Appendix: UV Beads Project

1. Product pricing
2. Email/flyer to Principals & Vice Principals
3. UV Beads Lesson Plan
4. Feedback form
5. Newsletter insert

Product Pricing

Product	Contact Info	Pricing
UV beads (loose)	Ajax Scientific Earl D'Souza edsouza@ajaxscientific.com Work: (416) 299-0910 Cell: (416) 409-6219	$3.60/200 beads per bag $18.00/1000 beads per bag (or $0.018 ea) Shipping = $25.00 + tax
	Rainbow Symphony Inc. Ellen ellen@rainbowsymphony.com Work: (818) 708-8400	60,000-100,000 beads @ $0.03 ea 100,000-128,000 beads @ $0.028 ea + Shipping & tax
	Steve Spangler Science www.stevespanglerscience.com	$6.99/250 beads ($0.028 ea) $26.99/1000 beads ($0.027 ea) $59.99/2500 beads ($0.024 ea)
UV Silicone Bracelet (changes to purple)	"U"-Name It Promotionals & Graphix Wendy A. Fraser info@unameitpromo.com Work: (905) 545-7002	250 units @ $3.80 ea 500 units @ $2.69 ea 1000 units @ $1.42 ea
UV beads on waterproof leather band & personalized medallion	Wilson & Wilson Adrienne (via Communications)	250 units min. @ $3.75 ea 500 units @ $3.60 ea 1000 units @$3.25 ea 5000 units @ $2.93 ea + Shipping & tax
Deluxe youth bush hat		50 units @ $6.20 ea 101 units @ $5.95 ea 201 units @ $5.79 ea 301 units @ $5.65 ea 501 units @ $5.59 ea 1001+units @ $5.45 ea Set-up charge (one colour/one location) $15.00/lot + Shipping & tax
Plastic lacing	Michael's	$4.29/100 yards + tax
	Dollarama	$1.00/15' (15' x 12''=180''/36''=5 yards) or $1.00/5 yards + tax (or $20.00/100 yards)

Sun Safety Resources & UV Beads

Visit the "Educators" section of WDG Public Health's website to access FREE sun safety resources including:

- A poster contest (closes June 17, 2011)
- Lesson plans
- Activities and worksheets

You will also find information about ordering print materials or UV beads (illustrated below) through different organizations.

UV beads are sensitive to UV rays and will change from white to assorted colours in sunlight and on overcast days. They can be used in science lessons to talk about the effects of the sun's rays and to reinforce sun safety behaviours before going outside.

To request UV beads and plastic lacing ("gimp") for your class please contact Johanna, Program Assistant, at 1-800-265-7293, ext. 4647.

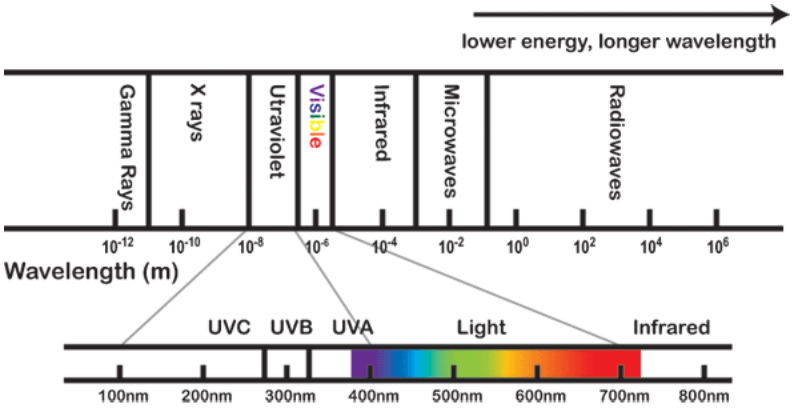
UV Beads Lesson Plan
May 2011

Background

UV radiation

Solar radiation is comprised of ultraviolet, visible, and infrared radiation. Ultraviolet radiation affects our health, visible light allows us to see, and infrared radiation provides warmth.

The energy from the sun is different than that from light bulbs (incandescent or fluorescent). Both give off visible light, but sunlight also emits ultraviolet (UV) radiation in the form of UVA, UVB, and UVC radiation. UV radiation has shorter wavelengths, which means they have more energy than visible light.



Electromagnetic radiation spectrum (Health Canada, Sunlight and Ultraviolet Exposure)

UV radiation is invisible to the human eye, but we know it's there because it affects our health – especially those with light skin. UV radiation is also emitted by indoor tanning equipment.

UV radiation can cause sunburns, skin cancer, eye cancer, aggravate skin conditions, and depress the immune system. Solar UV radiation can also cause premature aging (loss of skin elasticity, lines, and wrinkles).

UV beads

Skin can detect UV radiation because it will turn brown (tan) or red (burn). (Note: Although people with very dark skin may neither tan nor burn and thus are at a lower risk of skin cancer, UV radiation can still have the other negative effects on the body described above). UV radiation triggers a chemical reaction that causes new pigment (melanin) to be released or existing melanin to darken. While tanning provides very little protection from UV radiation (about SPF 2 or 3), a sunburn is a sign that the skin was unable to protect itself at all. Both tanning and sunburns are signs of damaged skin.

UV beads are a safer way to detect UV radiation from the sun. UV beads contain a harmless chemical (pigment) that will change colour when exposed to UV radiation. The UV beads are white so you cannot tell which colour they will turn until you expose them to UV radiation. Each bead will change colour about 50,000 times before the chemical will no longer react to UV radiation

Public Health

Wellington-Dufferin-Guelph Public Health
wwwdgpublichealth.ca | info@wdgpublichealth.ca
1-800-265-7293

Experiments

UV beads can also be used for an arts and crafts activity. They can be made into bracelets, key chains, or other beaded objects using pipe cleaners, string, or plastic lacing. For the purposes of these experiments, students can either create their beaded craft beforehand, or teachers can put the loose beads in a clear glass container or plastic bag for demonstration purposes.

1. *Sunlight vs. light bulbs*

   Research question: How do we know that sunlight is different than the light from light bulbs?
   Experiment:
   1. Put the UV beads under an incandescent or fluorescent light and observe whether they change colour.
   2. Put the UV beads in the sun (go outside or put them near a window), and observe whether they change colour.

   Discussion: Do you think you can get a sunburn or a tan from the lights in your classroom or at home?

2. *Sun intensity*

   Research question: Does the strength of the sun's rays make a difference?
   Experiment:
   1. Take the beads outside, but not in direct sunlight and observe the intensity of their colour.
   2. Put the beads in direct sunlight and observe the intensity of their colour.
   3. Take the beads out on a cloudy day and observe the intensity of their colour.
   4. Put the beads in direct sunlight at different times of the day and observe the intensity of their colour.

   Discussion: What does this mean for our skin? Are you more likely to get a sunburn in the shade or the sun? Can we still get sunburned on cloudy days? Are there times when we need to be extra careful?

5. *Sun protection*

   Research question: Is there a way to protect ourselves from the sun?
   Experiment:
   1. Put the beads in direct sunlight and observe the intensity of their colour.
   2. Cover the beads with different materials and observe the intensity of their colour:
      a. Clean, clear plastic (e.g. plastic bag or plastic wrap)
      b. Sunscreen with an SPF of 15 applied to the plastic bag/plastic wrap
      c. Sunscreen with an SPF of 50 applied to the plastic bag/plastic wrap
      d. Different pieces of paper (e.g. paper napkin, construction paper)
      e. Sunglasses
      f. Lightly woven clothing (e.g. mesh t-shirts)
      g. Tightly woven clothing (e.g. cotton t-shirt)

   Discussion: What does this mean for our skin? What are the best ways that we can protect ourselves from the sun?

Feedback Form
Sun Safety Resources & UV Beads

Thank you for taking the time to provide us with feedback on the UV beads and sun safety resources available on our website! Your feedback will help inform programming in the future.

Did you find the following resources helpful?

	Did not use	Very unhelpful	Unhelpful	Neutral	Helpful	Very helpful
UV beads						
plastic lacing ("gimp")						
UV Bead Lesson Plan						
sun safety lesson plans and activities						
ordering information for print materials						

For what grade(s) did you utilize these resources? (Select all that apply)

Grade 1
Grade 2
Grade 3
Other:

When did you use these resources?

May
June
Did not use this year (intend to use next year)

Is this the first time you have used UV beads in the classroom?

Yes
No

Have you ordered UV Index Sun Awareness Program Kits (which includes UV beads) from Health Canada in the past?

Yes
No
Didn't know about this program

For what subject(s) did you use the beads?

science
injury prevention
health
other:

What time of year is best for you to conduct a sun safety/UV lesson in your classroom?

January
February
March
April
May
June
September
October
November
December

Would you recommend the UV beads to other teachers?

Yes
No
Don’t know
Comments:

Do you have any final suggestions or comments?

Newsletter insert

Safe fun in the sun

As the weather gets warmer, remember to stay safe in the sun. Before you and your child head outside, check the UV index on The Weather Network or Environment Canada websites.

When you go outside, wear sunglasses, hat, and sunscreen (SPF of 15 or higher). And if the UV index is 6 or more (high), also stay in the shade.

Keep in mind that babies and children burn more quickly from the sun. Sunscreen is not recommended for babies under 6 months old, but is safe to use on children.

For more information about sun safety, visit Health Canada at www.healthcanada.gc.ca.