

**PLOIDY LEVEL**



**PLOIDY LEVEL**

**NUMBER HOMOLOGOUS  
CHROMOSOME SETS/CELL**

**PLOIDY LEVEL**

# HOMOLOGOUS CHROMOSOME SETS

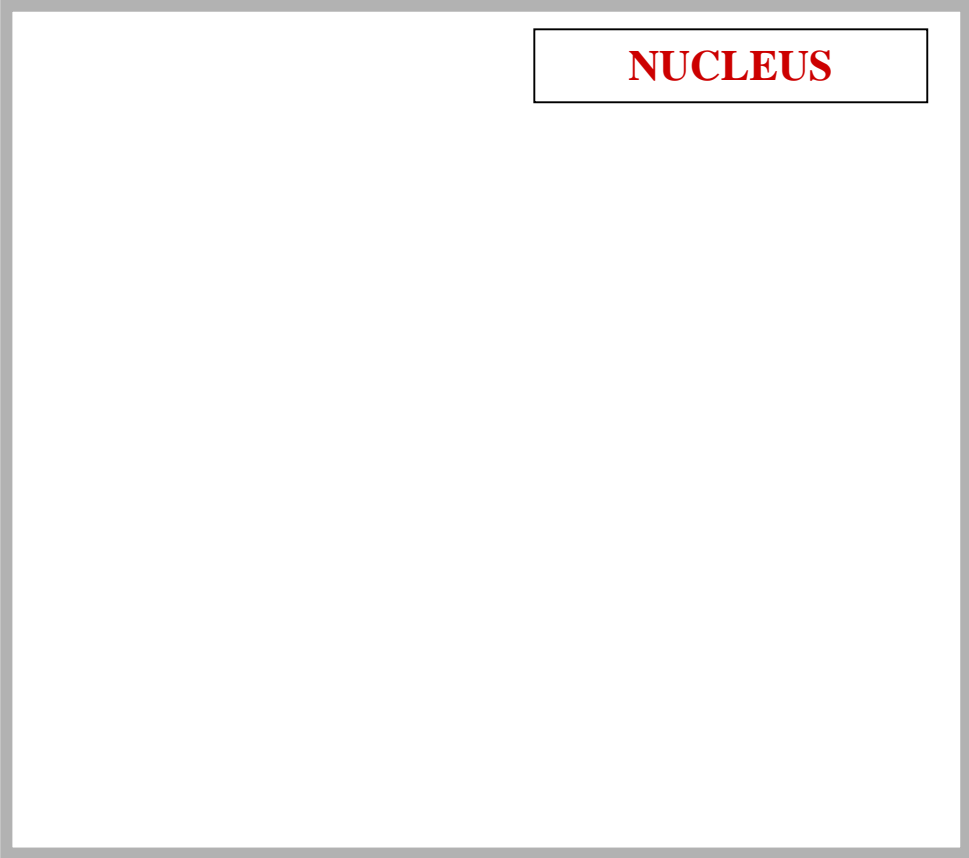


**CELL**

**NUCLEUS**

**CYTOSOL**

**CYTOSOL**

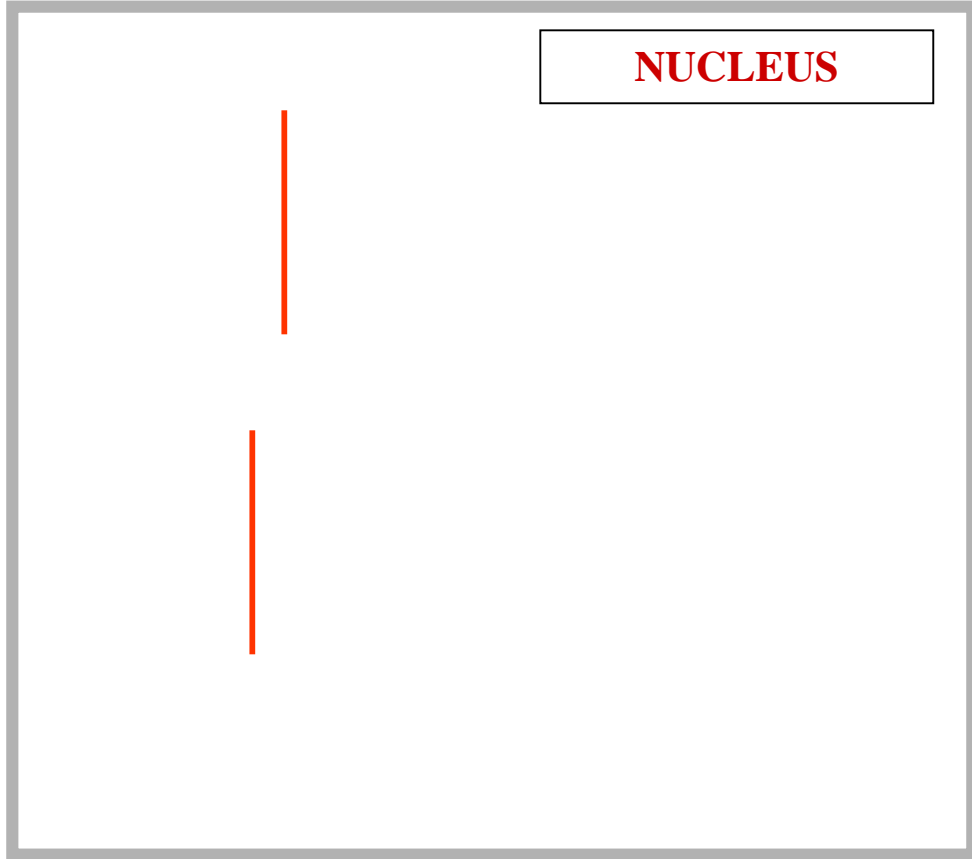


# HOMOLOGOUS CHROMOSOMES SETS

# HOMOLOGOUS CHROMOSOME SETS



**CELL**



**NUCLEUS**

**CYTOSOL**

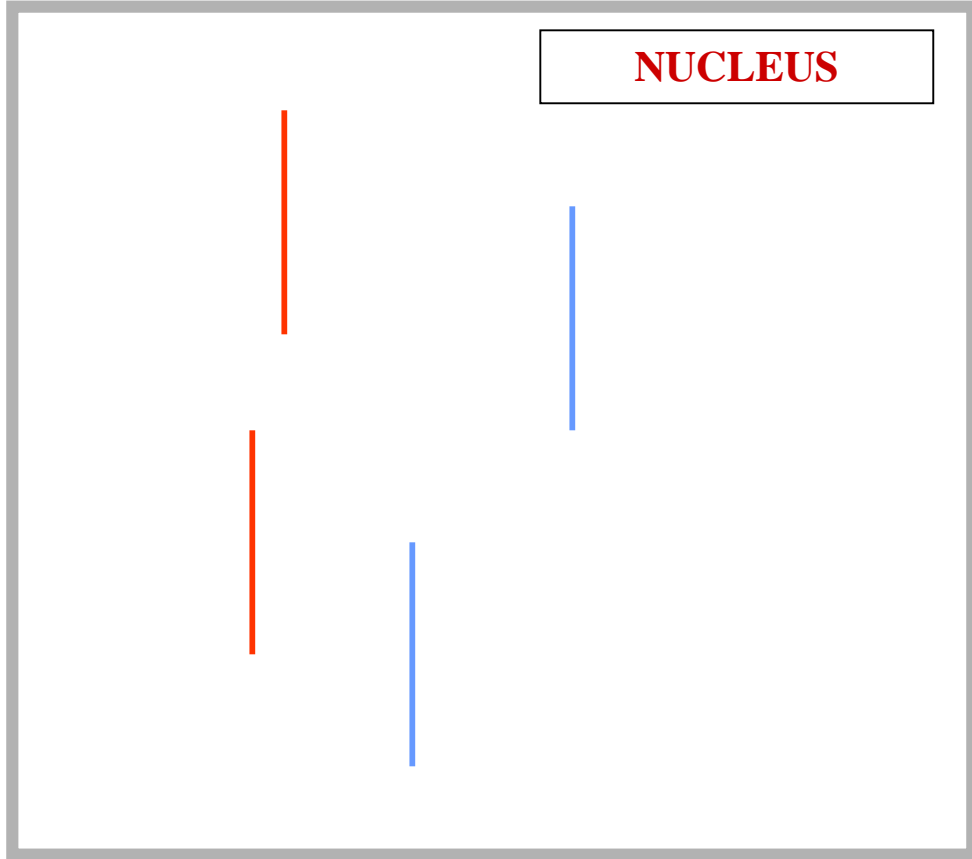
**CYTOSOL**

# HOMOLOGOUS CHROMOSOMES SETS

# HOMOLOGOUS CHROMOSOME SETS



**CELL**



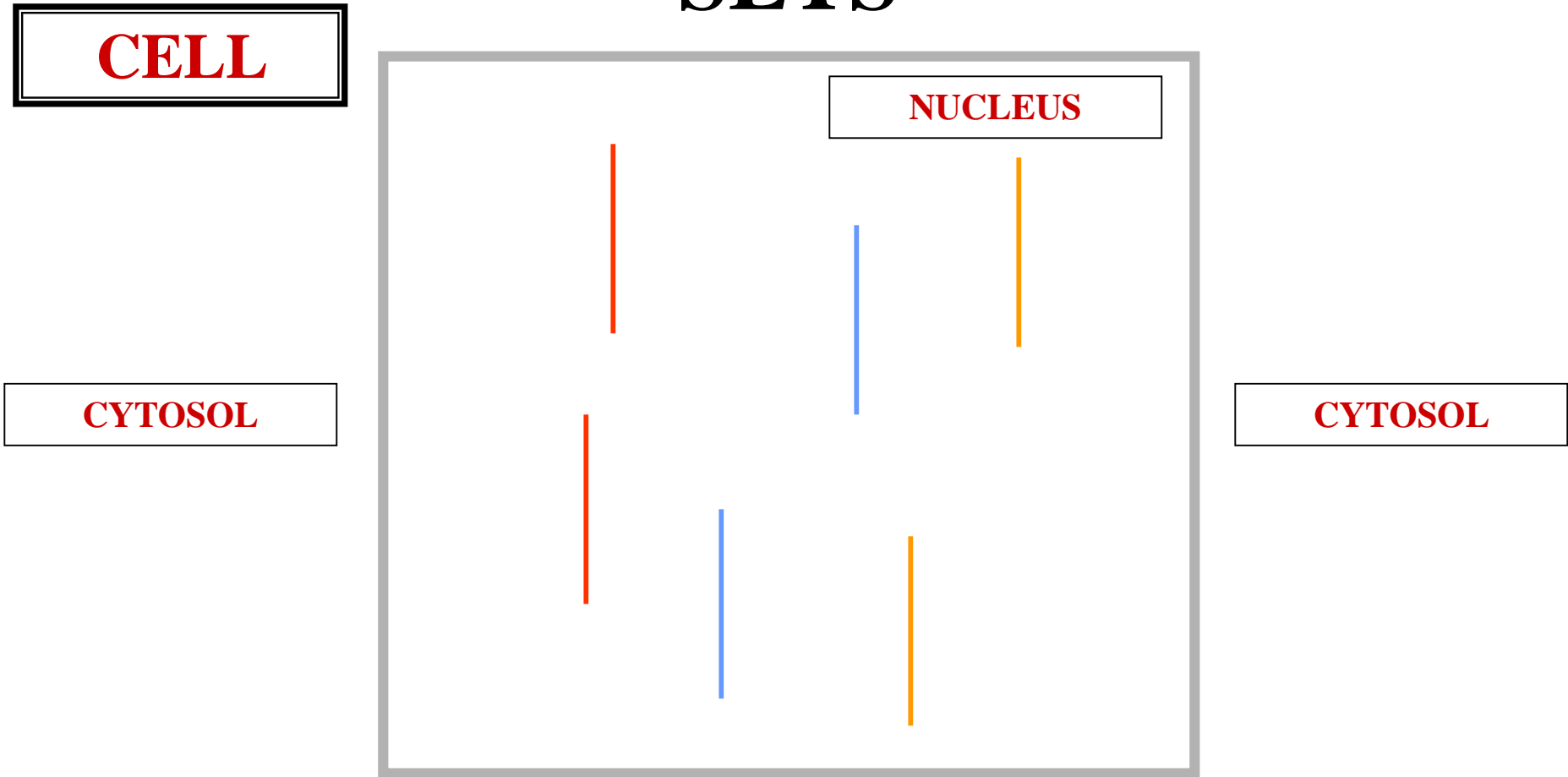
**NUCLEUS**

**CYTOSOL**

**CYTOSOL**

# HOMOLOGOUS CHROMOSOMES SETS

# HOMOLOGOUS CHROMOSOME SETS M



# HOMOLOGOUS CHROMOSOMES SETS

# HOMOLOGOUS CHROMOSOME SETS P

**CELL**

**NUCLEUS**

**M**

**M**

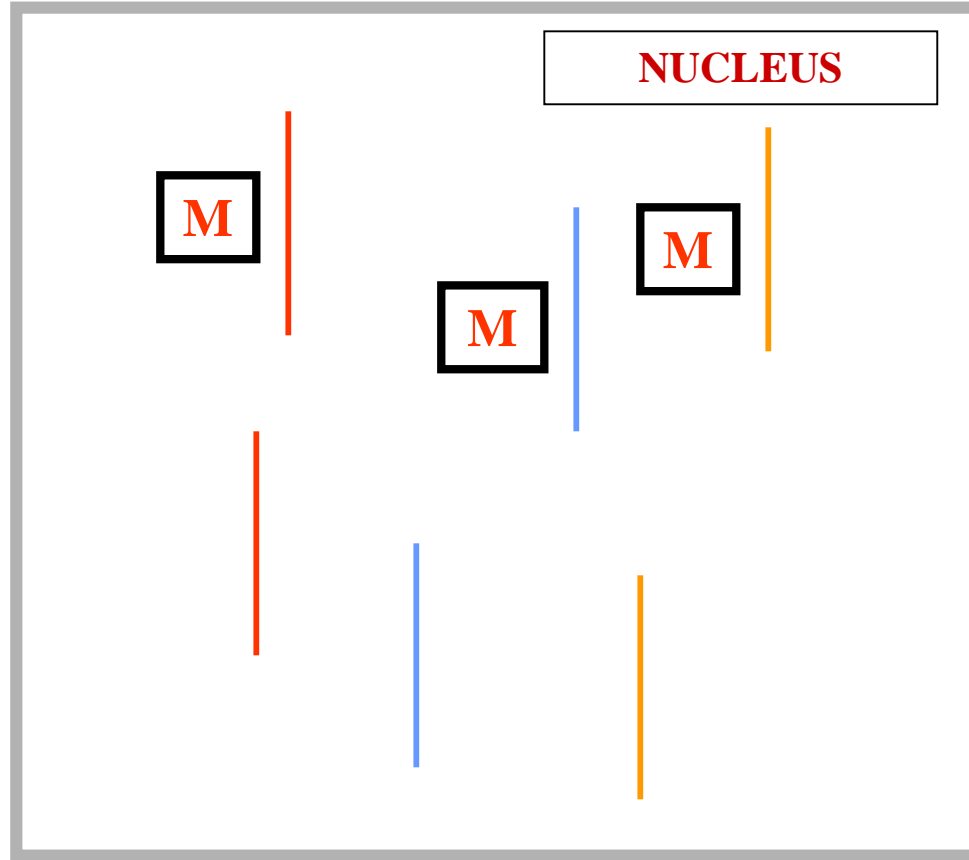
**M**

**CYTOSOL**

**CYTOSOL**

**M**

**= MATERNAL HOMOLOGOUS CHROMOSOMES**



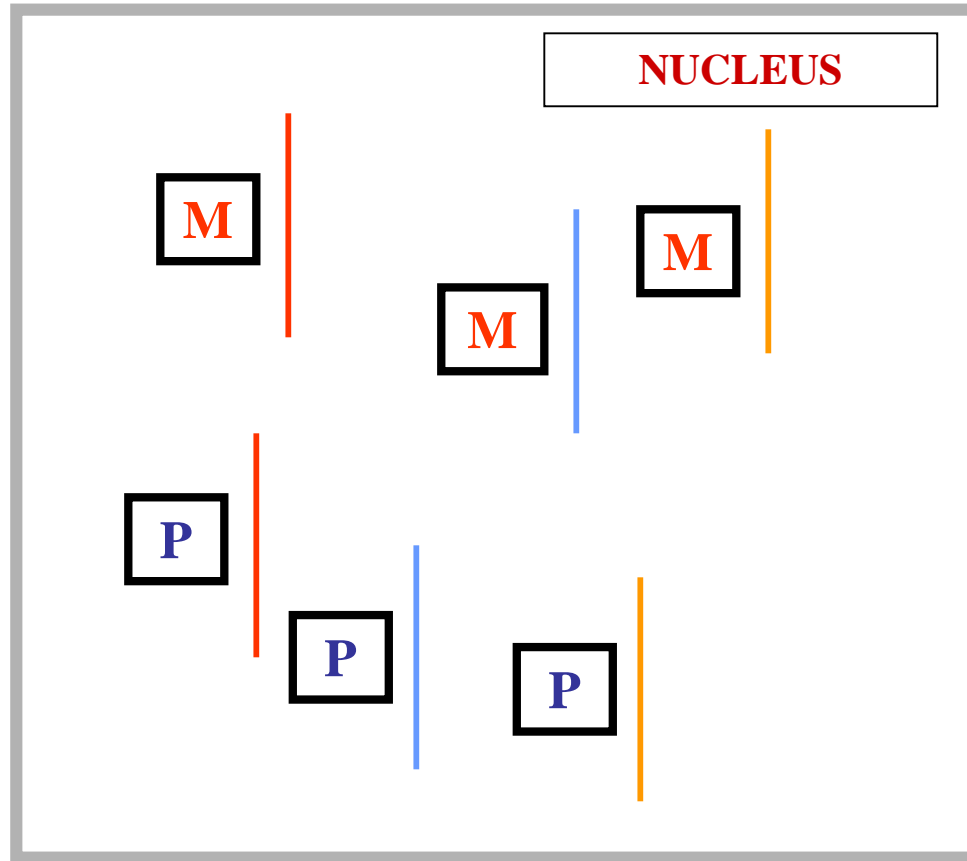
# HOMOLOGOUS CHROMOSOME SETS 1

**CELL**

**NUCLEUS**

**CYTOSOL**

**CYTOSOL**



**M** = MATERNAL HOMOLOGOUS CHROMOSOMES

**P** = PATERNAL HOMOLOGOUS CHROMOSOMES



# HOMOLOGOUS CHROMOSOME SETS

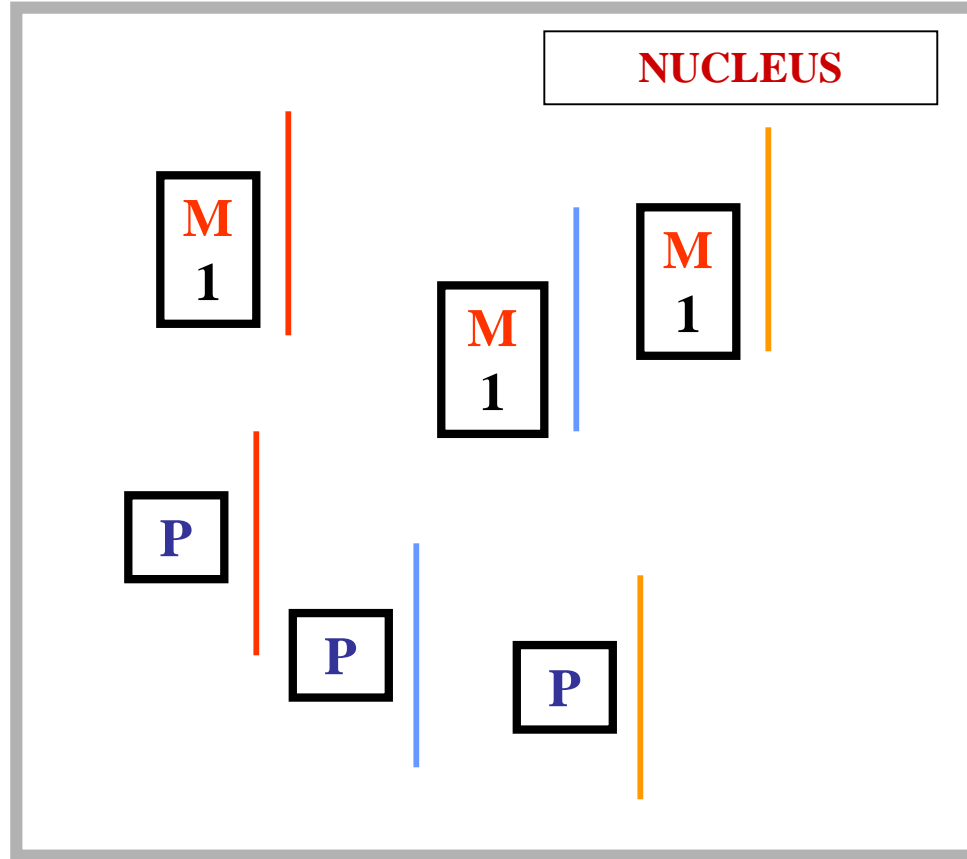
2

CELL

NUCLEUS

CYTOSOL

CYTOSOL



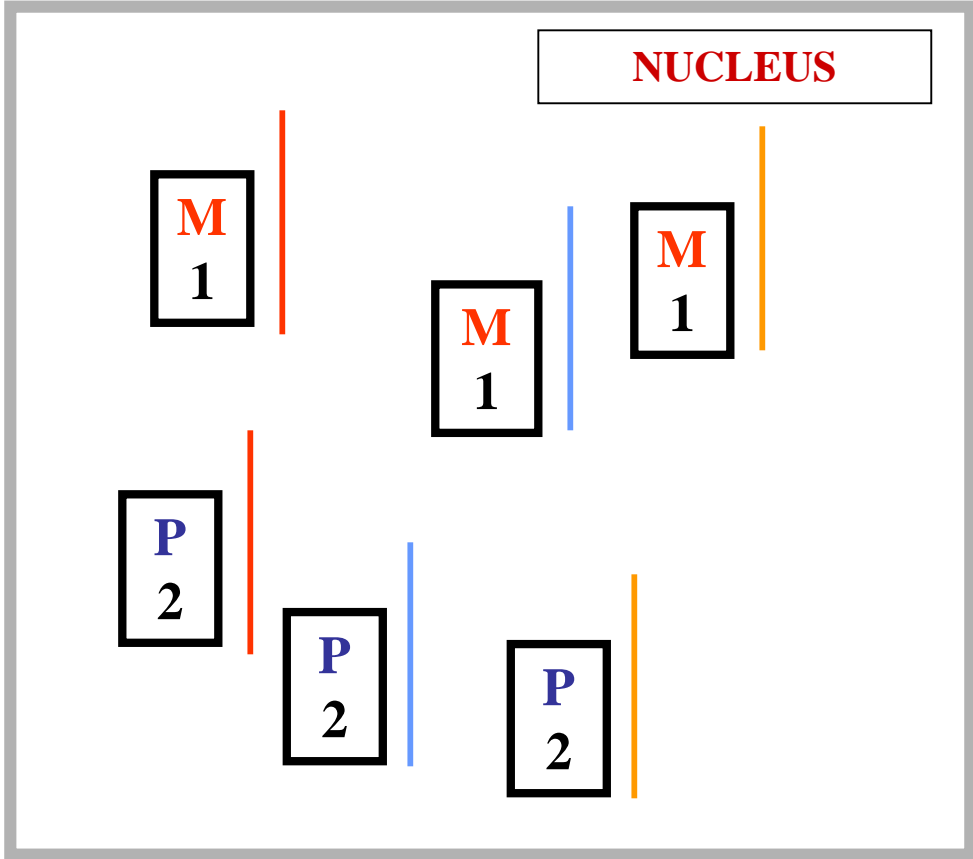
**1** = MATERNAL HOMOLOGOUS CHROMOSOMES

**P** = PATERNAL HOMOLOGOUS CHROMOSOMES

# HOMOLOGOUS CHROMOSOME SETS



**CELL**



**CYTOSOL**

**CYTOSOL**

**1** = **MATERNAL HOMOLOGOUS CHROMOSOMES**

**2** = **PATERNAL HOMOLOGOUS CHROMOSOMES**

**DIPLOID CELL**  
**VS**  
**HAPLOID CELL**

**DIPLOID CELL**



**DIPLOID CELL**

**2 HOMOLOGOUS  
CHROMOSOME SETS/CELL**

**DIPLOID CELL**

# PLOIDY LEVEL

**CELL**

**NUCLEUS**

**CYTOSOL**

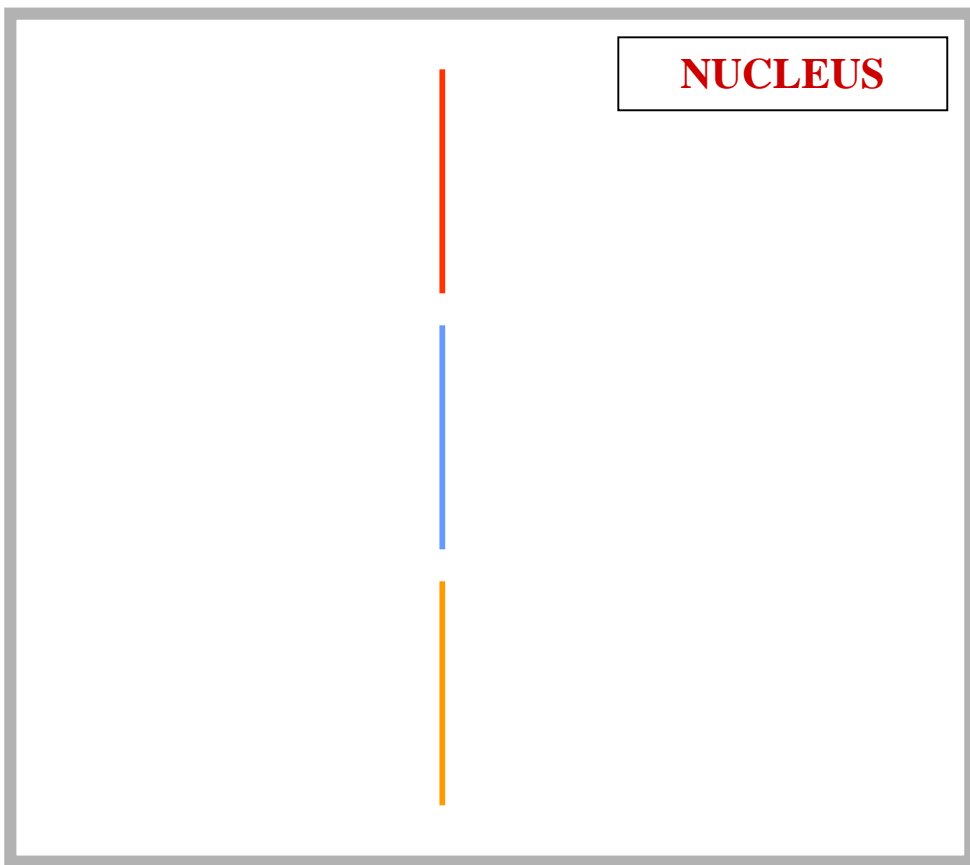
**CYTOSOL**



# PLOIDY LEVEL

# PLOIDY LEVEL

**CELL**



**NUCLEUS**

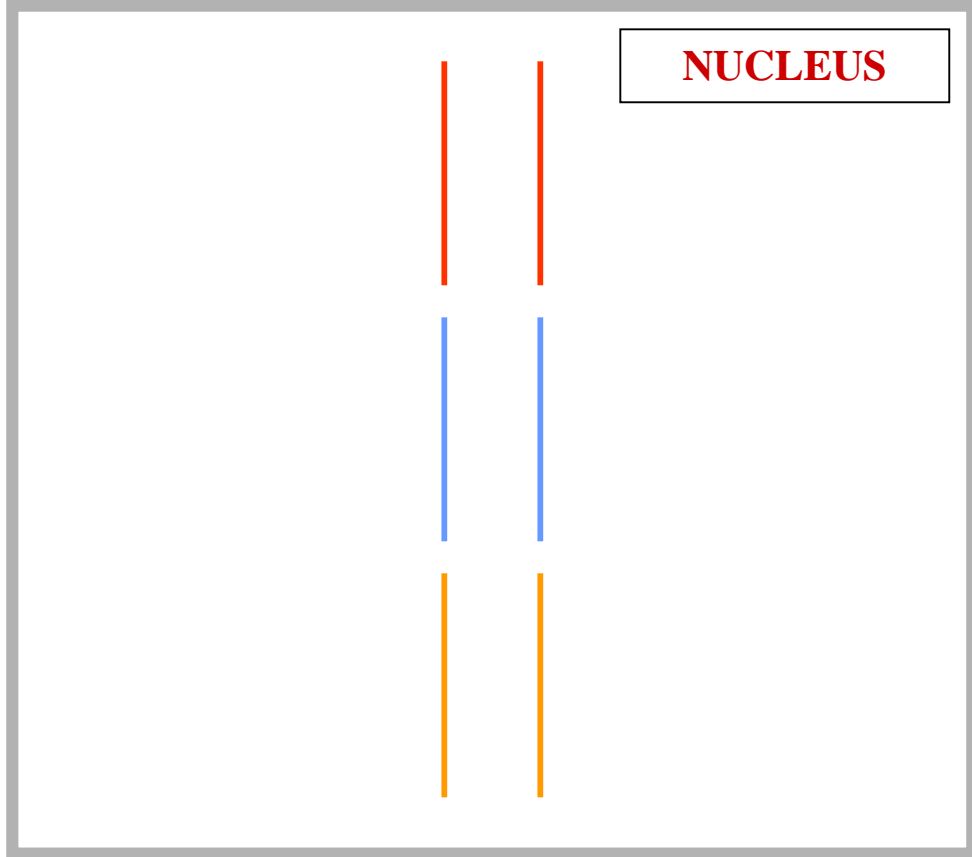
**CYTOSOL**

**CYTOSOL**

# PLOIDY LEVEL

# PLOIDY LEVEL

**CELL**



**NUCLEUS**

**CYTOSOL**

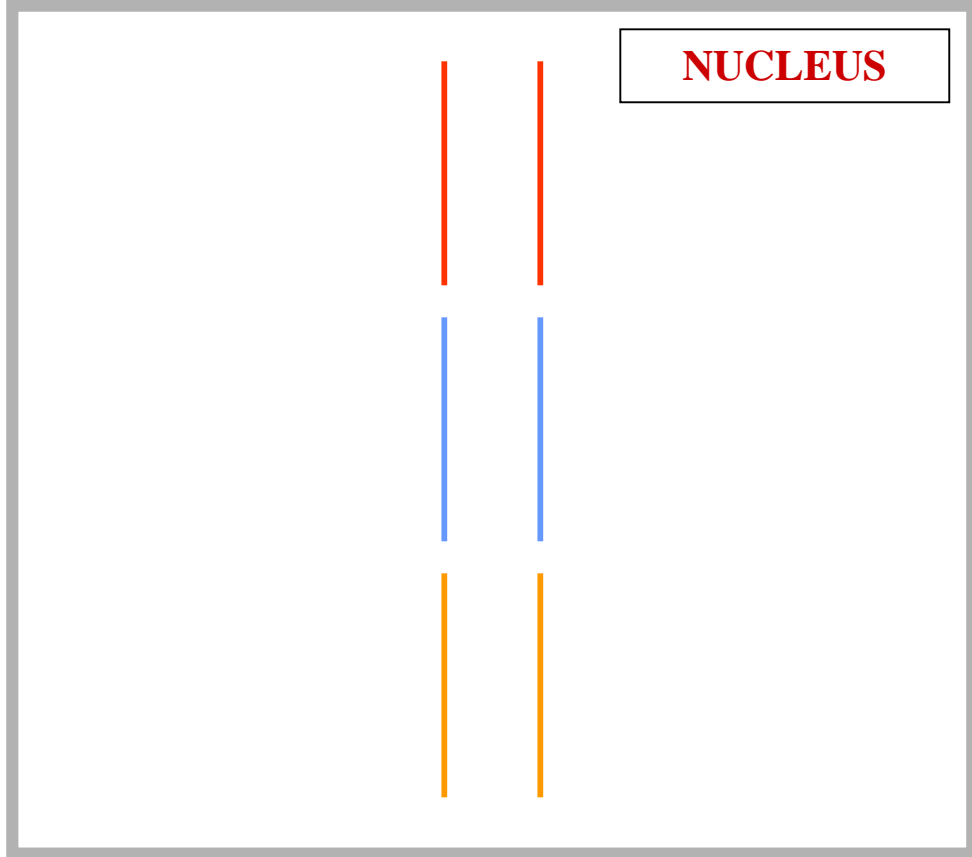
**CYTOSOL**

# PLOIDY LEVEL



# PLOIDY LEVEL

**CELL**



**NUCLEUS**

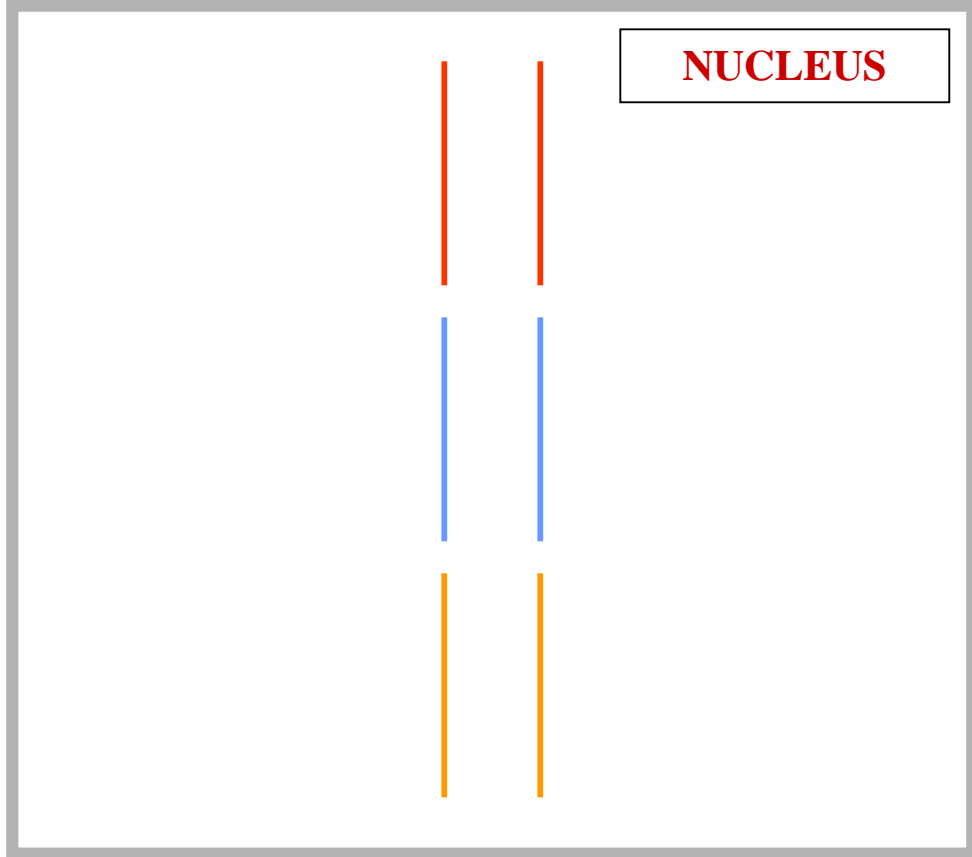
**CYTOSOL**

**CYTOSOL**

**DIPLOID CELL**

# PLOIDY LEVEL

**CELL**



**NUCLEUS**

**CYTOSOL**

**CYTOSOL**

**DIPLOID CELL**

$$2N = 6$$

**HAPLOID CELL**



**HAPLOID CELL**

**1 HOMOLOGOUS  
CHROMOSOME SET/CELL**

**HAPLOID CELL**

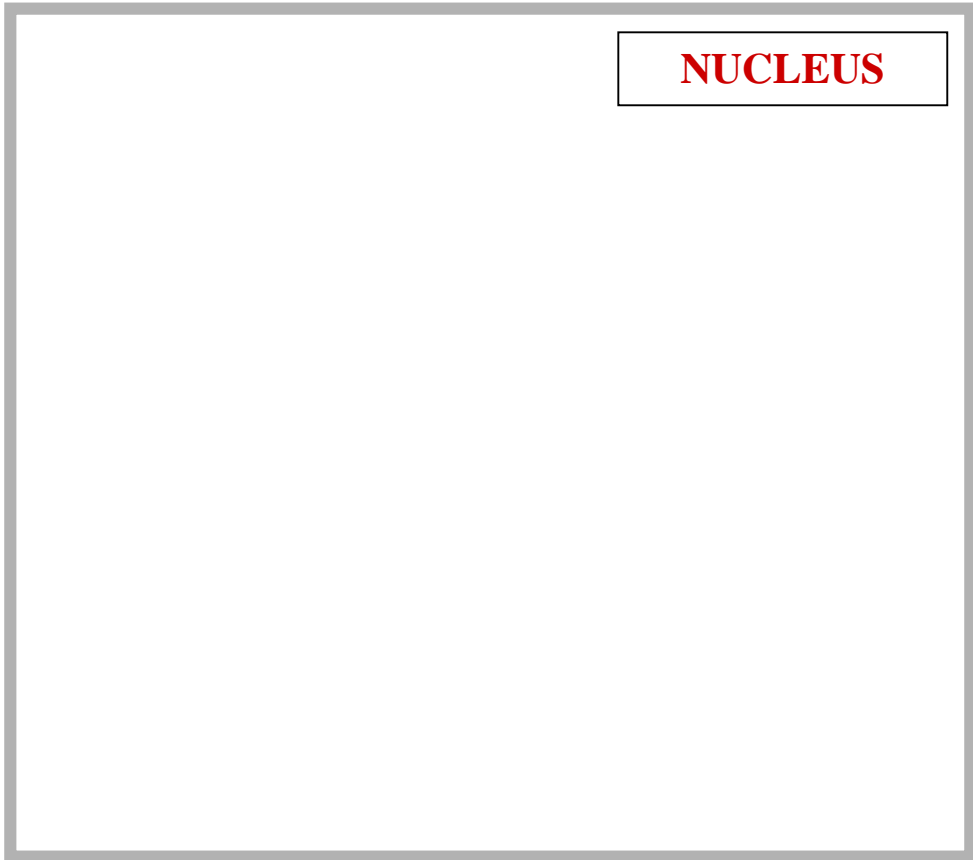
# PLOIDY LEVEL

**CELL**

**NUCLEUS**

**CYTOSOL**

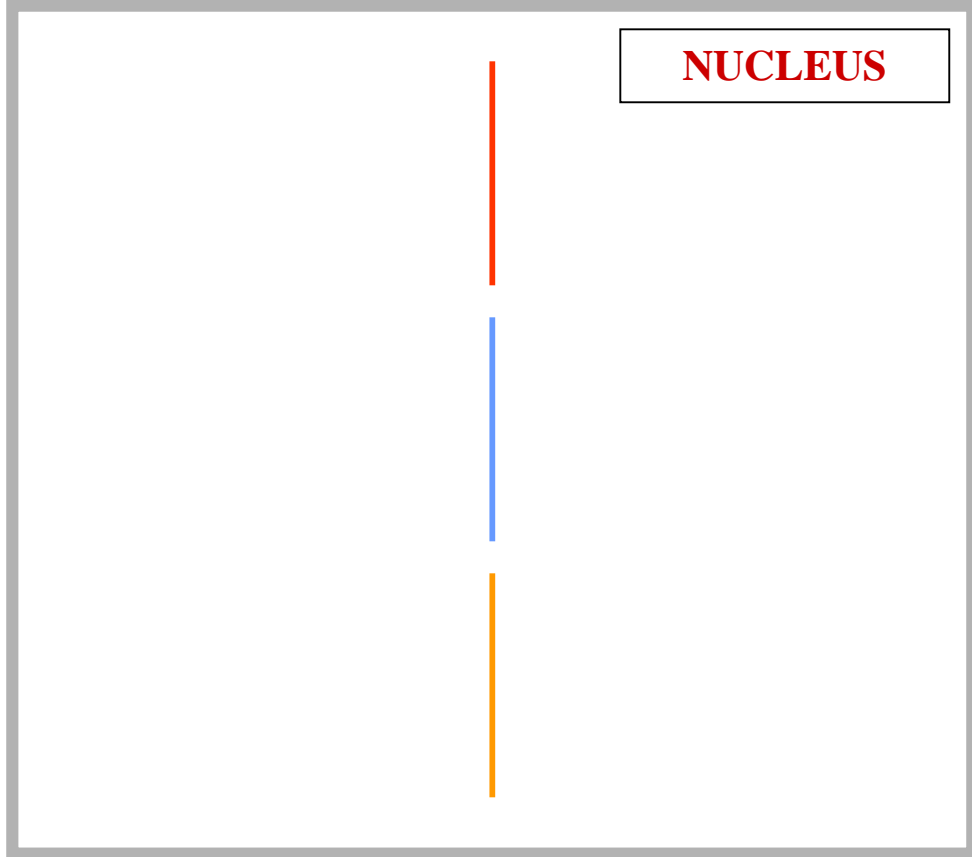
**CYTOSOL**



# PLOIDY LEVEL

# PLOIDY LEVEL

**CELL**



**NUCLEUS**

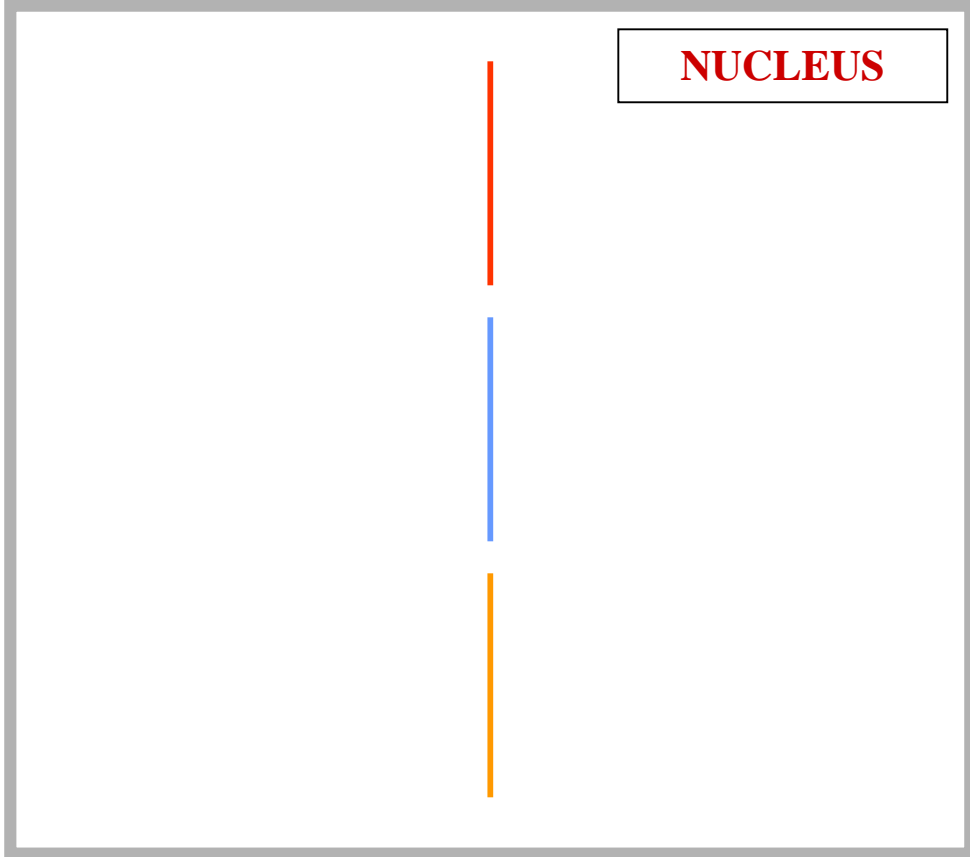
**CYTOSOL**

**CYTOSOL**

# PLOIDY LEVEL

# PLOIDY LEVEL

**CELL**



**NUCLEUS**

**CYTOSOL**

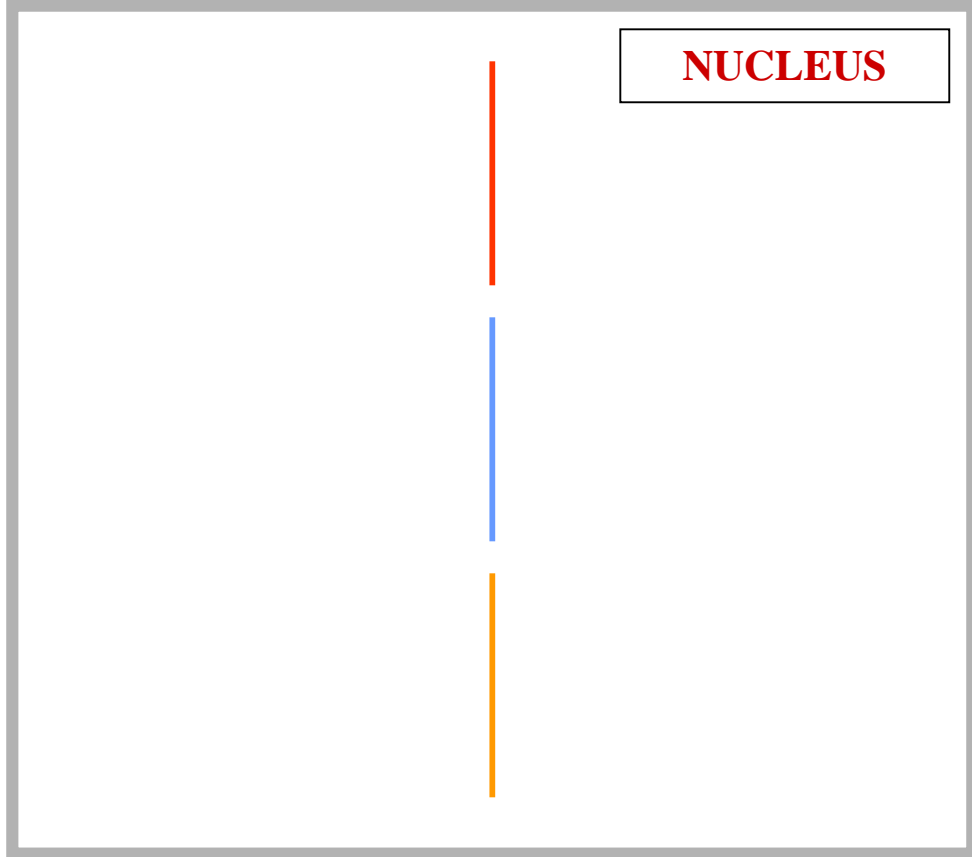
**CYTOSOL**

# HAPLOID CELL



# PLOIDY LEVEL

**CELL**



**NUCLEUS**

**CYTOSOL**

**CYTOSOL**

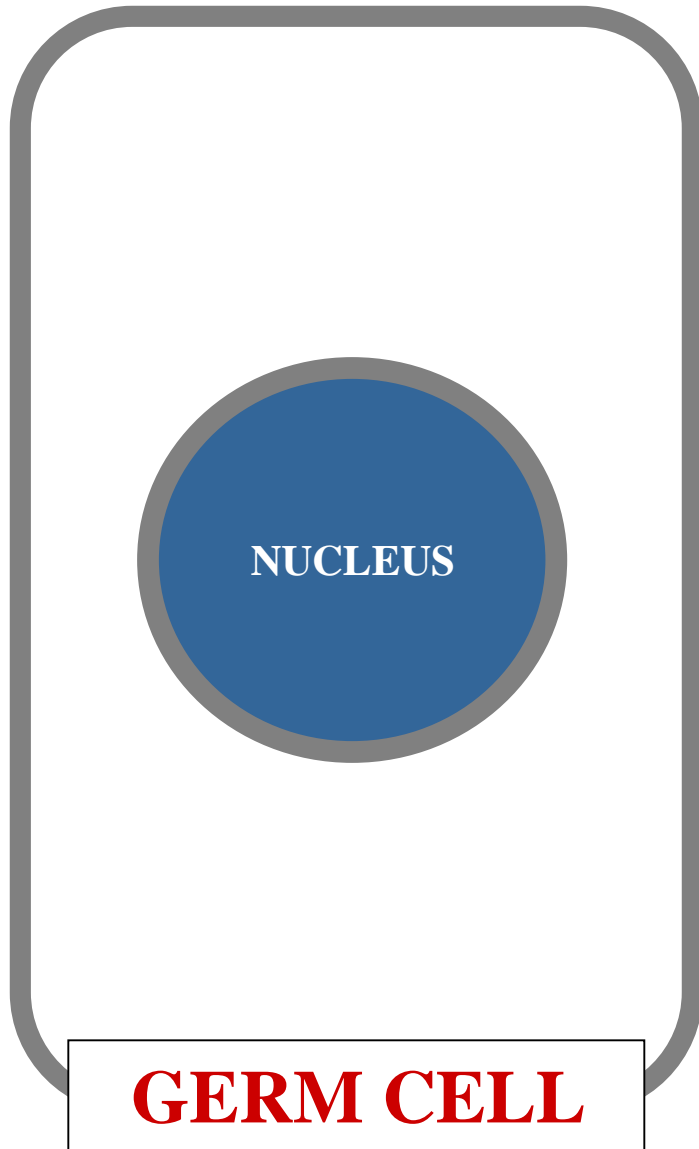
**HAPLOID CELL**

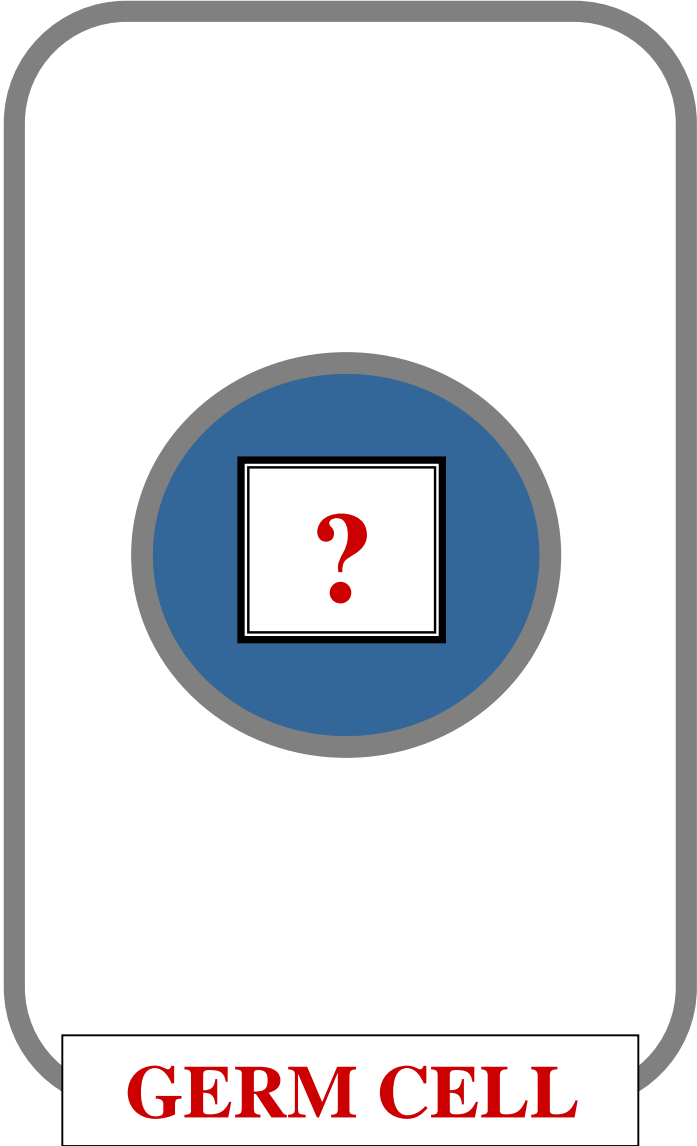
$$1N = 3$$





**DIPLOID CELL**  
**VS**  
**HAPLOID CELL**  
**APPLIED**





**GERM CELL**

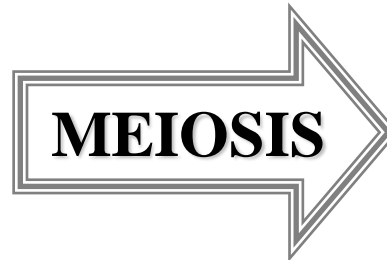
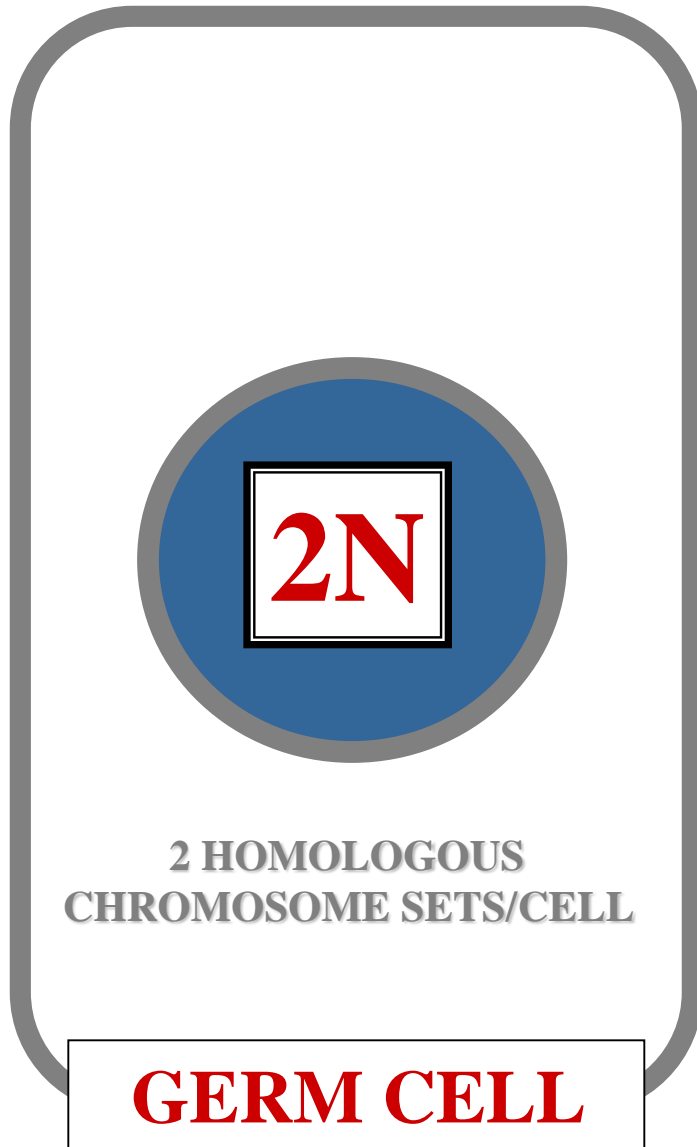


2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**GERM CELL**



LC





# ANIMAL LIFE CYCLE

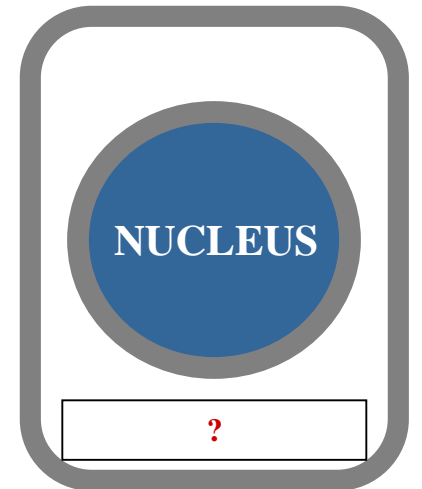
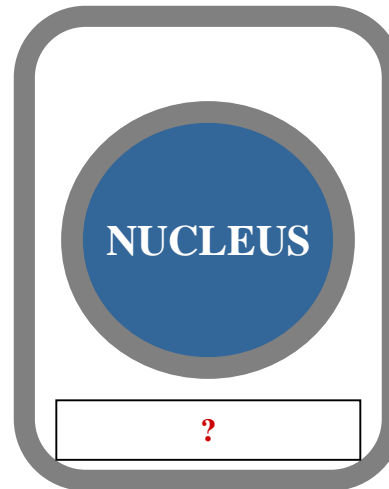
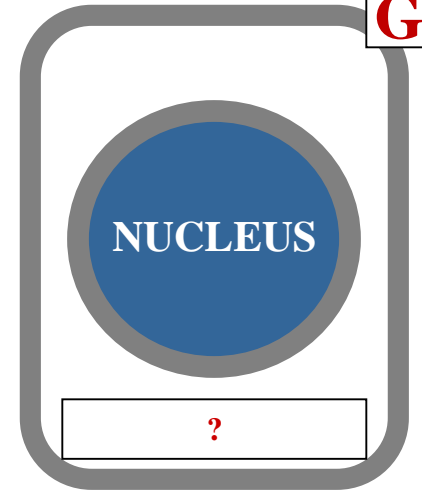
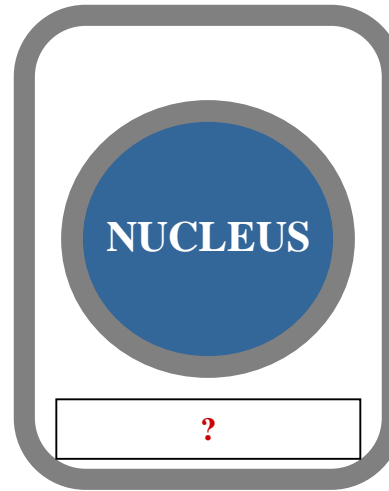
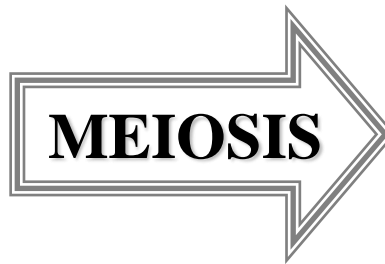




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**GAMETOCYTE**

**GERM CELL**

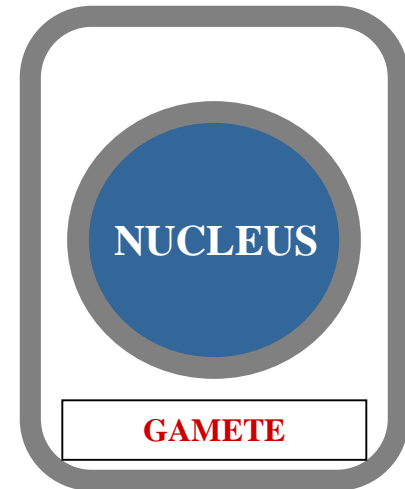
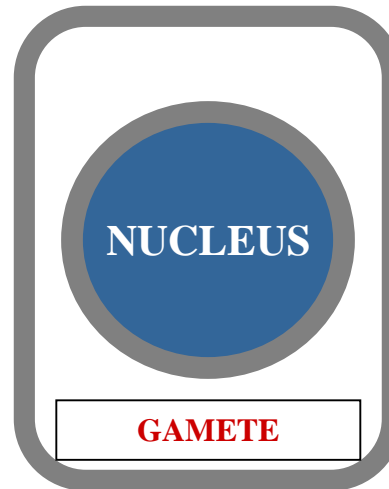
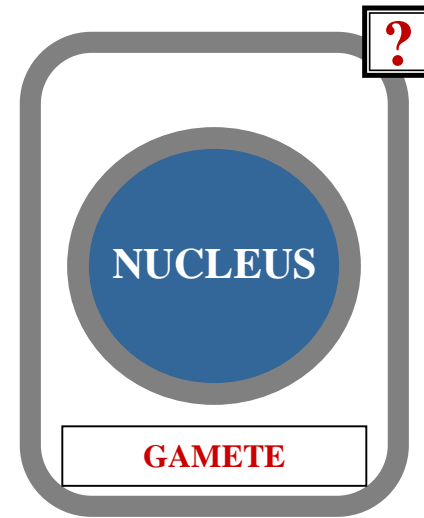
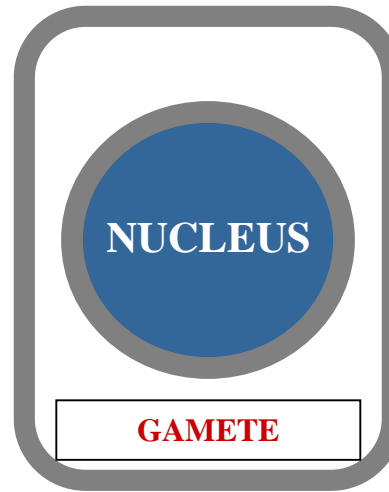
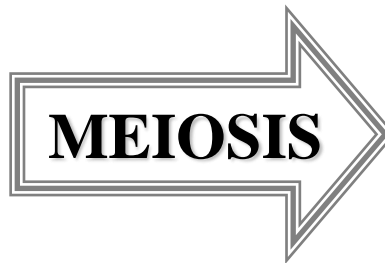




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**GAMETOCYTE**

**GERM CELL**



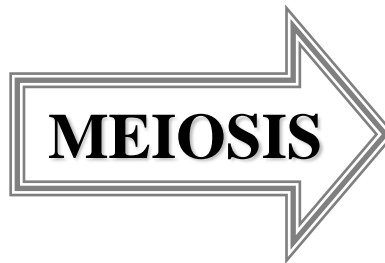
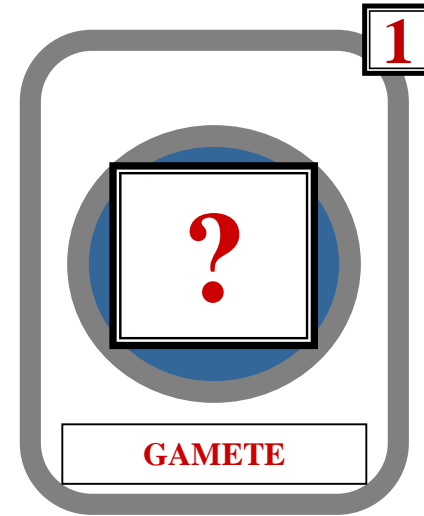
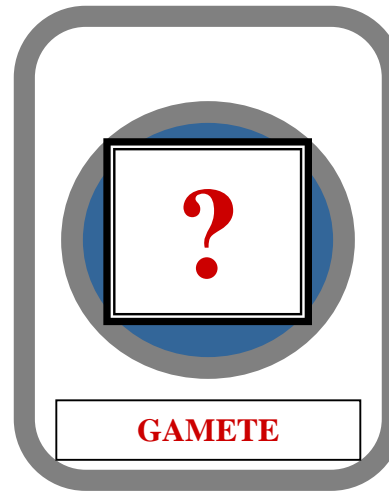




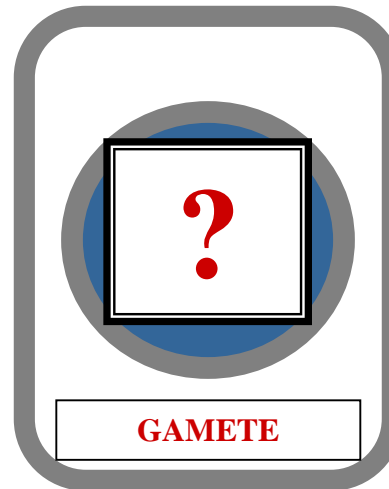
2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**GAMETOCYTE**

**GERM CELL**



**1/2 REDUCTION**

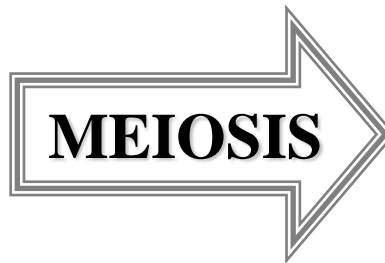




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**GAMETOCYTE**

**GERM CELL**



1 HOMOLOGOUS  
CHROMOSOME SET/CELL





# PLANT LIFE CYCLE

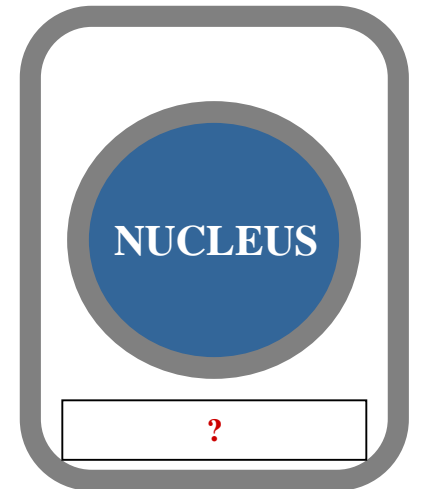
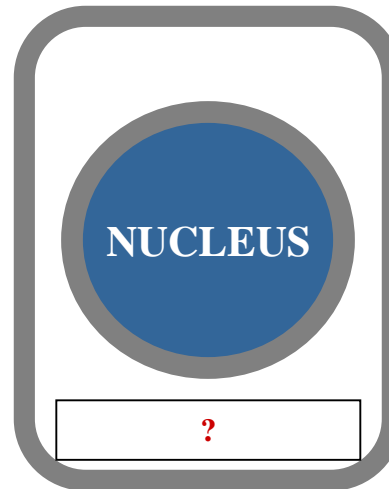
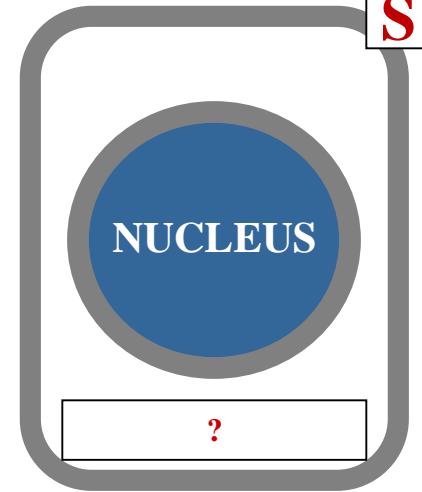
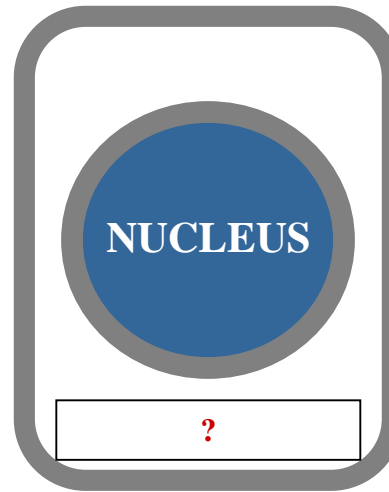
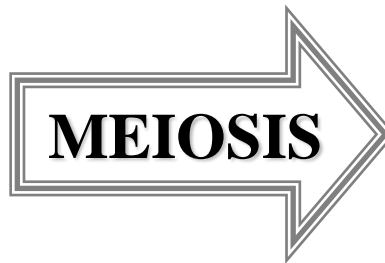




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**SPOROCYTE**

**GERM CELL**

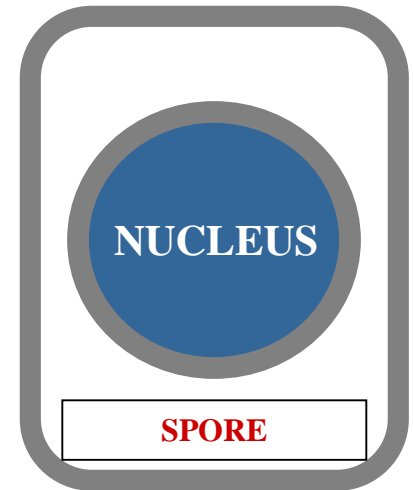
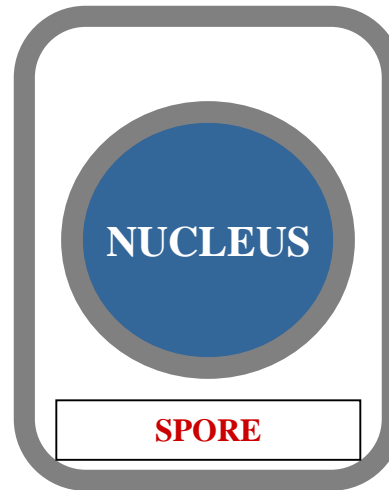
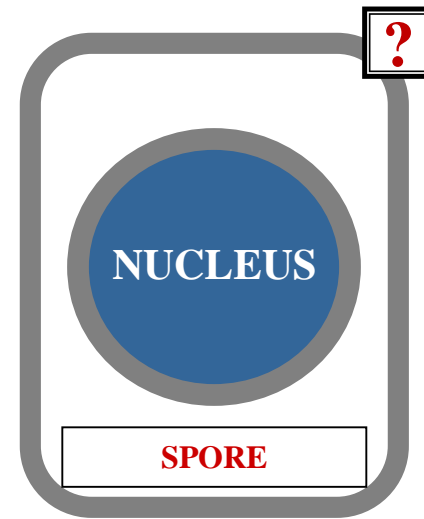
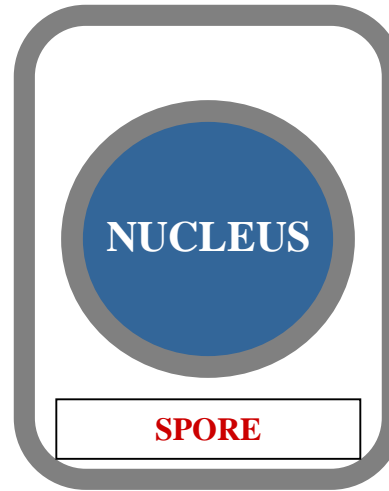
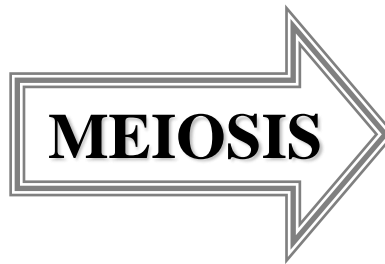




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**SPOROCYTE**

**GERM CELL**

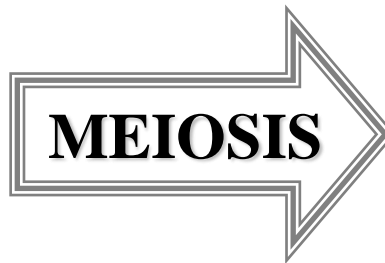
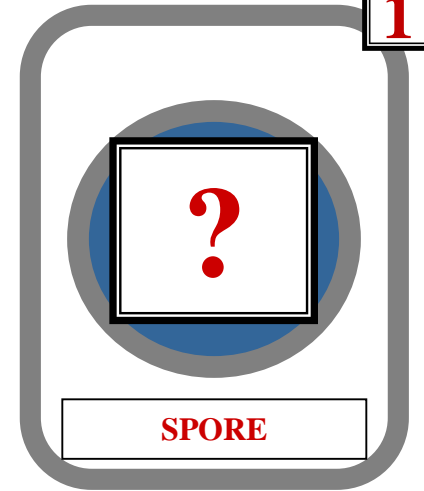
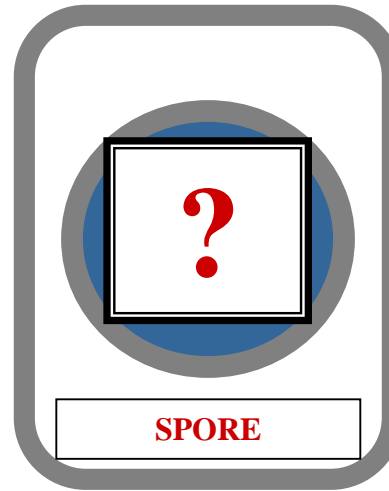




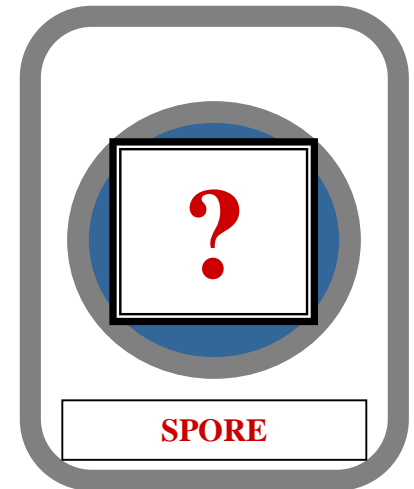
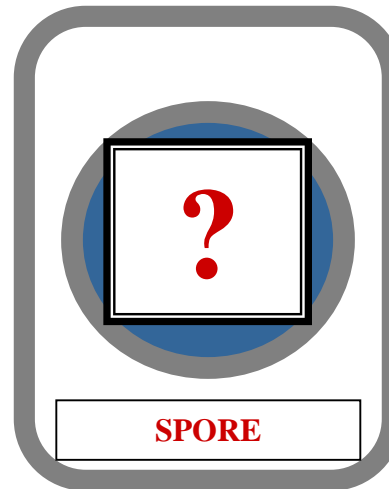
2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**SPOROCYTE**

**GERM CELL**



1/2 REDUCTION

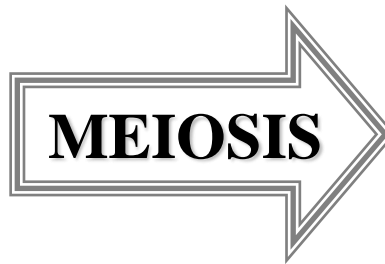




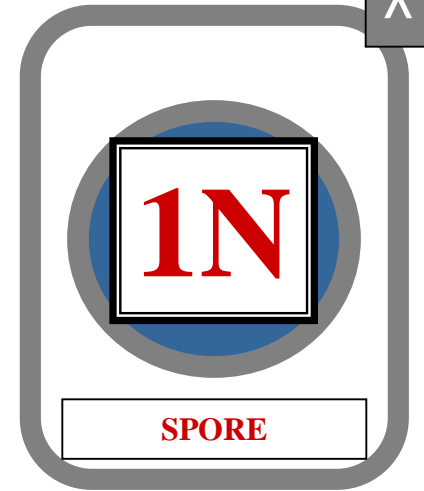
2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**SPOROCYTE**

**GERM CELL**



1 HOMOLOGOUS  
CHROMOSOME SET/CELL





# GERM CELL PLOIDY LEVEL SUMMARY





# PLANT LIFE CYCLE

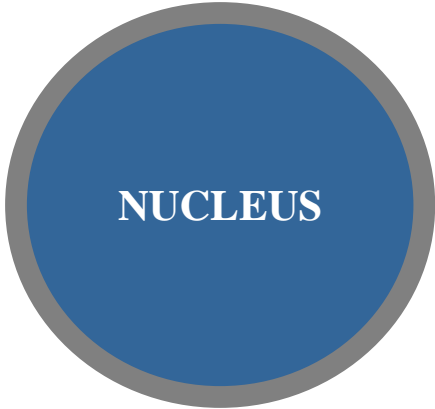




NUCLEUS

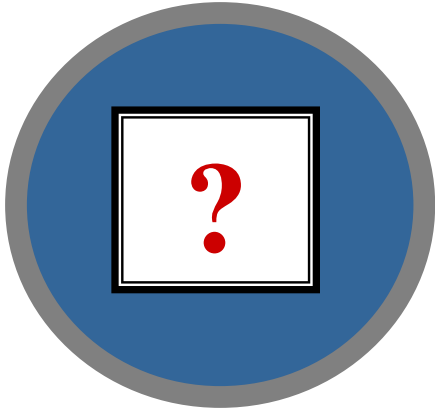
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GERM CELL



**SPOROCYTE**

**GERM CELL**



**SPOROCYTE**

**GERM CELL**



**2 HOMOLOGOUS  
CHROMOSOME SETS/CELL**

**SPOROCYTE**

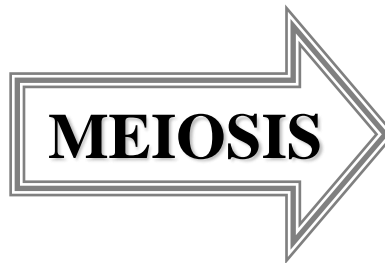
**GERM CELL**



2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**SPOROCYTE**

**GERM CELL**

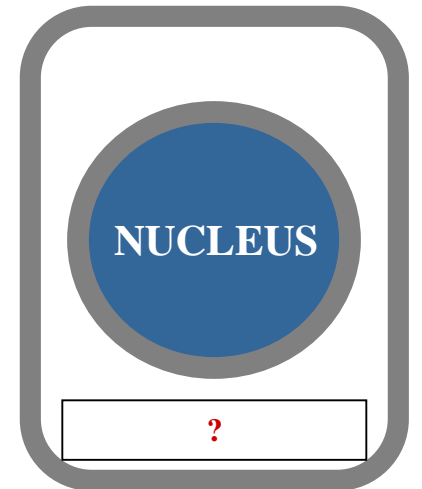
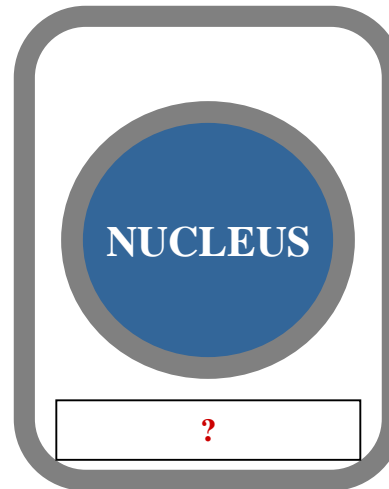
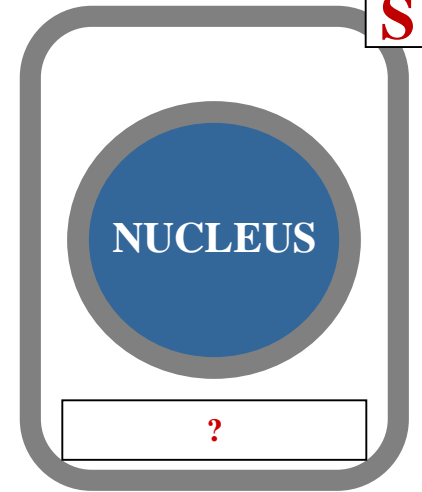
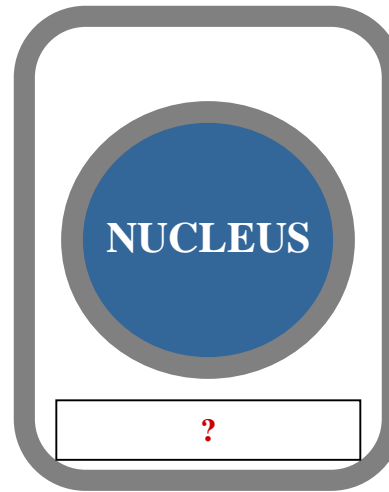
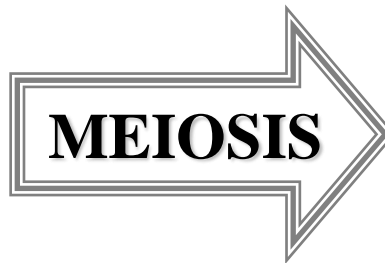




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**SPOROCYTE**

**GERM CELL**

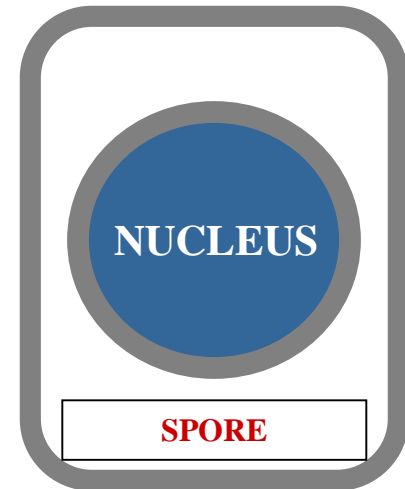
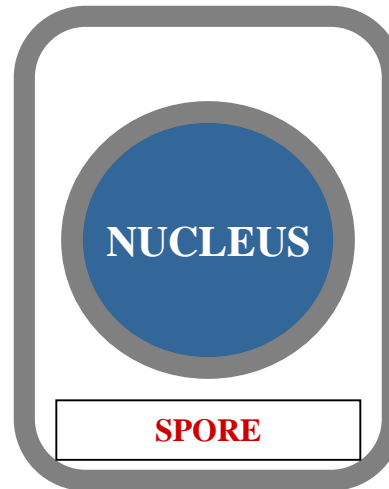
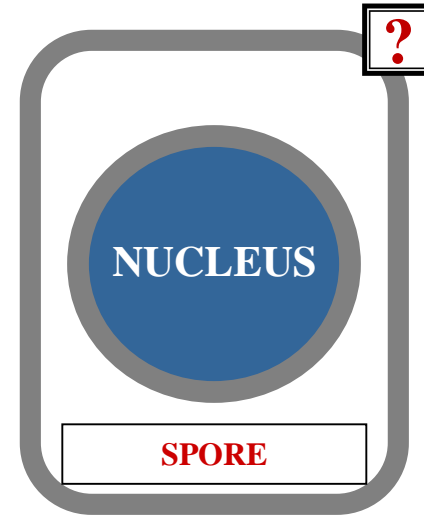
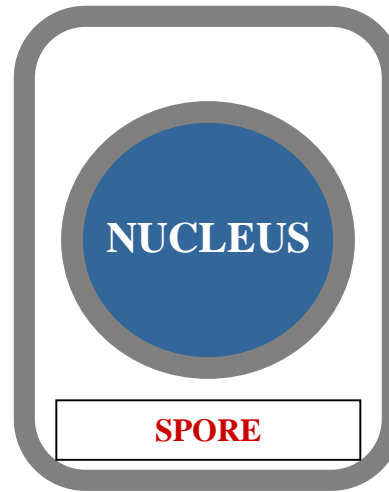
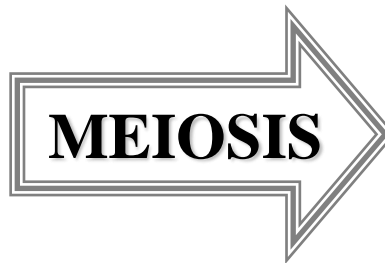




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**SPOROCYTE**

**GERM CELL**



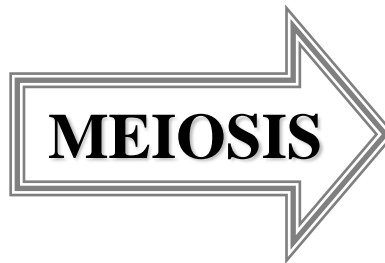
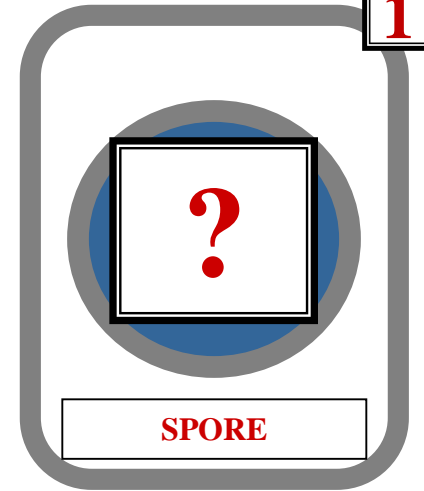
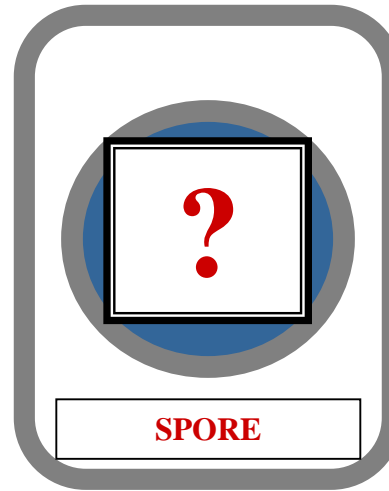




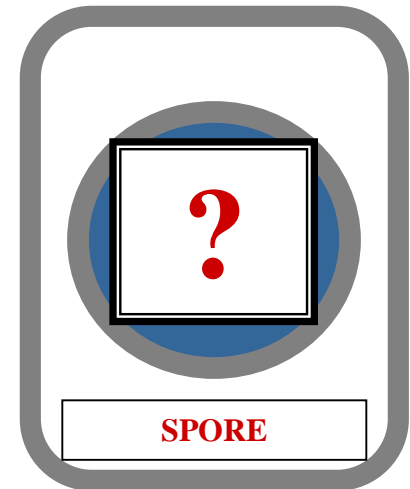
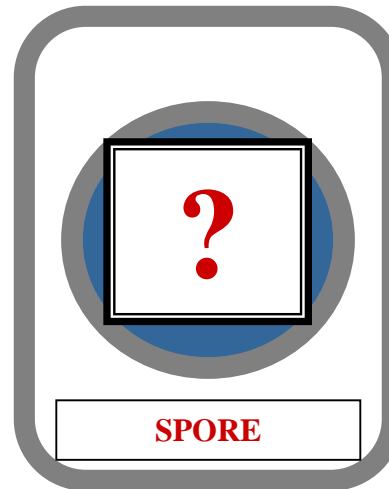
2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**SPOROCYTE**

**GERM CELL**



1/2 REDUCTION

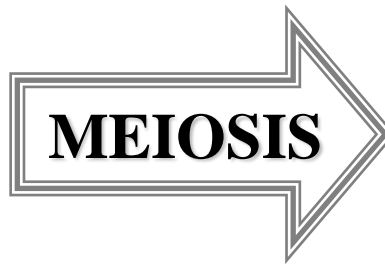




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**SPOROCYTE**

**GERM CELL**



1 HOMOLOGOUS  
CHROMOSOME SET/CELL





# ANIMAL LIFE CYCLE





NUCLEUS

?

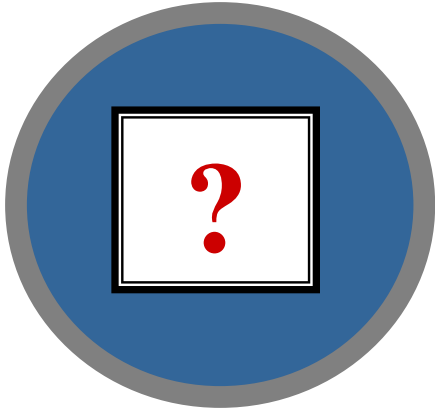
GERM CELL



**NUCLEUS**

**GAMETOCYTE**

**GERM CELL**



**GAMETOCYTE**

**GERM CELL**



**2 HOMOLOGOUS  
CHROMOSOME SETS/CELL**

**GAMETOCYTE**

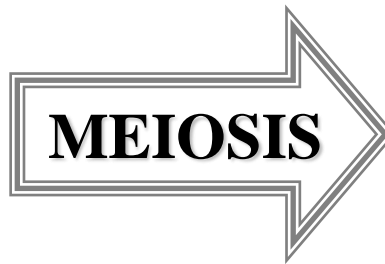
**GERM CELL**



**2 HOMOLOGOUS  
CHROMOSOME SETS/CELL**

**GAMETOCYTE**

**GERM CELL**



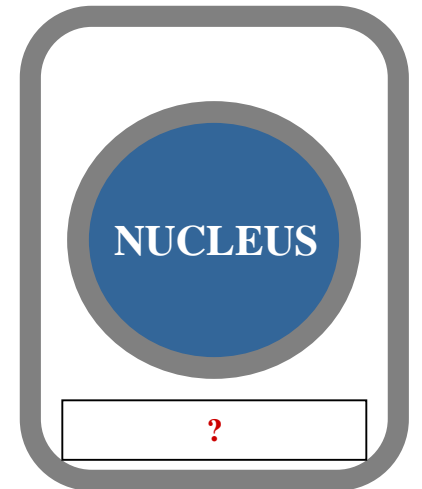
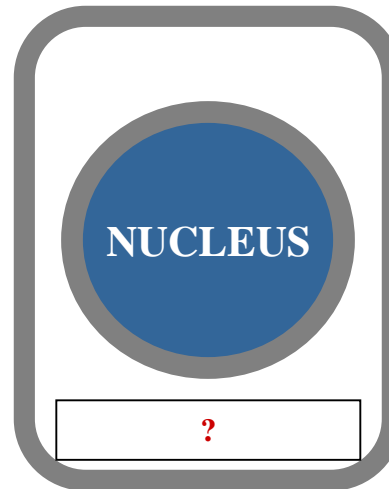
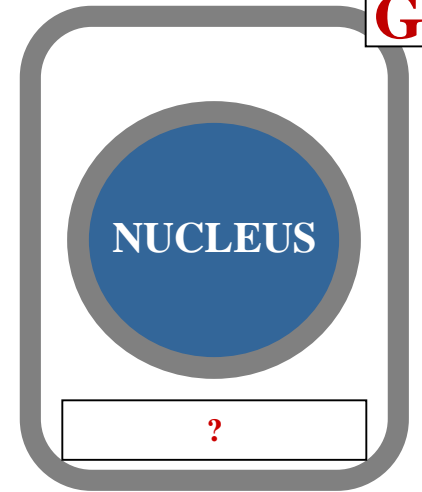
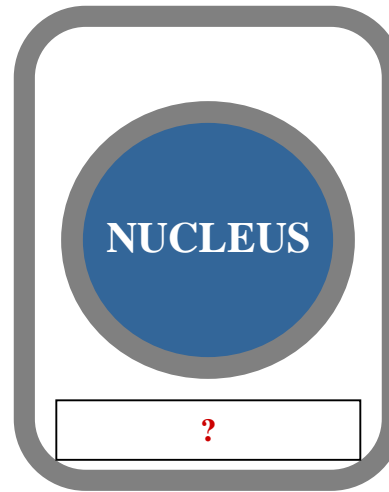
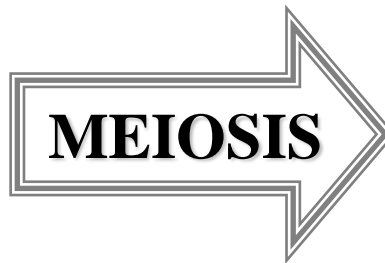




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**GAMETOCYTE**

**GERM CELL**

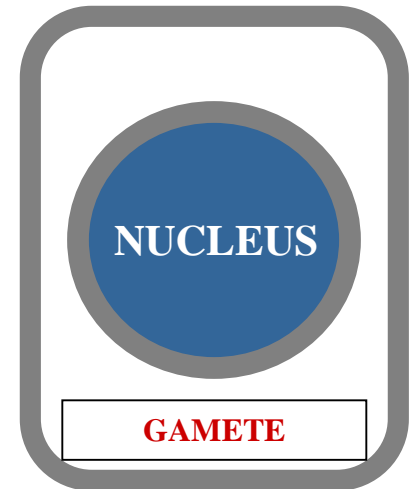
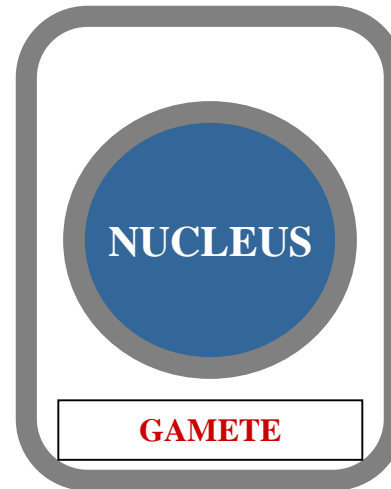
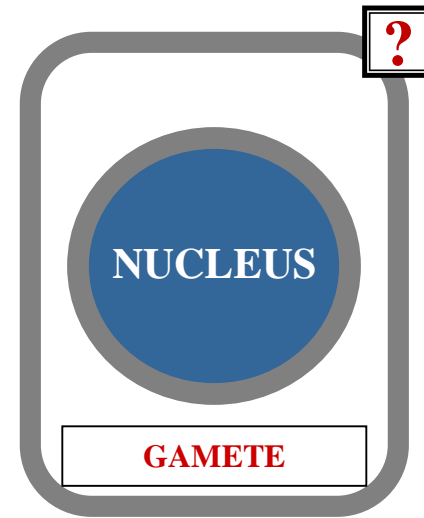
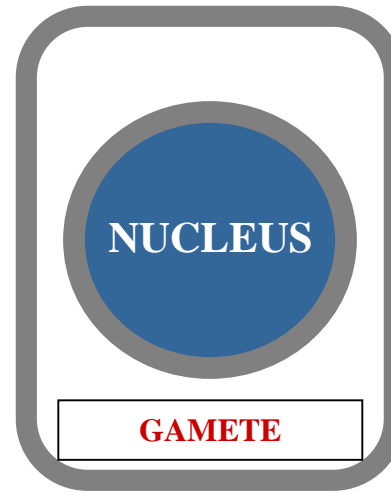
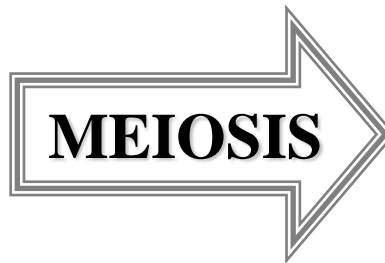




2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**GAMETOCYTE**

**GERM CELL**

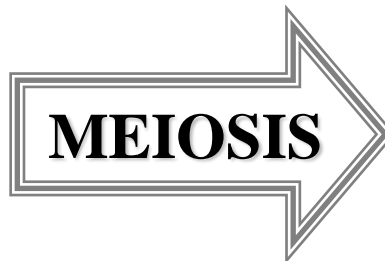
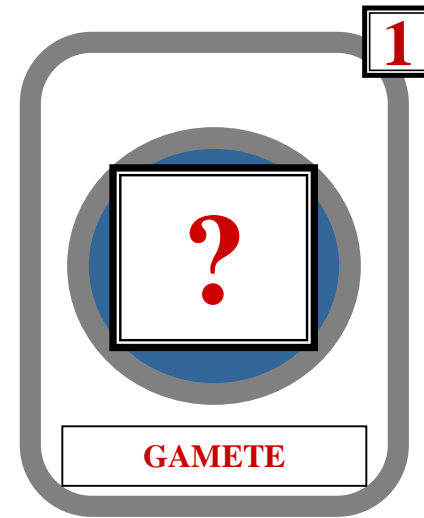
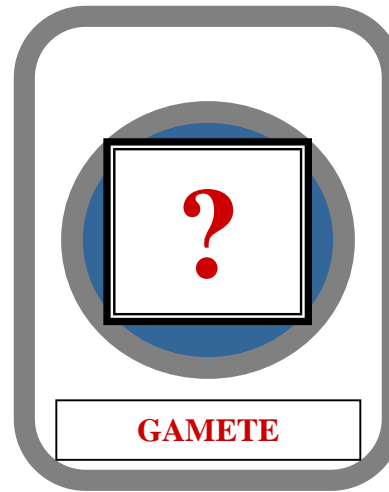




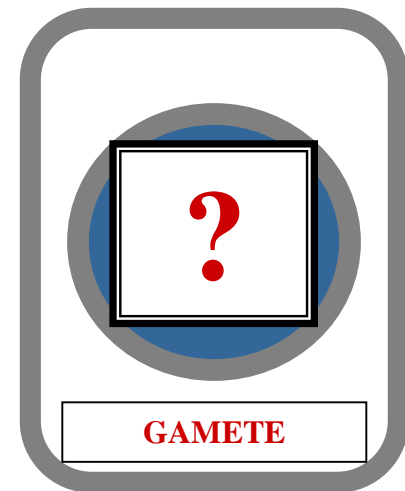
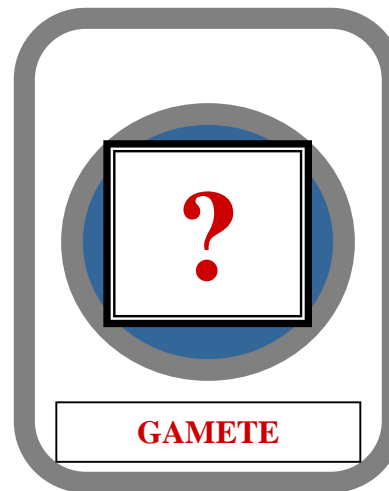
2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**GAMETOCYTE**

**GERM CELL**



**1/2 REDUCTION**

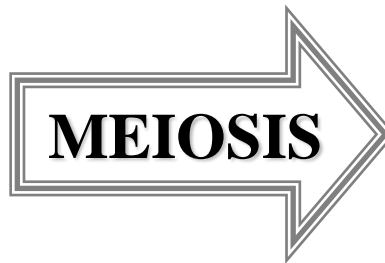




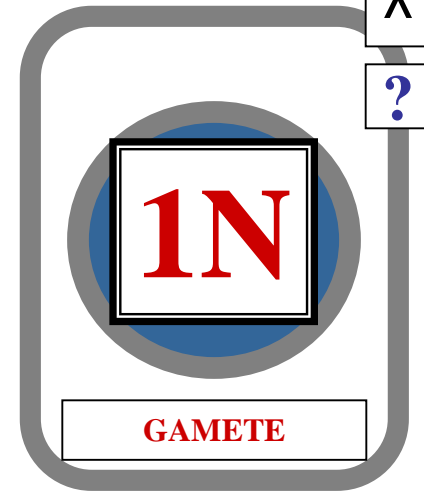
2 HOMOLOGOUS  
CHROMOSOME SETS/CELL

**GAMETOCYTE**

**GERM CELL**



1 HOMOLOGOUS  
CHROMOSOME SET/CELL



# QUESTION

HOW IS THE HAPLOID  
STATE RESTORED TO  
THE DIPLOID STATE?

# QUESTION



**ANSWER**

**FERTILIZATION**

**ANSWER**

# FERTILIZATION



*HOMO SAPIENS*

# FERTILIZATION



# FERTILIZATION



**FERTILIZATION**

**GAMETE FUSION**

**FERTILIZATION**

FERTILIZATION

**SYNONYMOUS**

SYNGAMY



**EXAMPLE  
HUMAN  
SYNGAMY  
FERTILIZATION**

# FERTILIZATION

#



CHROMOSOMES

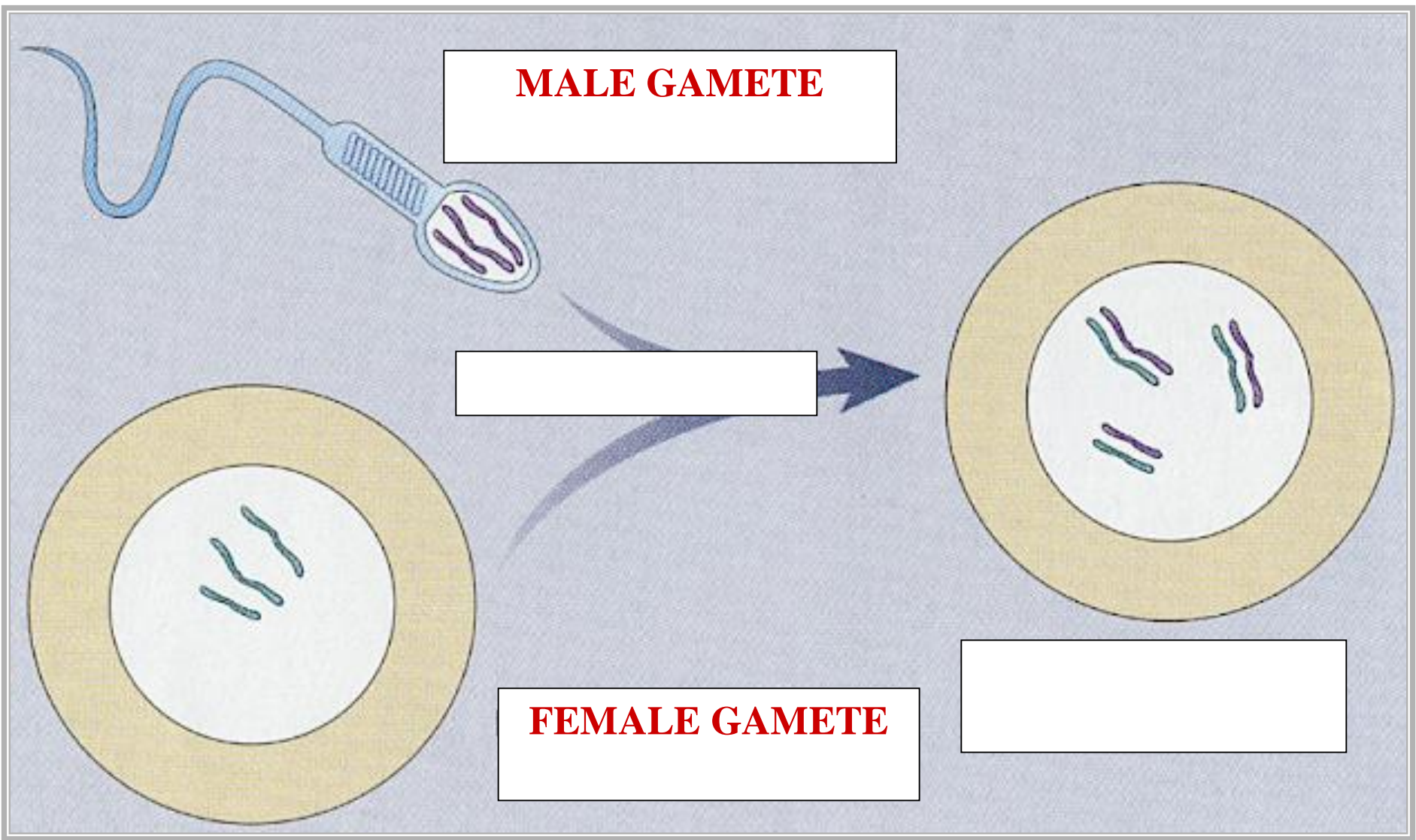
*HOMO SAPIENS*

# FERTILIZATION

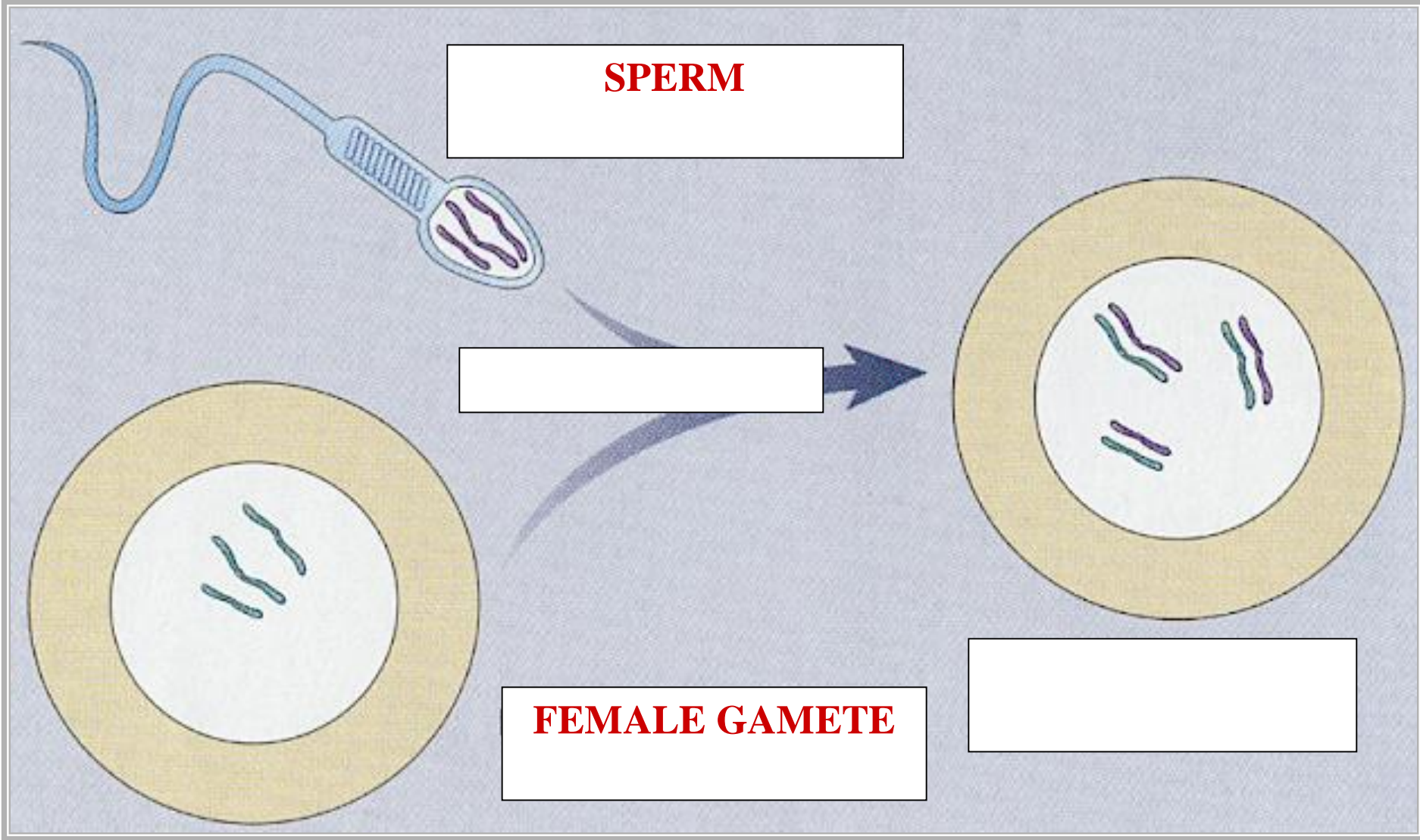


*HOMO SAPIENS*

# HUMAN FERTILIZATION

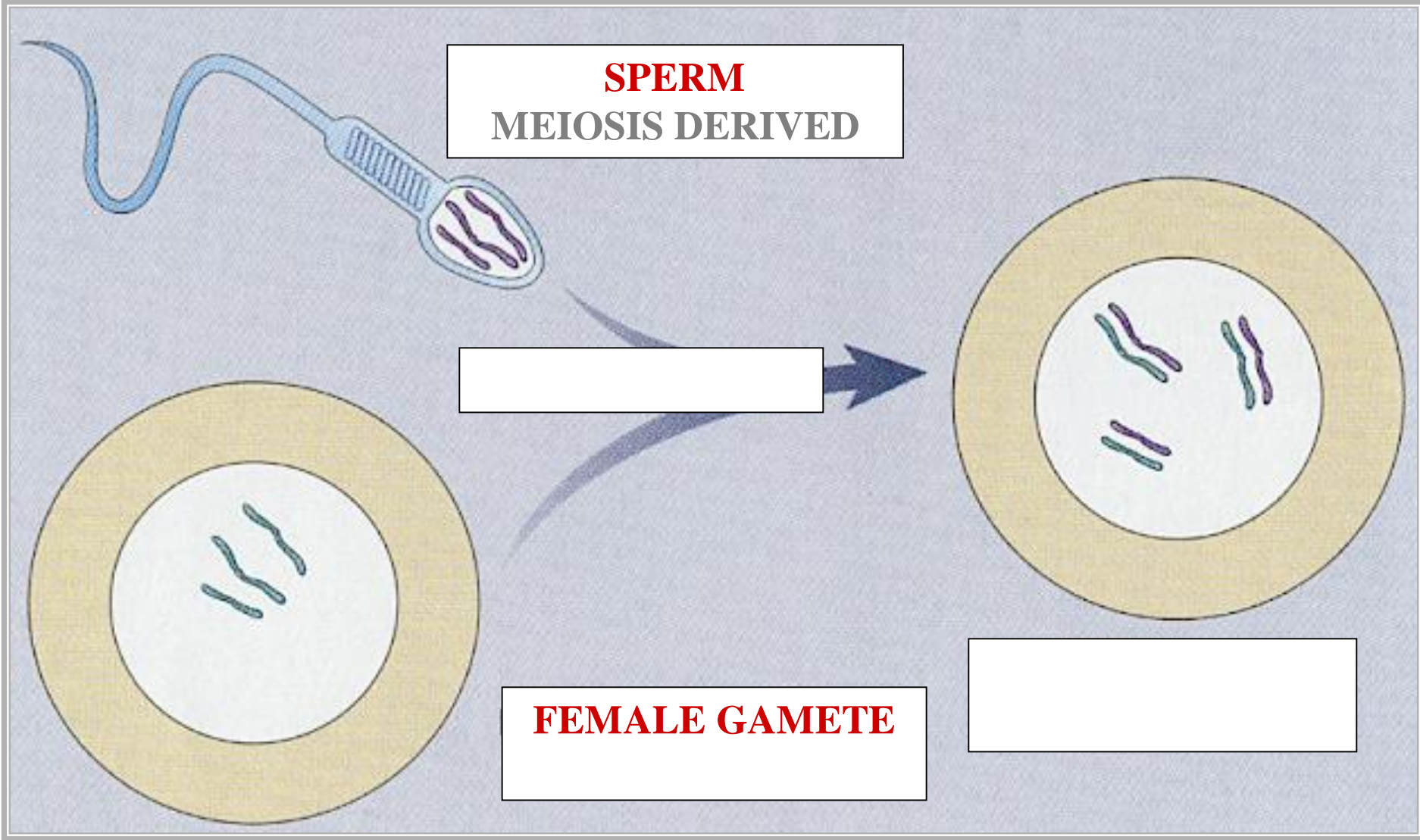


# HUMAN FERTILIZATION

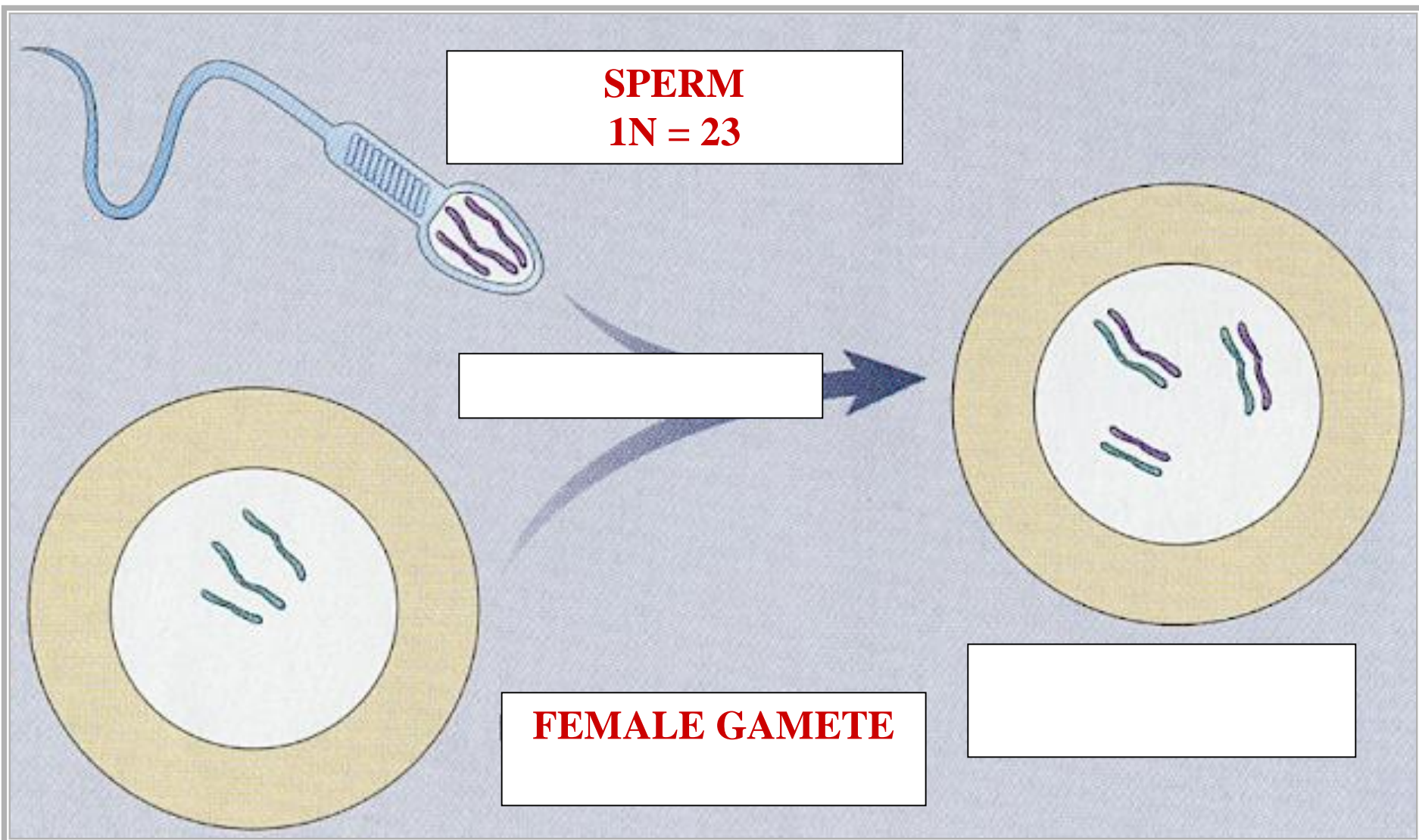




# HUMAN FERTILIZATION



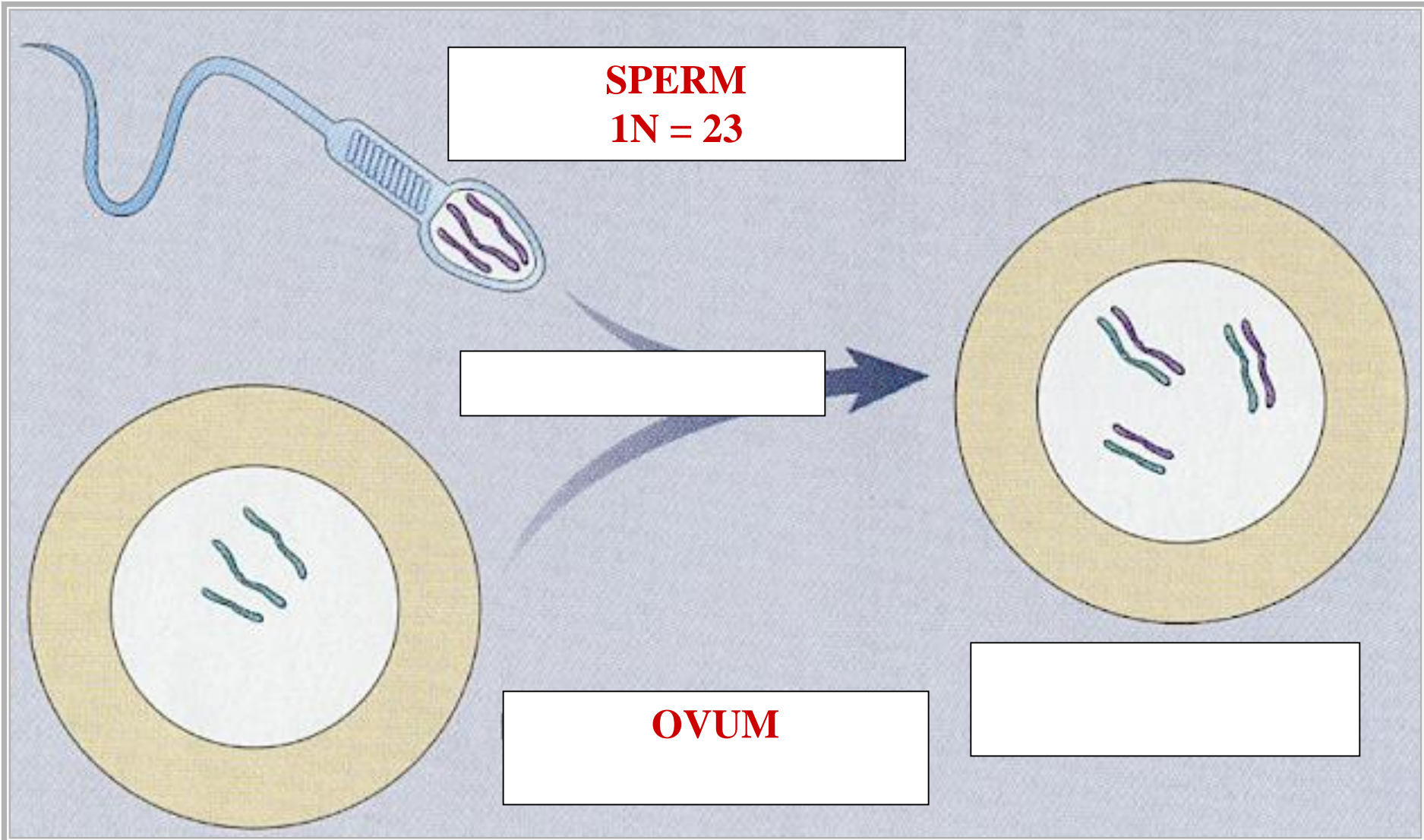
# HUMAN FERTILIZATION



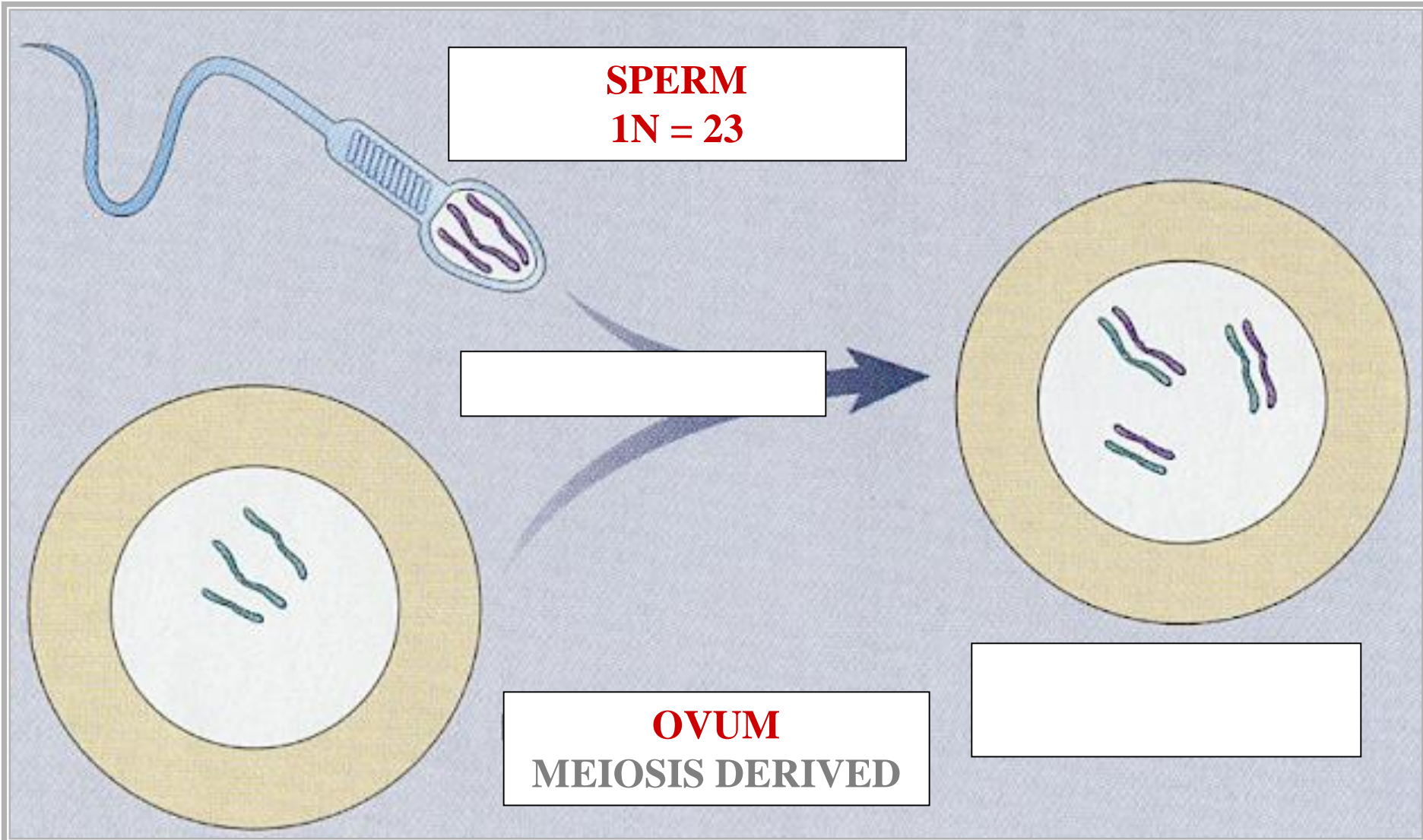
**SPERM**  
**1N = 23**

**FEMALE GAMETE**

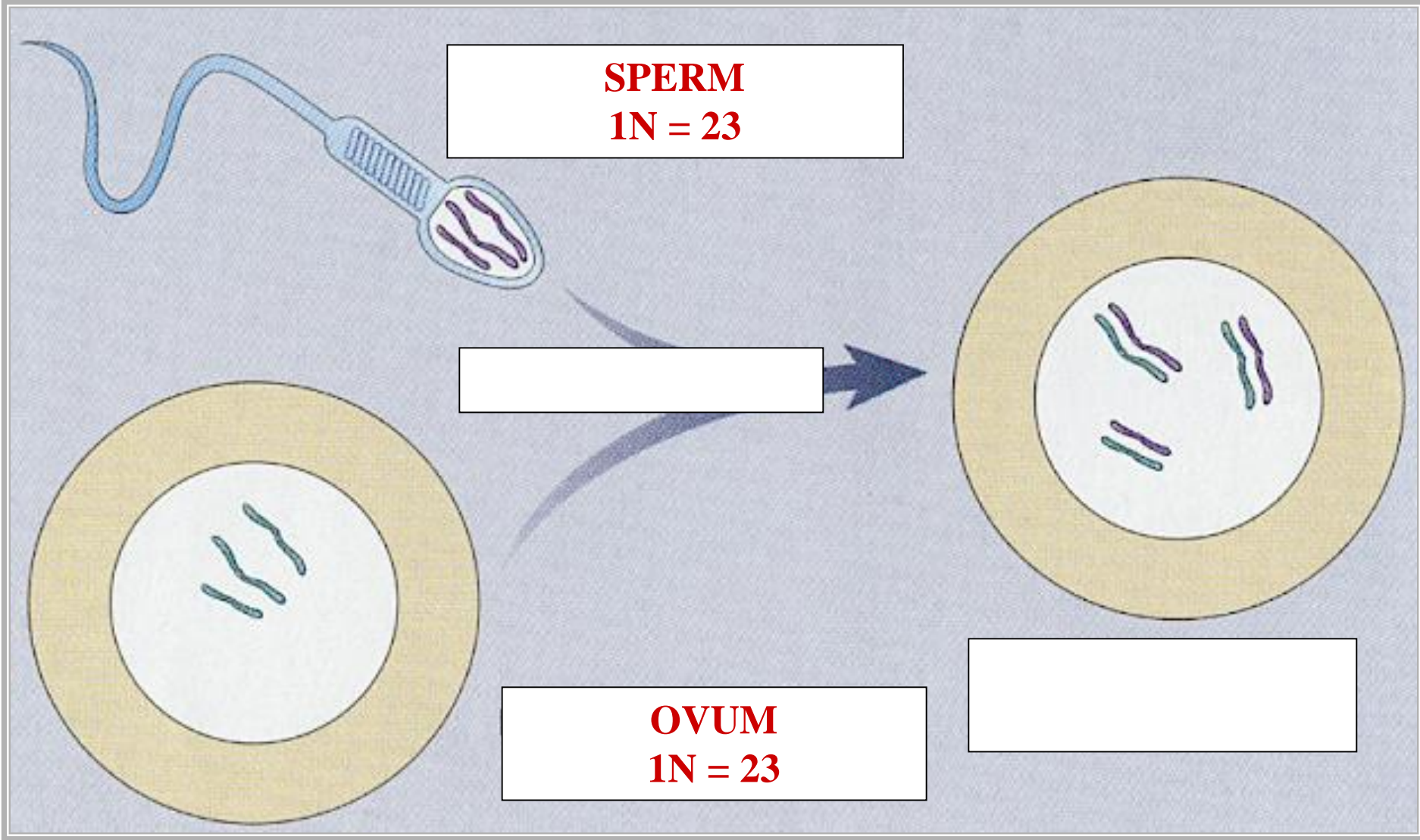
# HUMAN FERTILIZATION



# HUMAN FERTILIZATION



# HUMAN FERTILIZATION



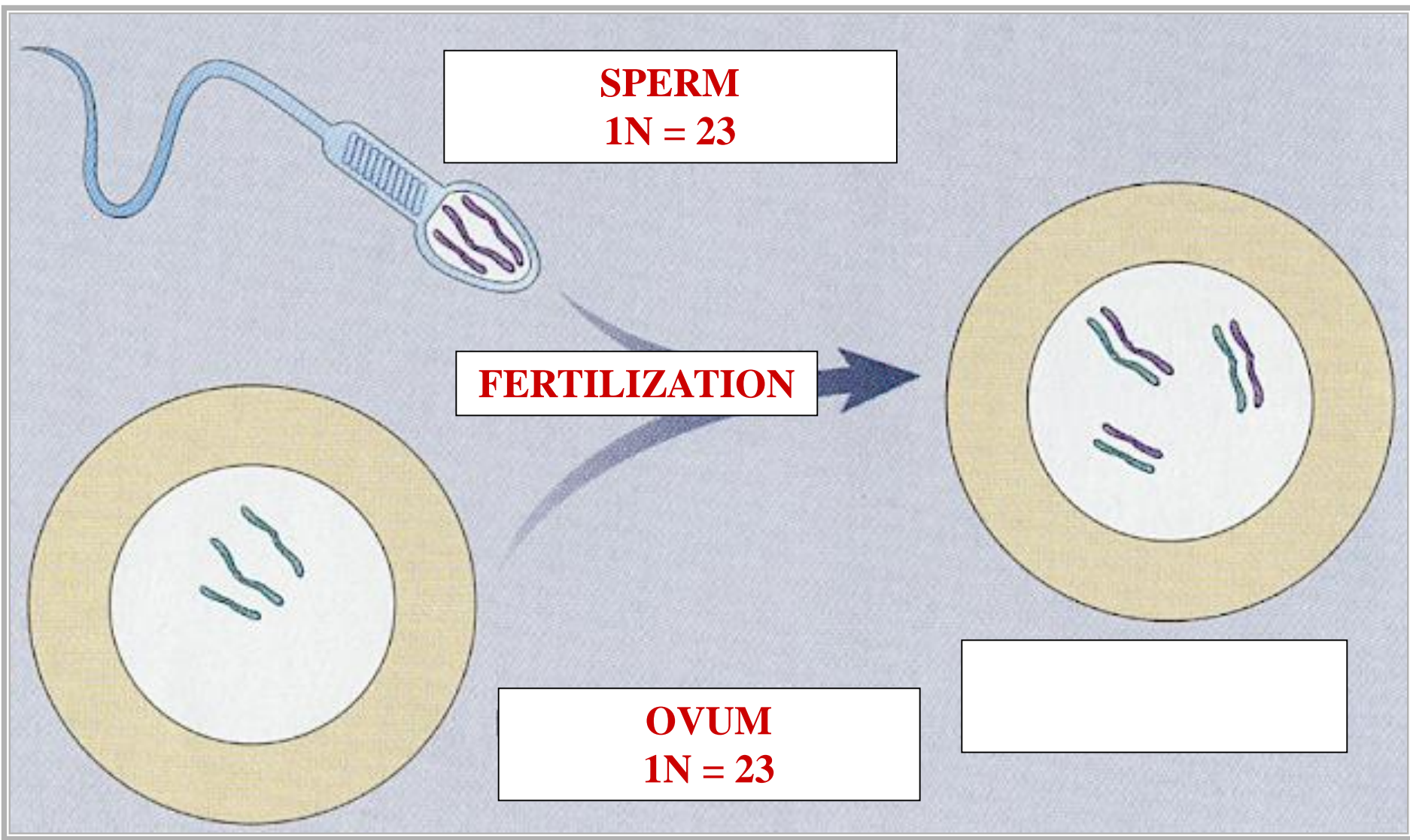
**SPERM**  
**1N = 23**



**OVUM**  
**1N = 23**



# HUMAN FERTILIZATION

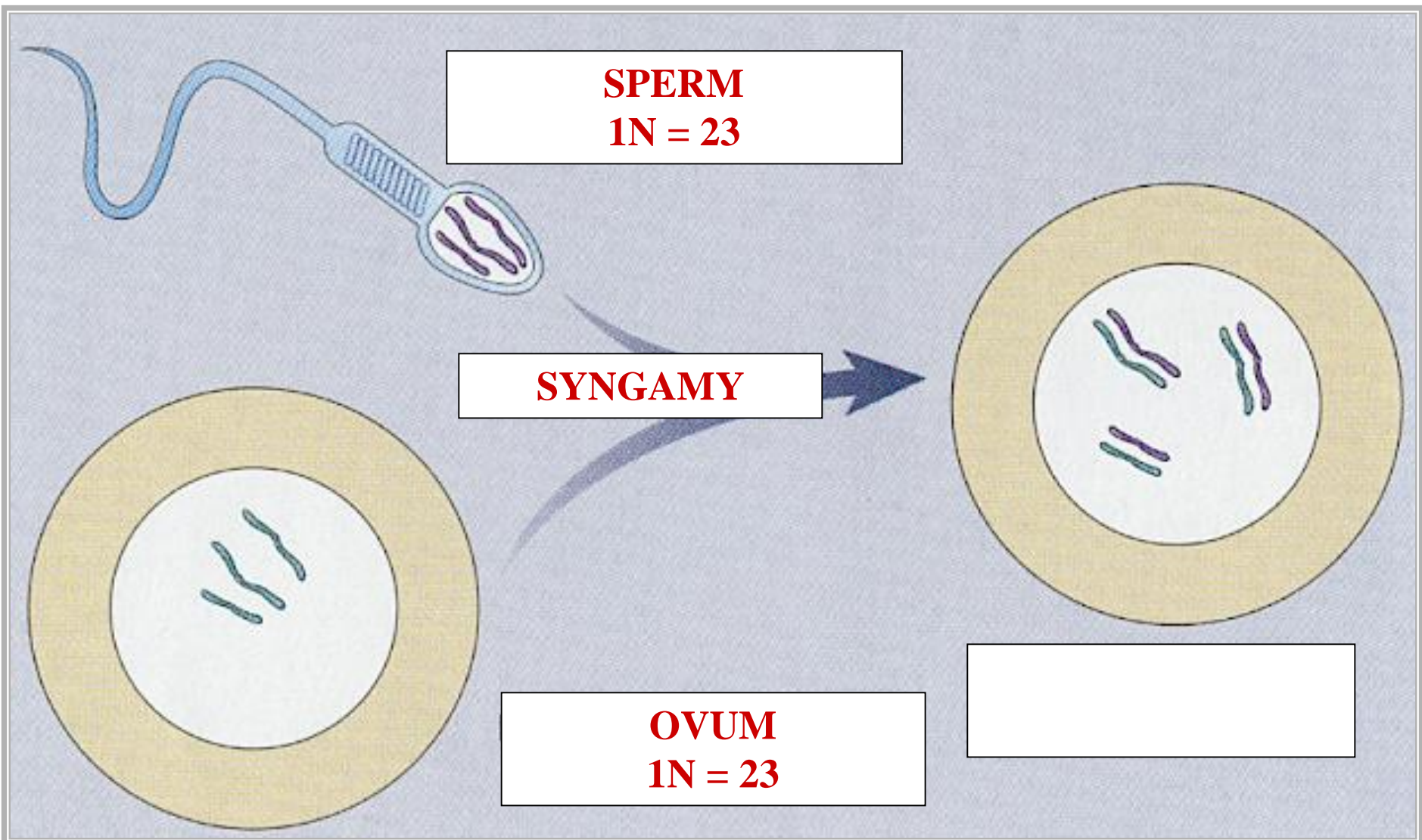


**SPERM**  
**1N = 23**

**FERTILIZATION**

**OVUM**  
**1N = 23**

# HUMAN FERTILIZATION

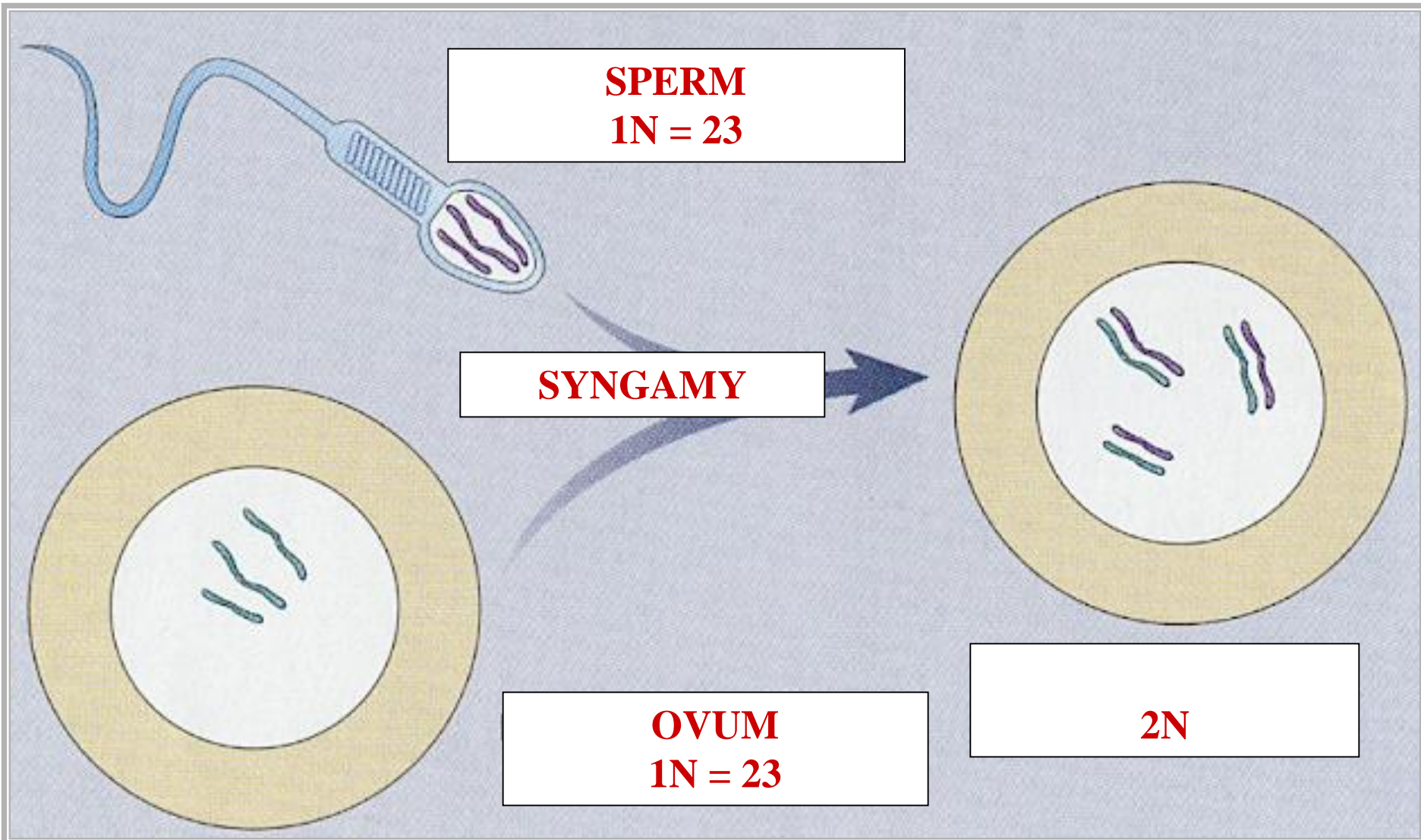


**SPERM**  
**1N = 23**

**SYNGAMY**

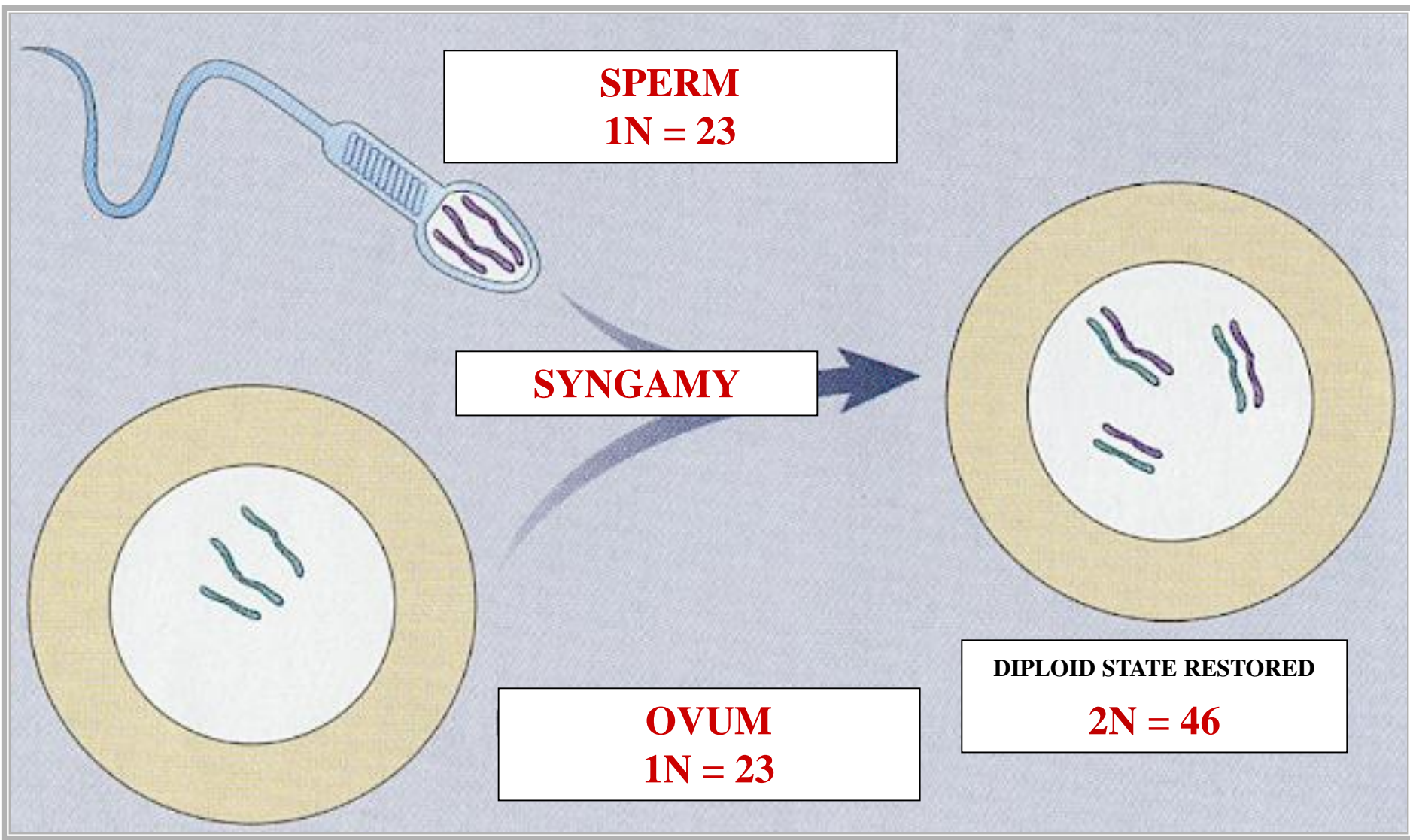
**OVUM**  
**1N = 23**

# HUMAN FERTILIZATION

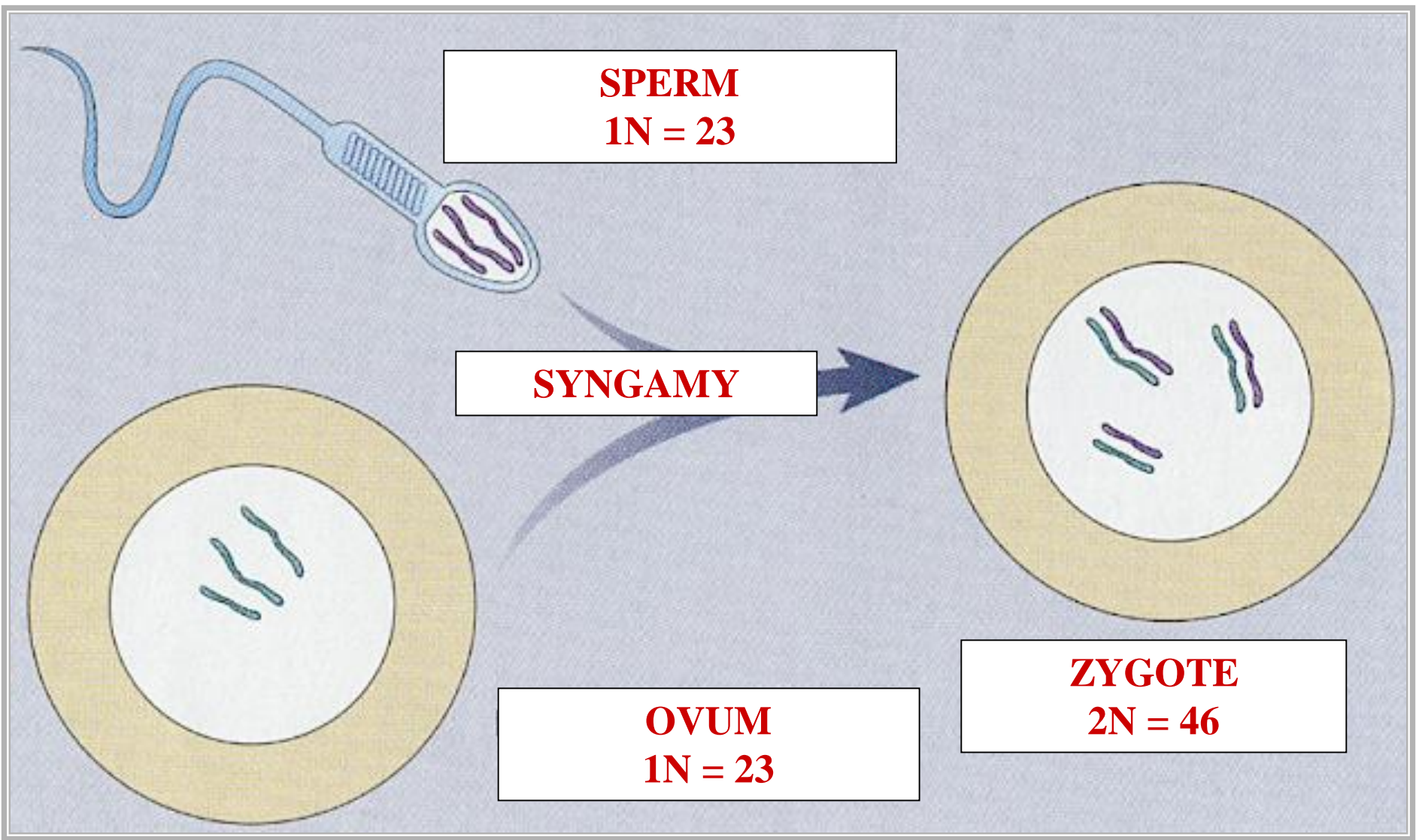




# HUMAN FERTILIZATION



# HUMAN FERTILIZATION



# QUESTION

HOW IS THE HAPLOID  
STATE RESTORED TO  
THE DIPLOID STATE?

# QUESTION



**ANSWER**

**FERTILIZATION**

**=**

**SYNGAMY**

**ANSWER**

# FERTILIZATION



*HOMO SAPIENS*



# GERM CELL CYCLE

# GERM CELL CYCLE STAGES



# **GERM CELL CYCLE STAGES**

**INTERPHASE-I**

**KARYOKINESIS-I**

**CYTOKINESIS-I**

# **GERM CELL CYCLE STAGES**





# **GERM CELL CYCLE STAGES**

**INTERPHASE-II**

**KARYOKINESIS-II**

**CYTOKINESIS-II**

# **GERM CELL CYCLE STAGES**

**GERM  
CELL CYCLE**



**GERM CELL**

**GERM  
CELL CYCLE  
CONSISTS  
2 CYTOKINESIS  
STAGES**

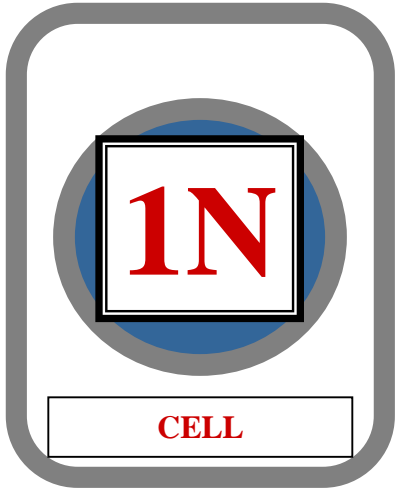
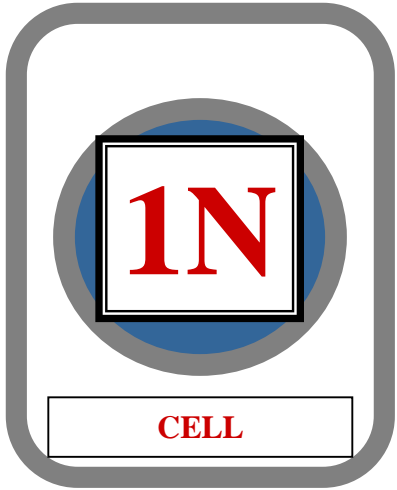
**GERM  
CELL CYCLE**

**2N**

**GERM CELL**

**CYTOKINESIS-I**





**GERM  
CELL CYCLE**

**2N**

**GERM CELL**

**1N**

**CELL**

**CYTOKINESIS-II**

**1N**

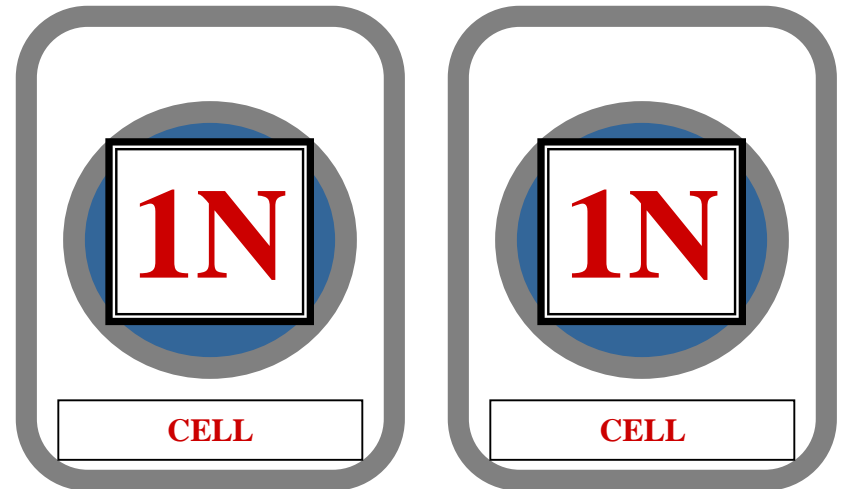
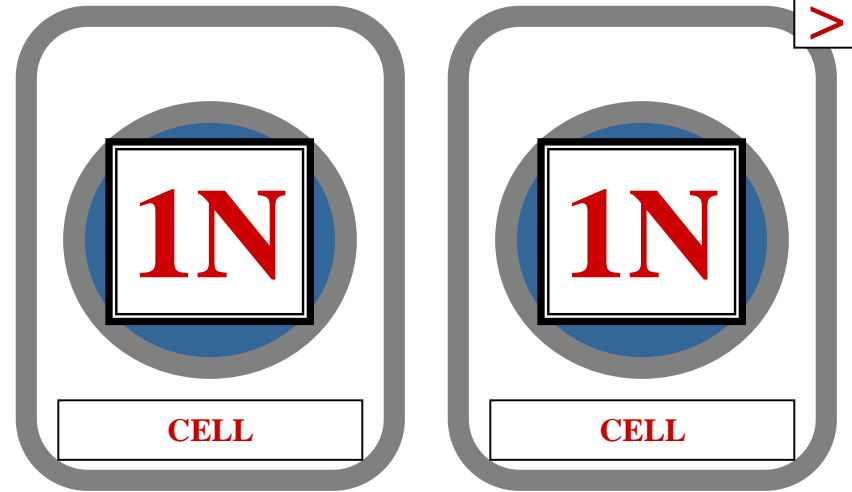
**CELL**



**GERM  
CELL CYCLE**



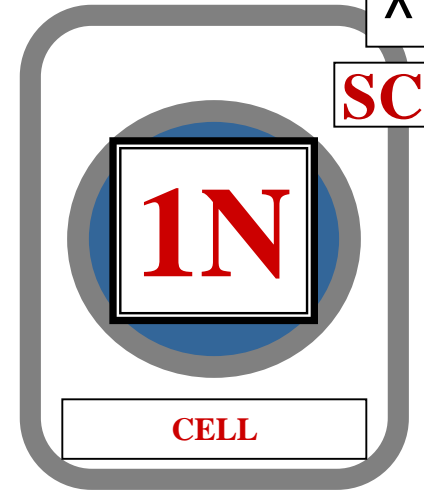
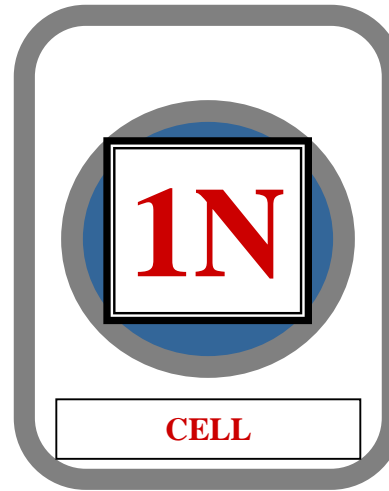
**GERM CELL**



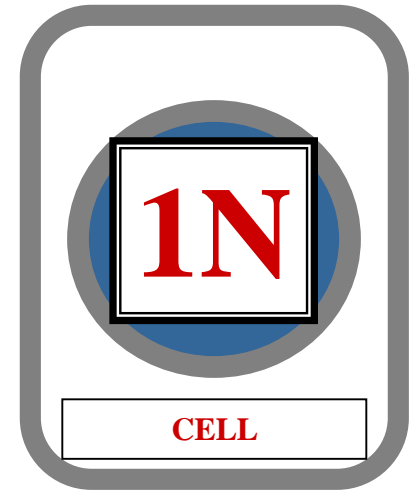
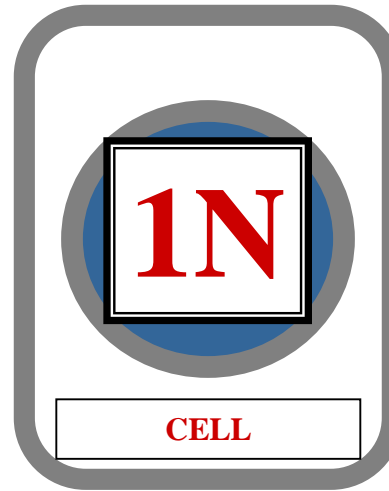
**GERM  
CELL CYCLE**



**GERM CELL**



**OUTCOME  
4 1N CELLS**

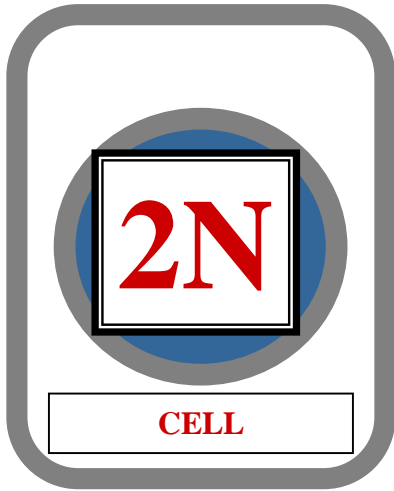




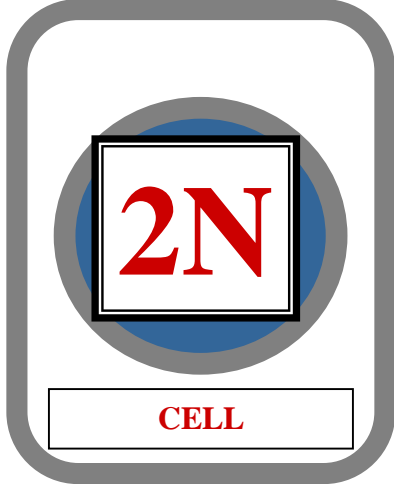
**SOMATIC  
CELL CYCLE**



**SOMATIC CELL**



**OUTCOME  
2 2N CELLS**



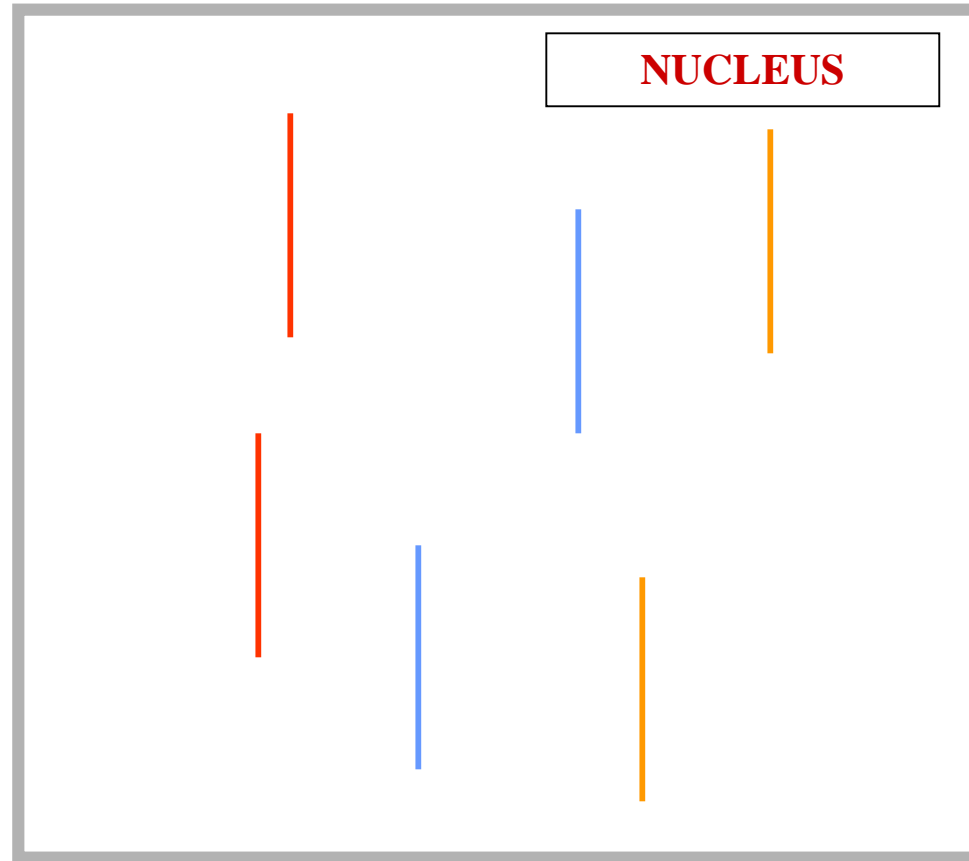


**GERM  
CELL CYCLE  
MEIOSIS  
SPECIFICS**

# GERM MOTHER CELL



LC



## 6 CHROMOSOMES



# ANIMAL LIFE CYCLE





# ANIMAL GERM CELLS

