www.sciberation.org

Guidelines for PBL

Welcome to Sciberation 2024!

At Sciberation, we believe in the power of curiosity, creativity, and collaboration to drive scientific discovery. Your PBL projectswill be proudly displayed during **Sciberation 2024**, to be held on **14th and 15th December 2024** . Please go through it carefully, and in case of any difficulties, feel free to reach out to us via WhatsApp message only at the following numbers:

Heshsham Sir (9289250429), Asim Sir (7291940578) , Shoeb Sir(7906402561), Adeeba Rafiq Maam (7037130009), and Afreen Mubeen Maam (82678 85216) . Let your imagination soar, and embrace the journey of discovery!

1. Collaborate Effectively: Now that you're back at school, it's important to work together in your group. Teamwork is key—share ideas, help each other, and make sure everyone contributes to the project.

2. Start Working on Your Project: With vacations over, it's time to dive into your project work. Here's what you should focus on:
- Understand Your Goal: Make sure you have a clear understanding of your project's objectives. Know what problem you're addressing or what you are trying to find out.
- Research: Conduct a literature survey by reading books, articles, and other resources to gather information about your topic. This background research will form the foundation for your project.
- Employ the Scientific Method: Propose a hypothesis based on your research, identify the variables for your experiment, and plan how you will test your hypothesis. If your project requires any field visits, carry them out safely with adult supervision. You may also conduct simple experiments at home or in school.

3. Support at School: You will meet regularly with your PBL supervisor, who will guide you through the project. They are there to help with any questions you have and to ensure your project is on track.

4. Sciberation 2024 - Science Fair: Your project will be displayed during our annual science fair, Sciberation 2024, which will take place on 14th and 15th December 2024. This is an

exciting opportunity to present your work to the entire school community and showcase what you've learned.

5. Final Report and Presentation: At the end of the project, each group must complete the following:
- Submit a Report: Each group must submit a handwritten report detailing your project's progress, findings, and conclusions.
- Create a Display Board: Each group will also create a display board, sized 1m x 1.5m, which should highlight the key aspects of your project. Like the report, the majority of the content on the display board should be handwritten to reflect your group's active engagement with the work.

6. The Scientific Method: Here is a reminder of how to structure your experiment:
- Ask a Question: Start by being curious about something you observe. For example, 'Why do plants grow better with some types of water than others?'
- Make a Hypothesis: Make an educated guess to answer your question. For instance, 'I think plants grow better with rainwater than with tap water.'
- Test Your Hypothesis (Experiment): Design an experiment to test your hypothesis. For example, take three plants and water them differently—one with rainwater, one with tap water, and one with bottled water.
- Identify Variables:
  - Independent Variable: This is what you change in the experiment (e.g., the type of water).
  - Dependent Variable: This is what you measure (e.g., the height of the plants).
  - Control Variables: These are things you keep constant (e.g., sunlight, soil).
- Analyze the Results: Compare the outcomes. Did your hypothesis turn out to be correct? If not, try to figure out why and adjust your understanding.

7. Final Report Format: Once your project is completed, you will prepare a final report and display board. Start working on both only after receiving approval from your supervisor. Your final report should include the following:
- Title Page: Include the title of the project, the names of your team members, your grade, and your school name.
- Acknowledgment: Thank everyone who helped you with your project, including teachers, scientists, or others you consulted.
- Abstract
- Table of Contents: Provide a table to help readers navigate your report.
- Statement of Purpose: Explain what problem you are trying to solve or what you aim to discover through your project.
- Hypothesis: Clearly state your hypothesis and explain how you plan to prove, disprove, or verify it through your experiments and research. If hypothesis is not applicable in your project, e.g. you have designed a gadget to solve a problem, you must explain how your gadget is better than existing solutions.

www.sciberation.org
- Research: Summarize what you've learned from books, articles, and other resources. Be

sure to write this in your own words to avoid plagiarism.
- Materials: List all the supplies and equipment you used, including specific quantities and brands.
- Procedure: Explain in detail how you conducted your experiment so others can replicate it.
- Observations and Results: Present your findings using data charts, figures, and pictures where necessary. Highlight how your experiment helped prove, disprove, or verify your hypothesis.
- Conclusion: Summarize the outcome of your project, noting whether your hypothesis was correct and why.
- References (APA Format): Include a bibliography listing all the resources you consulted.

Make sure both your report and display board reflect mostly handwritten work to emphasize your group's active participation in the project.

Here's an example of referencing in APA format:

Book Reference:

Author Last Name, First Initial. (Year of Publication). *Title of the Book*. Publisher.

Example:

Smith, J. (2020). *Understanding Scientific Research*. Academic Press.

Journal Article Reference:

Author Last Name, First Initial. (Year of Publication). Title of the article. *Title of the Journal, Volume*(Issue), Page range. DOI or URL

Example:

Doe, A. (2019). The impact of technology on education. *Journal of Educational Research, 15*(2), 145-158. https://doi.org/10.1016/j.jedurese.2019.05.002

Here's how to reference a website in APA format:

Website Reference:

Author Last Name, First Initial. (Year, Month Day). Title of the webpage. Website Name. URL

Example:

Johnson, M. (2023, March 15). Understanding climate change and its effects. *Environmental Studies Online*. https://www.environmentalstudiesonline.org/climate-change

If the author is an organization instead of an individual, you can format it like this: Example:

World Health Organization. (2023, January 10). Global health observatory data repository. World Health Organization. https://www.who.int/data/gho

For more information, visit: www.sciberation.org