

Fan machine

An easily made toy if you have hollow wood .



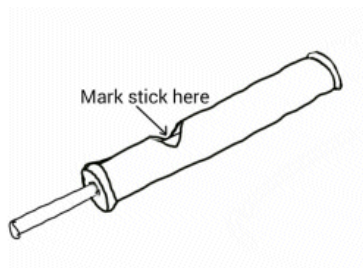
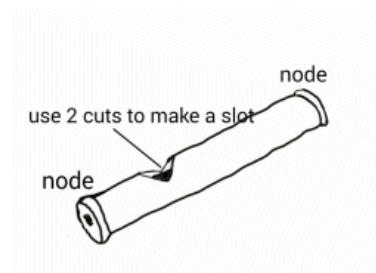
Materials: Hollow wood or bamboo,
2 x15cm straight stick to fit hollow loosely
20cm strong thread or light string 65cm
Fan materials, bottle tops, glue

Tools: knife or saw
Hole maker awl or knife

Techniques: Cutting, hole making, thread
tying, gluing (if needed)

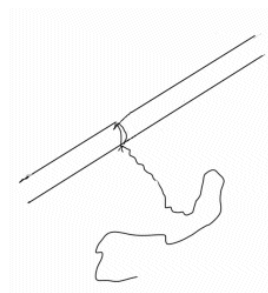
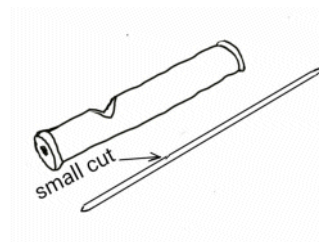
Making the Toy

1. Cut the hollow wood 10 to 15cm long.
For bamboo have at node at the bottom, and one at the top if possible.
For hollow wood, plug one end with a short piece of stick.
2. Cut a slot 2/3rd of the way up from the base.



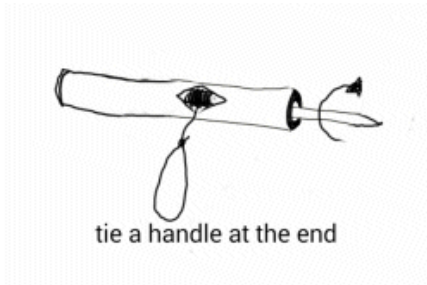
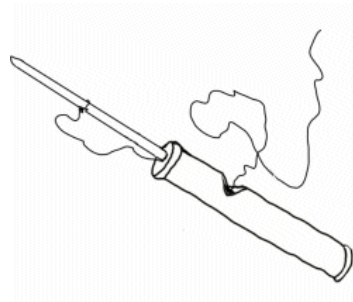
3. The stick needs to easily fit down the wood.
Push it right down to the bottom.

4. Remove stick and make a small cut at the mark.



5. Tie one end of the thread to the stick so it won't slip
6. Sharpen both ends of the stick a little.
Send the loose end of the thread through the top hole of the wood.
Push it down with the stock until it reaches the slot.

7. Fish out the thread, a bit of wire or thorn will help.
 Pull the string out until the knot is at the slot.
 Wind the thread in by turning the stick



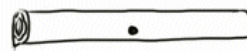
tie a handle at the end

8. Pull the string, the stick should turn easily. If it is stiff to start there is possibly too much string.
 You will need to wind it back in.

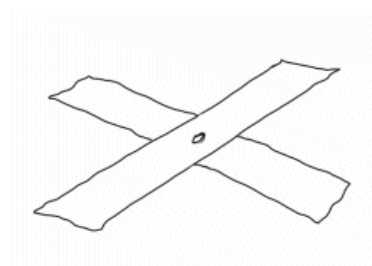
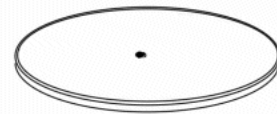
Making the fan

This can be anything but it needs to be balanced.

9. You will need: a stick with a hole in the middle,

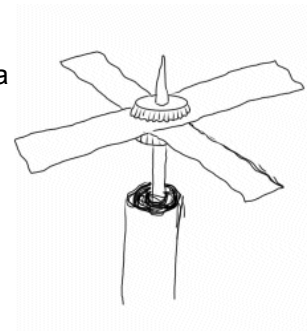


a flat disc, made from tin or plastic,



and a fan made from 2 pieces
 of wood or card.

10. The fan part needs to be well fixed to the stick. The hole needs to be a
 tight fit. It can be strengthened with glue or bottle tops



The metal top grip the stick best, binding with thread helps too.

Playing with the toy

Wind the thread fully into the stick.

Hold the wood with one hand and pull the thread with the other

Make the fan go faster as you pull.

When the thread is 2/3 of the way out let it go loose so it can wind itself back in.

Keep a hold of the handle or the thread will disappear into the slot.

Developing the Toy

- Try different fans
- Colour the fans to make patterns
- Variations of this idea can drill holes, make friction to light fires or even power a lathe.

Problem solving

Stick won't turn

- The stick may be bent. Make sure the stick can turn freely before tying the thread
- Too much thread is jamming the slot. Use less or a thinner thread; a longer slot can help too.
- The tied thread is not in line with the slot opening. Redo the notch and tying

Fan turns but the thread doesn't wind in.

- The thread is not tied well enough to the stick, tighten or use glue too.
- The fan is turning without the stick. Tighten or use glue or bottle tips to grip the stick better.
- Binding can help, especially with glue.

Fan wobbles

- The fan is not balanced
- The stick is not straight enough

Thread breaks

- It is easy to pull too hard and for too long. Practice helps you get a light touch.
- If the thread is simply too weak, make the thread stronger or use different thread.