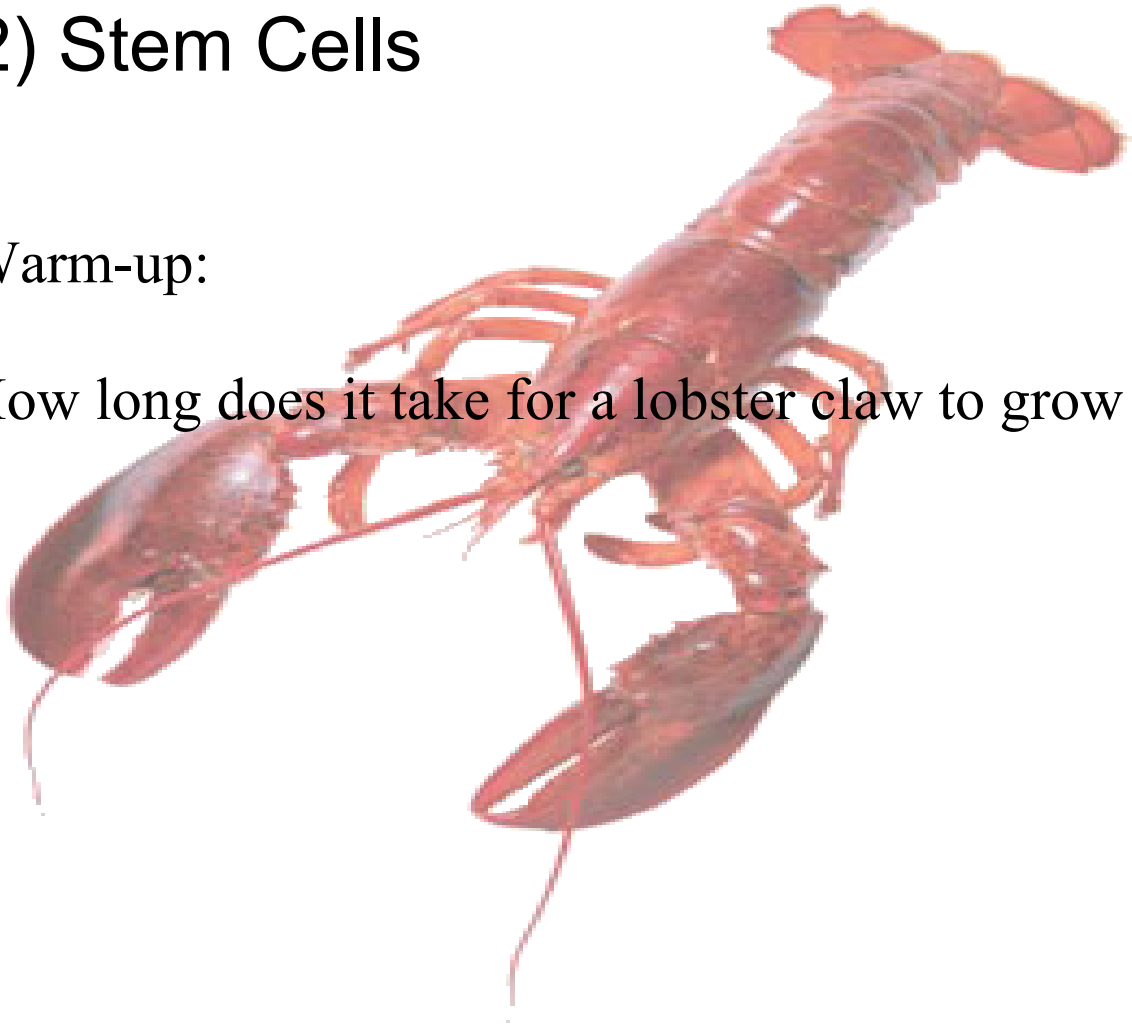
March 20, 2012

1) Regeneration

2) Stem Cells



Warm-up:

How long does it take for a lobster claw to grow back?

Sep 29-3:55 PM

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1). Uncontrolled cell division/growth

2) Changes made to the genetic code / genetic information.

↳ Carcinogens.

3) Cancer cells do not change shapes, or specialize, and can divide in isolation.

↳ Cancer cells require more energy because they divide so rapidly.

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1). A mass of cells caused by Rapid cell growth.

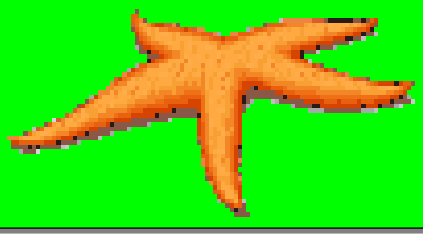
2). Benign -> Harmless.

-> Isolated, and not spread to other areas.

Malignant -> Harmful / Dangerous.

-> Grown, and spread to other areas of the Body.

30 days



Sep 29-4:23 PM

Lifestyle and Cancer

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Because cancer cells do not specialize and have no function they take up energy and resources from other cells.

Tumor- rapid cell growth resulting in a mass of cells

Benign- Harmless tumors / stable and isolated

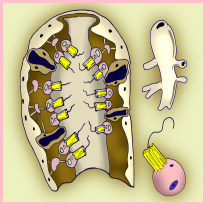
Malignant- Dangerous tumors

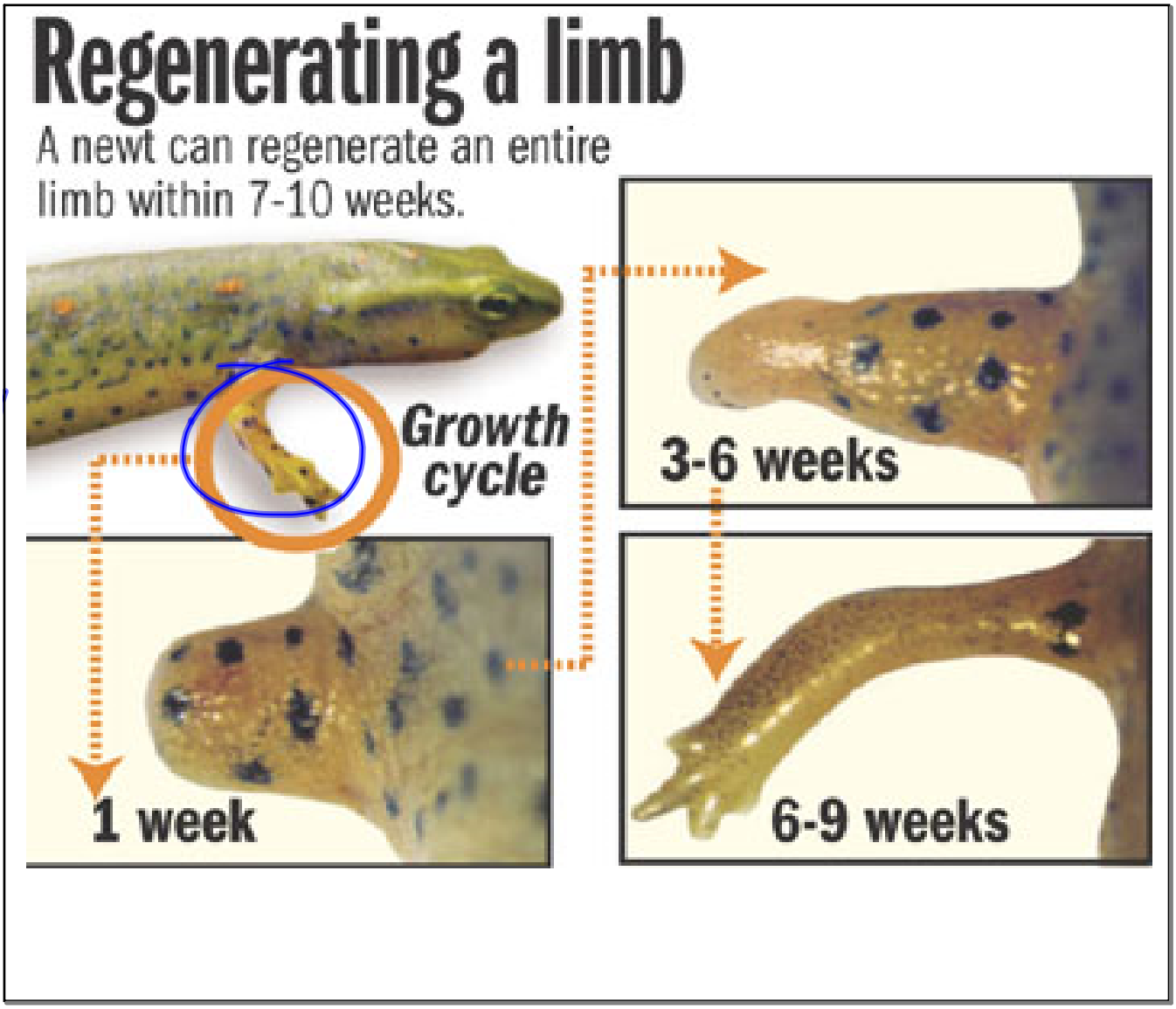
↳ they are unstable, and have spread to other areas of the body

Regeneration Pg 186

Regeneration is the ability to regrow a part of the body.

Animals with little specialization can regenerate i.e. sponges, planarians(a worm), starfish, newts etc. These animals can regenerate limbs and body parts. Cells in these animals are almost the same no matter where they are found in the body. This means that they only have a few kinds of cells that do certain jobs.



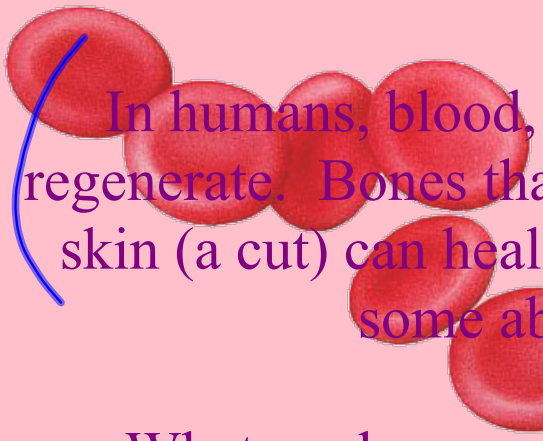

Regenerating a limb
A newt can regenerate an entire limb within 7-10 weeks.
Growth cycle
3-6 weeks
1 week
6-9 weeks

Oct 5-3:16 PM

Human Regeneration

What are humans able to re-generate?? Any Idea

hair



In humans, blood, bone and skin can regrow or regenerate. Bones that break can be repaired; broken skin (a cut) can heal. A human liver or kidney has some ability to regenerate.

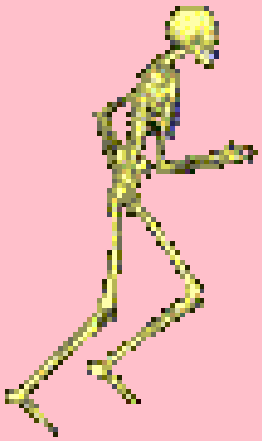
What are humans not able to re-generate??

We can not regrow fingers, toes etc.....

Sep 29-4:56 PM

Why can humans/other animals regenerate certain parts and not others??

Humans and certain other animals (i.e. earthworms) have many kinds of specialized cells like liver, brain, skin, blood and the list goes on because of this specialization we do not regenerate these cells.



Oct 12-11:08 AM

Some of these less complex animals can reproduce asexually through fragmentation. This means that the animal can reproduce when they are cut in half. If a sponge is cut in two pieces, each part will become a new organism.

A salamander is a more complex animal. It can regenerate legs, but can not reproduce through fragmentation.

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1-4

1) Fragmentation -> An organism losses a limb, or body part, that part develops into a new, identical organism

Regeneration -> An organism losses a limb or body part, and regrows the part that was lost.)

2) More complex animals have more specialized cells, with more specialized functions.

Less complex animals have less specialized cells that can have a variety of different functions.

3) Stem cells are immature, unspecialized cells.
-> capable of multiple divisions.

4) If you could make a specialized cell act like a Stem cell, there is potential to re-grow, or repair damaged specific tissue, or cells.

Mar 19-8:22 AM