Name: _____ Date: _____

Material Science Introduction — Demo Worksheet

Instruction

Use this worksheet to organize your answers to questions during the material science demonstration. Please fill in the blanks and answer questions as the demonstration is conducted.

Observations

1. Indicate the correct material class for each material listed:

____	**tile**	A. metal
____	**Popsicle stick**	B. ceramic
____	**plastic bag**	C. composite
____	**paper clip**	D. polymer

2. Circle the type of deformation for each material. Write a brief description of the selected deformation.

tile: elastic plastic

Description:

Popsicle stick: elastic plastic

Description:

paper clip: elastic plastic

Description:

plastic bag: elastic plastic

Description:

3. Describe the failure of each material. Include deformation observations and failure features.

tile:

Popsicle stick:

paper clip:

plastic bag:

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4. Characterize each material failure as either ***brittle*** *or* ***ductile***. Circle your answers.

   - **tile**: brittle ductile
   - **Popsicle stick**: brittle ductile
   - **paper clip**: brittle ductile
   - **plastic bag**: brittle ductile

Questions

5. What are the differences between metals and ceramics when subjected to force? Explain the differences in two sentences.

6. What similarities do polymers and metals have when subjected to a force? Explain the differences in two sentences.

7. Why would a metal be preferred as a bridge building material as opposed to a ceramic material?