CELL THEORY

-ALL LIVING THINGS ARE COMPOSED OF CELLS

-CELLS ARE THE BASIC UNIT OF STRUCTURE AND FUNCTION IN LIVING THINGS

-ALL CELLS COME FROM PRE-EXISTING CELLS

THE CELLS OF PLANTS AND ANIMALS HAVE **3** BASIC STRUCTURES =

CELL MEMBRANE OR OUTER BOUNDARY
NUCLEUS OR CONTROL CENTER
CYTOPLASM EVERYTHING IN-BETWEEN

1 - CELL MEMBRANE

REGULATES WHAT ENTERS AND EXITS THE CELL
PROTECTS AND SUPPORTS
COMPOSED OF LIPIDS
PHOSPHOLIPID BILAYER
ALSO CONTAINS PROTEIN AND CARBOHYDRATES

CELL WALL

IN PLANT CELLS
COMPOSED OF CELLULOSE (COMPLEX CARBOHYDRATE)
PROTECTS & SUPPORTS & VERY POROUS
PRIMARY CELL WALL = CELLULOSE
SECONDARY CELL WALL = CELLULOSE AND LIGNIN

2 - NUCLEUS

FIRST DESCRIBED BY ROBERT BROWN
DO ALL CELLS HAVE NUCLEI?
ONE OF THE 5 KINGDOMS DOES NOT
MONERAN (OR BACTERIA)
PROKARYOTIC = NO NUCLEUS
EUKARYOTIC = CONTAINS A NUCLEUS

NUCLEUS CONTAINS -
NUCLEIC ACIDS
DNA & RNA
DNA FORM CHROMOSOMES RESPONSIBLE FOR GENETIC INFORMATION
WHICH IS PASSED FROM GENERATION TO GENERATION
INSTRUCTS THE THOUSANDS OF DIFFERENT MOLECULES AND ALL ACTIVITIES

NUCLEOLUS =
RNA & PROTEINS
WHERE RIBOSOMES ARE MADE

NUCLEAR ENVELOPE
2 MEMBRANES AROUND THE NUCLEUS CONTAINS DOZENS OF PORES
ALLOWS RNA TO MOVE IN AND OUT

3 - CYTOPLASM
HOLDS ALL OF THE **ORGANELLES**
SMALL STRUCTURES THAT PERFORM SPECIALIZED FUNCTIONS

ENDOPLASMIC RETICULUM
INTERNAL TRANSPORT

RIBOSOMES
SYNTHESIZE PROTEINS
"FREE" SCATTERED IN THE CYTOPLASM
"BOUND" ATTACHED TO E.R.

SMOOTH E.R. NO RIBOSOMES
ROUGH E.R. HAS RIBOSOMES ATTACHED

DICTYOSOME AKA GOLGI BODY
TO PACKAGE & STORE WASTE, FOOD, PROTEINS ETC.

MITOCHONDRIA
AKA "POWERHOUSE" OF THE CELL
RELEASE ENERGY FROM FOOD TAKEN IN BY THE CELL
HAVE THEIR OWN DNA AND RIBOSOMES
AND CAN REPRODUCE

PLASTIDS FOUND IN PLANT CELLS
SOME CONTAIN FOOD,
SOME CONTAIN PIGMENTS
LEUCOPLASTS STORE FOOD (STARCH) **CHROMOPLAST** CONTAIN RED, YELLOW, ORANGE PIGMENTS
CHLOROPLAST CONTAINS CHLOROPHYLL CAPTURE SUNLIGHT TO MAKE FOOD

VACUOLES
STORE WATER, FOOD, WASTE, ETC.
IN PLANTS THERE IS ONLY ONE -
LARGE CENTRAL VACUOLE

LYSOSOMES
CONTAIN DESTRUCTIVE ENZYMES TO DESTROY BACTERIA, WASTE

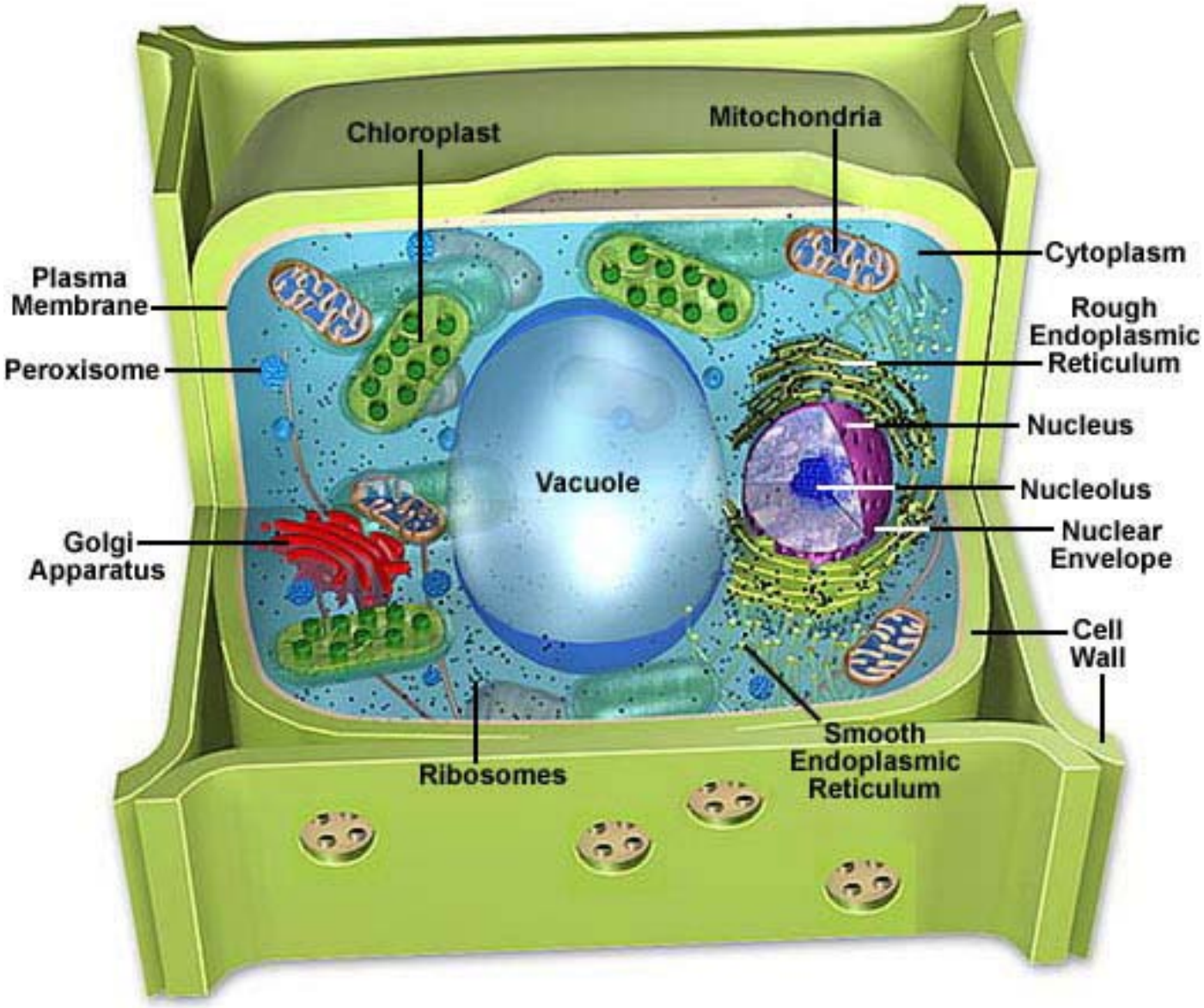
IN ANIMAL CELLS ONLY:

CILIA
SHORT HAIR-LIKE STRUCTURES THAT MOVE THINGS ACROSS THE CELL SURFACE

FLAGELLA
LONG TAIL-LIKE STRUCTURE THAT MOVES THE CELL

CENTRIOLES
IN ANIMAL CELLS ONLY
USED IN CELL DIVISION

THE PLANT CELL



THE ANIMAL CELL