



Testing Sunscreens

Materials:

Sun print paper, 3 sunscreens, transparent plastic or glass, dark cover sheet

Testing actual products is a fun way to learn science with a practical application. Ever put on sunscreen then wondered why you burned anyway? They lose their effectiveness after about 1 year. So if you intend to use your leftovers from last year, you're taking a chance on not getting the protection you need. For this experiment, you can do two different tests. You can test 2 of the same brand of sunscreen, one purchased over a year ago and a new one or you can use it to test 3 good, not out of date sunscreens. I suggest you borrow from other families and choose some that was purchased during the summer or near the end of it, since this stuff is expensive and loses its effectiveness. You will need to purchase sun print paper. This paper fades quickly in sunlight leaving designs where you cover it. Be sure not to remove the paper from its dark covering when it arrives. I've found a set on the internet (Google=sun print paper) that gives you plenty for cheap, large sheets and lots left over to play with:

<http://www.sactoy.com/detail.asp?PID=2836&CurrentPage=> for \$11

Then when you're finished with the follow up on this, here's some craft ideas for art work you can make with the left over sun print paper:

http://www.diy.net.com/diy/photo_crafts/article/0,2025,DIY_14182_2276038,00.html

You'll also need a clear plastic sheet like a transparency film sheet. I have some from teaching but you can also use clear plastic sheet covers, the pockets that go in notebooks, just make sure they are perfectly clear, not opaque. OR you can use glass, like something from a cheapo picture frame from the thrift store for 50 cents. You will also need a piece of paper that is dark and is the same size as your print paper. Most packages come with one. Lastly you need sunscreens. Make sure you test a store or no-name brand.

Procedure:

1. First have your child guess which one will work best.

Set up:

2. Cut your plastic sheet to the same size as your paper or in a dark room, cut your photo paper to fit your glass. Determine the size then have one of your children measure and cut to match that size. If your package didn't come with a cover sheet, make one to fit using cardboard or black construction paper. You want all 3 to be the same size if possible.

3. Use a permanent (sunscreens will smear it if not) marker to divide the plastic or glass into four equal parts and label (in corner, very small) each with a letter, A, B, C, D. Then label your sunscreens each with a

letter, B, C, D. "A" will be your control and will be fully exposed to the sun.

4. Place a very thin film of sunscreen onto the plastic or glass from bottle B into square B. Be sure it covers it but is still transparent. Repeat for the others.

5. Cover it with your cover sheet.

6. Pull out a sheet of sun print paper (indoors). Make sure you know which side is active and place that face up, under the plastic or glass so that your sunscreens are sitting on top of it then your cover sheet on top of that.

7. Time to test. Read the directions and see how long your paper needs to bake. Usually it's between 10 and 20 minutes. Take your set up outside, remove the cover sheet and set a timer or watch. Wait.

8. After the allotted time, cover your project with the cover sheet and head indoors. You'll need to wait about 10 minutes before you can check your results.

9. CAUTION: If you remove your plastic or glass cover and toss it aside, you'll not know where on the print paper, each sunscreen is. So before you toss your plastic or glass aside, use a pen to mark on the sun paper, your A, B, C and D.

Follow-up questions (depending on their ages)

1. Why did we place a cover sheet on our experiment? (process, logic)
2. Why did we use all four at once and not test them one at a time? (process, logic)
3. What would we look for to see if a sunscreen worked, lighter area or darker area? (process, logic)
4. Why did we have to use no sunscreen on block A? (experiment design)
5. Which sunscreen worked best? (analyzing data)
6. Did the experiment go as planned? (forming conclusions)
7. If you were to do this again, how would you do it differently? (forming conclusions)

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