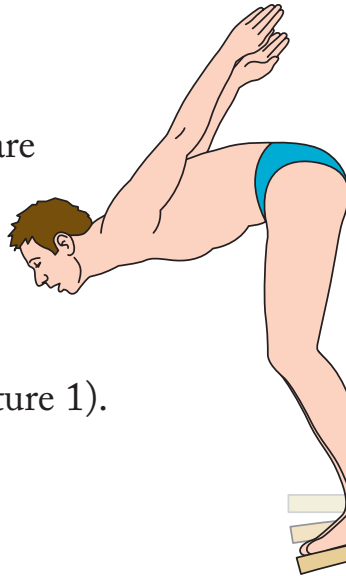




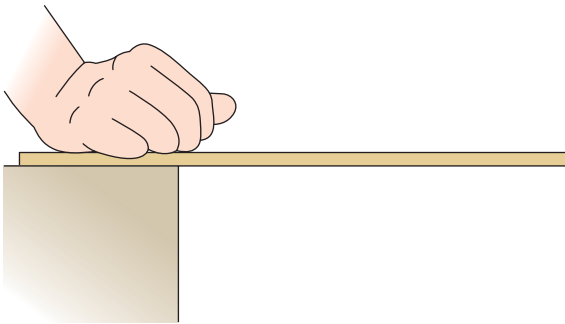
# Flat springs

Flat pieces of material and long pieces of wire can be used as springs.

You might think that springs are always coils. But there are many other shapes that make springs, too. Even a flat board, such as a diving board, will make a spring (Picture 1).



▼ (Picture 1) A diving board is a natural flat spring.

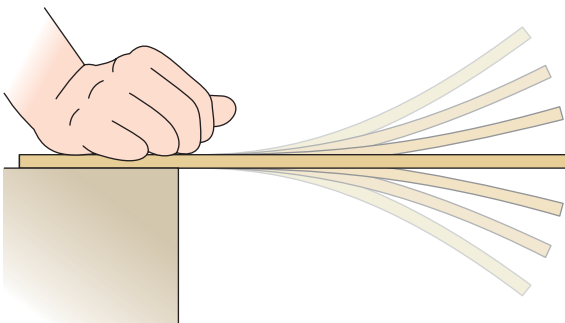
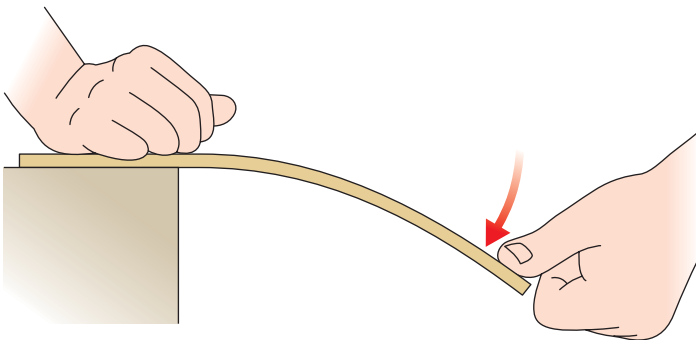


## Ruler spring

If you get a ruler and hold it with one end over the side of a desk or a table, you have made a flat spring (Picture 2). By pressing firmly down on the ruler you can hold it onto the table. Then, by pushing the other end down, you can make the ruler bend. If you then let go, the ruler will spring back and become straight again. So the ruler can be used as a spring.

## Springiness

Almost everything has natural springiness. If you support a ruler or stiff sheet of plastic between two books, and then put some light things on it, the plastic sheet will bend down in the



◀ (Picture 2) Most things have natural springiness. When you push on a ruler, then stop pushing, it springs back to its original shape, making a twang.

middle. Do not put so many things on that it breaks!

When they are taken off, the sheet will straighten up again. You can see again that the plastic has a natural springiness inside it.

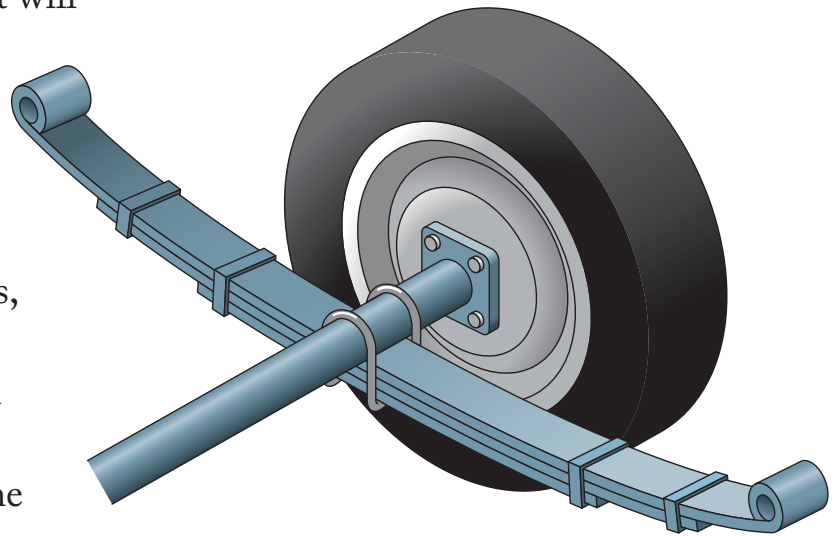
## Leaf springs

Because they have natural springiness, flat materials can be made into very strong springs. Flat springs are called **LEAF SPRINGS**.

The stronger the bar, the bigger the weight it can carry and still be springy. Steel bars are used as springs on carriages, cars and trains (Picture 3).

If you tried to bend these springs you could not. But they will bend slightly under the very heavy weight they are designed to carry (Picture 4).

▼ (Picture 3) The wheels in cars, trucks and railway carriages are supported by leaf springs made of bars of steel.



### Summary

- Bars of material can be springs.
- Flat springs are called leaf springs.

▼ (Picture 4) The leaf springs of this carriage are between the wheels.

