



Let's Stretch

Teacher, Parent, Science Buddy and Student Background:

Elasticity is the ability of a material to return to its original shape after being stretched.

Elasticity refers to the property of some materials to return to their original shape and size after a force has deformed the material. Most solids have elasticity, but there is a limit to their recovery. The elastic limit is the maximum stress that occurs before permanent deformation is evident. This elastic limit depends on the type of solid.

A steel bar or wire can be elastic only about 1 percent of its original length, however, rubber can extend up to 1,000 percent of its length. The different macroscopic elastic properties of steel and rubber are caused by their very different microscopic structures. Steel and other metals maintain atoms in a regular pattern. These patterns tend to break rather than stretch under stress.

Rubberlike materials and other polymers consist of long-chain molecules that can uncoil as the material is extended and recoil during elastic recovery.

Gases and liquids also possess elastic properties since their volume changes under pressure.

**Elasticity Exploration: This activity can be used with Kindergarten through upper grade
This is more than a one day exploration.**

1. Collect objects that stretch: elastic, hair bands, rubber bands and gummy worms, fabric, socks, sports clothes.
2. Collect objects that do not stretch.
3. What do you observe about things that stretch?
4. When you look at an object can you predict if it will stretch? How do you find out?
5. Can you think of things that you *do not want* to stretch when in use?
6. You can use Venn diagrams to sort objects or make a real object graph on your table.



Stretching your Body



This activity is for Pre K and Primary Grade Students

1. Can you stretch your body? What body parts stretch and contract?
2. Reach to the ceiling, one hand at a time and then both hands.
3. Stretch your arms down to the floor.
4. Reach out with your hands; then squeeze in.
5. Stand on tippy toes.
6. Touch toes, the stretch high.
7. Open and close your hands and fingers.
8. Bend to the left side, raise your right arm over your head to stretch. Repeat on the other side.
9. Stretch neck up, down, left and right.
10. Make yourself as tall as can be.
11. Make yourself as short as can be.
12. Make yourself as wide as can be.
13. Make yourself as narrow as can be.
14. Have a partner make different capital letters of the alphabet with you.



Stretch your Socks!

1. How can we find out if a sock will stretch? Which way or ways do you think you can stretch a sock?
2. Let's make a plan.
3. Predict.
4. Use a centimeter ruler to measure the sock before, while being stretched and after the stretch.
5. What was your sock's length before the stretch?
6. While being stretched?
7. After the stretch?
8. Record your data.



Language Extensions:

in the (home)stretch

Fig. in the last stage of a process. (From horse racing. *We're in the homestretch with this project and can't change it now. We're in the stretch. Only three more days till we graduate.*

at a stretch

continuously; without stopping. *We all had to do eight hours of duty at a stretch. The baby doesn't sleep for more than three hours at a stretch.*

by any stretch of the imagination

as much as anyone could imagine; as much as is imaginable. (Often negative.) *I don't see how anyone by any stretch of the imagination could fail to understand what my last sentence meant.*

stretch someone or something out

to extend or draw out someone or something. *Molly stretched the baby out to change his clothes. She stretched out the baby, who had rolled into a ball.*

stretch something out (to someone or something)

to reach something out to someone or something. *Jeff stretched his hand out to Tiffany. He stretched out his hand to the visitor.*

stretch a point and stretch the point

Fig. to interpret a point flexibly and with great latitude. *Would it be stretching a point to suggest that everyone is invited to your picnic? To say that everyone is invited is stretching the point.*

stretch away (from something)

to extend away from something. *A vast plain stretched away from the riverbank. The plain stretched away as far as we could see.*

stretch one's legs

Fig. to walk around and loosen one's leg muscles after sitting down or lying down for a time. *We wanted to stretch our legs during intermission. After sitting in the car all day, the travelers decided to stretch their legs.*

stretch one's money and make one's money stretch

Fig. to economize so that one's money lasts longer. *We have to stretch our money in order to be able to buy groceries at the end of the month.*

stretch out

[for one] to extend and stretch one's body to its full length. *She lay down, stretched out, and relaxed for the first time in days. I need a bigger bed. I can't stretch out in this one.*

stretch out to someone or something

to extend as far as someone or something. *His arm stretched out to the guy next to him and established the correct amount of separation in the ranks. The beach stretched out to the horizon.*

stretch the truth and stretch the point; stretch it

Fig. to exaggerate. *When he claimed to have a Ph.D., he was stretching the truth. Sally tends to stretch the point when telling tales about her wild teenage years.*

bend/stretch the rules

to do something or to allow someone to do something which is not usually allowed *We don't usually let students take books away, but I'm willing to bend the rules on this occasion.*

