

## To Our Southern Arizona Educators Teaching Grades K to 12

The Southern Arizona Chapter of the International Dark-Sky Association (SA-IDA) focuses on Education Outreach to help educate our Southern Arizona students and the general public about the harmful effects of Light Pollution and simple remedies that we all can take to help reduce them.

We participate in several activities and have developed some educational material that you may be interested in having for the classroom.

### **SARSEF CASH AWARDS**

We award cash prizes to worthy projects entered into the Southern Arizona Regional Science and Engineering Fair (SARSEF) that have something to do with Light Pollution. See the other side of this sheet for more details.

### **FUNFEST CLASS ON LIGHT POLLUTION**

We participate in this two day activity at the Tucson Convention Center by teaching a 20 minute class titled "Experimenting With Light". Students will learn about where light goes, about contrast, about safety issues, about the loss of stars and about harmful effects on wildlife. You can get event details on the FUNFEST web site.

### **EARTH DAYS AND OTHER OUTINGS**

We set up exhibits at some of the local Earth Day Events like Reid Park and also set up at the Arizona Sonora Desert Museum (ASDM) in the Outlook area on Saturday Astronomy Night in June, July and August. We also prepare handouts for Teachers at the ASDM Teachers Night in August. Our USA at Night poster showing light pollution from space is a big hit!

### **CLASSROOM PRESENTATIONS AND DISCUSSIONS**

We have limited volunteers but sometimes we can give presentations to classrooms or assemblies to present Light Pollution and related topics. We have several PowerPoint presentations or can talk about specific subjects. We do not give talks about astronomy except the impact on astronomy from light pollution.

### **DARK SKIES WEB SITES**

Both the International Dark-Sky Association (IDA) and our Southern Arizona Chapter (SA-IDA) have web sites with lots of information. SA-IDA focuses on Southern Arizona issues and provides educational material that can be printed for any educational purpose. Both of these web sites have a "Links" page to connect you to related sites.

To learn more about Dark Skies and Light Pollution, go to our websites below

**International Dark-Sky Association (IDA)**

[www.darksky.org](http://www.darksky.org)



**Southern Arizona Chapter (SA-IDA)**

[www.sa-ida.org](http://www.sa-ida.org) Email [sky@sa-ida.org](mailto:sky@sa-ida.org)



Please Post

## **Special Category Awards at the Southern Arizona Regional Science and Engineering Fair**

The International Dark Sky Association gives cash awards for worthy science experiments on the effects of Light Pollution. These are in addition to the awards given by the Science Fair.

Light Pollution happens when there's too much light, or light goes in the wrong directions -- where it isn't needed or wanted. It is prevented by aiming light down to where it's needed, and using only as much light as required for the task at hand.

In Tucson, we have less light pollution than in most other cities, because we have regulations which control outdoor lighting. But those rules aren't always followed. So we can do better.

### **Some possible topics for your experiment about Light Pollution:**

Calculating the energy cost, pollution, or water loss caused by wasted light.

Measuring light levels in various areas of Tucson.

Testing how well friends can see dim objects in a dark area, compared to one which is bright.

Testing animal behaviors with varying periods and colors of lights

What attracts moths to outdoor lights; what colors are best/worst

How do outdoor lights affect plant growth

How quickly can eyes adjust to quickly changing light levels; do light types make a difference

Many more topics can be discovered when observing our outdoor environment at night

### **Light Pollution**

- Takes away our view of some of the stars, so we can't see as many.
- Can be dangerous, because light shining in people's eyes reduces their night vision, so they don't see hazards in the darkness.
- Affects nocturnal animals, which use the light of the moon and stars for navigation, and get confused by artificial lights.
- Affects the health of human beings, by disrupting our biological clock, which controls the way our bodies respond to the natural day/night cycle
- Pollutes our air, because power plants have to produce more electricity.
- Wastes water, because the majority of the energy production in Tucson uses water.

This isn't just about astronomy, although that's a good subject too. This is about using light in sensible ways, so we can see more stars, reduce harm to wildlife and human health, and improve safety.

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**Southern Arizona Chapter (SA-IDA)**

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