/**
 * A Pencil has a (positive) length and color. A pencil can change its color.
 * It can also decrease its length as a result of being sharpened.
 * 
 * @mathmodel c : Colors, where c is the color of the pencil <br />
 * s : int, where s is the length of the pencil <br />
 * @initially Pencil(Colors color, int length) <br />
 * ensures c = color and <br />
 * length > 0 ==> s = length <br />
 * @constraint s > 0 <br />
 */
public interface Pencil {

  /**
   * Returns a human-readable representation of the pencil.
   * Both the color and the length are included.
   *
   * @return String describing c and s
   */
  public String toString();

  /**
   * Sets the pencil color.
   *
   * @param newColor is any valid color
   * @alters c
   * @ensures c = newColor
   */
  public void setColor(Colors newColor);

  /**
   * Sharpens the pencil by grinding it down. Sharpening can never
   * increase the length of the pencil. The requested length is
   * removed, if possible.
   *
   * @param remove amount by which pencil will be shortened
   * @requires remove >= 0
   * @alters s
   * @ensures remove < #s ==> s + remove = #s and <br />
   * s <= #s
   */
  public void sharpen(int remove);
}