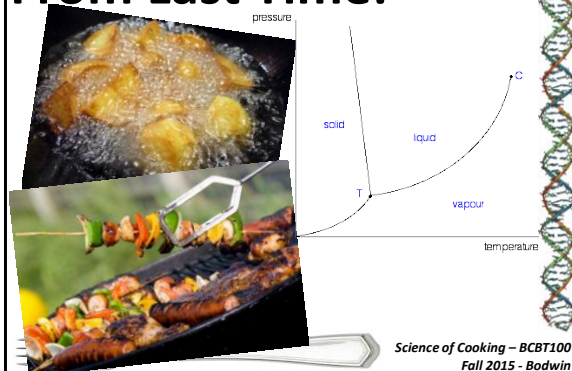


From Last Time:



“Pickling”

Food is acidified
Add acid (vinegar)
Fermentation (low oxygen)

Pickles, sauerkraut, kimchi, etc



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Sugar Preserves

Too much sugar kills microbes!
Jellies and Jams:
Pectin extracted from cell walls
Negative charge in water
Sugar “dehydrates” solution
Acidify to allow pectin binding



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Candied Fruits

Sugar is infused in fruit pieces
Fruit maintains more structure



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Canning

Seal and heat
Pasteurization of shelf-stable milk
Food is cooked during canning

Safety...



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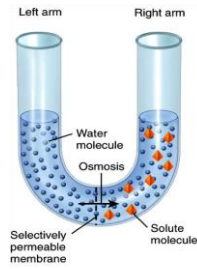
Osmosis

Transport of solvent (water)
through a semipermeable
membrane from areas of “low”
concentration to areas of “high”
concentration.



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Osmosis



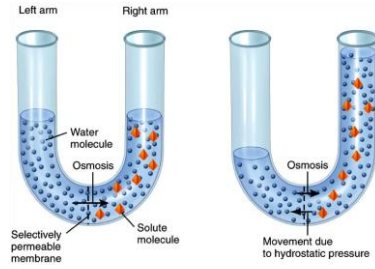
(a) Starting conditions

Figure 03.08 Tortora - PAP 12/e
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<http://www.studyblue.com/notes/note/n/cell-physiology-ii-chapter-3/dec/10/9900>

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Osmosis



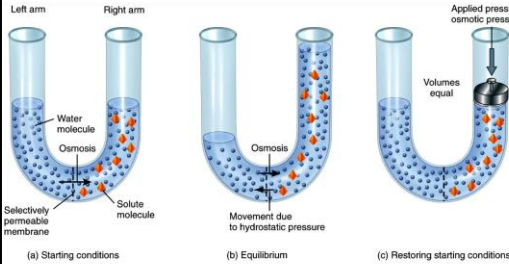
(a) Starting conditions

Figure 03.08 Tortora - PAP 12/e
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<http://www.studyblue.com/notes/note/n/cell-physiology-ii-chapter-3/dec/10/9900>

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Osmosis



(a) Starting conditions

(b) Equilibrium

(c) Restoring starting conditions

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<http://www.studyblue.com/notes/note/n/cell-physiology-ii-chapter-3/dec/10/9900>

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Preservation

Managing water

→ like almost ALL cooking!

Preservation

Observations:

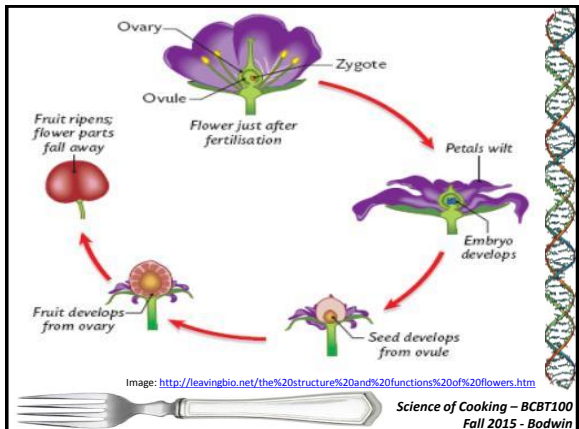


Image: <http://leavingbio.net/the%20structure%20and%20functions%20of%20flowers.htm>

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Seeds

Plant reproduction

Concentrated energy & nutrients

Seed → Fruit

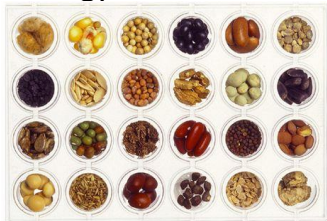


Image: <http://www.raw-living-food-success.com/glycemic-impact.html>

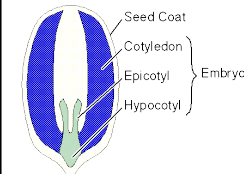
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Seed Structure

True seed = embryo, storage, coat

Monocot vs. Dicot

Dicot Seed Structure



Monocot Seed Structure

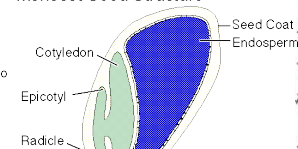


Image: <http://www.cartage.org.lb/en/themes/sciences/botanicalsciences/plantreproduction/PlantPropagation/SeedStructure/SeedStructure.htm>

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Seed structure

Simpler...

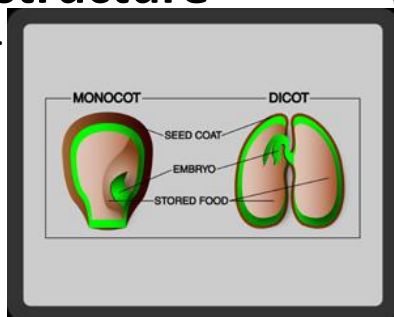


Image: <http://www2.yk.psu.edu/~sg3/st311/games/team3/>

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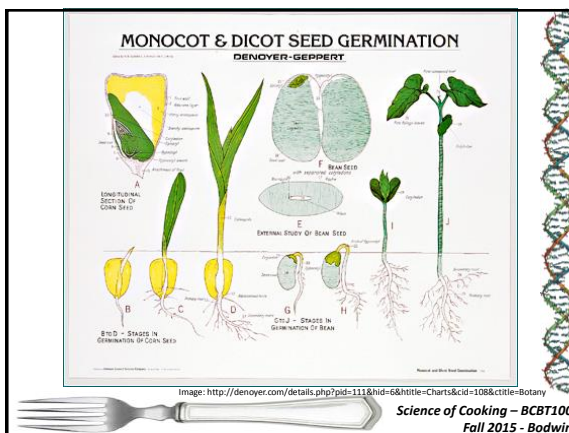


Image: <http://denoyer.com/details.php?pid=111&hid=6&title=Charts&cid=108&title=Botany>

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Types of Seeds

Grains (monocots)

Grass family, 1 season per year

Legumes (dicots)

1 season per year

Nuts

Trees, multi-year plants

Grains

Modified grasses

Wheat, corn, barley, rice, sorghum

Carbohydrate rich (starch, etc)

Some protein, little fat



Image: <http://www.foodsubs.com/FGGrains.html>

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Legume

Often multiple seeds in a "pod"

Beans, peas, peanuts

More fat & protein
than "grains"



Image: <https://www.eclipsewholefoods.com.au/topic/32-legumes.aspx>

Image: <http://www.gucanaryouchoose.com/kitchen/little-legumes-and-tiny-nuts-pack-is-the-fiber/#.UKJoGie7PFY>

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Nuts

True nut

hard shell, 1 seed, no seam

Acorn, hazelnut

Culinary nut

Dry fruit with an edible kernel in a hard or
leathery covering

Cashew, almond, walnut

Higher fat



Image: [http://en.wikipedia.org/wiki/Nut_\(fruit\)](http://en.wikipedia.org/wiki/Nut_(fruit))



Image: <http://ecosalon.com/high-in-protein-and-omega-3s-test-your-nut-knowledge/>

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