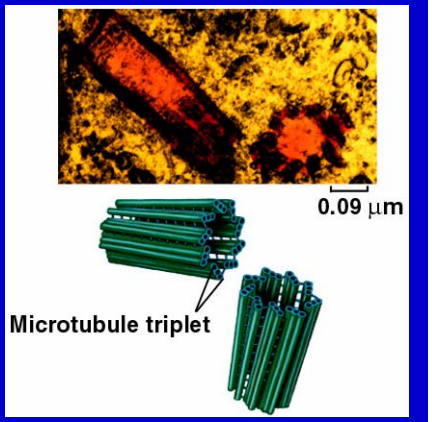
Chloroplasts
have their own DNA, similar to prokaryotic DNA
Can synthesize many of their own proteins using prokaryote-like ribosomes
Synthesize many, but not all, of their own proteins
Replicate through division similar to prokaryotic cell division

Chloroplasts can take on other functions
_____ synthesize and store starch in roots and tubers
_____ have pigments and give fruits ripened color

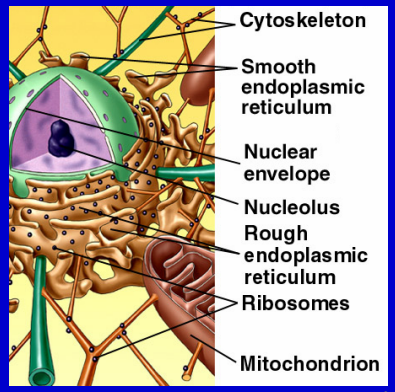
Centrioles - are part of specialized region of the cell called the **centrosome** (cell center)

found in animals and most protists
the centrioles are involved in the production of **microtubules**
microtubules have many functions including moving chromosomes during cell division
centriole structure - 9 triplets of microtubules surrounding a hollow core - _____
similar to the basal body of flagella

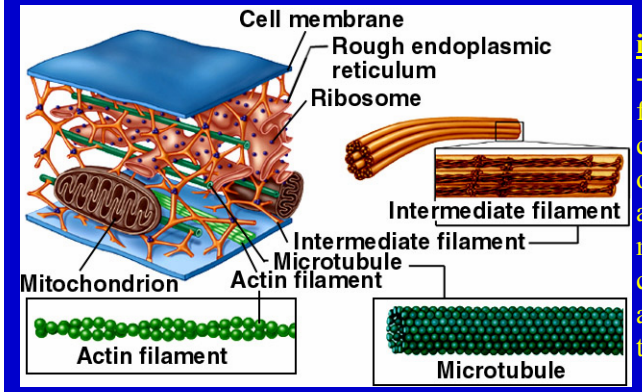


Cytoskeleton - scaffolding of proteins that transport materials, position and move organelles, maintain and change cell shape, and organize enzymes into functional associations
3 components - **actin filaments**, **microtubules**, and **intermediate filaments**

all are polymers of smaller protein subunits -
lengthen through addition of polymer subunits,
shorten through _____



actin filaments - involved in cell movements and in membrane deformations - smallest components of the cytoskeleton
microtubules - hollow tubes made of proteins called **tubulins** responsible for cell movements and movements of organelles within the cytoplasm, movement of chromosomes during cell division - largest components of the cytoskeleton



intermediate filaments - 8 stranded protein fibers - play a role in cell structure, anchoring organelles and in transport of materials within the cytoplasm
anchor neighboring cells to each other in tissues