

# Making Gak

A very fun, and very special kind of goo. In 1943 James Wright, an engineer, was attempting to create a synthetic rubber. He failed, and kept the Gak on the shelf. It wasn't until someone else paid him a visit, and had a play with the goo and thought, 'Hey, kids would love this!' that the goo was turned into a science toy. Now it has seen use as a grip strengthener, as an art medium, and it even went into space on the Apollo 8 mission!

1. Get some Borax (the cleaning powder), sealable plastic bags, and some PVA glue.

2. Place about  $\frac{1}{4}$  of a teaspoon of Borax in the plastic bag. Make sure you clean the spoon right away!

3. Add about  $\frac{1}{4}$  of a cup of water. Mix it together to get the water to dissolve most of the borax.



4. Next add about  $\frac{1}{4}$  of a cup of PVA glue.

5. Mix thoroughly. All

the glue must react with the borax. If it's gluey, add more borax.

6. Squeeze out any excess glue (and borax) THOROUGHLY under running water. Wash your hands.

*Congrats, you got Gak!*



*Experiment* with your gak - make sure you take notes! What happens when you:

Bouce it, squish it, pull it, put it in water overnight, roll it in a ball, rest it on a newspaper, and on and on!

## *Gak Worthy Notes:*

- Keep it clean! Oil from your fingers, and water from the environment, can encourage mold to grow. You can wash you Gak with soapy warm water any time.

- Keep it in a plastic bag or cup! Gak loves to soak into things, like clothing or furniture. Don't let it!

- Nothing lasts forever, not even Gak - but it *can* last for centuries! So when you're done with it, make sure you put it in the rubbish bin!



## *How it Works: Very Much like Wet Spaghetti!!*

The glue forms long, long chains of molecules called polymers. These are like strands of spaghetti. The borax forms millions of very weak links between the long strands, this is like our water. When spaghetti is hot and wet, the strands all slip and slide over each other, just like in a liquid. This is also what is happen when gak is flowing; the polymers slide over each other and there aren't too many bonds to hold them. When the bonds have time or enough pressure to form many, many links, it holds the spaghetti together like a fat, bouncy brick. Not that I'd recommend it, but did you know that a big ball of damp, cold spaghetti left out to partially dry can actually bounce?

