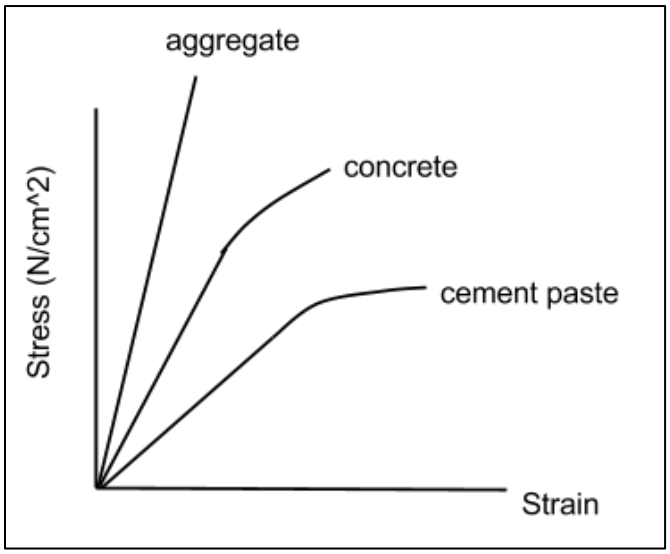
Name: _____ **Date:** _____

Building a Stronger (Sweeter) New Orleans Activity — Stress vs. Strain Worksheet

Directions

Use the following graph to answer questions 1-7.



Questions

For each of the following questions, please use complete sentences and explain your answers.

1. Research and explain the difference between aggregate, concrete and cement.

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2. Which of these is a composite material? Explain your answer.

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3. Which material has the largest value of Young's modulus? Explain.

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4. Which is the stiffer material? Explain.

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5. Which of the three materials would you prefer to use for building? Explain.

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6. The stress vs. strain curve for the cement flattens out at the end. Explain what this means.

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7. The sample of cement that was used to generate data for the graph above was 5 mm wide and 5 mm long. Imagine that you are given a sample that is wider and longer. Will the graph of stress vs. strain be different for this sample? Explain.

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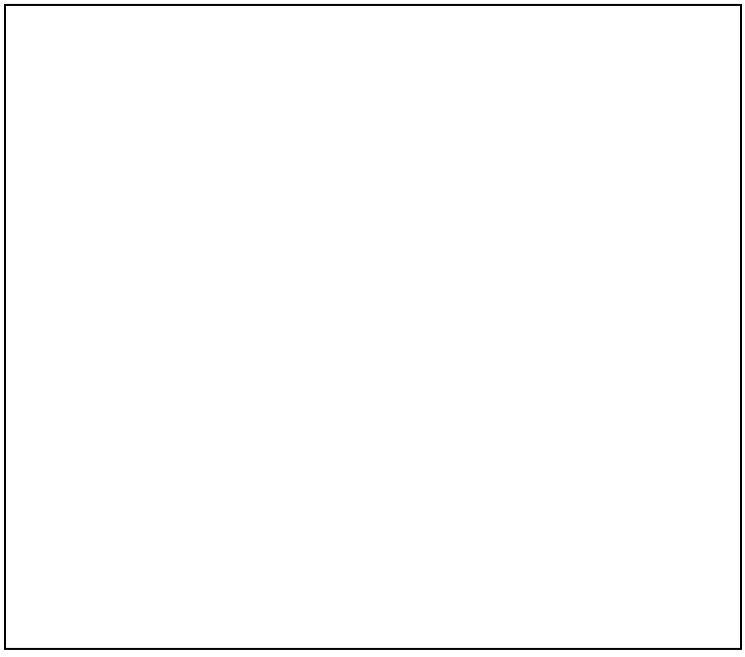
8. You are given two unknown materials, labeled A and B. Material A has a Young's modulus of 1 N/cm^2 and material B has a Young's modulus of 2 N/cm^2. Each material is initially 4 cm long.

   - In the box below, sketch a graph of stress vs. strain for the two materials on the same set of axes.



   - Which material compresses more if a pressure of 2 N/cm^2 is applied to it? Explain in words or show calculations to support your answer.

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