Cancer and how cells multiply

Today we will: Learn about cancer and how cells multiply and grow

-http://publications.nigms.nih.gov/insidethecell/chapter4.html

- All living things are made of cells
- Cells are the basic unit of structure and function in living things
- Cells are made from other cells

Cancer Recap True of False

Cancer is…

- a disease
- contagious (you can catch it from someone)
- a virus
- Transmitted by body fluids
- There are various types of cancer
- Cancer cells grow and divide out of control, which damage parts of the body around them.

How cancer begins

- Scientist think it starts when a part of the DNA in a chromosome is damaged which causes a mutation in the DNA
- The cancer cells then divide at an alarming rate through a process called mitosis which can develop into tumors
  - Two basic types of tumors
    - Benign tumors are not cancer
      - Can be removed and usually don't grow back
      - Don't spread to other parts of body
    - Malignant tumors are cancer
      - More serious, life threatening, invasive
- Mitosis cell division process can be bad and good…

Cell Division

- During cell division a cell makes a copy of its DNA and passes the same DNA onto new cells.
  DNA: Tells cells how to function
  - How and when to replace old or damaged cells
  - Cells must keep dividing in order for us to live!
  - Ex. When get a cut or a bruise;
  - injured cells at the site of a wound send go signals to the surrounding skin cells, which respond by growing and dividing by mitosis and eventually sealing over the wound.
  - Make new blood, more hair, skin, recover from injury

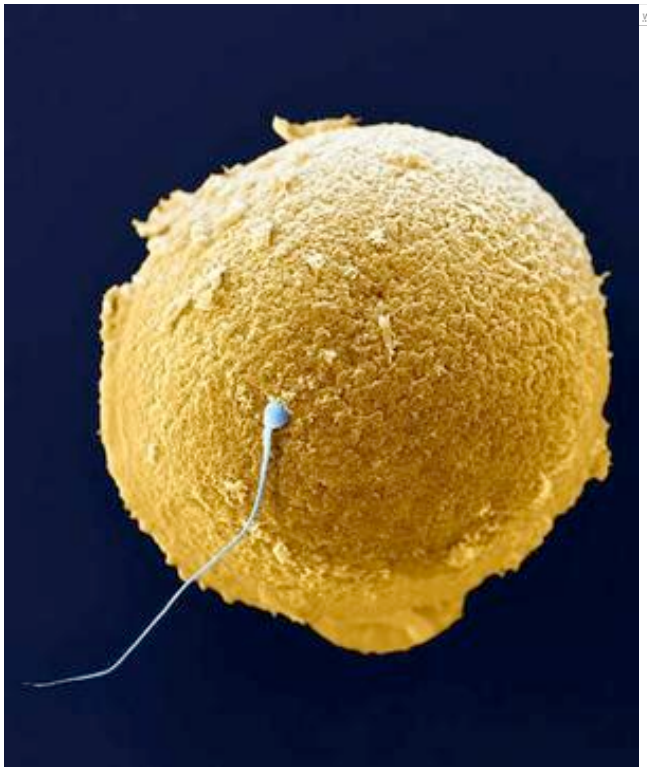
  (publications.nigms.nih.gov)

WHY DO (Animal) CELLS DIVIDE?

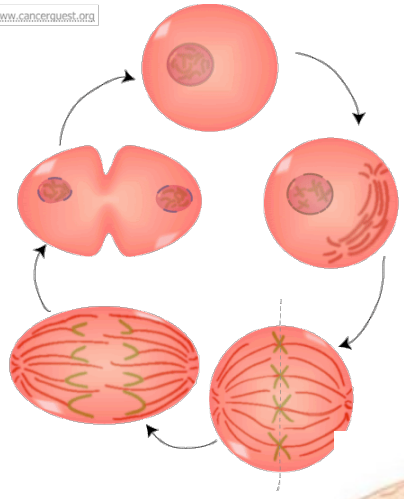
- The larger a cell becomes, the more demands the cell places on it's DNA.
- It also has more trouble moving enough food and wastes across its cell membrane
- Once cells reach a certain size they must divide to keep functioning

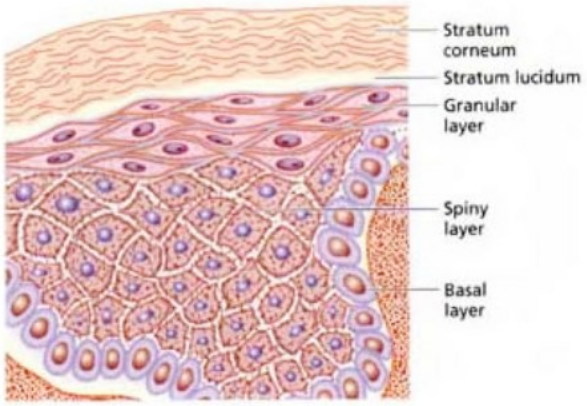
CELLS MULTIPLY AND GROW

Sexual reproduction/ Meiosis



Asexual reproduction/ mitosis



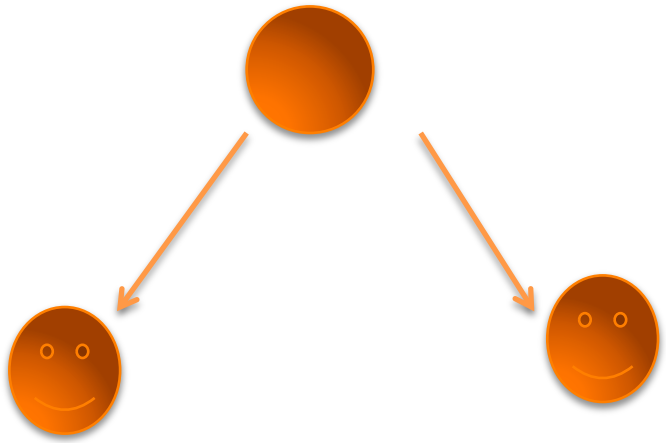


TRAITS ARE PASSED DOWN FROM PARENT TO OFFSPRING IN ASEXUAL AND SEXUAL REPRODUCTION

- Asexual reproduction-Mitosis
  - An identical set of traits are passed down from one original cell to create two more cells
  - Sometimes mutations but mostly mutations
- Sexual reproduction-Meiosis
  - Two parents give traits to the offspring
  - The offspring's traits are determined by the combination of both parents' genes

MITOSIS- ASEXUAL

- Cell division where two daughter cells are the result. Genetic material is replicated (repeated)
- Information comes from DNA in the nucleus



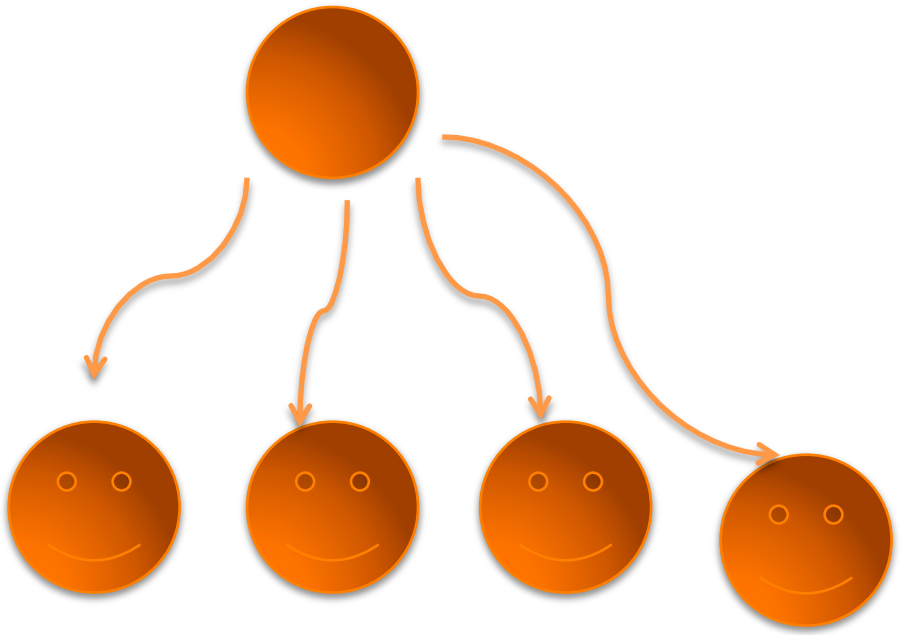
http://
www.dnatube.com
/video/1322/
mitosis

MITOSIS

- Keeps cells living and growing
- Takes place in regular body cells
- Phases in process of mitosis
  - Interphase
  - Prophase
  - Metaphase
  - Anaphase
  - Telophase
  - Cytokinesis

MEIOSIS- SEXUAL

- Happens in the Gametes (sperm and egg cells)
- Get half of information from dad and half from mom
- Cell division where 4 haploid cells are the result. Only half of the genetic material is given. The other half of instruction is needed for life to begin.
- http://www.classroom20.com/video/649749:Video:104840



- Millions of people in America are living with a diagnosis of cnacer