



## Bend Me-Shape Me!

### Getting Ready

Our body joints are there to *Bend Me-Shape Me!* Let's make one!

### Stuff to Make it Happen (Materials)

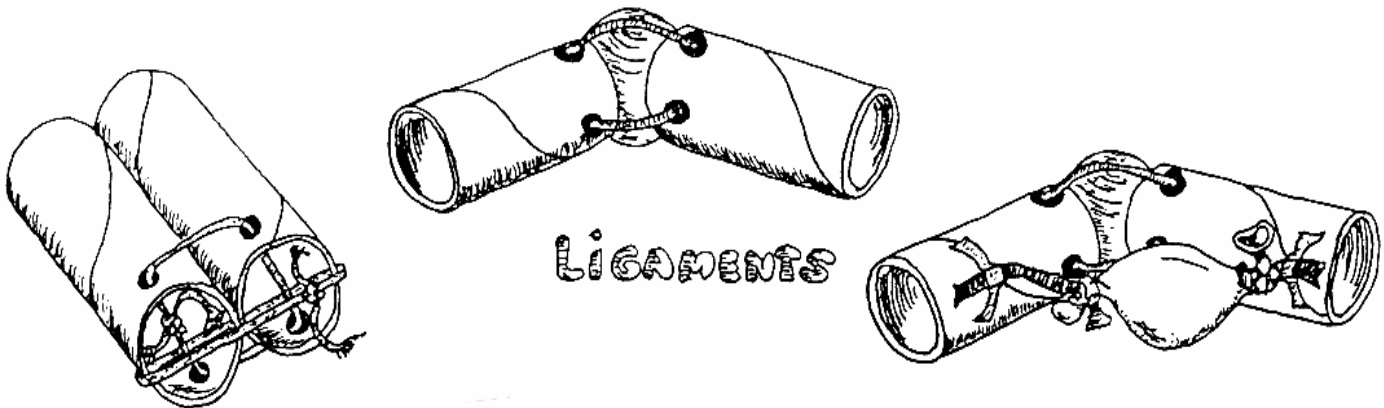
2 cardboard tubes*	large super ball	2 elastic strings
sharp pencil or paper punch*	pipe cleaner	adhesive tape*
2 long skinny balloon pieces		

### Making it Happen (*Be careful with the sharp pencil or hole punch!!*)

1. Using a paper punch or a sharp pencil poke four holes evenly spaced around one end of the paper tube, each one about 1/2 inch from the end. Do the same thing to the other tube.
2. Stand both tubes on end, side by side with the holes you punched at the top.
3. Thread one elastic string through four holes (2 in each tube) to form a square, just like in the diagram. The other elastic string gets threaded through the remaining holes. Tie each elastic string securely. Refer to the diagram for help in tying the elastic string.
4. Slip the ball through the strings so it's between where the tubes are tied together. It should be a snug fit. If not, tighten one or both elastic strings until all strings are nice and tight.
5. Cut the pipe cleaner into four equal pieces if it's not already been done for you!
6. Wrap one end of a pipe cleaner tightly around one end of a balloon piece. Do the same with another pipe cleaner. Repeat with the remaining pipe cleaners and balloon pieces.
7. Attach the free ends of the pipe cleaners to the paper tubes with adhesive tape. Look at the diagram for more help! (Put a balloon and pipe cleaner pair on both sides of the "joint")
8. Use the balloon and pipe cleaners to move the "joint". Observe its movement!

### Understanding the Science

A **Joint** is where two or more **Bones** come together. A joint's purpose is to let your body move. The **Muscles** (like the balloons do) provide the **Forces of Push or Pull** to make the joints move! The elastic strings represent some special strong bone attachments called **Ligaments**. The pipe cleaners represent **Tendons**, the cords which attach muscles to **Bone**. When muscles move, the tendons help the bones and joint to move. Notice how well your joint moves? It doesn't move as well as your real body joints does, but it's still pretty flexible!



**NOTE: A SECOND BALLOON  
AND TENDONS GOES ON  
THE OTHER SIDE!**