

hey

## Mitosis & Meiosis

Describe the difference between Mitosis & Meiosis:

Mitosis: 2 identical daughter cells ( $2n$ )

Meiosis: 4 unique daughter cells ( $n$ )

What are the two main cell types? What are some examples of each?

Prokaryotic: bacteria

Eukaryotic: animals and plants

Bacteria cells have peptidoglycan in their cell walls.

The Nucleus is found in eukaryotes while the Nucleoid is found in prokaryotes and it is where you can find genetic material.

All living organisms have genetic material.

Microtubules are made of: tubulin

Microfilaments are made of: actin

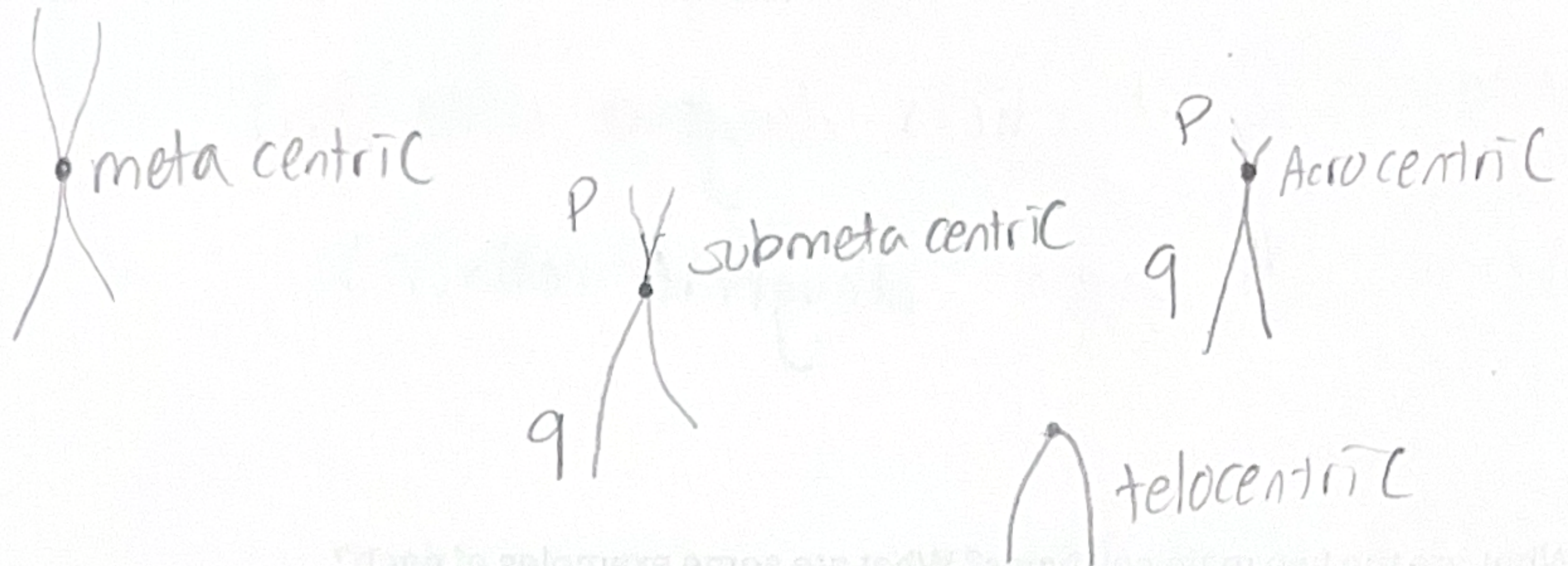
Spindle fibers are made of: microtubules

What region of the nucleus codes for rRNA production?

NOR



Draw and label each of the centromere positions. Label the q and p arms.



Describe the relationship between sister chromatids, seperase, kinetochore proteins, and shugoshin:

sister chromatids are 2 parts of a chromosome that are held together by cohesion. cohesion is protected by shugoshin. During replication, seperase degrades cohesion so spindle fibers can bind to kinetochore proteins and pull them apart.

Describe what takes place during interphase and why it's so important:

DNA replication!

It's important for mitosis and meiosis to occur.

What are the different phases of interphase? Can you describe them?

- ①  $G_1 \rightarrow$  growth
- ②  $S \rightarrow$  DNA synthesis
- ③  $G_2 \rightarrow$  growth
- ④  $G_0 \rightarrow$  "quiescent"



What are the 5 stages of mitosis?

Prophase, Prometaphase, metaphase, Anaphase,  
and telophase

Describe what is needed for chromosomes to be homologous.

Identical length, identical centromere placement,  
locus, and carry genes for the same traits

Compare and contrast Bacteria and plants Plasma membranes.

Bacteria: peptidoglycan

Plants: cell wall w/ Polysaccharides)

What are the three structural carbohydrates of the cell wall in plants?

cellulose, hemicellulose, and lignin

What is unique about mitochondria and chloroplasts?

They have their own DNA and are  
from the maternal DNA.