

## CLASSROOM ACTIVITY 4

# ONLY YOUR HAIRSTYLIST KNOWS FOR SURE

## TRADE LINK: HAIRSTYLIST

(CHEMICAL REACTIONS INVOLVING THE BLEACHING AND/OR STREAKING OF HAIR)

### TEACHER BACKGROUND

**Duration:** two (2) 45 minute classes.

**Group Size:** small groups of 4 students.

**Setting:** indoors (classroom).

### RATIONALE

Modern chemistry is founded on the science related to atomic theory. Chemical reactions have become such a common place in our daily lives that we take them for granted. Using examples that are part of a student's normal experience, such as hair coloring, can help create strong connections between theory and understanding. In this activity, students will explore the dyeing or bleaching of hair - a common trend among today's youth.

### METHOD

Using clean hair (collected from hair stylist/barber shop, student volunteer or animal hair), students will experiment with the bleaching process and monitor color change over time. When dyeing hair, you will notice a gradual change over time. Students can leave the last piece of treated hair to sit overnight and check on it the next morning. This activity works best if you start with brown hair and use a commercial bleaching or streaking kit.

### MATERIALS

- Bleach kit or streak kit for hair (available commercially).
- Hair - (ask hairstylist for a small bag of clean dark brown hair or have someone in class volunteer hair).
- Beaker or glass jar.
- Scotch tape.
- Pencil or stick.
- Stopwatch or watch with timer.

### GETTING STARTED

Chemical reactions have become such a commonplace occurrence in our daily lives that we take them for granted. As you study atoms and elements, you will learn more about what happens when a chemical reaction takes place. In this activity, you will bleach or streak hair and observe the chemical reactions that take place over time.

Note: Black hair requires additional treatment to successfully bleach it.

### THE ACTIVITY

1. In this activity, you will use six small samples of human or animal hair about 5-10 cm long.
2. Put tape around one end of each sample of hair. Put one of them on the side to use as a starting reference point. Tape remaining samples to a pencil (or other object) so that they are lined up in a row and hang down.
3. Treat each sample of hair according to the instructions included with the kit. Make note of the time.
4. At fifteen minute intervals, remove one sample of hair, rinse it with water and tape it to a piece of paper once it has dried.
5. Leave the last sample of treated hair to sit overnight and remove it the next morning.
6. You should have six samples of hair hanging on your sheet in the order in which they were removed from the chemicals. Beside each bundle of hair, write the number of elapsed minutes before it was removed.
7. What observation can you make?

### BRANCHING OUT (EXTENSIONS AND VARIATIONS)

1. Repeat the experiment with different colored hair and try to predict the various color changes ahead of time.
2. Repeat the experiment using natural dyes such as lichens and berries.
3. Invite a hairstylist to come in and do a demonstration of streaking techniques.

### ESSENTIAL SKILLS

1. What is the hydrogen peroxide concentration level in the colour activating cream? (Reading Text)
2. What potential health effects and warnings are listed? (Reading Text)
3. Is there a relationship between hair color, thickness and dyeing time? (Critical Thinking)

### INFORMATION BITE

As Working with drawings and blueprints is a daily activity for a carpenter. This trade involves knowledge about the many materials used in construction, hand and power tools, and the science of building construction (footings, formwork, walls, roofs, floors, room finishes, etc.). An apprentice carpenter learns to construct, erect and repair structures and fixtures made of wood. Most carpenters are employed by construction contractors, are self-employed or perform construction or maintenance work for government agencies or manufacturing firms.