

## Writing an Abstract

An abstract summarizes a paper or published article in 250 words. Science journal articles have an abstract at the beginning of the article. The structure of an abstract includes the objectives or goals, materials and methods, results, and conclusions or discussion. The reader should be able to read the abstract and understand what the experiment/investigation is about. A good abstract is brief and contain the key points of the investigation.

Here are more information about writing an abstract, along with examples of abstracts, provided by the Alameda County Science and Engineering Fair. <https://docs.google.com/document/d/1NJ3TOJoQ-fCxTKU6kzLthpZMQOddyL2lbAqppCt7VAw/edit>

### Abstract Template

<i>Approximate number of sentences</i>	<i>Describe the topic.</i>	<i>Review your draft and REVISE it to be sure that these questions are addressed.</i>
2 sentences	What did you want to do?	<input type="checkbox"/> Are the goals clear and explicit? <input type="checkbox"/> Is there anything unusual about your approach? <input type="checkbox"/> Avoid using the word “Purpose”.
2 sentences	What did you do? Write a summary, not a step by step description of procedures	<input type="checkbox"/> Steps: What moves did you make? <input type="checkbox"/> Techniques: Did you do anything new or different? <input type="checkbox"/> Data: What did you actually measure? How? <input type="checkbox"/> Safety: Did you take any special risks or precautions? <input type="checkbox"/> Controls: How did you manage irrelevant factors?

2 sentences	<p><b>Results:</b> What did you find out?</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> What numerical/quantitative trends did you see? <input type="checkbox"/> What calculations or analysis (such as graphs) did you do? Why? <input type="checkbox"/> If there were no or unexpected results, can you explain why? <input type="checkbox"/> Was your sample size adequate? <input type="checkbox"/></li> </ul>
2-3 sentences	So what?	<ul style="list-style-type: none"> <li><input type="checkbox"/> Why are your results significant or useful? <input type="checkbox"/> How could someone else apply or extend your work? <input type="checkbox"/> What is omitted that could mislead a reader? <input type="checkbox"/> Is the terminology used correctly or is it inappropriate and confusing? <input type="checkbox"/></li> </ul>
1 sentence	<p><b>Background:</b> Goes at the beginning of the abstract but write it last so you don't waste too many words.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> What background information helps frame the context of your investigation?</li> <li><input type="checkbox"/> What information helps focus the reader to your specific topic?</li> <li><input type="checkbox"/> Are all acronyms explained?</li> </ul>

**Abstract Draft (place appropriate information in each section)**

<p><i>Approximate number of sentences</i></p>	<p><i>Describe the topic.</i></p>	<p><i>Review your draft and REVISE it to be sure that these questions are addressed.</i></p>
<p>2 sentences</p>	<p><b>Purpose:</b> What did you want to do?</p>	<p><input type="checkbox"/> WEAK: This project explored whether adding vegetable oil to soil helps a plant grow better.</p> <p><input type="checkbox"/> BETTER: This project explored whether giving primroses a mixture of olive oil and water instead of water alone increases leaf size.</p>
<p>2 sentences</p>	<p><b>Materials &amp; Methods:</b> What did you do?</p>	<p><input type="checkbox"/> WEAK: ...watered with both one cup of water and 2.4 ml of vegetable oil...</p> <p><input type="checkbox"/> BETTER: (1) poured a mixture of 250 ml of tap water and 2.5 ml of olive oil into each pot weekly (2) an amount estimated from liquid fertilizer instructions, and (3) measured tip-to-tip horizontal size of each plant's leaves at their widest location with a ruler. (</p>
<p>2 sentences</p>	<p><b>Results:</b> What did you find out?</p>	<p><input type="checkbox"/> WEAK: plants watered with vegetable oil grew better</p> <p><input type="checkbox"/> BETTER: water-only plants increased their maximum leaf width on</p>

		<input type="checkbox"/> average by 0.85 cm (ranged from 0.6- to 0.9-cm increase) while <input type="checkbox"/> water-plus-oil plants increased their maximum leaf width on average <input type="checkbox"/> by 4.57 cm (ranged from 3.5- to 5.5-cm increase).
2-3 sentences	<b>Conclusions:</b> So what?	<input checked="" type="checkbox"/> WEAK: plants will grow better if vegetable oil is added... <input type="checkbox"/> BETTER: olive oil contains hydrocarbons molecules (fatty acids) that green plants use as extra nutrients...could be used on food crops.
1 sentence	<b>Background:</b> Goes at the beginning of the abstract but write last so you don't waste too many words.	<input type="checkbox"/> Fertilizers, though advantageous to plant growth, accumulate in the environment causing serious side effects.

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**Abstract (each section written in complete sentences)**

<i>Approximate number of sentences</i>	<i>Describe the topic.</i>	<i>Review your draft and REVISE it to be sure that the questions are addressed.</i>
2 sentences	<b>Purpose:</b>	This project was designed to find out if adding vegetable oil to soil will

	What did you want to do?	preserve moisture and thereby allow the plant to grow better. It was expected that a layer of vegetable oil would enable the plant to grow well.
2 sentences	<b>Materials &amp; Methods:</b> What did you do?	This experiment was performed outdoors using twenty Primrose plants, water, and vegetable oil. Ten of the Primrose plants were watered with 250 mL of water each week and the other ten plants were watered with both 250mL of water and 2.5 mL of vegetable oil each week for three consecutive weeks.
2 sentences	<b>Results:</b> What did you find out?	Base on the data collected, the plants that were watered with vegetable oil grew better with an average growth of 4.57 CM. On the other hand, the plants that were watered with water only showed an average growth of 0.85 cm. Vegetable oil helps increase plant growth by preserving the moisture in soil and by supplying the plant with certain nutrients. Care should be taken to add only a small quantity of oil.
2-3 sentences	<b>Conclusions:</b> So what?	The hypothesis that plants will grow better if vegetable oil is added in small quantities was strongly supported by the results. If this experiment were to be repeated, different types of plants, oils, and soils would be tested.

		project is relevant to the present-day shortage of water in California.
1 sentence	<b>Background:</b>	Fertilizers, though advantageous to plant growth, accumulate in the environment causing serious side effects.

**Final Abstract (written in paragraph form)**

**Abstract** Fertilizers, though advantageous to plant growth, accumulate in the environment causing serious side effects. This project was designed to find out if adding vegetable oil to soil will preserve moisture and thereby allow the plant to grow better. It was expected that a layer of vegetable oil would enable the plant to grow well. This experiment was performed outdoors using twenty Primrose plants, water, and vegetable oil. Ten of the Primrose plants were watered with 250 mL of water each week and the other ten plants were watered with both 250mL of water and 2.5 mL of vegetable oil each week for three consecutive weeks. Base on the data collected, the plants that were watered with vegetable oil grew better with an average growth of 4.57 CM. On the other hand, the plants that were watered with water only showed an average growth of 0.85 cm. Vegetable oil helps increase plant growth by preserving the moisture in soil and by supplying the plant with certain nutrients. Care should be taken to add only a small quantity of oil. The hypothesis that plants will grow better if vegetable oil is added in small quantities was strongly supported by the results. If this experiment were to be repeated, different types of plants, oils, and soils would be tested. This project is relevant to the present-day shortage of water in California.