

2021 Oklahoma Microscopy Society
25th Annual UGLY BUG
CONTEST

(due Friday, October 22, 2021)

Rules and Instructions

The Oklahoma Microscopy Society welcomes your participation in the 25th annual Ugly Bug Contest. It is our hope that this educational outreach program will provide a fun and rewarding educational experience for your students. **COVID-19 Policy:** The safety of the students and teachers is our primary concern. Please follow the Covid-19 policies of the Oklahoma State Department of Health and the Oklahoma Department of Education to keep safe and healthy while participating in the 2021 Oklahoma Ugly Bug contest. Watch social distancing & be polite!

WHO CAN PARTICIPATE?

The 2021 OMS Ugly Bug Contest is open to all Oklahoma elementary schools, public or private. Elementary is defined as kindergarten through 6th grade. Only one (1) bug per school may be submitted.

WHAT TO DO

1. Collect bugs. **Bugs must be native to Oklahoma. Spiders and scorpions will NOT be accepted.**
2. Pick the ugliest or most unique "bug" (only one entry 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. See the Description section of the rules on the form.
4. Mail your competing "bug" to an OMS member laboratory listed in the rules. Contestants must be postmarked by Friday, October 22. Be sure to include the form attached to these rules. Bugs will not be entered into the contest without a completed form.
5. Check the **Ugly Bug** web site (www.uglybug.org) in December or early January to see if you win!

SCHEDULE

Beginning of School (...pretty much now). Learn about insects and find your most interesting specimen. In-house preliminary contests are often used to, pick the ONE bug who will represent your school. Pack the bug and mail it to an OMS Member Lab listed below. Bugs must be **postmarked & sent by October 22!** From the time we receive your bugs, into December, your bugs will be processed, photographed, and judged by OMS members and others. Watch on the site for your bug to be posted. Winners will be announced on the OMS Ugly Bug web site when we are all done voting! Check the site from time-to-time at www.uglybug.org, to see how your bug is doing. Winning schools will be contacted about receiving their 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.

The prizes are a **STEREO MICROSCOPE EQUIPPED WITH A CAMERA**, awarded to each of the winning schools for your science lab.

COLLECTING BUGS: (**FIRST RULE: NO ARACHNIDS** [that means no spiders or scorpions]!)

OMS is concerned about students' 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 info on potential hazards.

Origin: 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 BETTER.** (they don't squash as easily!!! And they require smaller packages) 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 big heads are difficult to photograph in the scanning electron microscope (SEM). If the entire head cannot be photographed, the 'ugliest' part of the bug (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 of the bug will be done at the OMS member lab.

Only ONE BUG PER SCHOOL may be submitted to OMS!!

Sorry, but prepping the bugs and photographing them takes a long enough time that we can't accept more. 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 try to photograph.

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.

Preston Larson
University of Oklahoma
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Norman, OK 73019
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Matt Lundwall
Phillips 66
168 PL Phillips 66 Research Center
Bartlesville, OK 74003
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Oklahoma State University
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Stillwater, OK 74074
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We are microscopist members of OMS (Oklahoma Microscopy Society)!!!

DETAILS ON SUBMISSIONS: 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" (www.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

For the 2021 contest, OMS will award a grand prize of high quality light microscopes in Spring 2022. In addition, all participating schools will receive a large poster highlighting the winning bugs from the contest, and two 8x10 photographs of their own bug. Bugs entered in the contest 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 classes ARACHNIDA & INSECTA

Kingdom - ANIMALIA

Phylum - ARTHROPODA

Class – ARACHNIDA: spiders, scorpions, ticks, mites **(we do NOT accept Arachnids!)**

Six pairs of appendages on the cephalothorax; Two for eating or stinging. Four 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. Here is a link to images: <http://www.google.com/search?q=American+Burying+Beetle+image>

A WORD ABOUT POTENTIAL HAZARDS OF BUG COLLECTING...

*Use Care When Collecting Insects! // **No Spiders, Scorpions, or 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 (aka 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 and can inflict a painful bite if their chelicera (teeth) bite you or your teachers, so we don't accept them in the countest any more. Two native spiders can cause a severe reaction and even death to an infant or an elderly person: the Black Widow and the Brown Recluse. Because of safety concerns, we do **NOT accept spiders or scorpions**. Centipedes (one leg per segment) are venomous and Millipedes (two legs per segment) are non-venomous and are safe to handle, but predators such as wheel bugs are venomous! Handle them with special care because they can yield a nasty bite!

Who are we? OMS is the OKLAHOMA MICROSCOPY SOCIETY -- a non-profit educational society affiliated with **Microscopy Society of America**, **Microbeam Analysis Society** & **Oklahoma Academy of Science**, incorporated in the State of Oklahoma as a Section 501(c)(3) organization. For more details, see: <https://okmicroscopy.org/> (We gladly accept donations to Uglybug and OMS programs, too.) See Twitter [@OklaUglybug](https://twitter.com/oklauglybug?lang=en) for news, events, cool bug pictures and **Facebook**: https://www.facebook.com/Oklahoma-Microscopy-Society-100920801749503/?modal=admin_todo_tour