) to it. For example, red can be made less vivid by adding a bit of green to it.

3. Value is how light or dark a color is in terms of a black and white scale. You can lighten or _____ a color by adding white; you can darken or _____ a color by adding black.

4. In the case of two-dimensional images, _____ describes the way that different elements are positioned within the frame, with respect to each other and to the viewer, to create a particular impression.

5. In the Munsell color system, zero represents neutral grey, and depending on the hue, the numbers 10 to 16 represent complete _____.

6. _____ is the brightness or dullness of a hue. One may lower the _____ by adding white or black.

4 Translate the following paragraph into English.

当谈到色光，颜色是加色法，意指添加更多的色光使颜色更明亮。当把所有的色光原色混合在一起时，得到的就是白色色光。色光的原色是红、绿和蓝。这些跟我们视网膜里的受体细胞（receptor cell）是相对应的。当谈到色料（pigment）时，颜色是减色法，意指光被吸收了，添加了更多的色料使得颜色变暗。当所有的色料原色混合在一起时，得到的就是黑色。色料的原色是洋红、黄和青绿。