

Scrape the powder off a few matchsticks. Cut several 1.5 cm pieces from a cycle valve tube.

JOINT OF TWO

Fit matchsticks into the two ends of a valve tube. The two matchsticks should meet end-to-end inside the valve tube as shown in Figure 1.

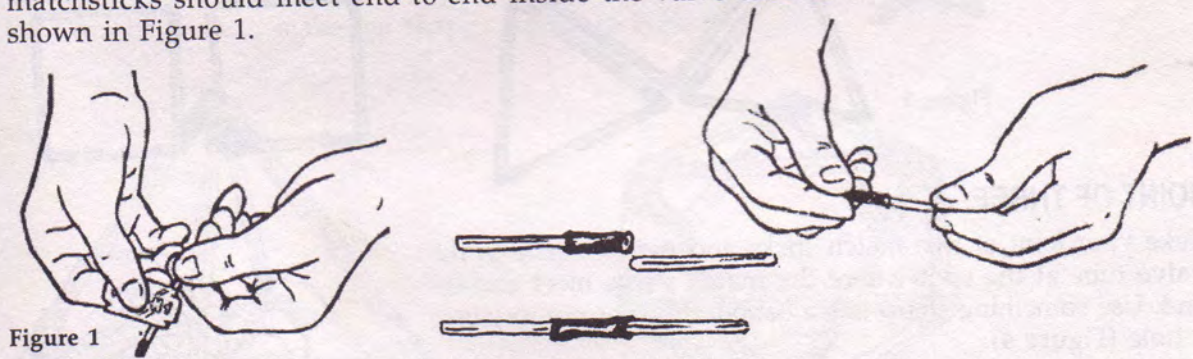


Figure 1

Make a few more such joints and use them to form the simple shapes shown in Figure 2.

A triangle is a strong and stable shape. It is used in many ways, for example in the construction of buildings and bridges. The roofs of houses in the village are supported by triangular frames made of bamboo and wood. You can see for yourself which of the different shapes you have made are stable and firm and which are not by pressing them between your finger and thumb.

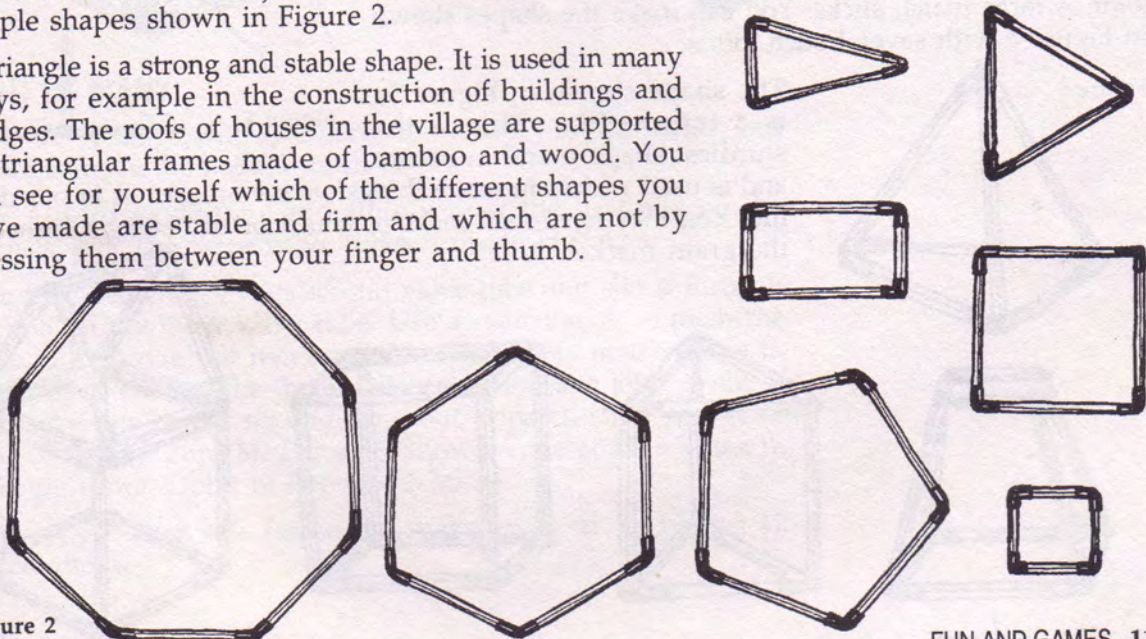


Figure 2

You can also arrange these shapes in different decorative designs (Figure 3).

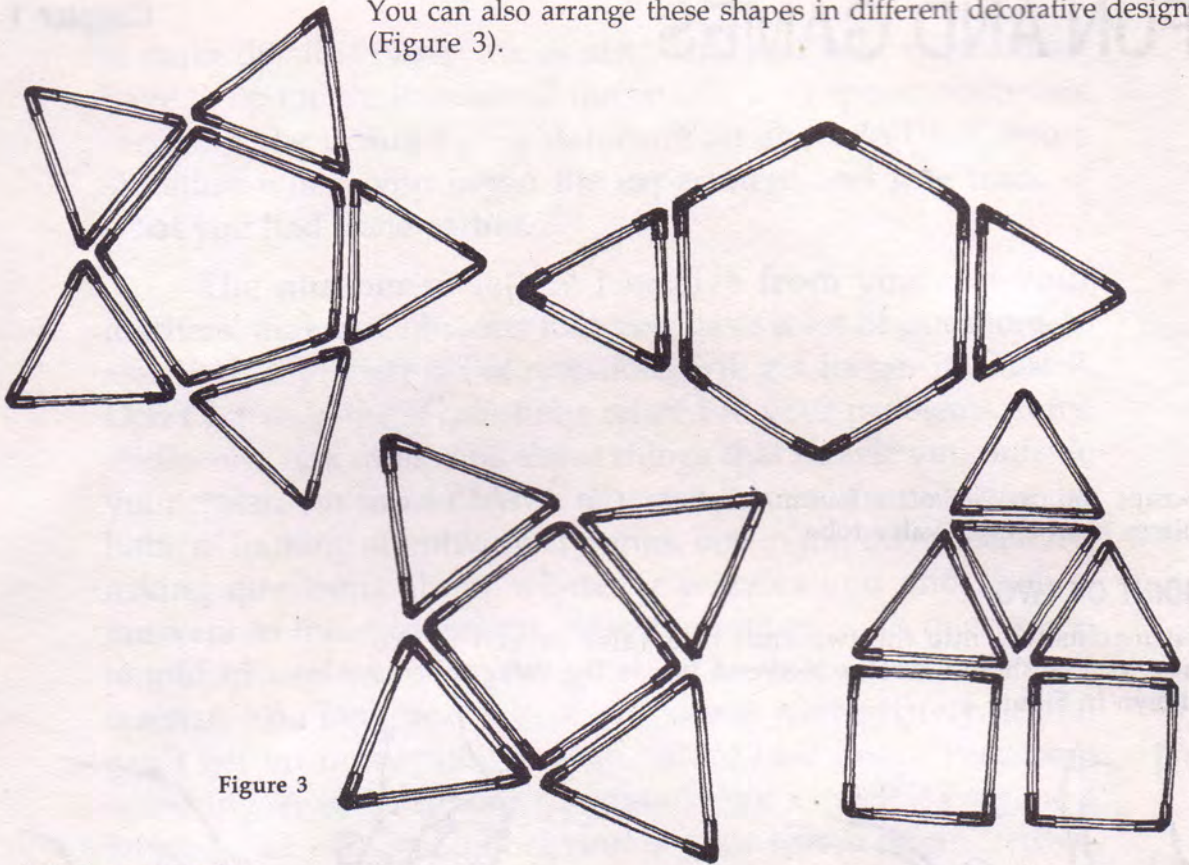


Figure 3

JOINT OF THREE

Take your joint of two match sticks and pierce a hole in the valve tube at the spot where the match sticks meet end-to-end. Use something sharp like a babool thorn or pin to pierce a hole (Figure 4).

Insert a third match stick into this hole. You now have a joint of three match sticks. You can make the shapes shown in Figure 5 with several such joints.

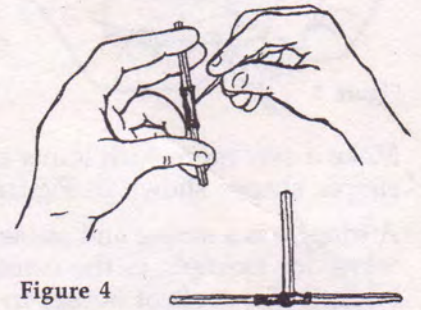
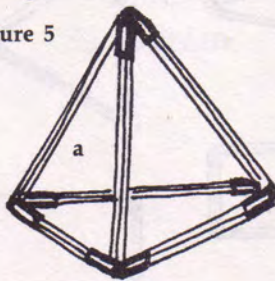
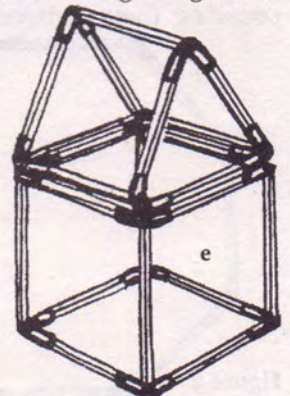
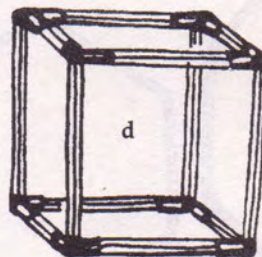
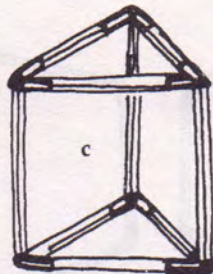
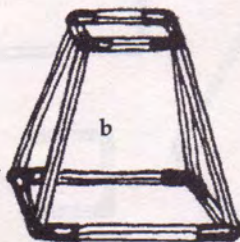


Figure 4

Figure 5



The shape shown in Figure 5a is a **tetrahedron**. This is the sturdiest shape found in nature and is used widely in many things we see around us in our daily life. You may have seen sacks of wheat or rice being weighed at the grain market.



The weighing scale is suspended from a stand made of three bamboo sticks. This stand is in the shape of a tetrahedron.

JOINT OF FOUR

Cut a few 2 cm-long pieces of a valve tube. Insert a babool thorn or pin through one piece. Now pierce another valve tube through the middle with this thorn or pin. Hold the second valve tube at both ends and pull it down so that it slips over the first valve tube (Figure 6).



Figure 6

The two valve tubes would form an X shape. Pull out the babool thorn or pin and insert match sticks into the four open ends of the valve tubes. You now have a joint of four match sticks. This joint can be used to make the shapes shown in Figure 7.

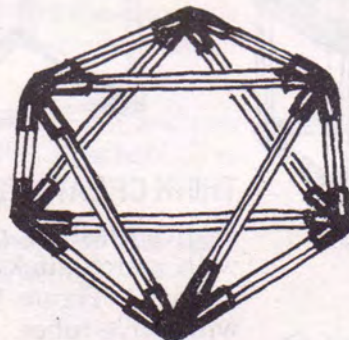
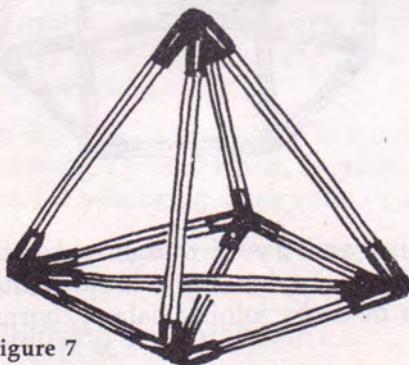


Figure 7

JOINT OF MANY

Make the X shape with two valve tubes like you did earlier, but do not remove the babool thorn or pin.

Take a third valve tube and slide it over the first one on the thorn or pin. The three valve tubes form an H shape.

Take the open end of your second valve tube and slip it through the hole in the third valve tube. Use a match stick to push the valve tube through, if necessary. Now insert six match sticks in all the open ends of the three valve tubes to get a joint of six. If you leave one of the six ends without a match stick you get a joint of five (Figure 8). Figure 9 shows some shapes you can make by using a joint of five match sticks.

You can go on in this fashion to make joints of 8, 10 and 12 match sticks.

Figure 8

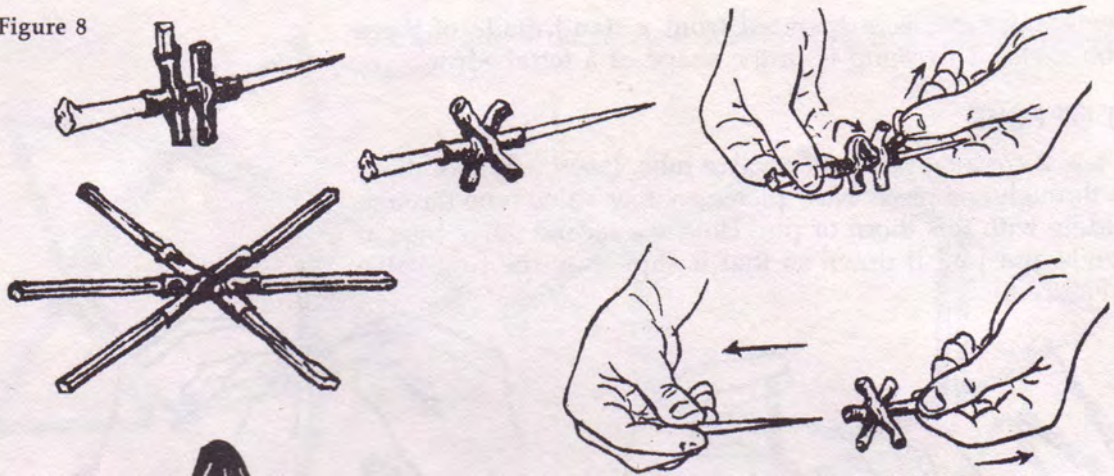
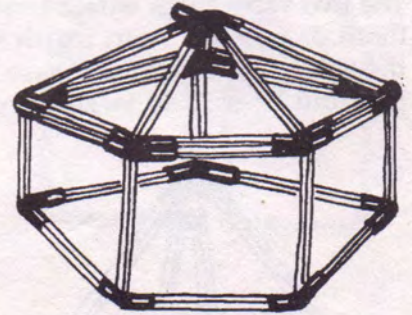
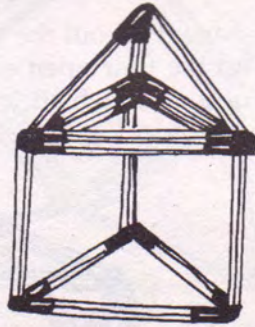


Figure 9



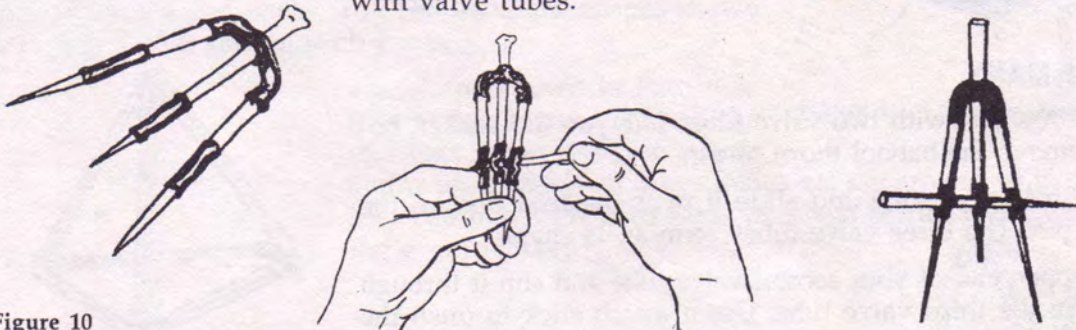
The figures or structures you made till now can also be arranged in different combinations to get yet more interesting structures.



THINK CREATIVELY

You can fashion many interesting and useful things and toys with match sticks and valve tubes. For example look at the divider in Figure 10. It has been made by joining babool thorns with valve tubes.

Figure 10



See if you can make tables, chairs and other things in this way. With just a little extra effort you could also make things like cycles, bullock carts, ploughs etc. Just give it a try.

NEW WORDS

Tetrahedron