

- CELL STRUCTURE AND FUNCTION

BE PREPARED FOR THE TEST BY:

1. Re-reading the chapter & re-viewing your notes & worksheets

Be able to state the cell theory. ALL ORGANISMS MADE OF CELLS; CELLS BASIC UNIT OF STRUCTURE & FUNCTION; CELLS COME FROM EXISTING CELLS

Know the people responsible for the cell theory. VIRCHOW, SCHLEIDEN, & SCHWANN

How do cells compare in size?

PLANT CELL > ANIMAL CELL > BACTERIAL CELL

CELL MEMBRANE:

What are cell membranes made of? PHOSPHOLIPIDS & PROTEINS

How are membranes arranged?

PHOSPHOLIPIDS make a BILAYER with POLAR HEADS FACING OUT and HYDROPHOBIC TAILS FACING IN

Which molecule in cell membranes helps cells recognize "self"? GLYCOPROTEINS

What is the cell membrane's function? CONTROLS WHAT ENTERS AND LEAVES CELL; HOMEOSTASIS

What do we call membranes that allow certain molecules pass through and keep others out? = SELECTIVELY PERMEABLE

NUCLEUS:

What is the nucleus like? Has a DOUBLE MEMBRANE and CONTAINS DNA

What structure surrounds the DNA and controls what enters and leaves the nucleus? : NUCLEAR MEMBRANE

What is the dark spot in the nucleus called? NUCLEOLUS

What is the job of the nucleolus? MAKES RIBOSOMES

What do we call DNA that is TIGHTLY PACKED in DIVIDING CELLS? = CHROMOSOMES

What do we call DNA that is SPREAD OUT in NON-DIVIDING CELLS? = CHROMATIN

What is the function of the nucleus? CONTROL CENTER of cell; CONTAINS DNA

CYTOPLASM:

What is the gel-like material and organelles called inside the cell membrane? CYTOPLASM

MITOCHONDRIA:

Looks like/Made of ? : Have a DOUBLE MEMBRANE and OWN DNA

What is the folded inner membrane called? = CRISTAE

What is the function of mitochondria? POWERPLANT

What molecules is burned for fuel in mitochondria? BURNS GLUCOSE

Mitochondria store the energy released from burning glucose as which molecule? ATP

GOLGI BODIES:

Made of: MEMBRANE SACS

Looks like: STACK OF PANCAKES

What is the function of Golgi bodies? SORT and PACKAGE MOLECULES FOR TRANSPORT OUT OF CELL

How do materials get to & from Golgi? RECEIVES PROTEINS FROM ROUGH ER IN VESICLES AT CIS FACE; MODIFIED & SHIPPED IN VESICLES FROM TRANS FACE

CENTRIOLES:

What do centrioles look like? LOG-LIKE STRUCTURES made of PROTEINS

Centrioles are found ONLY in which kind of cells? ONLY IN ANIMAL CELLS

What is the function of Centrioles? PULL CHROMOSOMES APART DURING CELL DIVISION

RIBOSOMES:

Looks like: polka dots

Where are ribosomes found? FREE IN CYTOPLASM or ATTACHED TO ROUGH ER

What is the function of ribosomes? MAKE PROTEINS

LYSOSOMES: (also called suicide sacs)

What are lysosomes? SAC OF DIGESTIVE ENZYMES

FUNCTION: BREAK DOWN FOOD, UNWANTED CELLS OR CELL PARTS

What is APOPTOSIS? Programmed cell death; Cell suicide for good of organism

ENDOPLASMIC RETICULUM (ER)

What is ER ? : NETWORK OF MEMBRANES

WITH RIBOSOMES ATTACHED = ROUGH ER

WITHOUT RIBOSOMES = SMOOTH ER

FUNCTIONS:

ROUGH ER- TUBULES; MAKES & TRANSPORT S PROTEINS FOR EXPORT FROM CELLS

SMOOTH ER- MAKE LIPIDS & PROTEINS USED IN CELL, REGULATE CALCIUM; BREAK DOWN TOXINS

CHLOROPLASTS:

What are chloroplasts like? Have a DOUBLE MEMBRANE and OWN DNA

What are the membrane sacs inside chloroplasts called? = THYLAKOIDS

What is the only kind of cells that have chloroplasts? ONLY IN PLANTS

FUNCTION: PHOTOSYNTHESIS=USE SUNLIGHT TO MAKE FOOD

VACUOLE:

What are vacuoles like? STORAGE SPACE

FUNCTION: STORES WATER, FOOD, ENZYMES, WASTE

How large are vacuoles? HUGE in PLANTS ; SMALL in ANIMALS; NOT in BACTERIA

CELL WALL

Where is the cell wall found? OUTSIDE CELL MEMBRANE

Which kind of cells have cell walls? PLANTS and BACTERIA

How are the cell walls in Plant cells and Bacterial cells different?

Plant cell walls contain CELLULOSE = makes plants STURDY

Bacterial cell walls contain PEPTIDOGLYCAN

What is the function of cell walls? SUPPORT, PROTECTION

WHICH CELL PARTS HAVE A DOUBLE MEMBRANE AND THEIR OWN DNA?

NUCLEUS, MITOCHONDRIA, CHLOROPLASTS

WHAT ARE CELLS CALLED THAT HAVE NO NUCLEUS and NO ORGANELLES WITH MEMBRANES? PROKARYOTES

WHICH ARE CELLS CALLED THAT HAVE A NUCLEUS and ORGANELLES WITH MEMBRANES? EUKARYOTES

WHICH KINDS OF CELLS ARE EUKARYOTES? PLANTS and ANIMALS

WHICH KINDS OF CELLS ARE PROKARYOTES? BACTERIA

BE ABLE TO COMPARE BACTERIA, PLANT, AND ANIMAL CELLS.

HOW ARE THEY ALIKE and DIFFERENT?

KNOW THE PARTS OF THE ENDOMEMBRANE SYSTEM. NUCLEAR ENVELOPE, ROUGH ER, SMOOTH ER, CELL MEMBRANE

KNOW WHY THE SIZE A CELL CAN GROW TO IS LIMITED. VOLUME INCREASES FASTER THAN SURFACE AREA (PLASMA MEMBRANE) SO CELLS MUST DIVIDE IN ORDER TO HAVE ENOUGH SURFACE TO MOVE MATERIALS INTO & OUT OF THE CELL