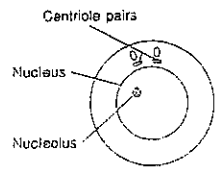
Name _____ Class _____ Date _____

CHAPTER 8
Cell Growth and Division
Section 8–2

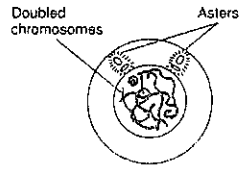
SKILL ACTIVITY
Interpreting diagrams

The Cell Cycle

1. Below are diagrams of interphase and mitotic cell division in animal cells. According to the descriptions given on the next page, assign a different phase to each diagram.



a. _____



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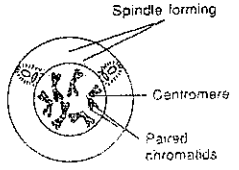
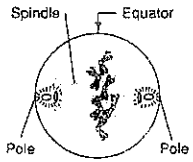
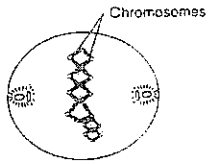


c. _____

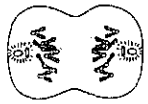
d. _____



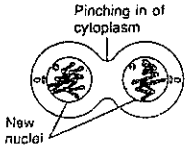
e. _____



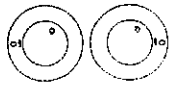
f. _____



g. _____



h. _____



i. _____

Early prophase Centriole pairs move toward opposite poles. Double chromosomes become visible as long threads. Fibers extend outward from centrioles and form star-shaped structures called asters.

Interphase Nucleus is bound by nuclear membrane. One or more nucleoli are present. Chromosomes are not distinguishable. Near the nucleus are centrioles at right angles to each other.

Metaphase Centromeres of double chromosomes are lined up at equator. At the end of metaphase, the centromeres divide and the two chromatids of each doubled chromosome become separate, duplicate chromosomes.

Interphase (2) Two new daughter cells are in interphase.

Early anaphase Separate, duplicate chromosomes begin to move apart.

Late prophase Double chromosomes begin moving toward equator. Nuclear membrane and nucleolus disappear.

Late anaphase Duplicate chromosomes move apart to opposite poles.

Middle prophase Spindle fibers form and extend between the poles. Two halves of each double chromosome (called chromatids) are connected at a region called the centromere.

Telophase Spindles and asters disappear. Nuclear membrane begins to form around each daughter nucleus. New nucleoli appear. Furrow forms.

2. Complete the following flow chart, given the information from the preceding exercise.

Interphase → _____ → _____ → _____ →

_____ → _____ → _____ → Interphase

Using the information in this table, answer the following questions. Assume that the chromosome number is 2.

	Chromosomes per Cell	Centriole Pairs per Cell	Centromeres per Cell	Spindle
Interphase	2	1 → 2	2	–
Early Prophase	2	2	2	+
Late Prophase	2	2	2	+
Metaphase	2 → 4	2	2 → 4	+
Anaphase	4	2	4	+
Telophase	4 → 2	2 → 1	4 → 2	–
Next Interphase	2	1 → 2	2	–

3. How many chromosomes are present at the end of the metaphase? _____

4. How many centrioles are present during metaphase? _____

5. Is the spindle present at late prophase? _____

6. What happens to the number of centromeres per cell during telophase? _____