Developing Scientific Attitude and Temper: A Homework Sheet

Student Name: _____

Class: _____

Due Date: _____

Introduction to Scientific Attitude and Temper

Welcome to this homework sheet on developing scientific attitude and temper! This sheet is designed to help you understand the importance of scientific attitude and temper in everyday life and to provide you with opportunities to practice and apply these skills.

What is Scientific Attitude and Temper?

- Scientific attitude refers to the way scientists think and approach problems.
- Scientific temper refers to the ability to think critically and make informed decisions based on evidence.

Understanding Scientific Attitude and Temper

1. What is scientific attitude, and how does it differ from scientific temper?

2. What are the key characteristics of a scientific attitude, and how do they contribute to the scientific method?

3. Can you think of a time when you used a scientific attitude to solve a problem or make a decision? Describe the situation and how you applied scientific thinking.

Critical Thinking and Analysis

Read the following passage and answer the questions that follow:

"The scientific method is a systematic approach to scientific inquiry that involves observation, hypothesis formation, experimentation, and conclusion-drawing. It is a powerful tool for investigating the natural world and for developing new knowledge and understanding."

1. What is the main idea of the passage?

2. What are the key steps involved in the scientific method?

3. Can you think of a situation where the scientific method could be applied to solve a problem or answer a question? Describe the situation and how you would apply the scientific method.

Evaluating Evidence

Read the following article and evaluate the evidence presented:

"New Study Finds Link Between Climate Change and Extreme Weather Events"

The article presents evidence from a recent study that suggests a link between climate change and extreme weather events. The study found that the number of extreme weather events has increased significantly over the past decade, and that this increase is likely due to climate change.

1. What is the main claim of the article?

2. What evidence is presented to support this claim?

3. Do you think the evidence presented is convincing? Why or why not?

Designing an Experiment

Design an experiment to test the following hypothesis:

"Plants grow faster in soil with fertilizer than in soil without fertilizer."

1. What is the independent variable in this experiment?

2. What is the dependent variable in this experiment?

3. How would you control for other variables that could affect the outcome of the experiment?

Analyzing Data

Analyze the following data and answer the questions that follow:

Plant	Soil Type	Growth Rate
1	Fertilized	10 cm
2	Unfertilized	5 cm
3	Fertilized	12 cm
4	Unfertilized	6 cm

1. What is the average growth rate of the plants in fertilized soil?

2. What is the average growth rate of the plants in unfertilized soil?

3. Do the data support the hypothesis? Why or why not?

Case Study

Read the following case study and answer the questions that follow:

A new company has developed a product that claims to reduce carbon emissions. The company has conducted a study that shows a significant reduction in carbon emissions when using their product. However, the study has been criticized for its methodology and lack of peer review.

1. What are the main claims of the company?

2. What are the criticisms of the study?

3. How would you evaluate the evidence presented in the study?

Reflective Journaling

Reflect on your own learning and answer the following questions:

1. What have you learned about scientific attitude and temper in this homework sheet?

2. How do you think you can apply scientific attitude and temper in your everyday life?

3. What challenges do you think you may face in applying scientific attitude and temper, and how can you overcome them?

Group Discussion

Discuss the following questions with a partner or in a small group:

1. What are some common biases or assumptions that can influence our thinking?
2. How can we overcome these biases and assumptions to think more critically and scientifically?
3. Can you think of a time when you or someone you know was influenced by a bias or assumption? What was the outcome, and how could it have been different if a more scientific approach had been taken?

Science in Everyday Life

Find an example of how scientific attitude and temper are applied in everyday life. This could be an article, a video, or a personal experience. Write a short reflection on how scientific attitude and temper are used in this example, and what you can learn from it.

Conclusion

Congratulations on completing this homework sheet! Reflect on what you have learned and how you can apply it in your everyday life. Remember that scientific attitude and temper are essential skills for success in all areas of life, and that with practice and dedication, you can develop these skills and become a more critical and scientific thinker.