MATERIALS SCIENCE C

Sample Activities & Tasks

These are sample questions/tasks/activities that will help prepare students for the 2025 season. This list is not all-inclusive and is representative of what students may be asked on tournament exams.

a. Given the radii of a cation and anion, determine the type of crystal structure that would be formed by the material.

b. Given the radii of a cation and anion determine the size of the unit cube.

c. Give examples of how structure and performance are related.

d. Explain the difference between firing and sintering.

e. Determine the structure of the crystal from an X-ray diffraction pattern

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a. Given a Bunsen burner, Borax, and a group of pieces of metal wire, produce a glass bead of a certain color.

b. Given a candy bar, two supports, and a string with two Styrofoam cups and a pile of pennies, determine the elastic modulus of the candy.

c. Use a piezoelectric device to light an LED.

d. Given a pan of hot Jolly Ranchers and a popsicle stick, draw out a glass rod 12 cm long.