3.02 Compare and contrast the characteristics of asexual and sexual reproduction.	Instruction should include:
	• Recognizing mitosis as a part of asexual reproduction and meiosis as a part of sexual reproduction.
	• Similarities and differences between mitosis and meiosis including replication and separation of DNA and cellular material, changes in chromosome number, number of cell divisions, and number of cells produced in complete cycle.
	• Putting mitosis diagrams in order and describing what is occurring throughout the process.
	Students are not expected to memorize the names of the steps or the order of the step names.
	• The sources of variation including:
	  o Crossing over.
	  o Random assortment of chromosomes.
	  o Gene mutation
	  o Nondisjunction
	  o Fertilization
		Inquiry Support Activity:
		Cell Cycle
		
		Investigation involving mitosis/ meiosis simulations

3.03 Interpret and predict patterns of inheritance.
 	
• Dominant, recessive and intermediate traits.
	Instruction should include:
	• Identifying and determining genotypes and phenotypes.
	• Recognition that phenotype is the result of both genotype and the environment.
	• A discussion of Mendel's experiments and laws.
	• Interpreting karyotypes (gender, chromosomal abnormalities)
	• Understanding that dominant traits mask recessive alleles.
	• There are a variety of intermediate patterns of inheritance, including codominance and incomplete dominance. While teachers should not necessarily expect students at this level to distinguish between these forms of intermediate inheritance on a biochemical level they should be able to solve problems involving apparently intermediate phenotypes. The following discussion is included to help teachers with understanding these frequently confused terms.
	  o Incomplete dominance (also called partial dominance) results in the blending of traits. (Usually results from an inactive or less active gene so the heterozygous phenotype appears intermediate. E.g. Pink flowers)
	  o Co-dominant alleles result in the expression of both traits. (two
		Inquiry Support Activity:
		Genetics of Parenthood