

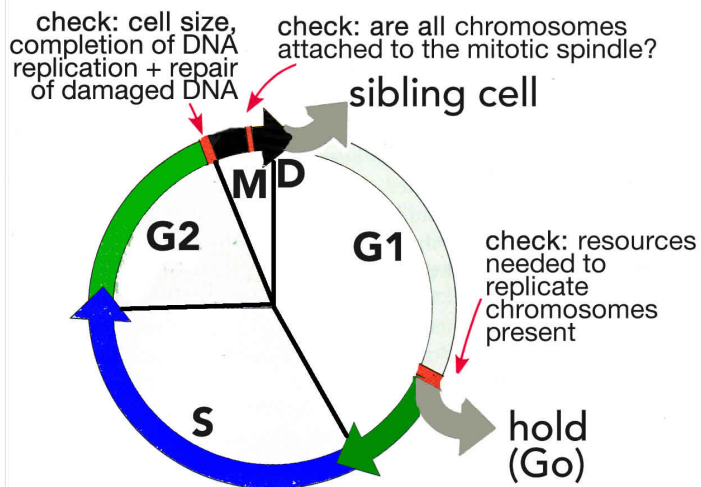
eukaryotes: multiple linear chromosomes

chromosome number of characteristic of species (not cell type)

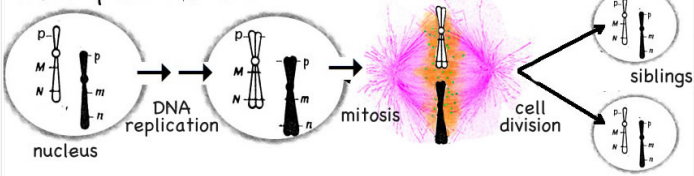
in somatic cells, diploid - one maternal, one paternal set

each chromosome - same genes in same order along the length

multiple origins of replication along each chromosome (why?)



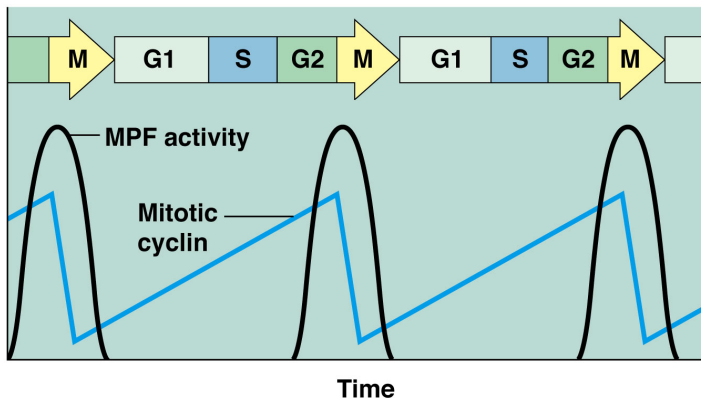
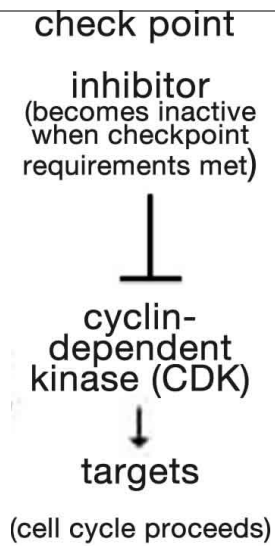
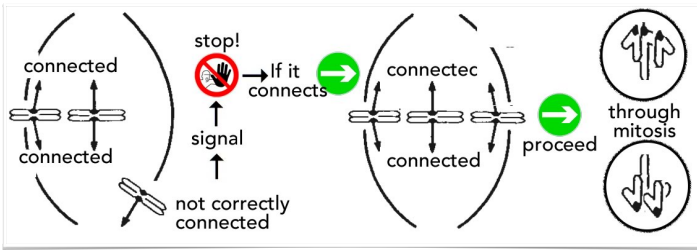
asexual reproduction (mitosis)



mitotic spindle- molecular machine

bipolar (two-sided)

interacts with centromeric regions of chromosomes
division between poles



Questions to answer and ponder:

- How do chromosomes interact with one another during mitosis/cytokinesis?
- How do checkpoints work and what makes them irreversible?
- What does it mean that a checkpoint acts to “make a decision based on evidence”?
- Make a graph of CDK activity and the concentration of the cyclin regulating it, as a function of the cell cycle.
- What can go wrong if a checkpoint is ignored (start with a cell cycle diagram)?

Questions to answer and ponder:

- How can a mutation in a checkpoint influence cell behavior during the somatic (mitotic) cell cycle?
- How does gene expression change over the course of the somatic cell cycle?
- Why is the decision to start a new cell cycle critical?
- When is the decision to start a new cycle made?

Aidan most meaningful question choice

next:

Chapter 13: Asexual and sexual reproduction in eukaryotes

In which we consider the processes of asexual and sexual reproduction in eukaryotes. We note the molecular processes, mitosis & cytokinesis, involved in somatic cell reproduction and how they are modified in meiosis and gamete formation within the germ line. We consider the implications of chromosome pairing, recombination & independent segregation as well as dimorphism of gametes leading to maternal and paternal effects, including mitochondria inheritance and sex determination.