

Peripheral Blood Flow

Evaluated by Emily Zablocki (John Adams High School)

Product Information

- **Peripheral Blood Flow**
- Carolina Supply
- \$89.50
- **This lab would be useful in either a Cardiovascular unit, a Blood unit, or as a lab to illustrate or support homeostasis. This lab is also very adaptable to making it more inquiry based or expandable.**

Materials Provided

- 6 liquid crystal sets
- Hole punch
- String

Materials Needed but not provided

- Rubber bands
- 12 beakers or wide-mouthed containers for water
- 2 large pitcher or other containers for ice water and warm water
- Scissors
- Ruler
- Ice water
- Warm water
- Paper towels

Teacher Tips

- The lab provides materials for six groups of 4-6 students to work in pairs or teams.
- Because skin temperatures vary among individuals, varying liquid crystals have been included so more than one person can be tested at a time.
- Rubber bands may be substituted to hold the cards on the test subjects instead of the string.

Instructions

- Activity A: Regional Variations
 - Experimenter: Choose a sheet of liquid crystal material and place it on the back of the test subject's hand. If the sheet becomes uniform dark blue, choose another piece of liquid crystal with a higher event temperature. For these activities, use a sheet that undergoes a distinct color change when placed on the test subject's skin.
 - Observe the color change pattern that emerges on the sheet.
 - Repeat this activity using other parts of the body.

- Activity B: Effects of Gravity
 - Place your hand at chest level with your elbow extended straight out to the side. Maintain this position until the color pattern on the sheet stabilizes.
 - With the crystal sheet on the back of the test subject's hand, extend that hand straight up into the air, over your head, for one minute.
 - Return your hand to chest level with your elbow extended straight out to the side. Watch for the color pattern on the sheet to stabilize.
 - With the crystal sheets still on the back of your hand, lower your arm to your side for one minute.
- Activity C: Effects of Temperature
 - Place the liquid crystal sheet on the back of the test subject's hand. Look for the blue pattern of veins to appear.
 - Without getting the sheet wet, place your fingers in a beaker of warm water for one minute.
 - Then place your fingers in a beaker of cold water for one minute.
 - Repeat this warm-and-cold sequence three times.

Teacher Observations

This lab was a simple, inexpensive, and low maintenance lab. This lab allows for much expansion to inquiry labs for the students. Once the students learn how to use the liquid crystal sheets then the sky is the limit for this lab. There are so many options for altering this lab.