U.S. SJWP National Paper Guidelines

These guidelines are designed to help students prepare their paper in a professional format for the U.S. Stockholm Junior Water Prize competition. Please follow them as closely as possible. If your research would be better presented in a slightly different format, you may vary your presentation; however, we urge you to use the following guidelines.

Unlike other science competitions, the SJWP competition weighs the quality of the research paper much more heavily than the poster presentation. Past international SJWP winners wrote papers that closely followed these guidelines, and you may increase your chances of winning by following them, too!

DEVELOPING AN SJWP PAPER

Following are recommendations from the SJWP judging panel based on their experience in reviewing projects:

- Projects should not only include a problem statement, but clearly explain how the project can contribute to a solution. Even if the project itself may not solve the problem, it should demonstrate how the activities in the project can play a role in a solution.

- Each project should try to address a cause-effect solution. This means studying not only the environmental effect (e.g. nitrogen load in a lake system), but also the causes behind the problem and ways of solving the problem. For example, a study on the eutrophication level of a lake in itself will not be highly competitive in the SJWP competition. On the other hand, if the study also addresses the causes behind the environmental disturbance and outlines how eutrophication monitoring will contribute to improved management of the lake environment, then the project will stand a better chance in the competition.

- Development-oriented research projects are strongly welcomed. However, it is important when presenting an applied solution to a problem (e.g., the invention of a new technology or a better way of analyzing a problem) that the project refers to previous work. Include an explanation of the gaps you are filling that others have not studied before.

- If the project focuses on raising awareness and creating a change in the way people manage water, it is important to document the work in a way that gives quantitative evidence to what has been achieved. For example, it is not enough to say that "many people at the project site have started saving water with a new technology." Instead it is important to show (e.g., through surveys) the number of people that have adopted a new way of managing water in a structured way (e.g., change over time, etc).

- If a project is a long-term school project, clearly show what has been done by whom over the years. Show what you or your team of up to three students has contributed to the final consolidated result.

- It is important that you clearly show that you, and your team if applicable, were responsible for conducting the research and developing the written the project.

- Finally, it is important that you show that you have read relevant literature on the topic for your own orientation.

PAPER FORMAT

- The paper must be written in English.
- The paper must be submitted electronically as **PDF** document and no larger than 2MB
- The paper must be typed in 12-point Times New Roman and left aligned using 1.5 spacing and the following margins: 1 inch on the top and the bottom, .75 inch on sides.
- Together with figures, photographs, tables, and annexes, the paper must not exceed 20 pages of single-sided 8.5 X 11 papers and 2MB.
- All pages, except the title page, must be numbered at the bottom center. The Title Page is not included in the 20 page limit, but will be included as part of the 2MB.
- Plagiarism is a serious offence and could result in disqualification. Please be sure to site the proper people or sources in italics.

It is recommended that your paper be organized into the following sections:

Paper Sections and Numbering	
Title Page: This is the cover page of the paper and should include the following information: "Entry into the Stockholm Junior Water Prize (Year)", Report Title, Name, and State. *This page is not numbered.*	
Preliminary Matters: This refers to the pages between the title page and the beginning of a research report. *Page numbering begins in this section.*	
I.	**Abstract:** Concise summary of your research project and findings. (No more than 180 words.)
II.	**Table of Contents:** List of sections in a research paper by page number.
III.	**Key Words:** List of words or short phrases that research focuses on.
IV.	**Abbreviations and Acronyms:** List of abbreviations and acronyms used in the paper.
V.	**Acknowledgements:** Acknowledgement of those who assisted in research.
VI.	**Biography:** Information about the author.
Paper Body: This is the main body of a research paper.	
1.	**Introduction:** Describes project in broad detail.
2.	**Materials and Methods:** Details all experimental procedures used in project.
3.	**Results:** Presents all results obtained in research.
4.	**Discussion:** Discusses results.
5.	**Conclusions:** Presents conclusions of research.
6.	**References:** Provides information on work referenced in research paper.
7.	**Bibliography (if necessary):** Provides information on sources of information that were consulted generally, but not specifically referenced.
8.	**Annexes (if necessary):** Details non-standard methods or other information too lengthy for the paper's main body.

DETAILED GUIDANCE FOR YOUR PAPER

1. TITLE PAGE

You may design the title page of your paper as you wish, but it must contain the following information in an easily legible form:

- "Entry to the Stockholm Junior Water Prize [year]"
- Paper title
- Your name(s)
- Your state

2. PRELIMINARY MATTERS

Preliminary Matters refers to the pages between the Title Page and the first page of your main paper. These pages should include the following items (preferably in the order given):

a. Abstract (No more than 180 words.)
The abstract is a complete and concise summary of the research project and the findings. It should provide an interesting synopsis of the project and use language that appeals to a broad audience. The abstract should contain the following:

- a one sentence statement of the objective of the study
- the research methodology used to arrive at the conclusions
- the results observed
- the conclusions of the study (including recommendations and suggestions)

Tips for a Good Abstract:

- Write the abstract last so that it accurately reflects the content of the paper.
- Briefly state the problem or purpose.
- Indicate the theoretical or experimental plan used.
- Summarize the principal findings and point out major conclusions.
- If abbreviations are used, define them at first use in the abstract and again at first use in the paper body.

For abstract samples, visit www.sjwp.org, scroll down and click on Winning Research, then click the U.S. National Winners tab to review previous national winner's abstracts.

b. Table of Contents
The table of contents should list all of the sections and subsections in the paper.

c. Key Words
This list should contain words or short phrases that captures the main topics of your research. They are used to help individuals locate information on specific research areas, such as through a web search.

d. Abbreviations and Acronyms
This list should contain every abbreviation and acronym used in the paper.

e. Acknowledgements
The acknowledgements section should be used to list and thank all the people who helped you in your project. It is important to clearly indicate how much external help you received.

f. Short Biography (No more than half a page.)
The biography should include information about you, including what your interests are, what you want to study, etc.

2. INTRODUCTION

This section sets out your project in broad details. Describe the water-environment problem you studied and why it was important. Also put your project in its scientific setting, detailing at least the most relevant work done on your project topic by others. We don't expect a very detailed literature review, but we do expect that you understand the scientific context of your project. (See References for advice on how to give in-text references to the work of others.)

3. MATERIALS AND METHODS

In this section you must detail all of the experimental procedures that you used in your project – all methods and all materials. However, for standard analyses it is not necessary to describe the processes in detail; it is sufficient to give a reference to the methods in a book. If non-standard methods were used, you must describe them in detail. If they are too lengthy, they can be placed in an Annex at the end of your paper (see Annexes).

4. RESULTS

In this section, you present all of the results you obtained in your research. Present them either as tables or figures, along with in an appropriate description, but do not present the same information in both table and figure format. Choose whichever of these formats you think is most suitable for the particular set of results you are presenting. Of course, if you do analysis of your results, you can present the results of this analysis in a separate table or figure.

5. DISCUSSION

Note: This is an extremely important section which the judges pay close attention to, so think about it very carefully.

Here you must discuss your results. You may wish to include the more important analyses of your results in this section (rather than in Results section). You must discuss how the results are important to the water environment problem you were studying, how novel they are, and how they relate to the results of others working on a similar project (are they the same, similar, or different? why?).

You should also discuss your results in the wider scientific and/or social context, for example, are your results useful to local or national government agencies? Are they relevant to local people? Explain your answers.

Of course, if your project is completely novel, then you may not be able to discuss your results in relation to the results of others. In such a case, you must discuss your results in the wider scientific and/or social context only.

6. CONCLUSIONS

We recommend that you number your conclusions and present them on a maximum of two pages (one page is perfectly acceptable). Your conclusions should be short and to-the-point. As a guide, each conclusion should be no more than 1–3 short sentences long. Please remember that this section is for your conclusions and *only* your conclusions. It is not the place to discuss your results (all discussion belongs in Discussion).

7. REFERENCES

The purpose of providing a reference is to enable interested parties to obtain and read the reference, so you must provide all the information necessary for this. If you are familiar with the "Harvard" system, then you may use it. Otherwise, we recommend you use this simpler method:

In the text, give references as numbers in square brackets. For example:

"Smith [1] found that …, but other workers have found the opposite [2, 3]."

"We used the acid-dichromate method to measure the wastewater COD [4] and the membrane-filtration technique with lauryl sulphate broth and overnight incubation at 44 to count the number of fecal coliform bacteria in both the wastewater and the river [5]."

Immediately after the Conclusions section you must list in detail all the in-text references you have made. The list is numerical, using the numbers you used in the text. So, in the above example, the first reference is to Smith. How you present this reference depends on whether it is a book, a paper in a scientific journal, a chapter in a book, or a newspaper report.

a. Book:
[1] Smith, AB (2002) The Biology of Polluted Rivers. Academic Press, San Diego, CA.

i.e., Surname, Initials (Year) Title of Book. Publisher's Name, City and Country (or State if the USA) of publication.

b. Journal or Paper:
[1] Smith, AB (1998). The biology of highly polluted waters: a review. Journal of Aquatic Biology 31, 984–1018.

i.e., Surname, Initials (Year). Paper Title. Full Name of Journal Volume Number, First and Last Page Numbers of the Paper.

c. Book Chapter:
[1] Smith, AB (2001). The biology of polluted waters. In Water Pollution (ed. CD Jones and EF Bull), pp. 547–591. Academic Press, San Diego, CA.

i.e., Surname, Initials (Year). Title of chapter, In Title of book (ed. [= edited by] Initials and Name of all the editors), first and last page numbers of the chapter. Publisher's name, City and Country/State of publication.

d. Newspaper or Magazine Report:
[1] "Our rivers are polluted", Daily Express (London, England), 5 June 2003, p. 6.

e. Non-English References:
If the language of the reference uses the Latin alphabet, give the title in the original language followed by a translation in English in square brackets – for example:

[5] Poincaré, JP (2001). Le Lagunage Naturel [Waste Stabilization Ponds]. Editions Eau, Paris.

For other alphabets, simply give the translation in English with the original language given at the very end in round brackets – for example:

[11] Chinese Academy of Engineering (2002). Design Manual for Wastewater Treatment. Chinese Academy of Engineering, Beijing (in Chinese).

f. More than one author use: [1] Smith, AB, Jones, CD and Bull, EF (1996).

g. When referencing a Web site, include the author (if any), title of the site, URL, date accessed, and any other identifying information.

Library of Congress Home Page. http://lcweb.loc.gov (accessed Dec 2005).

8. BIBLIOGRAPHY

In addition to the list of specific references, you may (if necessary) give a list of books and other sources of information that you consulted generally but have not provided as in-text references. This list is termed Bibliography, and it follows immediately after References. The items in your Bibliography list are referenced in the same way as described above.

- Remember to give all the information necessary to enable someone else to obtain the references you quote in your paper.

9. ANNEXES

Use annexes only if necessary, for example, to detail non-standard methods of analysis or to give detailed results if you have only summarized them in the Discussion section. Annexes are used to give detail that would otherwise make the main text too lengthy or cumbersome. You should number your annexes in order, as follows:

Annex I. Method used for the determination of chlorophyll a

Annex II. Detailed results of in-river chlorophyll a measurements

If there is anything in these guidelines that you do not fully understand, ask your teacher or project supervisor for help. This research paper could easily be considered college level work, so don't be afraid to ask!