Lab 6 Prelab Questions	Name
Mitosis & Online Karyotyping	Lab Section Group #
Instructions Before coming to class	

Read carefully the introduction section and pages 113 – 120 (i.e. sections 8.1 (The Basics o Cellular Reproduction, 8.2 (The Cell Cycle) and 8.3 Mitosis and Cytokinesis) in your textbook, *Essentials of Biology by Mader 2nd ed*.

- Answer the following questions in the spaces provided and be prepared to hand in your responses at the start of lab.
- 1. Why do cells carryout mitosis?
- 2. Using your text as a reference, list the major events that occur during the three phases of interphase, the four phases of mitosis, and cytokinesis.
 - a.) Interphase: When cells are not dividing

G1

S-phase

G2

b.) Mitosis—is the division of the ____

i.) Prophase

ii.) Metaphase

iii.) Anaphase

iv.) Telophase

c.) Cytokinesis—is the division of the ______ to produce two genetically

_ cells.



Part 1. Microscopic Observation of Mitosis



Figure 1. Interphase viewed at 400x: Onion root tip or Whitefish blastula (circle what you observed)



Figure 2. Prophase viewed at 400x: Onion root tip or Whitefish blastula (circle what you observed)



Figure 3. Metaphase viewed at 400x: Onion root tip or Whitefish blastula (circle what you observed)



Figure 4. Anaphase viewed at 400x: Onion root tip or Whitefish blastula (circle what you observed)



Figure 5. Telophase & Cytokinesis viewed at 400x: Onion root tip or Whitefish blastula (circle what you observed)

Part 2	. Web	Karyot	yping
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Patient	Notation	Diagnosis
Α		
В		
С		

Internet Search: Use <u>www.scirus.com</u> to look up one of the syndromes afflicting one of the patients above.

URL of Site: http://	
Title of Site:	
Syndrome researched:	

Describe an interesting thing that you learned at this site concerning the syndromes you looked up.

Part 3. On-line Onion Root Tips: Phases of the Cell Cycle

	Interphase	Prophase	Metaphase	Anaphase	Telophase	Total
Number of Cells						36
Percent of Cells						100%

The data you collected above can be used to rank the relative amount of time that is required to
complete each stage. What can be concluded from the data collected above—which stage of
<u>mitosis</u> takes the <u>longest</u> to complete? Why do you think this stage takes so long? Use your
knowledge of what happens during each phase of mitosis to answer these questions and cite
specific numerical data from the table above to support your response.

2. Which stage of *mitosis* takes the *least* amount of time to complete? Why do you think this stage occurs so quickly? Use your knowledge of what happens during each phase of mitosis to answer these questions and cite specific numerical data from the table above to support your response.

Part 4. New Methods in Karyotyping: The Spectral Karyotype

- 1. Explain how each of the following karyotyping methods work.
 - a. The "old" method, Giemsa Dye Karyotyping:

b. The "new" method, Spectral Karyotyping using fluorescent dyes:

2. List and then in your own words briefly describe the four applications of spectral karyotyping discussed at the *Biology Project* website.

3. Identify and briefly describe at least three controversial societal issues associated with spectral karyotyping. You will need to do some thinking here since the *Biology Project* website does not discuss any of the many issues involved.