Names \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_

**POLARIZATION INVESTIGATION ACTIVITY**

* **Groups of 2, submit one group report answering all the following investigations.**
* **Materials (one per group): pair polarized sun glasses, polarized film piece, clear plastic tableware, plastic CD case, digital watch or a LCD (liquid crystal display) of a calculator and a running computer monitor [try using your own watch, calculator, and monitor], 3D glasses. (about a 20 min. activity)**
1. Check first to see if the filters in your activity kit are polarized by holding them up to your watch or calculator display or computer display and turning them 360 degrees slowly. What should you notice if the filter you are holding is polarized?
2. What angle do you have to rotate the filter to go from the brightest to the darkest? About \_\_\_\_ degrees
3. Now through a polarized filter view several reflective/glaring surfaces (wall posters, table). Rotate the polarized filter and note what you observe ­­ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. At what angle relative to the surface is the effect most pronounced in degrees? About ­­­­­\_\_\_\_ degrees.
2. Again, through a polarized filter, view a clear plastic object (clear plastic tableware, protractor, and/or CD case) Note: Placing a second polarized filter behind the plastic may produce a more-pronounced effect. Can you find any rainbow colored interference stress patterns? If so, what object(s) are you looking at and where is the interference patterns located?
3. Look through two polarized filters and rotate one relative to the other. Note what you observe. Through what angle must you rotate one filter to the other to go from minimum change to maximum change? About \_\_\_\_\_\_ degrees.
4. With your polarized glasses on, look at another person (from another group) also with polarized glasses on, tilt your head and/or blink eyes and note what you observe.
5. Go out at the end of the hallway and view cars parked in the parking lot through a polarized filer. Check out both reflective glares off cars and the windows of some cars compared to others. Note what you observe about each.
6. Look at the sky at an angle away from the sun (NEVER look at the sun, even with any kind of sunglasses) and note what you observe as you rotate the filter (most obvious for a clear sky). Look at as much sky as you can and determine at what angle relative to the sun is the effect most pronounced? About \_\_\_\_\_ degrees what is most pronounced?

**Conclusion** (on back): **Each** person comment on this activity. Did you learn anything new? What common observations can you make about what a polarized filter does to certain light sources? How does rotating the filter change what you see? Why? How are polarized filters useful?