Cell Division and Genetics Worksheet

Introduction (5 minutes)

Read the introduction to the worksheet and answer the following question:

1. What is the main topic of this worksheet?

Multiple Choice Questions (15 minutes)

Choose the correct answer for each question.

1. What is the main difference between mitosis and meiosis?
   a. Mitosis produces two daughter cells, while meiosis produces four daughter cells
   b. Mitosis produces four daughter cells, while meiosis produces two daughter cells
   c. Mitosis occurs in somatic cells, while meiosis occurs in reproductive cells
   d. Mitosis occurs in reproductive cells, while meiosis occurs in somatic cells

2. Which stage of mitosis is characterized by the separation of sister chromatids?
   a. Prophase
   b. Metaphase
   c. Anaphase
   d. Telophase

3. What is the purpose of meiosis?
   a. To produce somatic cells
   b. To produce reproductive cells
   c. To repair damaged cells
   d. To produce stem cells

Short Answer Questions (20 minutes)

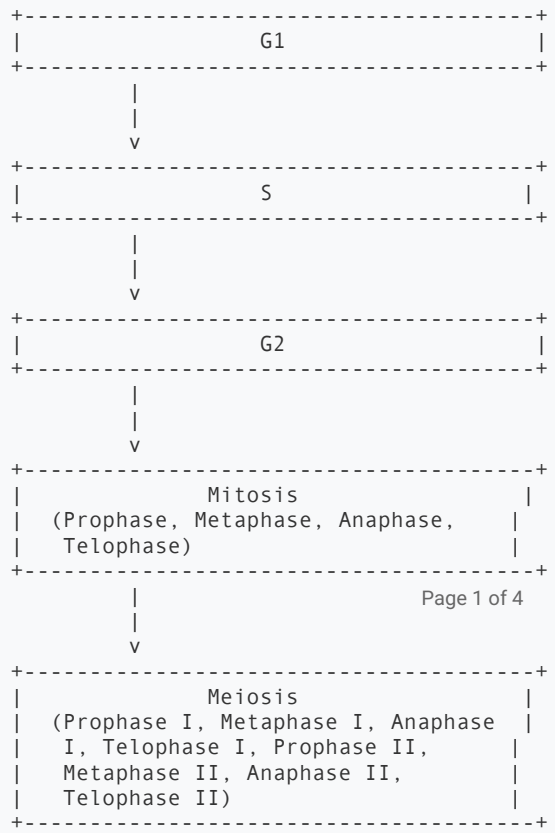
Answer each question in complete sentences.

1. Describe the stages of mitosis and meiosis, highlighting the key differences between the two processes.

2. Explain the importance of cell division in growth and development, providing examples of how mitosis and meiosis contribute to these processes.

Diagram Labeling (15 minutes)

Label the following diagram of the cell cycle, identifying the stages of mitosis and meiosis:



Interactive Quiz (15 minutes)

Complete the following interactive quiz:

1. What is the term for the process by which a cell becomes specialized to perform a specific function?

2. What is the term for the process by which a cell divides to produce two daughter cells that are genetically identical to the parent cell?

Conclusion (5 minutes)

Read the conclusion to the worksheet and answer the following question:

1. What is the main topic of this worksheet?

Assessment Rubric

The following rubric will be used to assess your performance:

- Multiple Choice Questions: 1 point for each correct answer
- Short Answer Questions: 5 points for each question, based on accuracy, clarity, and completeness
- Diagram Labeling: 3 points for each correctly labeled stage
- Interactive Quiz: 3 points for each correct answer

Note to Teacher

The following note is for the teacher:

- This worksheet is designed to be completed in 45 minutes.
- Please provide feedback to students on their performance.
- Consider providing accommodations for students with visual impairments, learning disabilities, or English language learners.