



# Make an Invisible Electrostatic Message

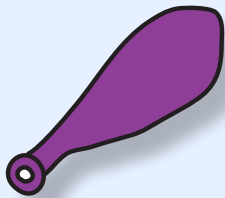
Check out the "Send a Top Secret Message" video on the  
Detective Science, Latest Updates page

## Find What You Need..

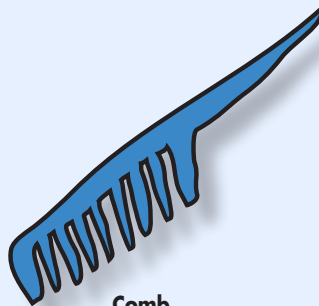
- A balloon (dark colors are best here)
- A comb
- Baking soda

### Important:

To help keep your message  
from getting too messy,  
you'll probably want to  
do this activity with adult  
supervision.



Balloon



Comb



Baking Soda

## Could you safely write a message using electricity?

There is a form of electricity that you can generate yourself at home. In fact, you can't *help* generating it, every time you comb your hair or rub your sneakers on a carpet. *Static electricity* is most often felt in the form of a small shock. But scientists – and kids like you – can put it to use.

If you've ever combed your hair on a dry winter day and felt your hair begin to fly away, you know that a comb can generate static electricity. Your comb is actually grabbing tiny particles called *electrons* from your hair, to create an electrical charge. *Forensic* (detective) scientists can use this charge to help reveal hidden messages in

the lab; check out the "Brownie Caper" Video on the Detective Science, Latest Updates page. In this activity, you can use static electricity to write and read your own secret words.

### Fact:

Lightning is made of  
a massive amount of  
static electricity.

## Activity Instructions

1. Blow up a balloon and tie it.
2. Charge up your comb: Comb your hair, or rub a plastic comb against your clothes, your carpet, or anything else you think will generate static electricity.
3. Use your charged-up comb to “write” a simple message on the balloon. The spine of the comb will work as well as the teeth here. You can’t see it, but the comb will leave a trail of electrons.



4. Sprinkle baking soda onto your balloon, then tap the balloon to remove the soda that’s not stuck to the electron trail. Can you read your message?



## Conclusions

How could you use the balloon to send secret messages? What makes the powder stick to the balloon? What tips would you give to someone trying this activity?

### Brain Buster:

**Make a balloon printing press:**

**Write a backwards message, stick soda to it, then roll it out onto damp paper.**

**You could use baking soda on colored paper, or sprinkle cocoa powder on your balloon to print onto white paper.**



Kids' Science Challenge  
Science Projects  
are presented by  
the award-winning  
radio series,  
Pulse of the Planet



Made possible by  
the National Science  
Foundation

©2009 Jim Metzner Productions. All rights reserved.