



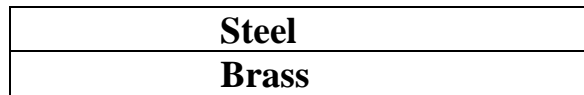
COEFFICIENT OF LINEAR EXPANSION

Guide Questions

40% of the Written Report (Group Report) grade

1. What indication tells you that the rod inside the jacket is expanding? How was the expansion of the rod measured?
2. Which has a higher coefficient of linear expansion, steel or brass? What does a higher coefficient of linear expansion mean?
3. Consider two flat strips of steel and brass (initially of the same length), which are bonded together along their length. If this bimetallic strip were heated, what would be observed? Sketch the resulting figure.

Bimetallic strip before heating:



4. Many highways and buildings are constructed with reinforced concrete (concrete with embedded steel rods). The coefficient of linear expansion for concrete is the same as that for steel. Why is it important for these two coefficients to be the same?
5. Why is it advisable to allow telephone lines to sag when stringing them between poles in summer?