

# From Last Time:

pressure

solid liquid vapour

T C

temperature

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# Preservation Observations:

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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

Left arm Right arm

Water molecule Solute molecule

Osmosis

Selectively permeable membrane

(a) Starting conditions

Figure 03.33 Tortora - PAP 12th  
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<http://www.studyblue.com/notes/note/n/cell-physiology-ii-chapter-3/dec/1069900>

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# Osmosis

Left arm Right arm

Water molecule Solute molecule

Osmosis

Selectively permeable membrane

(a) Starting conditions

Water molecule Solute molecule

Osmosis

Movement due to hydrostatic pressure

(b) Equilibrium

Figure 03.08 Tortora - PAP 12th  
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# Osmosis

Left arm Right arm

Water molecule Solute molecule

Osmosis

Selectively permeable membrane

(a) Starting conditions

Water molecule Solute molecule

Osmosis

Movement due to hydrostatic pressure

(b) Equilibrium

Applied pressure = osmotic pressure

Volumes equal

(c) Restoring starting conditions

Figure 03.08 Tortora - PAP 12th  
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# Preservation

Managing water  
 → like almost ALL cooking!



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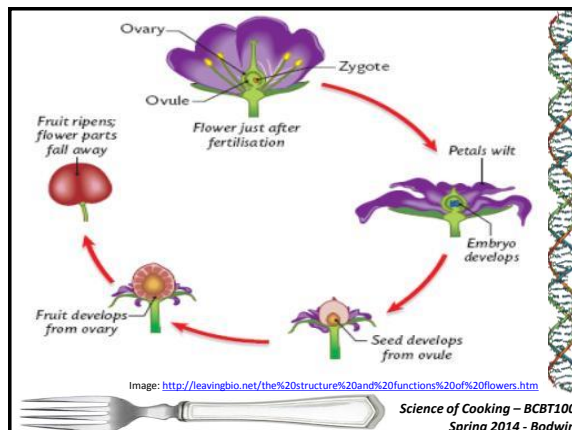


Image: <http://leavingbio.net/the%20structure%20and%20functions%20of%20flowers.htm>



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# Seeds

Plant reproduction  
 Concentrated energy & nutrients  
 Seed → Fruit

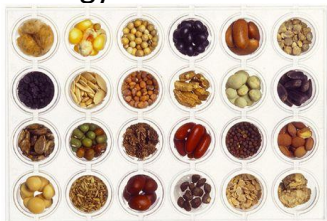


Image: <http://www.raw-living-food-success.com/glycemic-impact.html>



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# Seed Structure

True seed = embryo, storage, coat  
 Monocot vs. Dicot

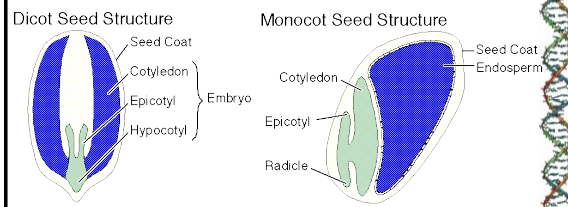


Image: <http://www.cartage.org.lb/en/themes/sciences/botanicalsciences/plantreproduction/PlantPropagation/SeedStructure/SeedStructure.htm>



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# Seed structure

Simpler...

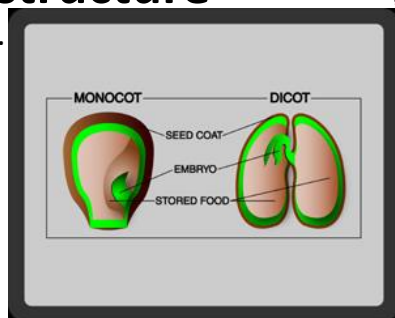


Image: <http://www2.yk.psu.edu/~sg3/st311/games/team3/>



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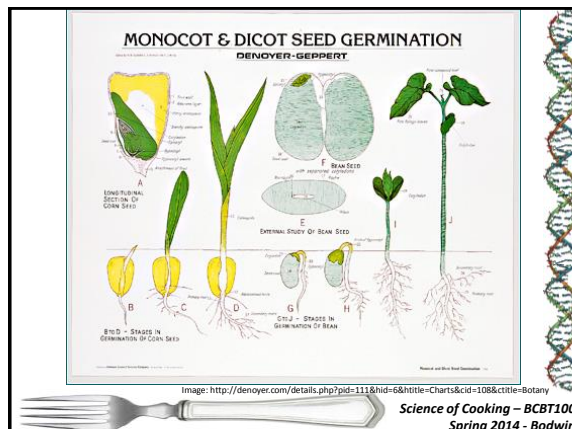


Image: <http://denoyer.com/details.php?pid=111&nid=6&hitle=Charts&cid=108&ctitle=Botany>



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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



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## 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.glucocandychoose.com/kitchen/little-legumes-and-tiny-nuts-pack-in-the-fiber/#.UKoGie7PF1>



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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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