**Socratic Method Evaluation Form**

In this paper, we apply the Mixed Socratic Prompting Approach to a range of problems in chemistry and materials science, developing a structured methodology to enhance LLM reasoning through Socratic inquiry. This framework is designed to evaluate the performance of the Socratic Prompting Approach by comparing it with regular LLM reasoning. It is structured to help you track and assess LLM performance across different approaches. Please complete the provided sections accordingly.

Name, Surname: Click or tap here to enter text.

E-mail: Click or tap here to enter text.

Field: Click or tap here to enter text.

Are you the expert on the field of question? Yes No

Does this prompt directly relate with your active research area? Yes No

1. Go to **ARGO** and select **Custom Task Type.**
2. **Write your prompt in a conventional, direct-answer manner.**

Prompt:

Click or tap here to enter text.

Add follow up prompts below:

Follow-up 1:

Click or tap here to enter text.

Follow-up 2:

Click or tap here to enter text.

Follow-up 3:

Click or tap here to enter text.

Do you have more follow-up prompts? Yes No

What is the exported file name? Click or tap here to enter text.

1. **Evaluate the performance of conventional approach.**

|  |  |
| --- | --- |
| Clarity | Choose an item. |
| Depth of reasoning | Choose an item. |
| Hypothesis refinement | Choose an item. |
| Novelty of insights | Choose an item. |
| Consistency | Choose an item. |
| Applicability to real problems | Choose an item. |
| Logical Coherence | Choose an item. |
| Correctness of conclusions | Choose an item. |
| Self-correction & iteration | Choose an item. |
| Overall effectiveness | Choose an item. |

1. **Enter observations and comments about conventional approach.**

Click or tap here to enter text.

1. Start a new chat on ARGO, and switch to Socratic prompting. Develop a reasoning flow for your problem. Refer the page 17*,* ***Socratic Questioning & Chain-of-Thought Prompting*** section in the paper. Use **Figure 2 & Tables 3 & 4** to select Socratic principles.
2. Did you used same prompt at the beginning? Yes No
3. Did you use same follow up prompts? Yes No

If your answer is no, please fill the boxes below.

Follow-up 1:

Click or tap here to enter text.

Follow-up 2:

Click or tap here to enter text.

Follow-up 3:

Click or tap here to enter text.

Do you have more follow-up prompts? Yes No

What is the exported file name? Click or tap here to enter text.

1. **Evaluate the performance of Socratic Prompting approach.**

|  |  |
| --- | --- |
| Clarity | Choose an item. |
| Depth of reasoning | Choose an item. |
| Hypothesis refinement | Choose an item. |
| Novelty of insights | Choose an item. |
| Consistency | Choose an item. |
| Applicability to real problems | Choose an item. |
| Logical Coherence | Choose an item. |
| Correctness of conclusions | Choose an item. |
| Self-correction & iteration | Choose an item. |
| Overall effectiveness | Choose an item. |

1. **Enter observations and comments about Socratic Prompting approach.**

Click or tap here to enter text.

1. **Analysis of results from an expert point of view.**

Click or tap here to enter text.

1. **Evaluate the performance of Socratic and non-Socratic responses. Which one provides accurate and reliable responses? Why?**

Click or tap here to enter text.

1. **What are the limitations and possible improvements?**

Click or tap here to enter text.