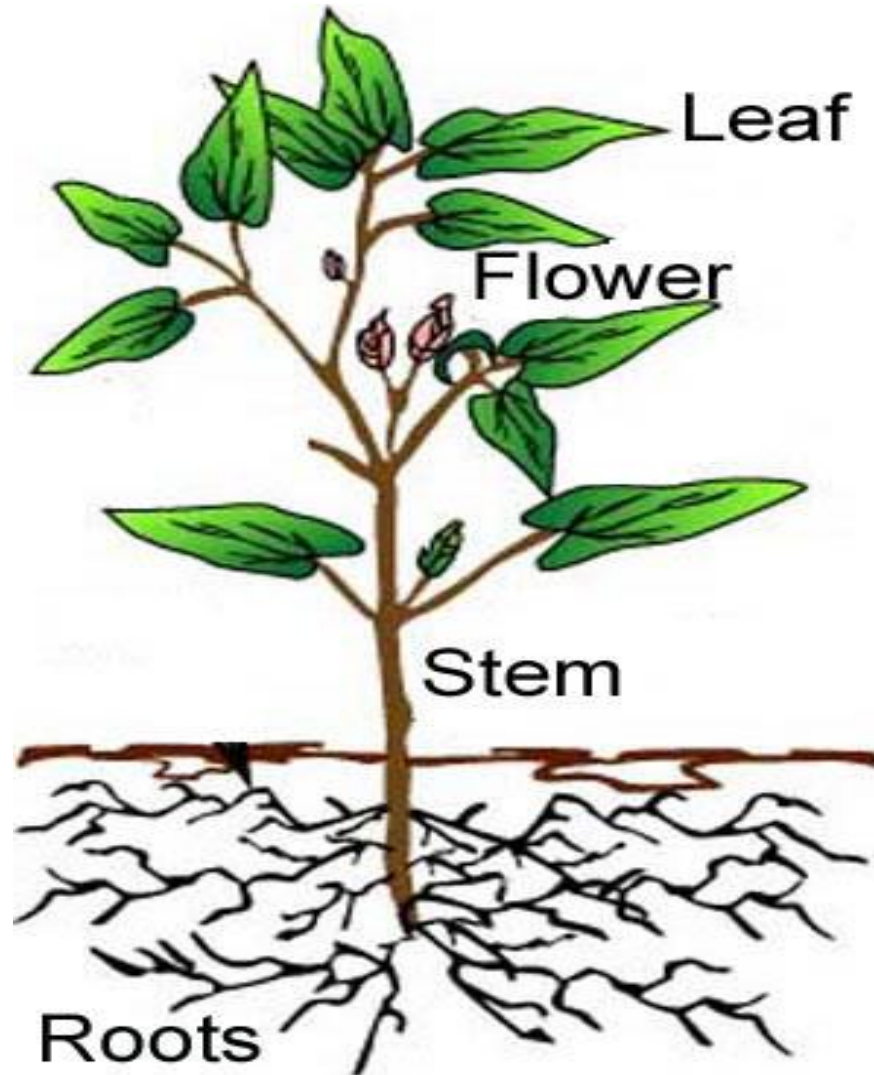
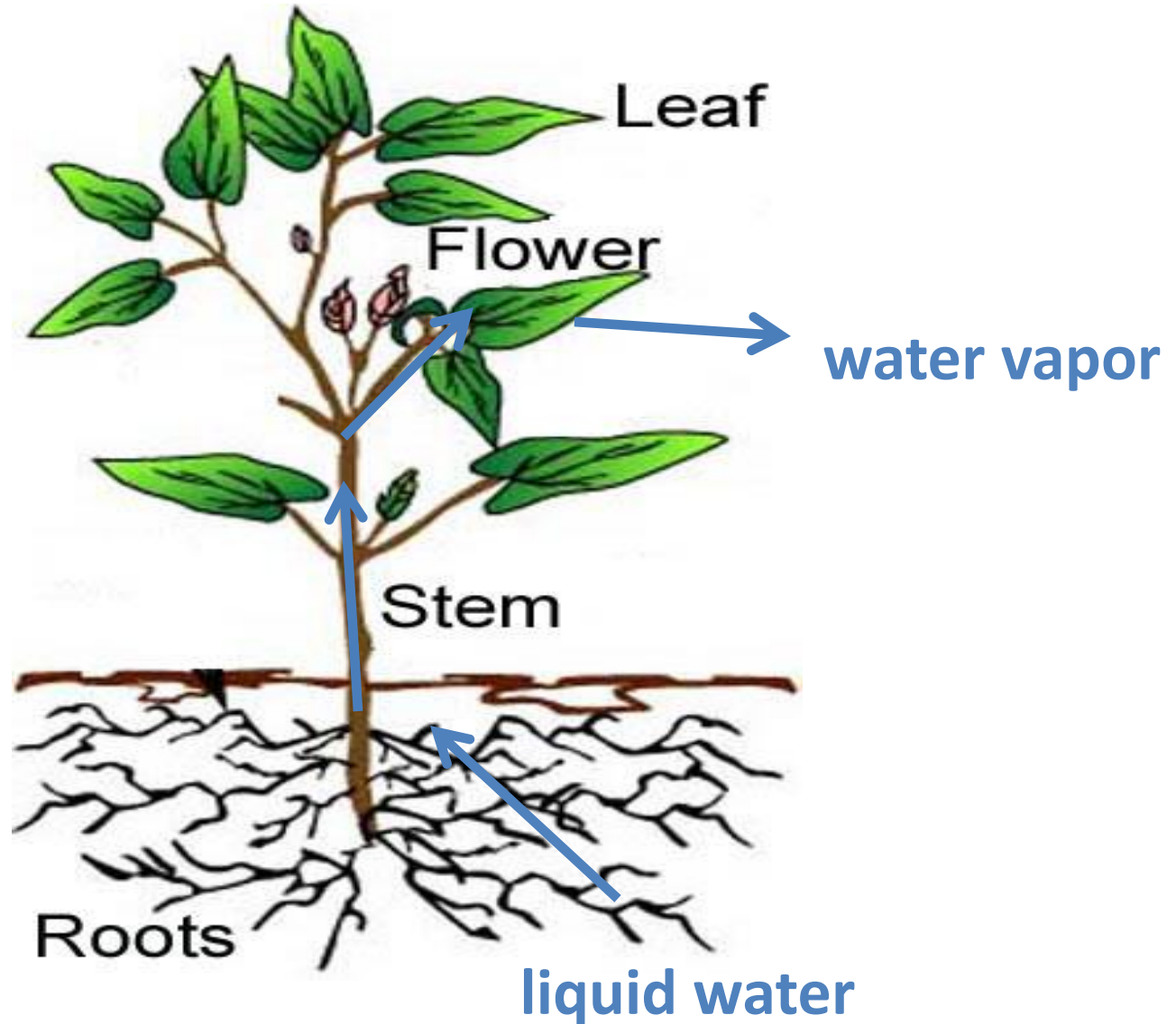


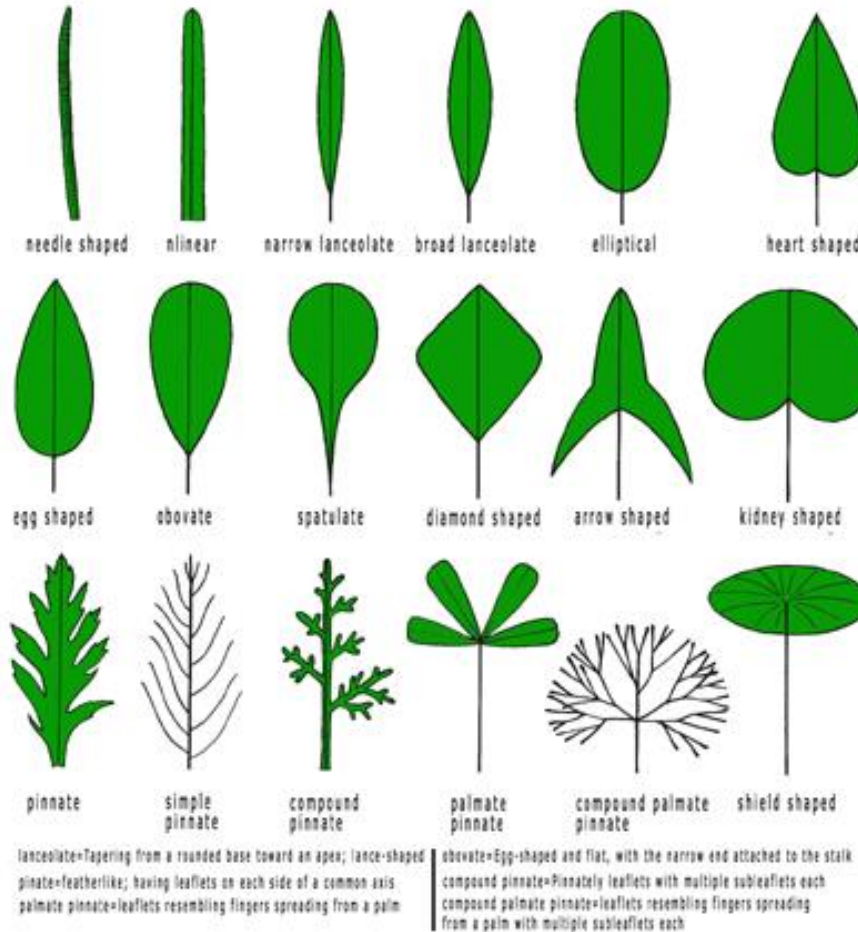
# How does water travel through plants?



# *Transpiration!*



# Leaf Shapes



## III. 3 Leaf Laminae



# Plant adaptations to water



Lots of water



Some water

Very little water





- What do desert plants have to do?
  - adapt to survive with little water.
- 3 types of adaptations:
  - store water in stem
  - small or narrow leaves
  - waxy leaves



[http://www.h2ouniversity.org/assets/images/tree\\_mesquite\\_leaf150.jpg](http://www.h2ouniversity.org/assets/images/tree_mesquite_leaf150.jpg)



[http://www.penick.net/digging/images/Ice\\_agave%20leaf.JPG](http://www.penick.net/digging/images/Ice_agave%20leaf.JPG)

# Observing transpiration in real leaves.







Sonoran Desert

What differences  
do you see?

Water!



Phoenix urban area



Where do we get the extra water in desert cities?  
Does it rain more in the city than in the desert?



<http://www.archithings.com/wp-content/uploads/2010/01/Luxury-Modern-Desert-House-In-Paradise-Valley-Swimming-Pool-588x441.jpg>

[http://www.bigblockblog.com/blog/wp-content/uploads/2009/05/hand\\_car\\_wash\\_sponge-150x150.jpg](http://www.bigblockblog.com/blog/wp-content/uploads/2009/05/hand_car_wash_sponge-150x150.jpg)



No... river water travels long distances to the city in  
canals built by people.



[http://www.azlitter.org/scottsdale/20051116/002\\_ArizonaCanalSign.jpg](http://www.azlitter.org/scottsdale/20051116/002_ArizonaCanalSign.jpg)

[http://www.saltriverexplorer.com/images/canal\\_glendale.jpg](http://www.saltriverexplorer.com/images/canal_glendale.jpg)

Cities pump groundwater up from aquifers.





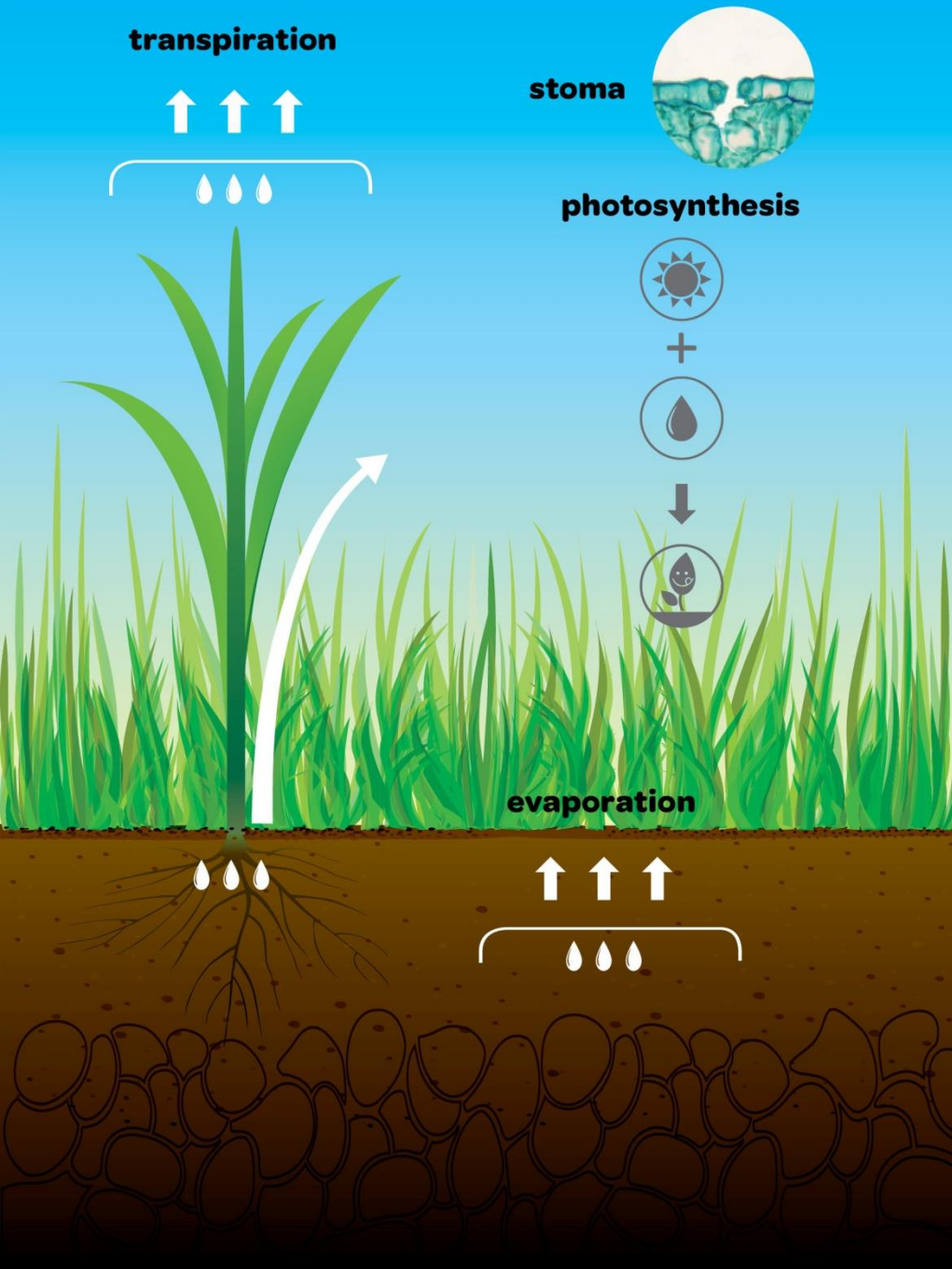


Humans change the desert  
in urban areas.

More water means more  
types of non-desert plants  
can survive in cities.

This means less Sonoran  
desert and less water for  
other uses.

# Evapotranspiration



Water loss from the earth to the atmosphere is called **evapotranspiration**.

This includes evaporation from plants and other surfaces like soil.



# Landscaping: what should we choose?





# Which plants are better water savers?



Sonoran desert plants



common city plants

