



## *Writing an Abstract, Background, Methods, and Conclusion*

This lesson will help inform students about abstracts, backgrounds, methods, and conclusions that are written for informational papers and posters in order to present research conducted. Students will practice writing their own components after learning what is required for each component. This will help them in understanding how science is presented as well as practice writing skills they can use in the future.

### Materials:

- Slideshow with information on the components-be sure to look at the notes
- Paper/pencils for students
- Checklists for students (see below)

### Writing Standards

2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
  - a. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
  - b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
  - c. Link ideas within categories of information using words and phrases (e.g., *another, for example, also, because*).
  - d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
  - e. Provide a concluding statement or section related to the information or explanation presented.
4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.
8. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information and provide a list of sources.

### Science Standards

- A.4.5 When studying a science-related problem, decide what changes over time are occurring or have occurred
- C.4.2 Use the science content being learned to ask questions, plan investigations, make observations, make predictions, and offer explanations
- C.4.4 Use simple science equipment safely and effectively, including rulers, balances, graduated cylinders, hand lenses, thermometers, and computers, to collect data relevant to questions and investigations
- C.4.5 Use data they have collected to develop explanations and answer questions generated by investigations
- C.4.6 Communicate the results of their investigations in ways their audiences will understand by using charts, graphs, drawings, written descriptions, and various other means, to display their answers

Procedure:

This lesson should take 4-5 class periods in order to teach students and allow students to practice writing. Use the slideshow to present to students what each of the components is and what its purpose is. There are two ways the week of lessons could go:

Day One: Present all four components and discuss	Day One: Introduce only background and practice writing backgrounds
Day Two: Review what a background is and practice writing backgrounds	Day Two: Introduce only methods and practice writing methods
Day Three: Review what methods are and practice writing methods	Day Three: Introduce only conclusion and practice writing conclusions
Day Four: Review what a conclusion is and practice writing conclusions	Day Four: Introduce only abstracts and practice writing abstracts
Day Five: Review what an abstract is and practice writing abstracts	Day Five: Allow for peer review of one of the components

Future lessons could be used to peer review (using the check lists to check for what's needed and looking over grammar/spelling) more components or work as a class to develop a single abstract, methods, conclusion, and background.

Presenting the background, then methods, then conclusion will make presenting the abstract easier since the abstract contains information from the other three components. The background is first because it reminds students of the experiment/observations they did, when they did it, and why they did it in a brief summary. The methods section is second because it explicitly reminds students of the experiment/observations they did. This leads into the conclusion, which wraps up what the experiment/observations found (summarizing and explaining the background/methods).

## Checklist for Writing

### Background

- Who did the experiment (examples: myself, the class, the whole school)
- What was the experiment (short summary)
- Where was the experiment done (examples: on the school trail, at the creek. Use names!)
- Why was the experiment done (example: we wanted to know how much it rained)
- Why was the experiment important and why does it matter?

### Methods

- How was the experiment done (short summary)
- How long did it take for the experiment (examples: 1 hour, once a week for two months)
- What tools were used (examples: thermometer, ruler, scale)
- What measurements were made (examples: time, temperature, length, weight)

### Conclusion

- What was the goal or reason why we did the experiment?
- What data did we find?
- What does the data mean? (trends, such as water freezes when it gets really cold)
- What can we learn from this?
- What can we do in the future to learn more?

### Abstract

- What experiment or observations did we do?
- Who are we and where did we do the experiment?
- Why was the experiment or observations done and why is it important?
- How long did we do the experiment?
- What tools did we use and what did they measure?
- What data did we find?
- What was our conclusion?