

# COLOR THEORY



## PURPOSE

The purpose of color theory study is to understand the relationships of colors to each other, and to learn how they affect the person who sees those colors.

## LEARNING AND DOING

1. **Judges 8:26** — Purple symbolizes kingship and royalty. The color was reserved for kings.

**Jeremiah 17:8** — Green symbolizes our connection to the Source of Life and that we are alive and growing in Him.

**Isaiah 1:18** — Our Lord says our sins are like scarlet and are as red as crimson, a deep blood red. It's hard to cover over the color red.

**Isaiah 1:18** — Following God's gracious forgiveness, the red of our sins is erased and we take on God's righteousness and holiness. This makes us appear to God as white and clean as freshly fallen snow.

**Daniel 7:9** — The white clothing and hair symbolize God's awesome and perfect purity and righteousness — the total absence of sin.

**Luke 11:36** — Being filled with light means you are filled with God's Spirit, but the darkness refers to sin. To be a good witness of the Spirit living in us, we should desire to have no part of that darkness or sin in us.

**1 Peter 2:9** — Here again darkness and light are contrasted. Those who are now living in the light (forgiven and Spirit-filled) should be praising our God who has saved us from darkness.

2. **Advent** is when we look forward to celebrating Jesus' birth (and His return). The liturgical color is purple or dark blue. Purple is the royal color for the coming King. Blue is the color of hope.

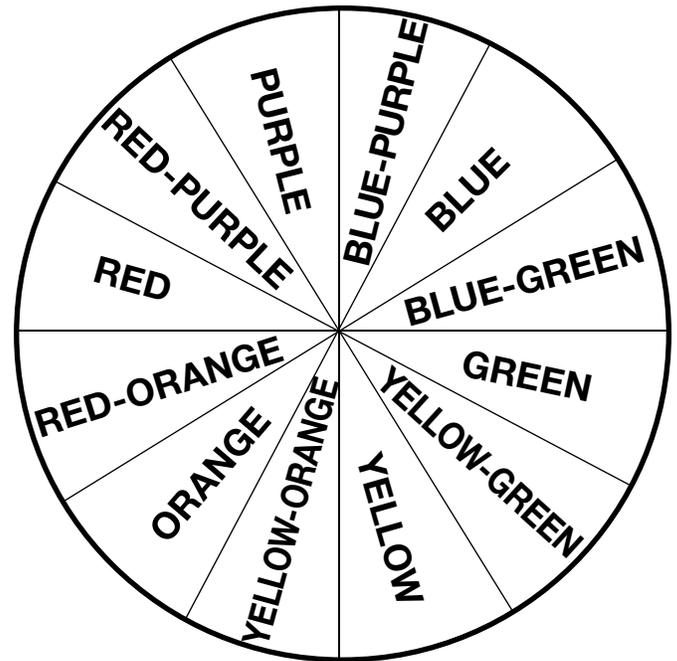
**Christmas:** White is used to symbolize the purity of the newborn King, and gold the value of His coming.

**Easter:** The Easter season celebrates the triumph of Christ over death and His ruling power over creation. The colors for Easter are also white and gold.

**Pentecost:** The color for Pentecost is red, symbolizing fire and power — reminding us of the power of the Holy Spirit to change lives, and of the tongues of fire that descended on the believers in Jerusalem.

3. **Primary colors:** Red, blue, and yellow are primary colors. They are the only colors visible to the human eye that cannot be created by mixing other colors together.

4. **Secondary colors:** Orange, purple, and green are created by mixing two primary colors. Example: red and blue to make purple.



5. **Tertiary colors** are red-purple, blue-purple, blue-green, yellow-green, yellow-orange, and red-orange. They are made by mixing a primary and a secondary color together.

6. **Complementary colors** are opposite from each other on the color wheel and they contrast (they seem to vibrate when placed close together in a picture) because they do not have any colors in common. Green is made by mixing yellow and blue, so it will complement red.

7. **Analogous colors** are any three colors that are right next to each other on the color wheel and have a color in common. For example, blue, blue/green, and green all contain blue.

8. **Cool colors** are made mostly of green, blue, and purple, and they remind you of cool things (like water).

**Warm colors** are made mostly of red, orange, and yellow, and they remind you of warm things (like fire).

**Earth colors** are not seen on most color wheels. Black, gray, white, brown, beige, and tan are earth colors and can be made by mixing all three primaries together with some black or white. Browns are made by mixing two complementary colors. Grey is made by mixing some orange with blue and adding white, or by mixing blue with a brown and adding white.

**Local colors** are realistic colors, as they appear in nature, such as green grass, blue sky, brown earth, etc.

9. The reason for painting a few pictures is to help the boys understand how colors can be used to create moods, show contrast, and create depth.

Here are some definitions of words we use to describe color, and some general rules about mixing paints that will help the boys choose their colors for their pictures.

**Saturation or brightness** describes the purity of a color in regard to whether it is in its original state or whether it has been mixed with black and/or white and thus more dull.

**Intensity** describes the purity of a color in regard to whether it is in its original state, or whether it has been mixed with another color, making it less intense.

**Harmony** is a group of colors that is pleasing to the eye. It engages the viewer and it creates an inner sense of order. There are many theories (volumes and volumes) about what colors can be used together to create harmony with each other and why. If any of the boys has further interest in this area, an art supply store will have books on the subject. (Or check with a local library or on the Internet.)

**Contrast** is the interaction of colors that are on opposite sides of the scales in regard to their intensity or saturation, or on opposite sides of the color wheel (complementary).

#### **Mixing colors when painting**

- To lighten a color (“tint” it), add white to it.
- To darken a color (“tone” it), add black.
- Mix two colors if you want to reduce intensity.
- Mixing complementary colors together reduces intensity, darkens the color, and creates a naturally harmonious color.
- To dull your color without changing color, add a small amount of gray (black + white).

#### **Materials for the paintings**

The materials you need can be acquired at most local arts and crafts stores. Make sure the boy uses only the five colors specified so that he is forced to mix colors in order to create the other colors he may want.

- a. The first painting will help the boys discover how color can help to create depth in a painting. Most people are aware that size of an object can create depth — smaller objects appear further

away, but it is also important to consider the intensity and saturation of the object’s color. Generally, as we view things in real life, the more “atmosphere” there is between us and an object, the duller the color will appear. The molecules (gases and moisture) that make up the air we breathe scatter light, so the greater the distance between us and an object, the more the light reflecting off that object is scattered, and what we see will be less intense.

In this painting, we take away the size factor and just concentrate on color to create depth. Help the Cadet notice how a brighter object “jumps out at you” and has a sense of closeness relative to a duller object.

- b&c. The second and third paintings will help the boys learn about harmony, contrast, and the emotional reaction to colors. To create a sense of calm in a picture with color you typically will:

- 1) Use the earth colors or local colors.
- 2) Avoid putting contrasting colors, saturations, or intensities near each other.
- 3) Use colors that are in harmony with each other.

To create a sense of unrest, action, or excitement, you typically will:

- 1) Use warm colors — but you can also use cool colors if you arrange them so that they “work against” (are complementary) to the warm colors.
- 2) Put contrasting colors, saturations, and intensities near each other.
- 3) Use colors that are complementary or are not in harmony with each other.

If you are doing this badge as a cadre, a field trip to an art museum might be a good way to complete your study of color theory.

# OFF-ROAD VEHICLES



## PURPOSE

To help your Cadets learn the basics of operating an off-road vehicle and safety in riding/driving one. Through their work on this badge, Cadets should gain a deeper appreciation for God's creation.

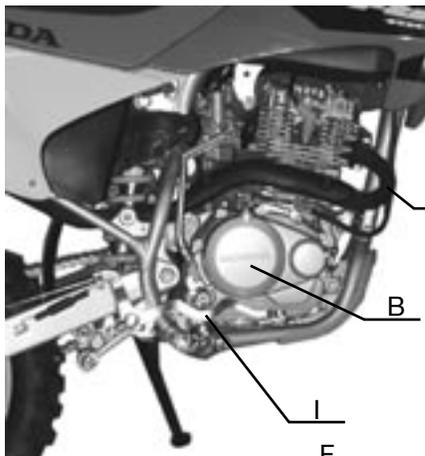
## LEARNING

1. Self-explanatory.
2. ORV apparel and its importance:
  - a. A helmet is important to protect one's head from possible injury.
  - b. Gloves protect fingers from scratches and help the driver keep a good grip.
  - c. A brightly colored shirt helps other riders see the driver more easily.
  - d. Riding boots protect lower legs from brush and tall grass.
  - e. A chest protector reduces the chance of chest injury.
3. If lost or injured:
  - a. If you have a cell phone, call for help.
  - b. Stay where you are and wait for members of your group to find you.
  - c. Build a signal fire if you are in a location where there is no fire danger.
  - d. If you are injured, your partner could go for help. If you are lost, you and your partner should stay together.
4. Self-explanatory.
5. People use ORVs for
 

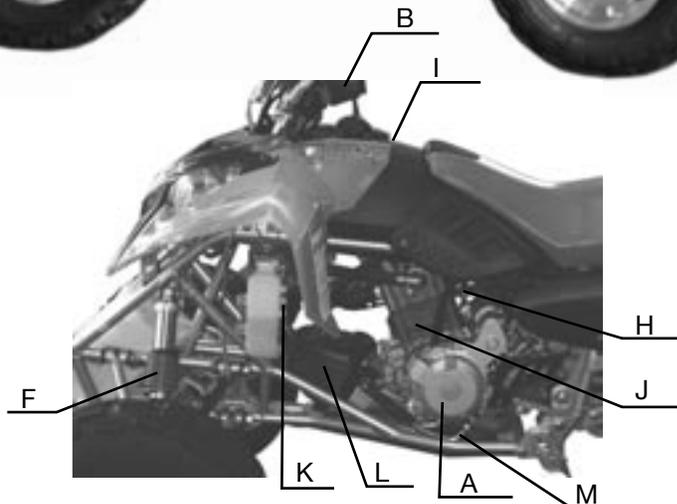
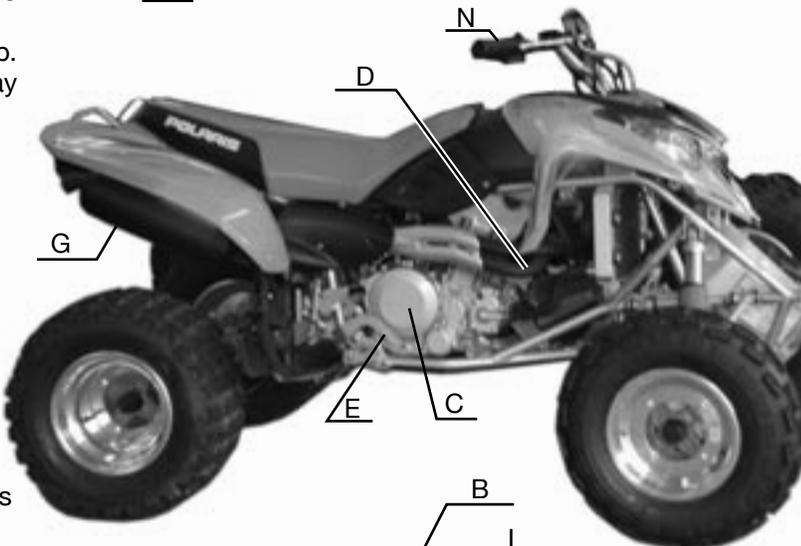
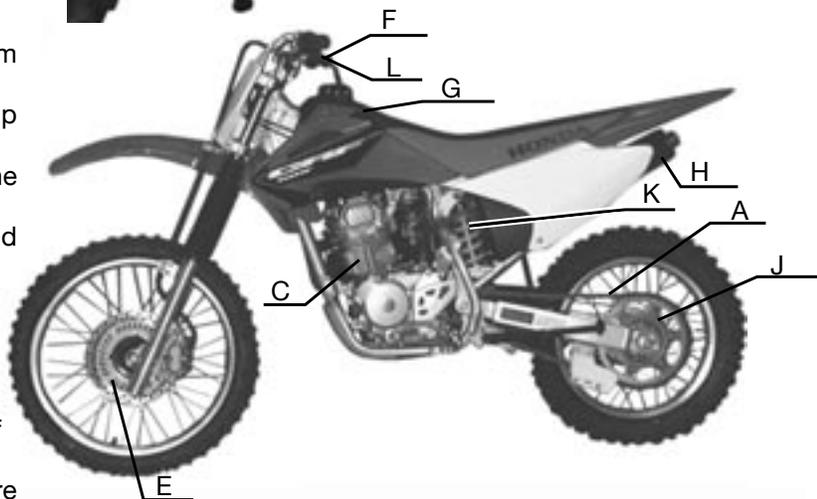
a. Racing	c. Farm chores
b. Hunting	d. Adventure trail riding
6. See pictures in next column.
7. Self-explanatory.
8. According to the Native Forest Council, two-stroke engines discharge 25–33% of their fuel unburned into the air. A two-stroke engine operating for four hours can emit up to 70 times as much carbon monoxide and 250 times as much hydrocarbons as an automobile driven 100 miles.

Traveling into back country areas contributes to damaged animal habitats, air and noise pollution, and soil compaction and erosion. As bare soil is exposed and ORVs continue to run in the area, aggressive and invasive weeds tend to spread.

A rider with concern for the environment will want to preserve it by sticking to well-defined trails and will keep his machine tooled for best efficiency. He should also report irresponsible or illegal activities of others to the authorities.



*Thanks to Gar's Sport Center (Grand Rapids) for allowing us to photograph these vehicles and for their tech help.*



## **DOING**

This part of the requirements is self-explanatory. It is to be completed under the supervision of a qualified instructor.

1. The goal in this interview is for the Cadet to find out more about the fun, the skills, and the dangers involved in riding off-road.
2. If the Cadet is completing this badge as an individual project, ask to see his preparation paperwork. Ask him about the details of his trip, giving specific attention to the requirements in the guidebook.