

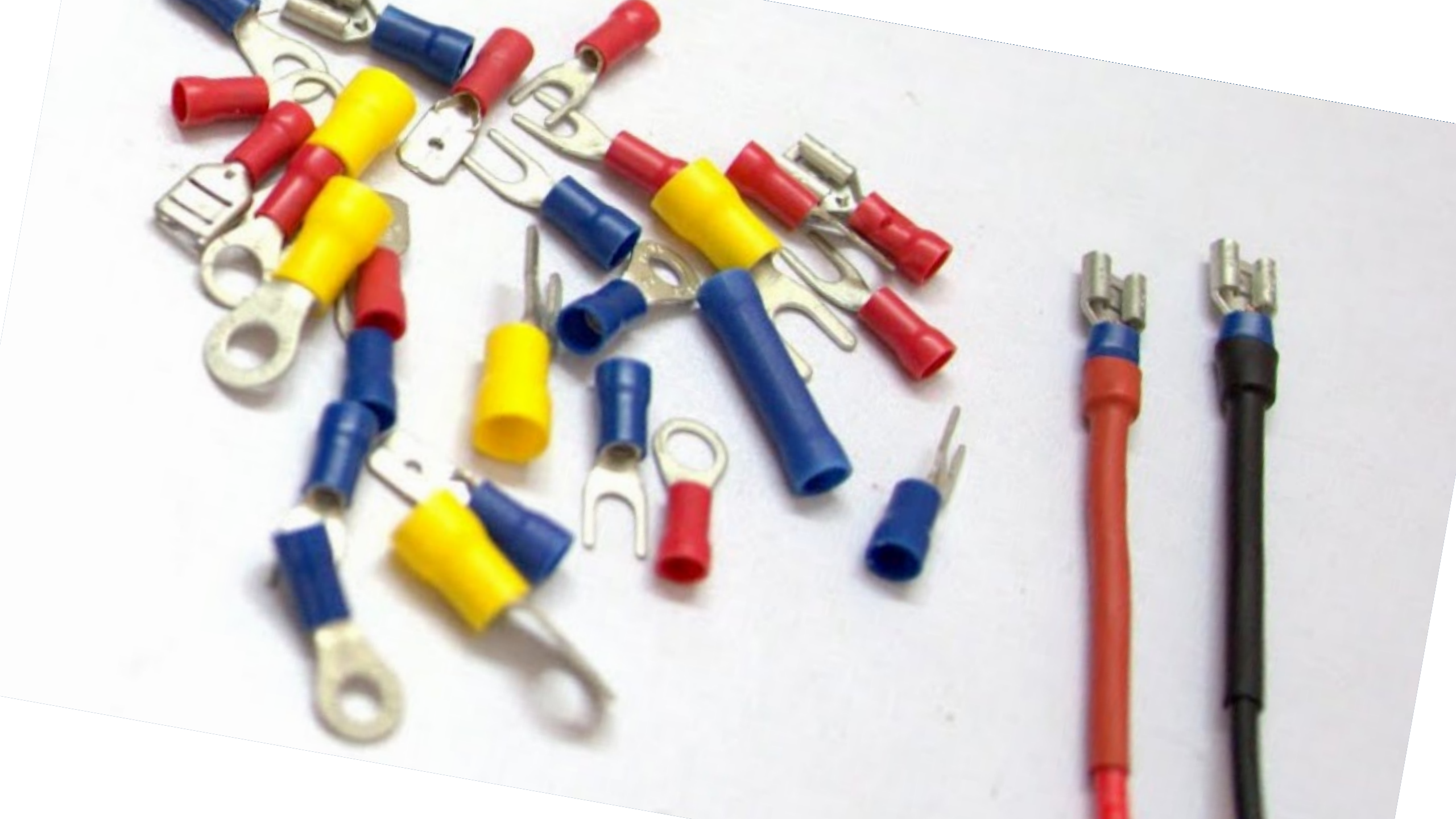
# **Ham Heat Shrinking Hacks**

[w6nbc.com/slides.html](http://w6nbc.com/slides.html)

# Heat Shrink Tubing



**Polyolefin**  
*Polyethylene*  
*Polypropylene*





MADE IN USA  
FABRIQUÉ AUX É.-U.  
HECHO EN EE. UU.



CRYSTAL CLEAR CREATIVE PACK  
PACK CRÉATIF TRANSPARENT  
ETE CREATIVO TRANSPARENTE COMO EL CRISTAL





LOCme Heat Shrink Tape Black - 1" Width 16.5ft with Adhesive | Heat Shrink wrap for Wire Loom, Pipes, Splice

100+ bought in past month

\$11<sup>99</sup> List: \$13.99

✓prime

FREE delivery Thu, Feb 8

Add to cart

**Neater than  
vinyl electrical  
tape**

# Heat Shrink Film Wrapping





***NOT WELL KNOWN***

**Top of a Common  
Drinking Water  
Bottle Heat Shrunk  
Onto a 2x2**

# states of matter

**Freeze**

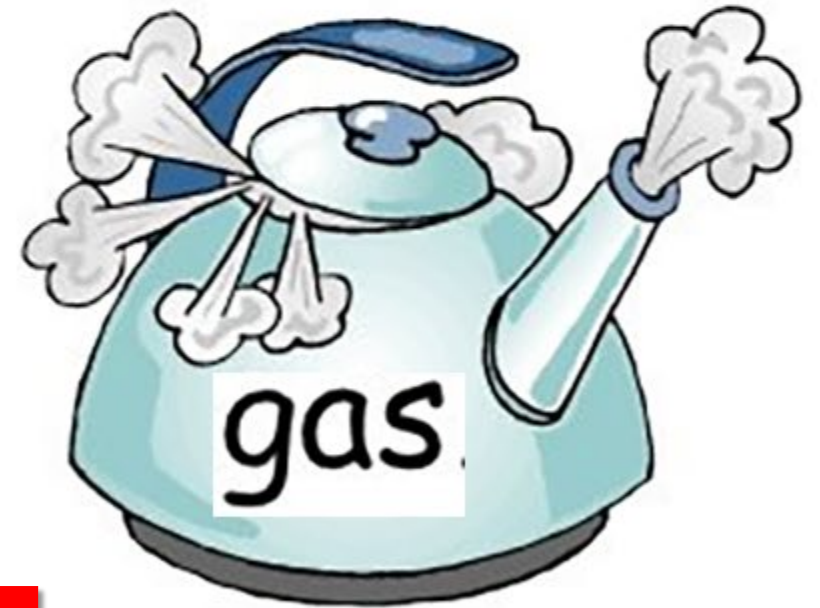


**$T_F$**

**Boil**



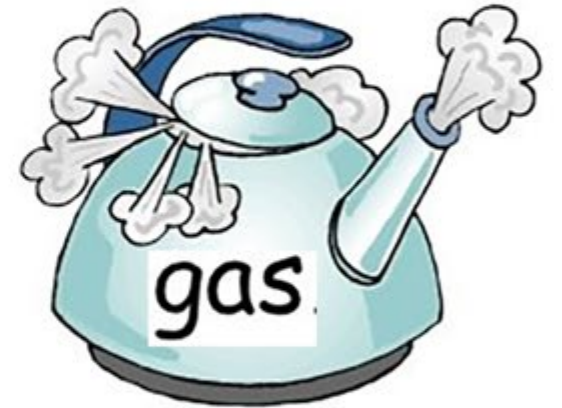
**$T_v$**



# states of matter



**GLASS**  
**Amorphous**  
**Rubbery**



**>  $T_G$**

**Glass Temperature**

# Sagging Old Glass



# Heat Shrinking

Making use of it

1. **HEAT**  $> T_G$   $\rightarrow$  **Glass state**
2. **STRETCH 2-3x**  $\rightarrow$  **Molecules align**
3. **COOL**  $< T_G$   $\rightarrow$  **Harden to a solid**
4. **REHEAT**  $\rightarrow$  **Shrink** – **Molecules relax**

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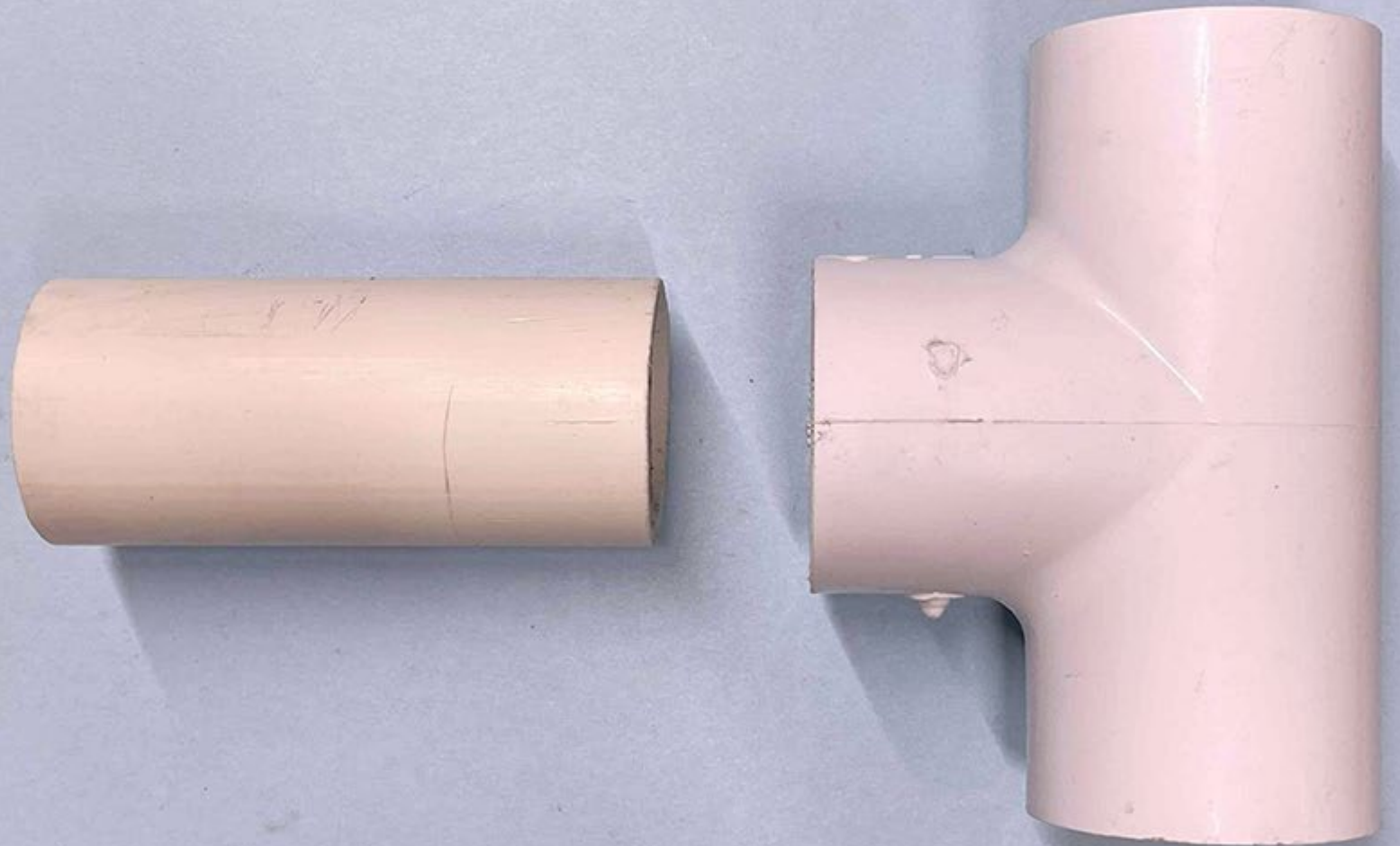
**Polyethylene, Polypropylene (Heat shrink tubing)**  
**PVC, Styrene, PET**



**PET bottles shrink back roughly 2:1**

|        | Material                                                | T <sub>G</sub> (°F) |
|--------|---------------------------------------------------------|---------------------|
| PP ★   | Polypropylene                                           | -4                  |
| HDPE ★ | Polyethylene HD                                         | -148                |
| PA     | Polyamide --> Nylon                                     | 117–140             |
| PLA    | Polylactic acid                                         | 140–149             |
| PET ★  | Polyethylene terephthalate --> clear bottles            | 158                 |
| PVC ★  | Poly vinyl chloride --> water pipe <b>Boiling Water</b> | 176                 |
| PVA    | Poly(vinyl alcohol                                      | 185                 |
| PS ★   | Polystyrene                                             | 203                 |
| PMMA   | Polymethyl methacrylate --> Plexiglas                   | <u>221</u>          |
| ABS    | Acrylonitrile butadiene styrene                         | 221                 |
| PC     | Polycarbonate --> Lexan                                 | 293                 |

**Shrinking  
PVC pipe  
ends in  
boiling  
water**



# **Heat Shrinking PET Plastic Bottles and Strips**



**Injection molded  
deflated PET balloon**



**Hot PET in blow mold**



**Drinking Water Bottle Heat Shrunk**



Reheat  $> T_g$

Resumes state



**1 Liter  
PET Soda  
Bottles  
Clear and  
in Colors**

# Soda Bottle Spiral Cutter

*Hole  
in cap*

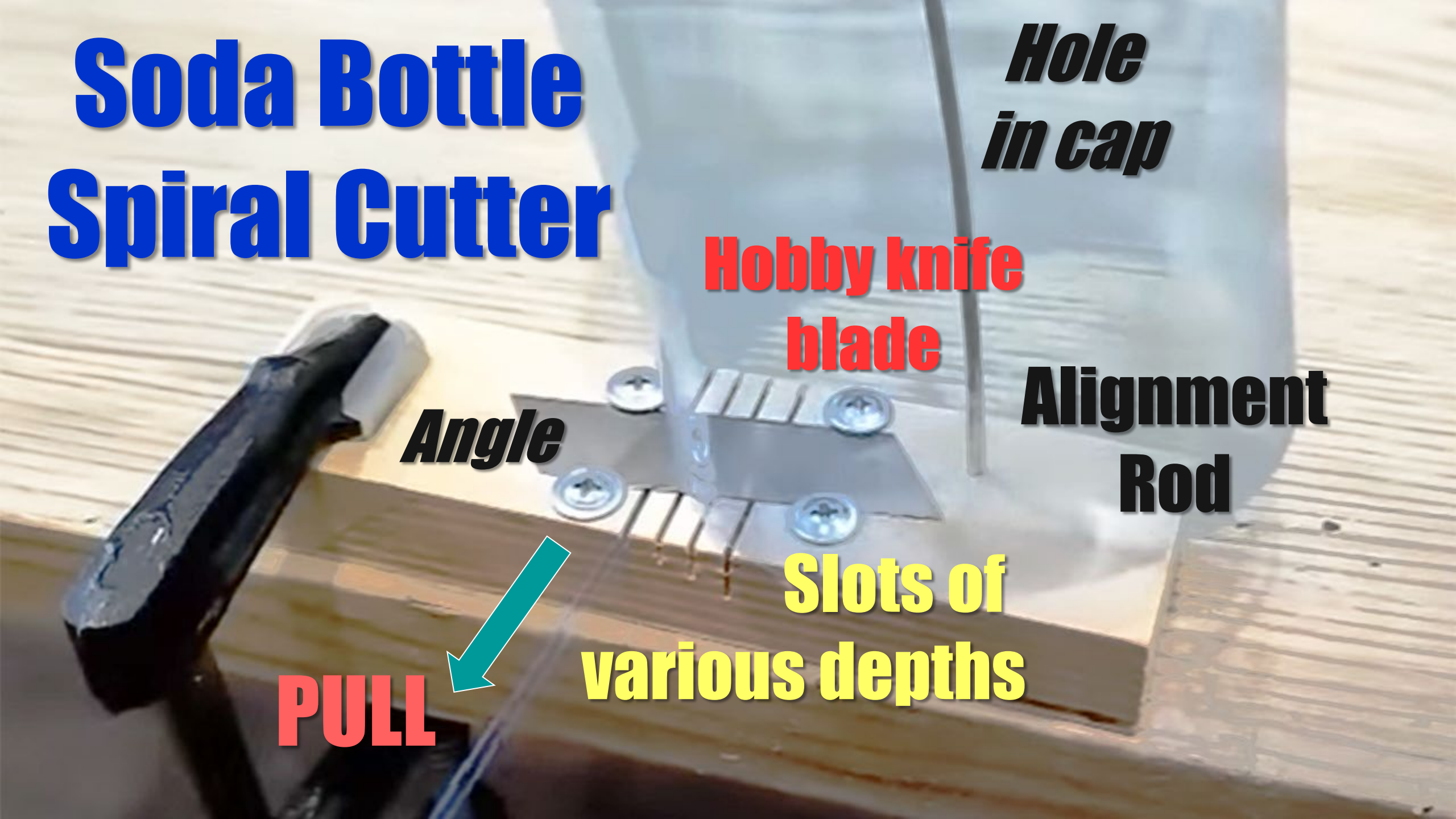
**Hobby knife  
blade**

**Alignment  
Rod**

*Angle*

**Slots of  
various depths**

**PULL**



Genround DIY Plastic  
Bottle Cutter \$15.99  
Amazon





**Knotted and shrunk  
spiral-cut heat  
shrink tape strips**





## FastRack Carboy5 Vintage Shop Plastic PET Carboy, 5 gallon, Clear

[Visit the FastRack Store](#)

4.3 ★★★★★ 41 ratings

-7% \$29<sup>89</sup>

List Price: \$31.99 ⓘ

[FREE Returns](#) ▾

Get \$50 off instantly: Pay \$0.00 upon approval for Amazon Visa. No annual fee.

- Pet food grade plastic
- 5 US gallons
- Clear Plastic
- Stain resistant
- Flat side wall-no ribs

 [Report an issue with this product or seller](#)





# MEDICAL APPLICATIONS

PET HEAT SHRINK

# TUBING

If you think of an application,  
send me a photo

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slides



DØGGY



*"That's all Folks!"*

