Changing Shape

Background
Elasticity is the tendency of a material to return to its original shape after it has been stretched or compressed. Different materials have different amounts of elasticity, some return to its original shape and others do not.

Pre-lab Questions
Discuss the following question with your group:
1. In your own words explain the meaning of a physical property.
2. What types of materials do you know of that will not stretch? List at least 5 items.
3. What does all of the items listed in question #1 have in common?
4. List materials/objects that you can think of that can be stretched and still go back to their original shape.
5. What does all of the items listed in question #4 have in common?

Objective
You will investigate different materials, and compare the physical property, elasticity.

Materials
- Pen spring
- Plastic wrap
- Popsicle stick
- Aluminum foil
- Metal
- Fabric
- Twig
- Sand
- Rock
- Clay
- Rubber band
- Balloon
- Cardboard
Safety
- Always wear safety goggles when handling chemicals in the lab.
- Wash your hands thoroughly before leaving the lab.
- Follow the teacher’s instructions for cleanup of materials and disposal of chemicals.

Procedure
1. You will be given one item at a time.
2. When you have the object, attempt to stretch it, squish it, bend it and move it around.
3. If your object does not stretch at all, record a check mark under “did not change shape” in the data table below.
4. If your object changes shape, record a check mark under “changed shape” in the data table below.
5. If the object changed shape and then goes back to its original shape, also record a check mark under “changed shape and but returned” in the data table below.
6. Under “other observations” you can write down what kind of changes you observed. For example: how did the shape change? How much did it stretch? Was it difficult to stretch the object?
7. Think about whether the object/material can be reused/recycled. Record either “yes” or “no” in the data table below. If you are not sure, record your best guess and discuss with your group members.
8. Repeat the procedure for all of the objects.

Data
Record your data in the table provided on the following page.

Analysis
1. What are the similarities between all of the materials that changed shape?

2. Do you think that the physical properties a material determines if the material can be recycled? Explain!

3. How did you determine which materials could be recycled?
<table>
<thead>
<tr>
<th>Material/Item</th>
<th>Did not change shape</th>
<th>Changed shape</th>
<th>Changed shape and returned</th>
<th>Other observations</th>
<th>Can we reuse/recycle this material? (Yes-No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pen spring</td>
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<td>Plastic wrap</td>
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<td>Popsicle stick</td>
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<td>Aluminum Foil</td>
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<td>Rubber band</td>
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