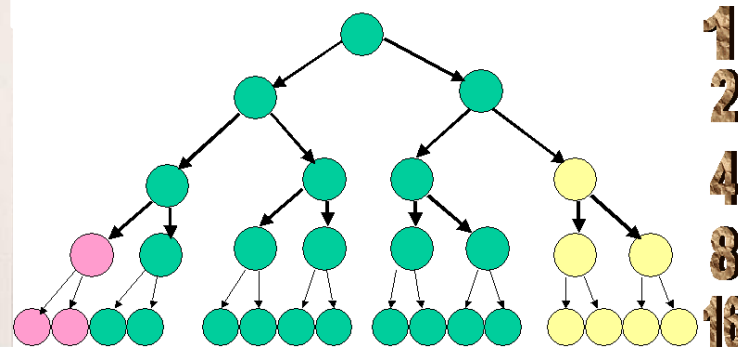
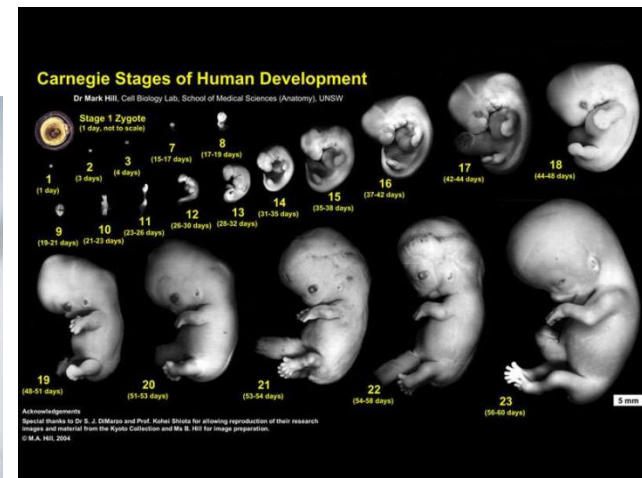


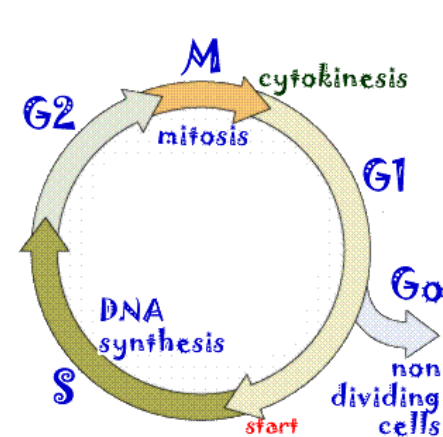
# Cell Replication

What is the purpose?

Can it relate to cancer?

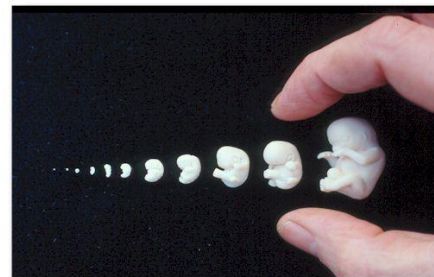
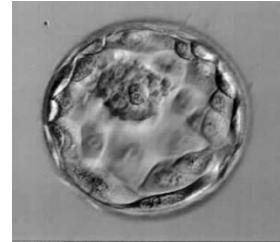
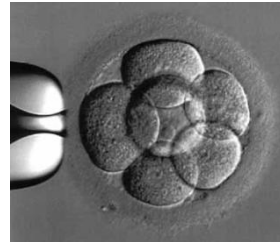
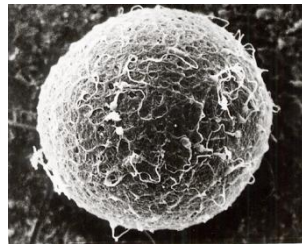


Cell Replication  
Cell Replication



# Cell Replication

- The process of producing new cells from old ones
- Cell Theory: the cell is the smallest unit, all organisms are made of cells, all cells come from pre-existing cells



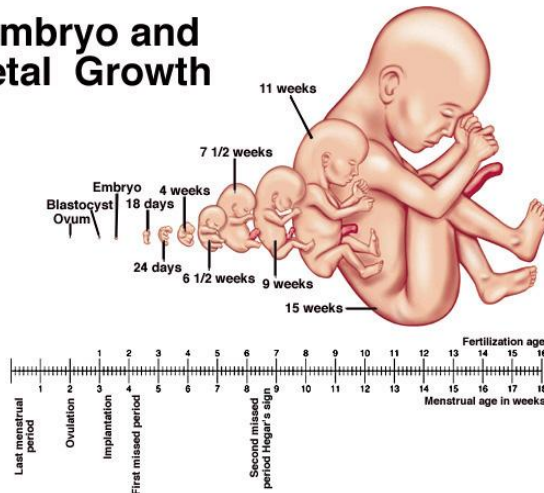
# The purposes of Cell Replication

- Growth

- Balance between cell replication and apoptosis (cell death)
- Some cells become so specialised they no longer replicate

Byer/Shainberg/Galliano *Dimensions Of Human Sexuality*, 5e. Copyright © 1999, The McGraw-Hill Companies, Inc. All Rights Reserved.

## Embryo and Fetal Growth



- Maintenance and Repair

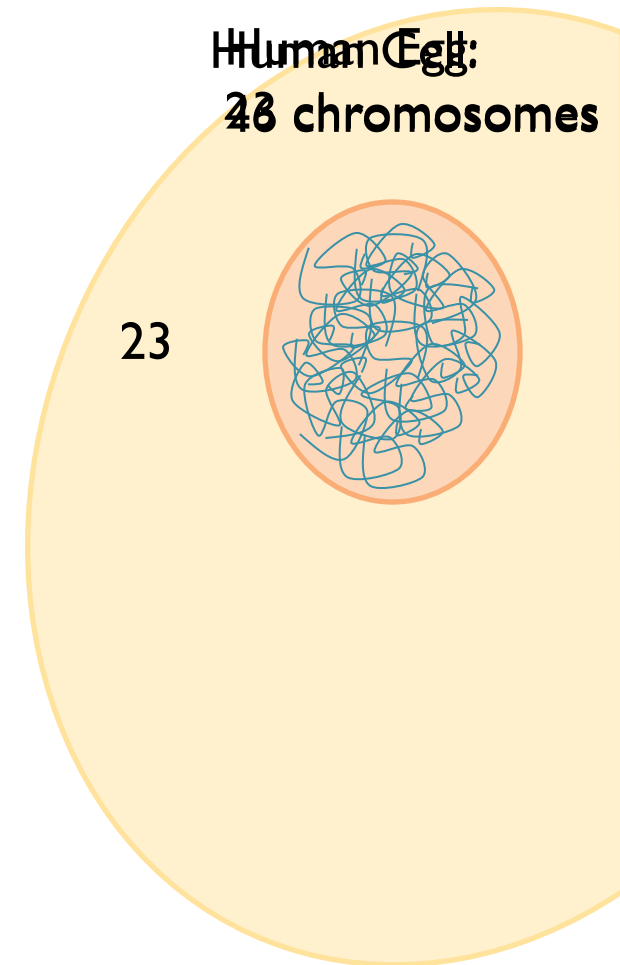
- Replacing damaged cells (normal functions or injury)
- Depends on organism
- Starfish – can sometimes regenerate from a limb



- Human – regenerate many tissue types but not all

# Cell Replication

Getting your first chromosomes



The chromosomes you inherit from your parents determine what you look like



# Growth - From one cell to you!

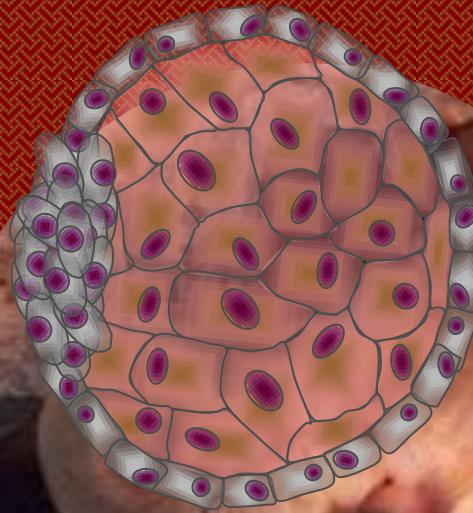
**Blastocyst  
implanting on  
uterus: 1 week**

**Embryo: 5  
weeks**

**Heartbeat  
at 3  
weeks!**

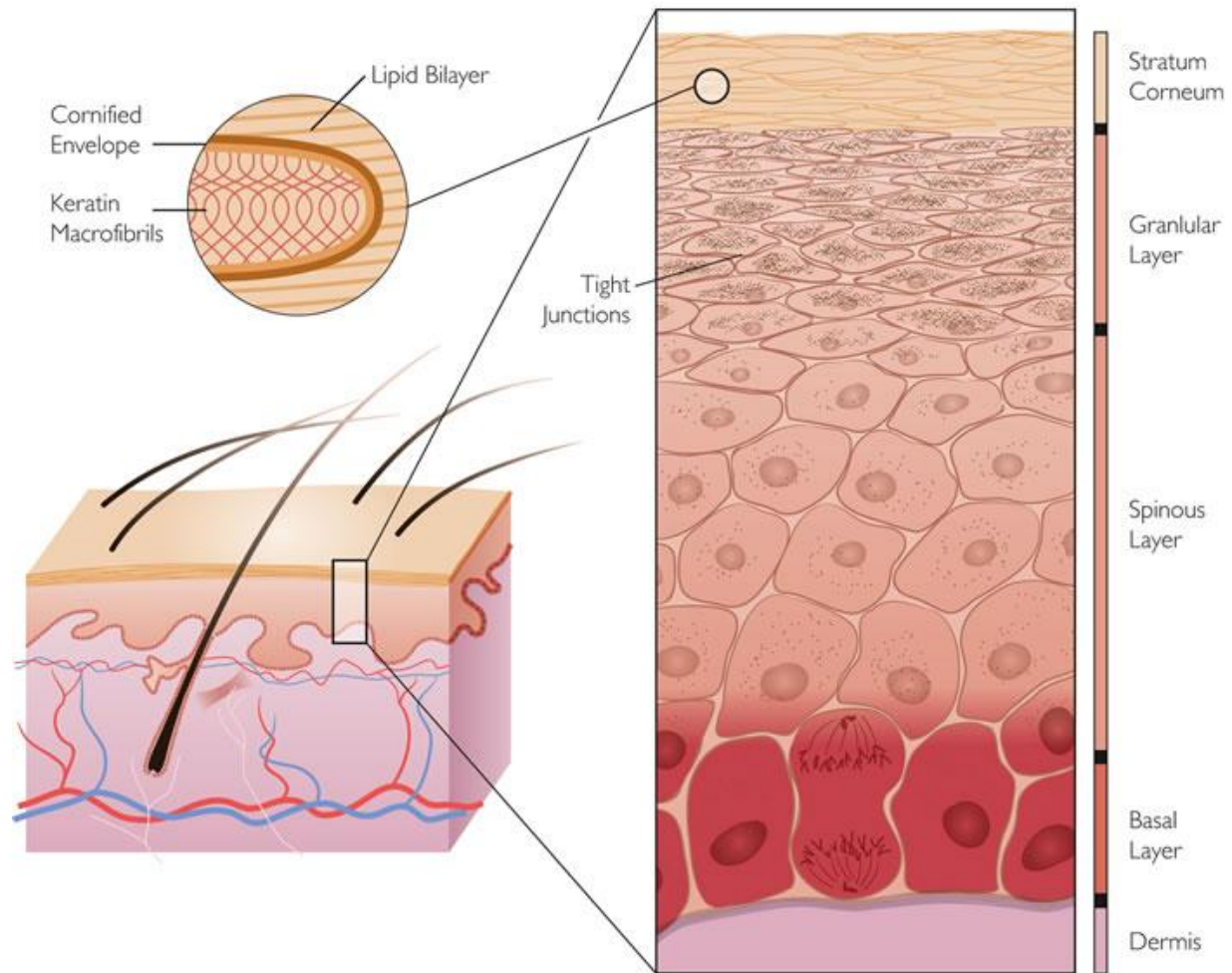
**Embryo: 8  
weeks**

**Every organ  
system present**

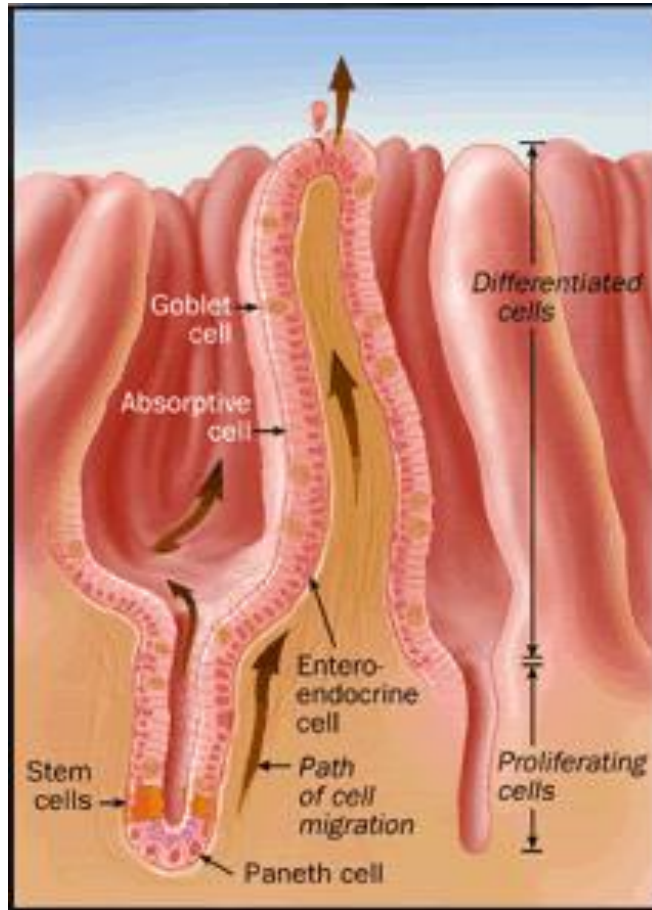


**Every cell in your body  
has the same copy of the  
chromosomes originally  
given to you by your  
parents!**

# Cell Replication – Maintenance



# Cell Replication – Maintenance



- The average life span of an epithelial cell is about 3 days
- Apoptosis at tip of the intestinal villi
- Differentiated cells responsible for digestion and absorption
- Rapid proliferation of stem cells

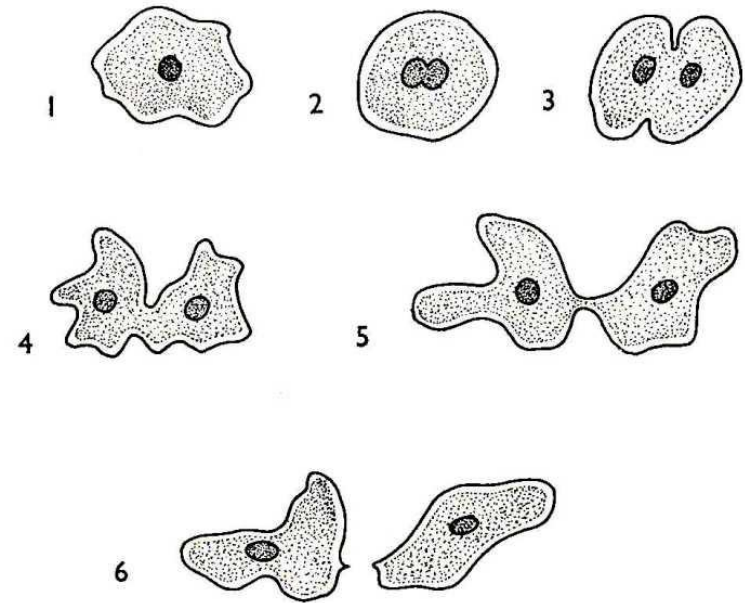


# Cell Replication - Repair





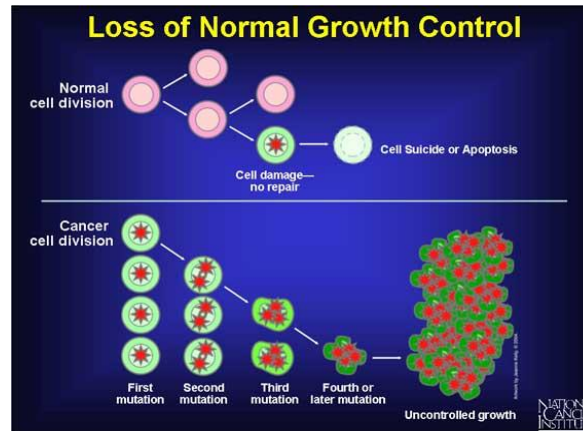
# Cell Replication – purpose in Unicellular Eukaryote?



- Simple means of reproduction!
  - Producing a genetically identical copy of itself

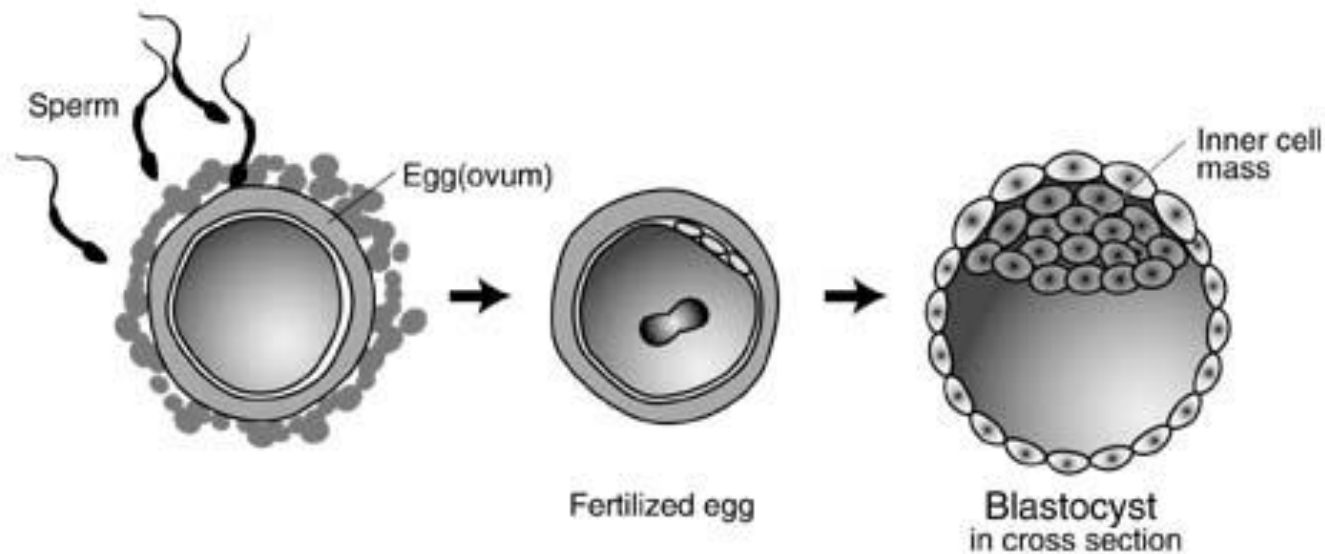
# Cell Replication – Imbalance?

- Why would it be important to have a balance between cell replication and apoptosis (cell death)?



# Cell differentiation

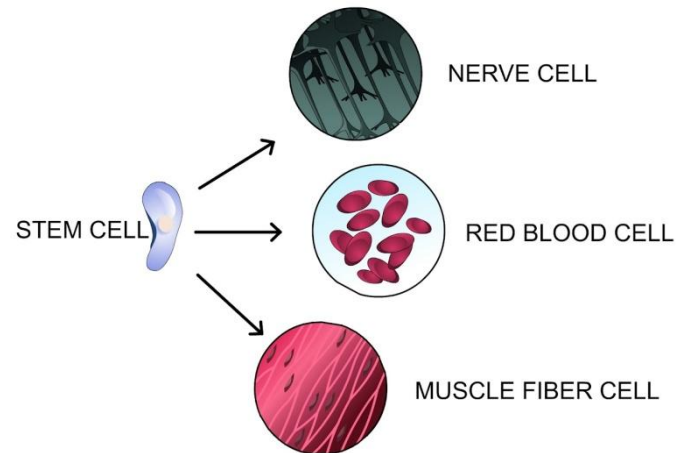
- When cells of an embryo begin to take form and become specialised to perform particular functions



# Cell differentiation

- Stem cells are cells that have not specialised yet

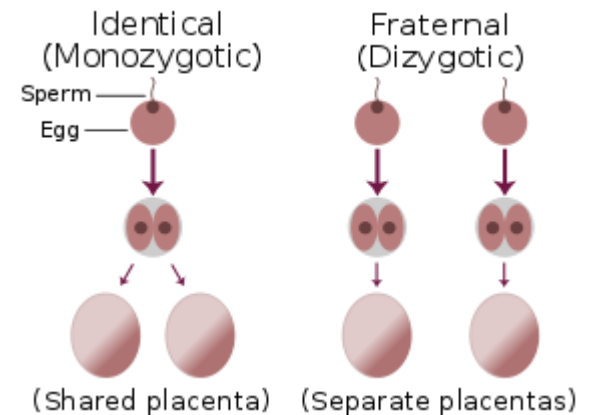
STEM CELLS CAN BECOME MENY TYPES OF CELLS





# Cell differentiation

- How are identical twins formed?

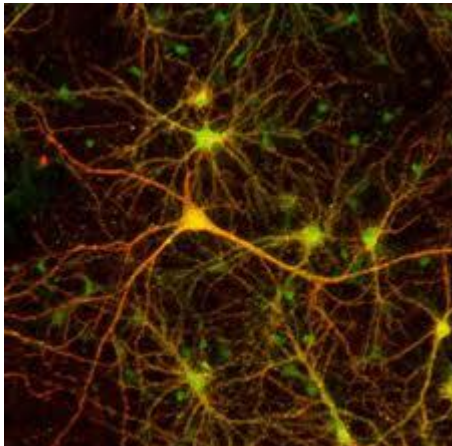
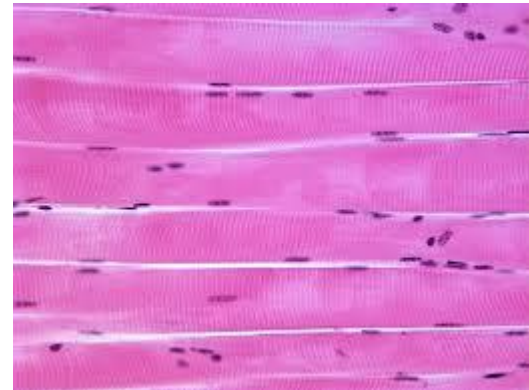


- How can lizards regrow tails?



# Cell Specialisation

- Different cells have different functions. What tissues do these cells come from and how have they adapted to suit their function.



# Cell Specialisation in Plants

