BILL-MODELING MITOSIS & MEIOSIS  
Use 2 pages that face each other to diagram the following.  
DRAW PICTURES FOR THE FOLLOWING PHASES: Show a cell with 4 chromosomes.   
Color homologous chromosomes different colors. Color chromatids the same color.  
  
MITOSIS MEIOSIS  
  
PROPHASE PROPHASE I

METAPHASE METAPHASE I METAPHASE II

ANAPHASE ANAPHASE I ANAPHASE II

QUESTIONS  
  
MITOSIS  
1. Why does DNA switch between CHROMOSOME and CHROMATIN forms?

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2. At the end of interphase of mitosis, sister chromatids are  
  
 IDENTICAL SIMILAR BUT NOT IDENTICAL

3. At the end of interphase of mitosis, homologous chromosomes are  
  
 IDENTICAL SIMILAR BUT NOT IDENTICAL

4. At the end of prophase, sister chromatids are  
  
 IDENTICAL SIMILAR BUT NOT IDENTICAL

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MEIOSIS  
  
1. MEIOSIS is called REDUCTION DIVISION. When is the chromosome number cut in half?  
  
 MEIOSIS I MEIOSIS II

2. At the end of interphase, sister chromatids are  
  
 IDENTICAL SIMILAR BUT NOT IDENTICAL

3. After prophase I, sister chromatids are  
  
 IDENTICAL SIMILAR BUT NOT IDENTICAL

4. What happens if a homologous pair of chromosomes fails to separate, and how might this contribute   
to genetic disorders such as Down syndrome (trisomy 21), Turner syndrome (XO), or Klinefelter (XXY) syndrome?  
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