

hey

All About Mitosis & Meiosis

Compare and Contrast: Mitosis and Meiosis

Mitosis: 2 identical, diploid cells. 1 stage

Meiosis: 4 unique, haploid cells. 2 stages. Lacks Prometaphase

Plants have both lipids & proteins in their plasma membrane

Bacteria have peptidoglycan in their cell walls.

- cellulose,
hemicellulose,
lignin

What's the difference between a nucleus and ^{Nucleoid} nucleolus? What cells are they found?

Nucleus: eukaryotes, membrane bound

Nucleoid: prokaryotes, no membrane

Nucleolus: eukaryotes, Part where rRNA is made

The cytoskeleton is made up of what that give the cell structure? What are they made of?

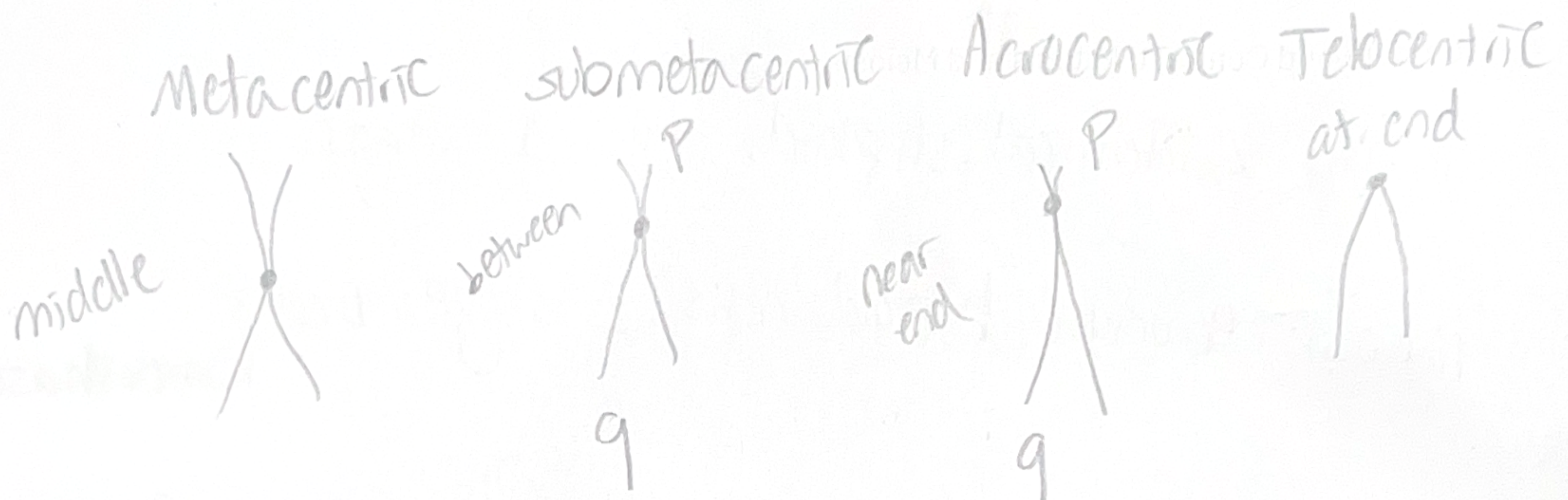
microtubules: tubulin

microfilaments: actin

What is so unique about mitochondria and chloroplasts?

They have their own DNA
(endosymbiotic theory)

Draw the 4 centromere locations and label each. For those that apply, also label the p and q arms.



q = long p = short

Brian dump: How and when do the sister chromatids get pulled apart? Include seperase, cohesion, shugosin, and kinetochore proteins.

sister chromatids are held together with cohesin at the centromere. Cohesion is protected by shugoshin. Seperase will degrade cohesin so that kinetochore proteins can pull the sister chromatids apart

What stage in interphase do cancer cells skip?

G₁

List all stages of mitosis. Which of these stages gets "skipped" in meiosis?

- ① Prophase
- ② Prometaphase
- ③ metaphase

- ④ Anaphase
- ⑤ telophase

Prometaphase is "skipped"

Describe each phase of mitosis:

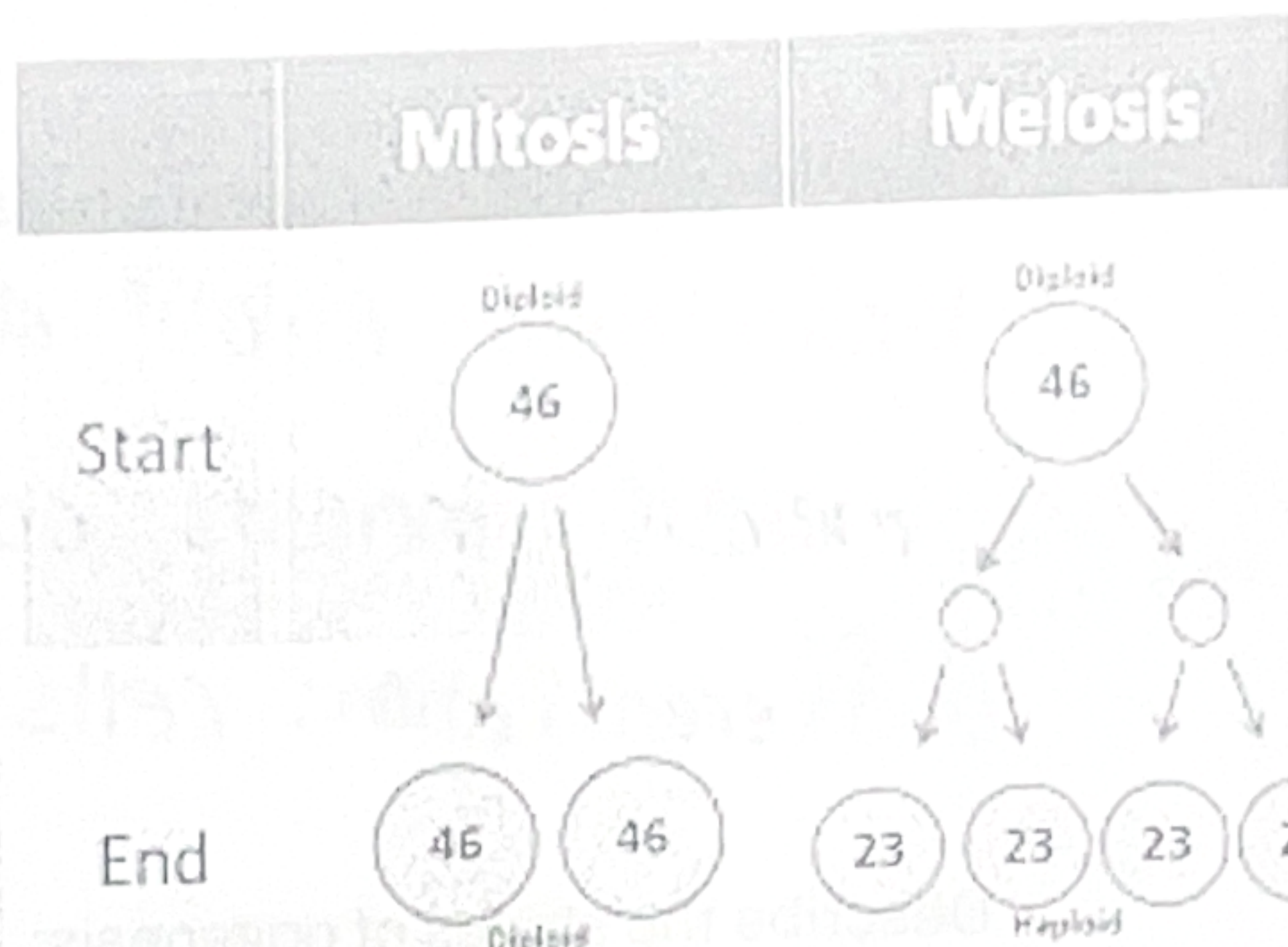
- Prophase: Poles established and nuclear envelope breakdown
- Prometaphase: chromosomes begin migrating to equatorial plane
- metaphase: chromosomes are now aligned in the middle
- Anaphase: sister chromatids are pulled apart
- telophase: cytoplasm splits and 2 daughter cells are made

What is crossing over? Why is it important? Does it happen in both mitosis and meiosis?
genetic material is "shuffled".

It increases genetic diversity
It only happens in meiosis.

Why does meiosis have 2 stages?

In order to create 4 haploid gametes.



Describe the stages of spermatogenesis:

Proliferation: mitotic divisions

meiotic: meiosis occurs to create unique, haploid gametes

differentiation: cells turn into sperm



Describe the stages of oogenesis:

1. Prenatal mitotic divisions
2. Nuclear arrest (sleep) until puberty
3. cells grow and resume meiosis

No more mitosis = limited gametes

Starting from an ootid, describe the initial stages and what happens after fertilization:

After the 2 pronuclei fuse, an embryo is formed.

This then forms a single cell egg known as a zygote. cleavage begins and cells divide. These

cells are blastomeres. After about 32 form, they make the totipotent morula. As more cells form and the cells differentiate, the

fetus and conceptus are formed.