



You are invited to present your research at the 2009 Annual Meeting of the Kentucky Junior Academy of Science (KJAS).

The 2009 Annual Meeting of the Kentucky Junior Academy of Science will be held on Saturday 18th April (8.30am - 5pm), 2009 in the T. H. Morgan Building on the campus of the University of Kentucky, Lexington, KY.

Any Kentucky high school or middle school student may present his or her research findings at the Kentucky Junior Academy of Sciences Annual Meeting. To register for the meeting, a teacher, supervisor or principal from your school must return to the Director of KJAS, the requisite membership form and fee, abstracts (instructions attached), and papers for all students entering from your school. All forms, abstracts, papers and checks from the school must be submitted to KJAS by March 27th, 2009. Late submissions WILL NOT be accepted.

The Junior Academy was begun over fifty years ago to foster an interest in science for high school students in Kentucky. KJAS has expanded over the years to include middle school students. Members of the Junior Academy present the results of their projects each spring at the KJAS annual meeting. Preliminary oral presentations (10 minutes) are conducted during the morning sessions. The winners of the morning sessions make presentations in the afternoon finalist sessions. Four overall winners are selected and these students represent Kentucky at the National American Junior Academies of Sciences (AmJAS) meeting held in February the following year. The Kentucky Academy of Science will provide needs-based funding for these students to attend this meeting, up to a limit of \$1000.00 per person. Needs-based funding will also be available for chaperones, up to a limit of \$1000/person.

The AmJAS convention meets in conjunction with AAAS, the American Association for the Advancement of Science. As the world's largest general science organization and publisher of Science, AAAS has more than 138,000 members and 275 affiliated societies. One very important aim and purpose of the AAAS is to reach out to young scientists in middle school and high school. It recognizes that these young people are its future.

Checklist for Presenting at the meeting:

- Paper Submission Form
- Membership Form and fee
- Abstract (**hard copy and electronic copy on CD (MS word format ONLY)**)
- 2 hard copies of word-processed Research Paper

Additional information and parking directions will be mailed on receipt of above materials.

Mail to: Dr. Ruth E. Beattie, Director, KJAS, Dept. of Biology, University of Kentucky, Lexington, KY 40506, rebeat1@uky.edu, 859-257-7647 **by March 27, 2009**

WRITING THE RESEARCH PAPER:

A good research paper should include the following:

- 1) **Title Page.** Center the project title, and put your name, address, school, and section at the bottom center.
- 2) **Abstract.**
After finishing the research and experimentation, you are required to write a (maximum) 250-word, one-page abstract. The abstract should include the purpose of the experiment, the procedure(s) followed, the data obtained and the conclusions. For additional information, see the [abstract guidelines](#).
- 3) **Introduction.** The introduction gives the reader an overview of your paper. It should include your hypothesis, an explanation of what prompted your research, and what you hoped to accomplish.
- 4) **Theory.** In this portion of the paper, discuss any necessary theory behind the experiment. It should go into more detail than the abstract. Also in this section, develop any equations or mathematical relationships which will be used in the calculations.
- 5) **Experiment/Procedure.** Describe in detail the methodology used to collect your data or make your observations. Your procedure should be detailed enough so that someone would be able to repeat the experiment from the information in your paper. Include detailed photographs or drawings of self-designed equipment.
- 6) **Discussion.** This section of the report allows you to comment on the experiment itself. What observations did you make? Comment on the data you obtained. Compare your results with theoretical values, published data, and expected results. Did anything unexpected happen during the experiment? What kind of errors occurred while performing the experiment? What could have caused them? How did the data vary between repeated trials? How were your results affected by uncontrolled events? If you repeated the experiment, what would you do differently? What other experiments should be conducted?
- 7) **Conclusion.** Briefly summarize your results. Be specific, do not generalize. Never introduce anything in the conclusion that has not already been discussed.
- 8) **Acknowledgments.** You should always credit those who assisted you, including individuals, businesses, and educational or research institutions. Identify any financial support or material donations received.
- 9) **References.** Your reference list should include any documentation that is not your own (i.e., books, journal articles). The format for the reference should be appropriate for your discipline

PREPARING YOUR PRESENTATION:

When preparing for your presentation, keep these ideas in mind:

- 1) **An Interesting Title.**
The title of your presentation is an important attention grabber. It should simply and accurately present your research. The title should make a person want to know more about your work.
- 2) **Use at least 20-point fonts on your slides and transparencies.**
Avoid giving your audience too much information at one time.
Do not place more than ten (10) lines on each transparency sheet.
- 3) **Make a drawing or slide of the apparatus that you used in your work.** This will save time during your presentation when you describe it. In addition, this visual will help your audience "picture" your work better.
- 4) **Data Presentation.**
 - a) Do not present long tables of numbers. The listener can easily get "lost" in the numbers and miss the point you are trying to make. A graph is usually a better way to show the data.
 - b) Avoid bar graphs when regular plots will work. Be careful on the color selection for the graph as well as the

- number of different colors that you use. Remember you do not want to overwhelm your listener.
- c) Be sure that diagrams and graphs are clearly and properly labeled.

PRESENTING YOUR WORK:

[from the [Illinois State Junior Academy of Science Student Guidebook](#)]

Here is a guideline to use when presenting your work.

BRING YOUR PRESENTATION ON A FLASH DRIVE IN MS POWERPOINT FORMAT

1) INTRODUCTION

- be sure to introduce yourself to your audience

2) PURPOSE AND HYPOTHESIS

- state exactly what the investigation is attempting to discover, What results or outcome did you expect?
- why did you do this project? how did you get interested in it?

3) BACKGROUND INFORMATION

- background explanation for your project (to familiarize the judges), scope of your study, etc.

4) PROCEDURE

- be complete - do not leave out necessary details.
- proceed in a logical manner, telling what you did step by step.
- use visual aids: charts, pictures, graphs, etc.
- explain how your apparatus was used. Did you construct it yourself? If not, give credit to those who helped you.

5) RESULTS (DATA AND DISCUSSION)

- explain both your controls and your experimental variables.
- remember to use proper units of measure with your data.
- point to graphs, charts, etc., when you refer to them

6) CONCLUSION(S)

- state in a concise and logical order the conclusions you can validly draw from the experimentation you have done and the data and/or observations obtained.
- admit any deficiencies or limitations in this regard.

7) FUTURE PLANS

- be sure to tell how you plan to continue your project.

8) ACKNOWLEDGMENTS

- give credit to those whom you have contacted and to those who have helped you.
- any work done in the past pertaining to your project.

9) ANY QUESTIONS

- when you have finished, ask the judges if there are any questions they would like to ask.
- when they ask you questions, think before you answer them. Answer slowly! If you don't know the answer say, "I'm not sure but I think...".
- if they ask you a question which is not related to your project and you don't know the answer, then say, "I really haven't been concerned with this in my project, but it might be interesting to look into it."
- thank them for any suggestions they may have for bettering your research.

10) OTHER SUGGESTIONS

- speak slowly and clearly; be forward but polite, dynamic, and above all interested in what you are doing.
- **your presentation should not exceed 10 minutes**

ABSTRACT GUIDELINES

The abstract is a brief summary of your project. The length is generally one to two paragraphs. All of the information in your abstract must be found somewhere else in your paper. So, even though this is the first section of your paper, you will probably write it last? Like the title, the abstract should be "short and sweet." Most abstracts must have less than 250 words so choose your words carefully. A well-written abstract will include a sentence or two about each of the following:

- topic (what your research is about)
- purpose (what questions you hoped to answer by doing your research)
- hypothesis (your prediction about what your research would reveal)
- experimental methods (how you tested your hypothesis)
- results and conclusions (the most important ones, including whether or not your hypothesis was supported)

That's a lot of information to put in one or two short paragraphs! Writing a good abstract will take practice. Find some examples of abstracts in journals or books to see how others have written them. Ask people to read your abstract and suggest improvements.

Guidelines for Submissions to the *Journal of the Kentucky Academy of Science* *[from the [Kentucky Academy of Science](#) web site]*

1. Text of abstracts must be 250 words or less.
2. Abstracts must be on white good quality paper (8.5 x 11 inches). They must be single spaced throughout and have a margin of 1 inch all around.
3. Use the same font style and size (10 or 12 point) throughout; do not use bold. Italics should be used only for scientific name of organisms and other expressions that conventionally appear in italic type.
4. Do not justify the right-hand margin.
5. Use a short and specific title.
6. The address should contain the name of the author's department, the name of the author's university or company, the name of the city, the name of the state (use standard 2-letter abbreviations e.g., IN, OH, KY, TN) and the zip code.
7. In multi-authored abstracts, the name of the presenter of the paper should be followed by an asterisk.
8. Use standard, well-known abbreviations when the use of abbreviations is necessary. When using abbreviations for chemical compounds, spell out the name in full at the first mention and follow with the abbreviation in parenthesis; use the abbreviation thereafter. Do not abbreviate compounds in the title of the abstract.
9. Any special symbols --e.g., Greek letters-- that are not on your word processor must be carefully drawn in by hand with black ink.
10. Scientific names of organisms should be in italics (not underlined). Spell out generic names the first time they are used; afterwards these names should be abbreviated to the first letter (plus a period) when followed by a specific epithet unless confusion results with another abbreviated generic name in the abstract.

11. Your abstract must be sent with your Paper Submission Form to the Program Coordinator as indicated at the bottom of the Paper Submission Form.
12. In the upper right-hand corner of the abstract, type in CAPITALS the names of the section to which your paper belongs:

**BEHAVIORAL & SOCIAL SCIENCES
BIOLOGICAL TOPICS
BOTANY
CHEMISTRY
COMPUTER SCIENCE & MATHEMATICS**

**EARTH & SPACE SCIENCE
ENVIRONMENTAL SCIENCE
ENGINEERING
MICROBIOLOGY
PHYSICS
ZOOLOGY**

BELOW IS A SAMPLE ABSTRACT:

[from *Transactions of the Kentucky Academy of Science*, 50(1-2),1989,p. 127, with permission]

Fecundity and spawning substrate preferences of captive Kentucky snubnose darters (*Etheostoma rafinesquei*), multiple spawners. GORDON K. WEDDLE, Biology Department, Campbellsville College, Campbellsville, KY 42718.

Nine pairs of Kentucky snubnose darters were maintained in captivity in natural habitat for periods of 26-42 d in spring 1988. Spawned ova (n=4,892) were collected from artificial spawning substrates aligned horizontally, vertically, and at a 45° inclination from vertical. Seventy per cent of the ova were spawned on vertical substrates, 25% on inclined substrates, and 5% on horizontal substrates. Females spawned multiple clutches of ova (mean clutch = 47.4 ova; mean interval between clutches = 3.2 d). Water temperature was directly correlated with clutch ($r = 0.47$; $P < 0.001$) and inversely correlated with interval ($r = -0.29$; $P < 0.001$). The maximum number of ova spawned by any female was 780 contained in 13 clutches spawned over 42 d. Fecundity (F) was estimated by calculation; $F = (\text{season length} / \text{mean clutch interval}) \times (\text{mean clutch})$. Fecundity estimates for 9 captive females (400-1,140) were much larger than published estimates based on counts of mature ova. Because ripe ova were recruited throughout the season, counts of mature ova probably represented clutch rather than fecundity. The spawning season (7-8 wk) terminated when maximum water temperature remained consistently above 21.5°C. Many ova, including ripe ova, were resorbed at the end of the season. Counts of ova, total or mature, did not yield valid estimates of fecundity for Kentucky snubnose darters. Whether this is true of other darters is not known

**If you have any questions, please contact: Dr. Ruth E. Beattie, Dept. of Biology,
University of Kentucky, Lexington, KY 40506, rebeat1@uky.edu, 859-257-7647**



Paper Submission Form

Student Name _____

School Name _____
(please type)

Sponsor Name _____

Sponsor e-mail: _____ Student e-mail: _____

School Phone Number _____

Classification (Check One):

- Middle School Freshman (9th grade) High School (10th-12th grade)

Title of Paper _____

Subject Area (check one):

- | | |
|---|--|
| <input type="checkbox"/> Behavioral & Social Science | <input type="checkbox"/> Engineering |
| <input type="checkbox"/> Biological Topics | <input type="checkbox"/> Environmental Science |
| <input type="checkbox"/> Botany | <input type="checkbox"/> Microbiology |
| <input type="checkbox"/> Chemistry | <input type="checkbox"/> Physics |
| <input type="checkbox"/> Computer Science & Mathematics | <input type="checkbox"/> Zoology |
| <input type="checkbox"/> Earth & Space Science | |

Audio-Visual Needs:

- Powerpoint Presentation - **Bring your presentation on a flash drive**

Return this form, 2 copies of your paper and an abstract [hard copy and on 3.5" diskette or CD in MS Word format) for each paper by March 27, 2009 to:

Dr. Ruth E. Beattie,
Dept of Biology,
University of Kentucky
Lexington, KY 40506



Membership Application Form

_____ \$ 5 Junior/High School Student Membership

Section Choice _____

Payment Enclosed \$ _____

Name _____

Street _____

City _____

State _____ Zip _____

County _____

School _____

School Sponsor _____

Phone _____ FAX: _____

e-mail address _____

Please make checks payable and mail to:

Kentucky Junior Academy of Science
Dr. Ruth E. Beattie, Director KJAS,
Dept of Biology,
University of Kentucky
Lexington, KY 40506