

2005 Oklahoma Microscopy Society
9th Annual
UGLY BUG CONTEST
Rules and Instructions

WHO CAN PARTICIPATE

The 2005 OMS Ugly Bug Contest is open to all Oklahoma elementary schools, public or private. Elementary is defined as kindergarten through 6th grade. Only one bug per school may be submitted.

WHAT TO DO

1. Collect bugs. **The bugs must be native to Oklahoma. Spiders and scorpions will not be accepted.**
2. Pick the ugliest or most unique(only one per school!). Small insects make the best entries because photography is easier and the images are typically of better quality.
3. Write a description of your ugly bug.
4. Mail it to OMS, *using the attached form*, to be received by September 30.
5. Check the Ugly Bug web site (www.uglybug.org) in December to see if you win!

SCHEDULE

Beginning of School-September 30
Collection of bugs, in-house preliminary contests

September 30 Bugs must be received by OMS!

September 30 – November 30
Bugs will be processed, photographed, and judged by OMS members

December 3 Winners will be announced!
Check the OMS web site, www.uglybug.org, to see if your bug was a winner. Only the winning schools will be contacted about receiving your prize. And even if you didn't win a prize, your poster and bug photo will be mailed to you in the next few months.

COLLECTION

Safety: OMS is concerned about the student's safety while they are collecting insects so we will not accept poisonous bugs in the contest. All spiders and scorpions can be considered venomous, especially black widow and brown recluse, so the society has decided not to accept spiders or scorpions. Please read the suggestions at the end of this document for more information on potential hazards.

Origin: Starting last year only 'local', or native Oklahoma, bugs will be accepted so that students are ensured of the opportunity of observing the bugs in their natural habitat. Exotic bugs that might have been obtained from collections are not in accordance with the educational spirit of the contest.

Size: **SMALL BUGS ARE PREFERRED**. The size of the bug's body is not as important as the size of its head, which should be 1/2 inch or less in diameter. Bugs with heads larger than this are difficult to photograph in the scanning electron microscope. If the entire head cannot be photographed, the 'ugliest' part of the head (a subjective opinion of the OMS member doing the photography) will be used for the contest.

Condition: The bug must be in good condition; i.e., not crushed, dirty, or partially eaten.

Packaging: It is preferred that the bug is dead when it is mailed. A live bug may be turned into a dead bug by placing it in a freezer for about 48 hours. Bugs may also be preserved by immersion in isopropyl (rubbing) alcohol. If the bug has a soft body (i.e. caterpillar, tick, mite, chigger, etc), it should be treated this way so that it doesn't shrink due to dehydration. Make sure the alcohol can't spill during transit! Place the bug into a container that will protect it during mailing. Used 35 mm film canisters work very well. Small mailing boxes work better than envelopes. Bugs tend to get crushed in envelopes. Be sure to pack the bug so that it will not be damaged by handling. Further processing will be done at the OMS member's lab.

SUGGESTIONS

Only one bug per school may be submitted to OMS. If only one classroom at the school is participating in the contest, the bug can be from that classroom alone. We would suggest holding in-classroom and/or in-school preliminary contests, using magnifying glasses or stereomicroscopes (if available) to pick the very ugliest bug for submission. The decision of whether to have all students find a bug and write individual descriptions or to pick the ugliest bug first and write a description as a class is at the discretion of the teacher. In determining which bug is the ugliest, look at the head, or 'face' of the bug. This is what OMS members will attempt to photograph for judging.

MAILING

Mail your ugly bug to one of the OMS members listed below. These people will also be your contacts for any questions regarding the contest. The Ugly Bug website (www.uglybug.org) is a source for information and you are always welcome to contact any other OMS member.

Greg Strout
University of Oklahoma
770 Van Vleet Oval
Norman, OK 73019
(405) 325-4391
gstrout@ou.edu

Dean Phillips
ConocoPhillips
Bartlesville Tech Center
Bartlesville, OK 74004
(918)661-8733
Dean.Phillips@conocophillips.com

Paige Johnson
Department of Chemistry & Biochemistry
University of Tulsa
600 S. College
Tulsa, OK 74104
pjohnson@integrity.com

DESCRIPTION

In order for the bug to be included in the contest, it must be accompanied by a description (approximately a paragraph, though you may do more if you'd like). The quality and accuracy of the description will be taken into account in the judging process, and used to break any ties between ugly bugs. The description may include, but is not limited to, the following:

1. We call it a "bug", but what is it, really?

Give the bug's common name, and its scientific name if possible.

Peterson Field Guides are an excellent source for classifying.

**If you have internet access, the "Insects Home Page" (<http://earthlife.net/insects>) is a fabulous site with lots of fascinating bug information, help with naming and classifying, and extensive resource lists of other books and websites for more information.

2. Describe some things about this "bug"
Where does it live? What does it eat? How long does it live? How does it affect people or plants or animals? What is important about this bug?
3. Describe your collection of this "bug"
Where did you find it? (county, town, etc.) What did you observe about its surrounding habitat?

THE SCANNING ELECTRON MICROSCOPE

The ugly bug you send to OMS will be processed, coated with gold or another metal to make it conductive, and examined in the scanning electron microscope of an OMS member. The scanning electron microscope allows us to observe objects at very high magnifications. Instead of using light, as in the familiar optical microscope, the electron microscope uses a fine beam of electrons. Because light is not used, no color is seen. The photograph of your bug will be black and white. Electron microscopes can magnify objects from 10 times to more than 500,000 times! Depending on the size of the bugs submitted for the contest, they will only need to be magnified 10 to 500 times their original size..

JUDGING

Entries will be judged by a selected group of OMS members. Judging will be based on the 'ugly' appearance of the bug (as seen in its SEM photo), and the quality, accuracy and thoroughness of the description accompanying it. In the case of several bugs of the same type being submitted, the description will be used to distinguish between them and to break any ties. Last year's entries are posted on the Oklahoma Microscopy Society web site, at www.uglybug.org.

PRIZES

The grand prize for the 2005 contest will be a high-quality stereomicroscope of approximately \$1000 value!, \$1000.00 value. At least four runner-up prizes of microscopy curricula and books will also be awarded. More prizes may be given based upon the number of entries received. All participating schools will receive a large poster highlighting some of the bugs from the contest, and an 8x10 photo of their own bug. Bugs will also be displayed on the internet at the Oklahoma Microscopy Society Web site, www.uglybug.org. OMS considers the bugs in the contest to be submitted on behalf of the school, and therefore any prizes awarded belong to the school itself and not to the student who originally found the bug.

MOST LIKELY "BUGS" TO BE FOUND

The phylum ARTHROPODA will be the likely source of the bugs. Arthropods have a characteristic chitinous exoskeleton. The name Arthropoda means "jointed legs" and refers to one of the basic characteristics of the group. Most of the bugs should fall into the ARACHNIDA and INSECTA classes.

Kingdom - ANIMALIA

Phylum - ARTHROPODA

Class – ARACHNIDA: spiders, scorpions, ticks, mites

Six pairs of appendages on the cephalothorax

Two pair for eating or stinging. Four pair for walking

Cephalothorax and abdomen

Often simple eyes, never compound eyes or antennae

Class – CHILOPODA: centipedes

Body: many segments all alike, one pair of legs per segment

Feed on small animals

Class – DIPLOPODA: millipedes

Same as Chilopoda except two pairs of legs per segment

Feed on vegetable matter

Class – INSECTA: grasshoppers, flies, beetles

Three body regions - head, thorax, abdomen

Compound eye; may also have simple eye or ocelli

Three pairs of mouth parts and three pairs of thoracic legs

A WORD ABOUT ENDANGERED BUGS...

There is one Oklahoma native insect that is on the Endangered Species List. It is the American Burying Beetle (orange thorax and orange striped abdomen). If you see one of these insects, please do not disturb it.

A WORD ABOUT POTENTIAL HAZARDS OF BUG COLLECTING...

Use Care When Collecting Insects and Arachnids!

Many insects are capable of stinging and biting for protection from predators and therefore, should always be handled with care. Wasps, bees, cicada killers, horse flies, robber flies and numerous other flying insects can yield a powerful sting if provoked. Insects such as assassin bugs (wheel bugs, note wheel shape on top of thorax) and aquatic bugs (giant water bugs, backswimmers) do not sting, but have piercing mouthparts that inflict a painful bite.

All Arachnids (scorpions and spiders) are venomous. All spiders can bite inflicting pain from the chelicera (teeth) entering the skin. The venom of a tarantula probably will not cause a reaction in a human, but the size of the chelicera can cause a nasty bite. There are two spiders native to Oklahoma that can cause a severe reaction and even death to an infant or an elderly person. Those two spiders are the Black Widow and the Brown Recluse. The Black Widow (red hour glass shape underneath abdomen) characteristically prefers dark remote areas such as a barn loft, but may also been seen in your garden. The Brown Recluse or Fiddle Back (note fiddle on thorax) can be found most anywhere and is a swift mover. The entry of these two spiders in the contest in past years has become a safety concern and has resulted in our decision to not accept spiders or scorpions in the contest.

Some other invertebrates that should be respected are centipedes (one leg per segment) since they are venomous. However, the millepedes (two legs per segment) are non-venomous and are safe to handle. Predators such as wheel bugs are also venomous and will still be accepted, but handle with care because they can yeild a nasty bite!

***OMS is pleased to thank our corporate sponsors:
ConocoPhillips, Kerr-McGee, and Carl Zeiss Microimaging.***

This contest could not be offered without the cooperation of Oklahoma University, Oklahoma State University, University of Tulsa, and the OSU Center for Health Sciences.

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Entry Form

School: _____

Type of Bug: _____

Teacher: _____

Class grade: _____

School address: _____

School phone: _____

Email (school or
teacher): _____

****Please attach your bug's description to
this form.****