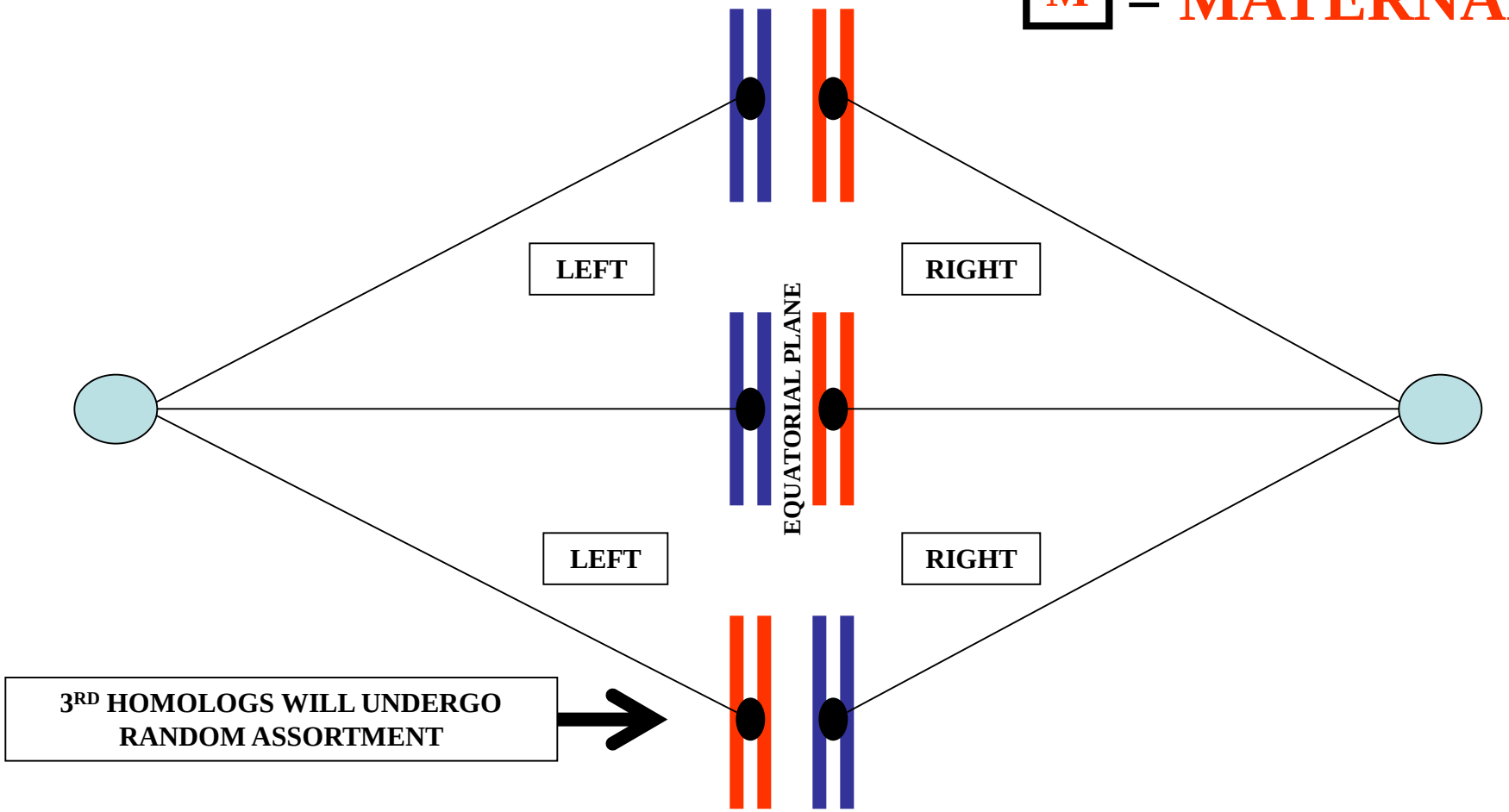
METAPHASE - I

P = PATERNAL

M = MATERNAL

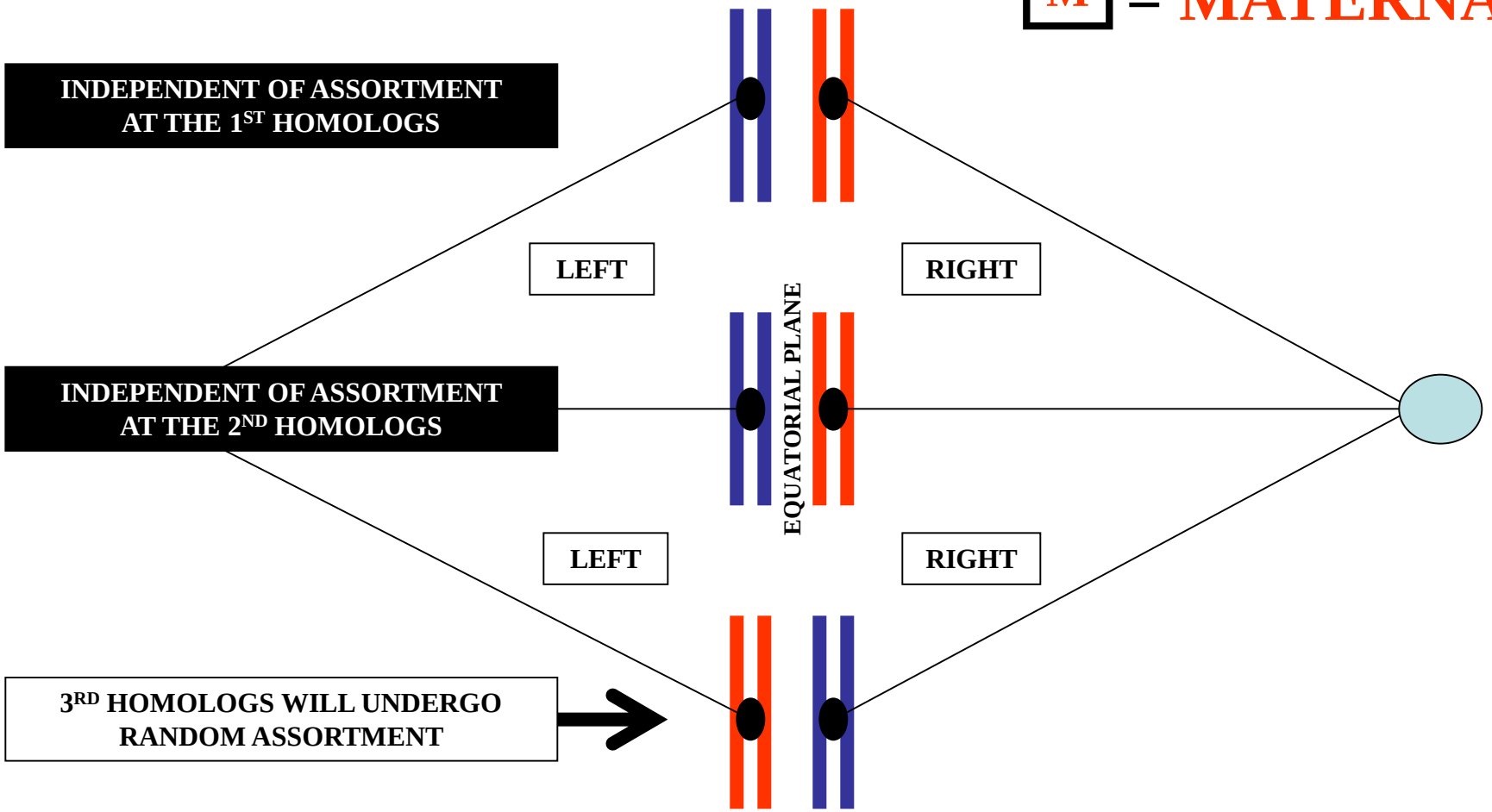


INDEPENDENT ASSORTMENT

METAPHASE - I

P = PATERNAL

M = MATERNAL



INDEPENDENT ASSORTMENT

SUMMARY
HOMOLOG ASSORTMENT

INDEPENDENT COMPONENT OF RANDOM INDEPENDENT ASSORTMENT

SUMMARY
HOMOLOG ASSORTMENT

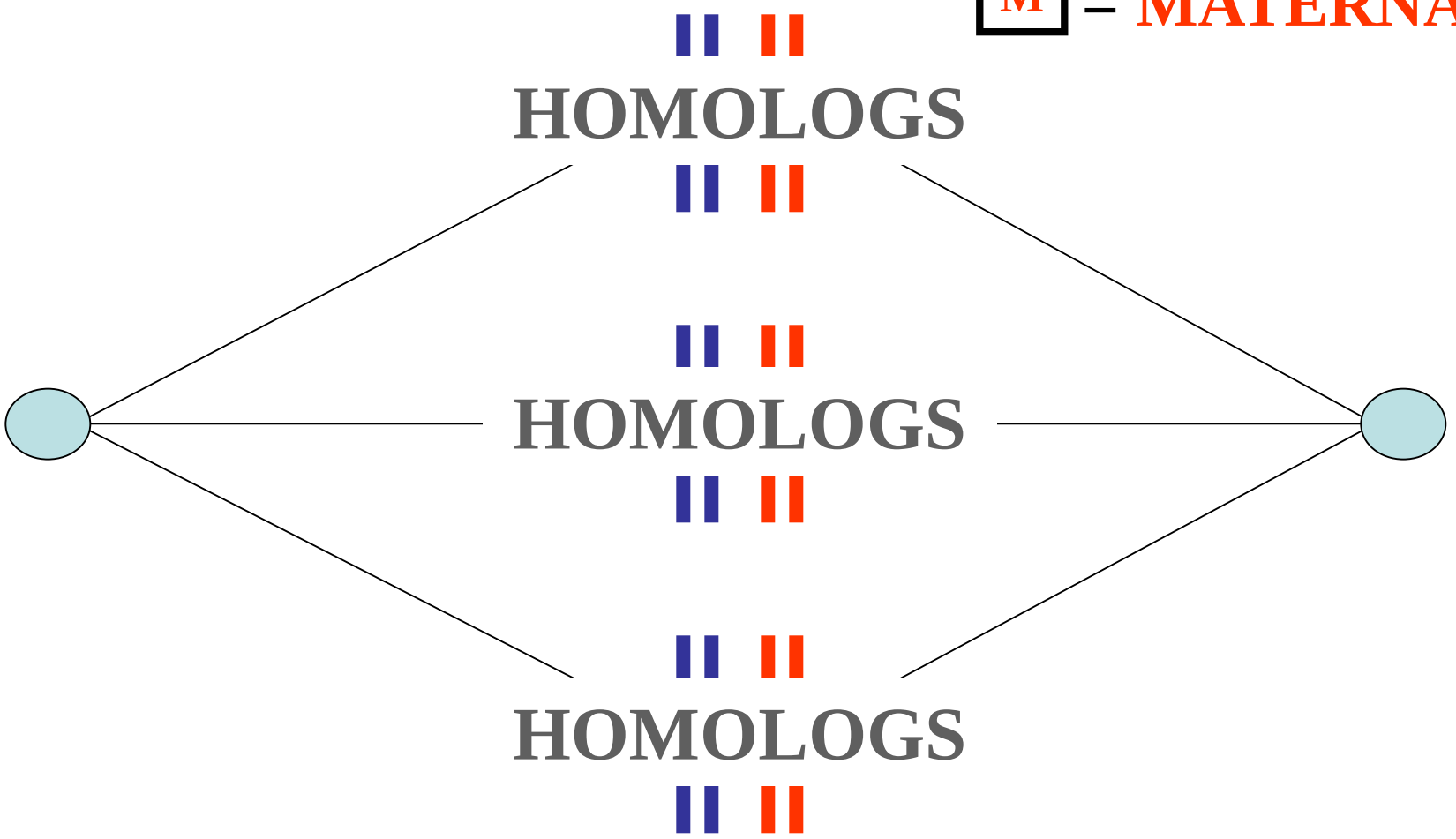
METAPHASE - I

P = PATERNAL

M = MATERNAL

+

w



RANDOM ASSORTMENT

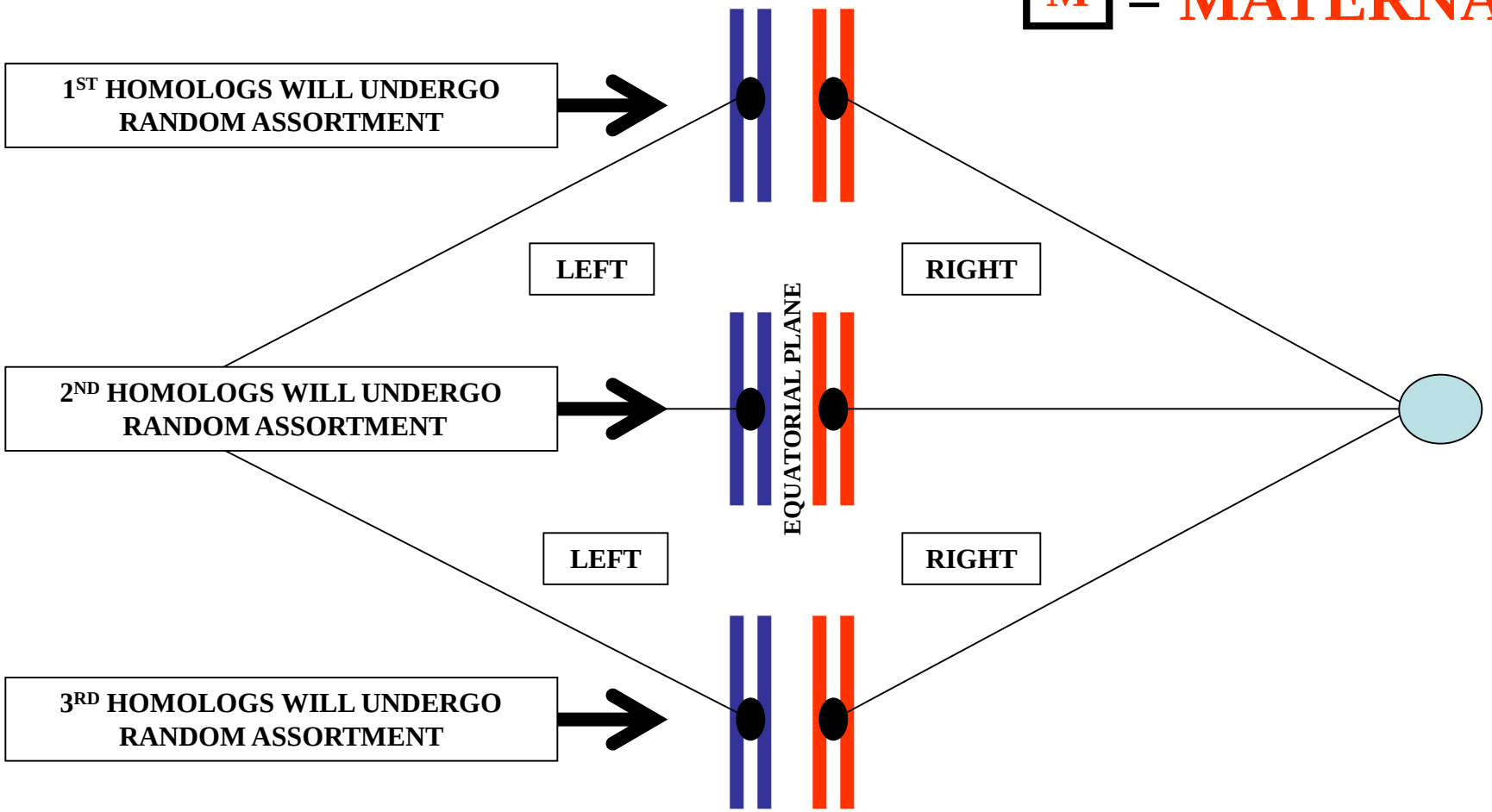
METAPHASE - I

P = PATERNAL

M = MATERNAL

+

I

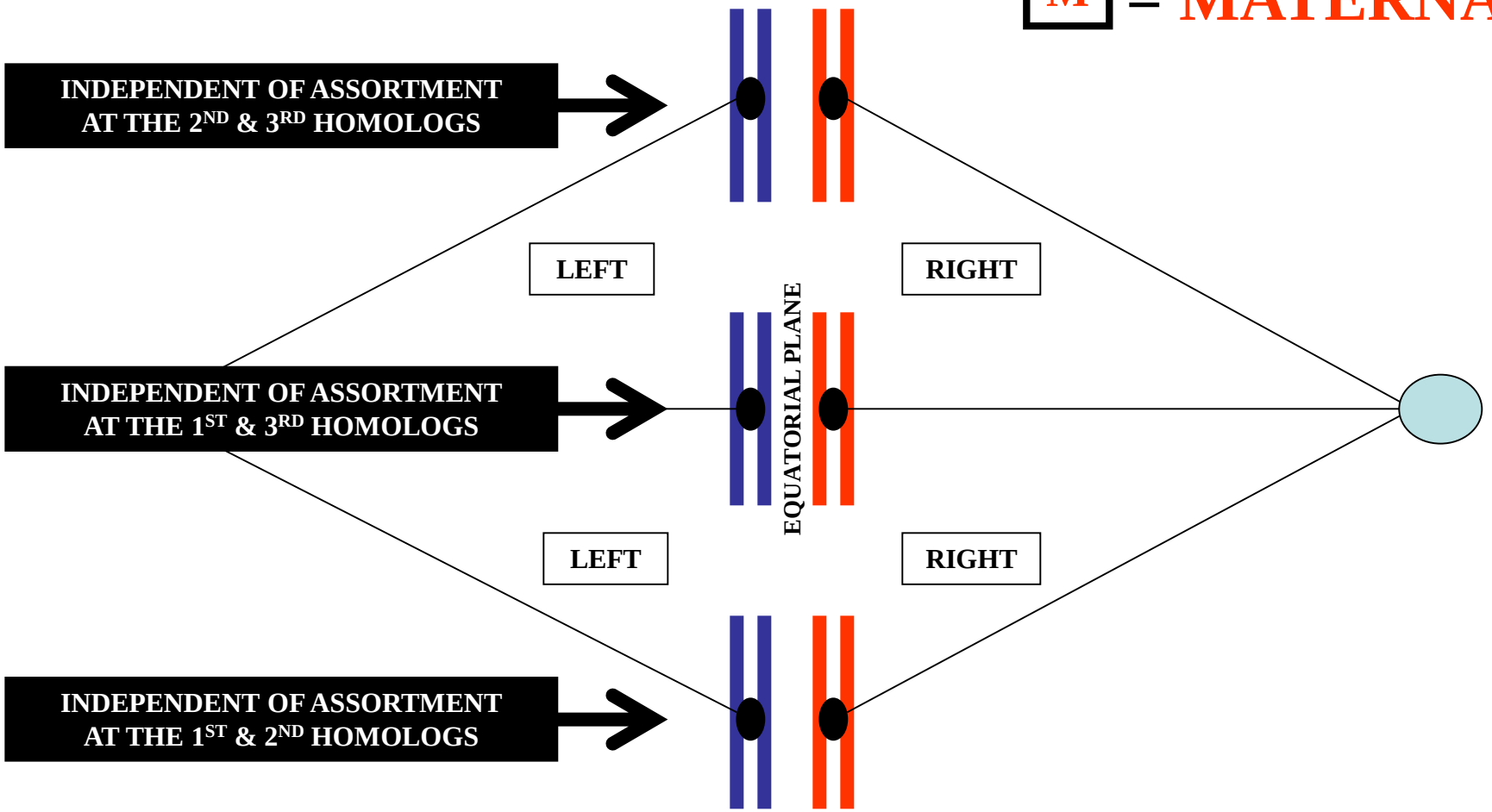


INDEPENDENT ASSORTMENT

METAPHASE - I

P = PATERNAL

M = MATERNAL



INDEPENDENT ASSORTMENT

HOMOLOG ASSORTMENT OUTCOME

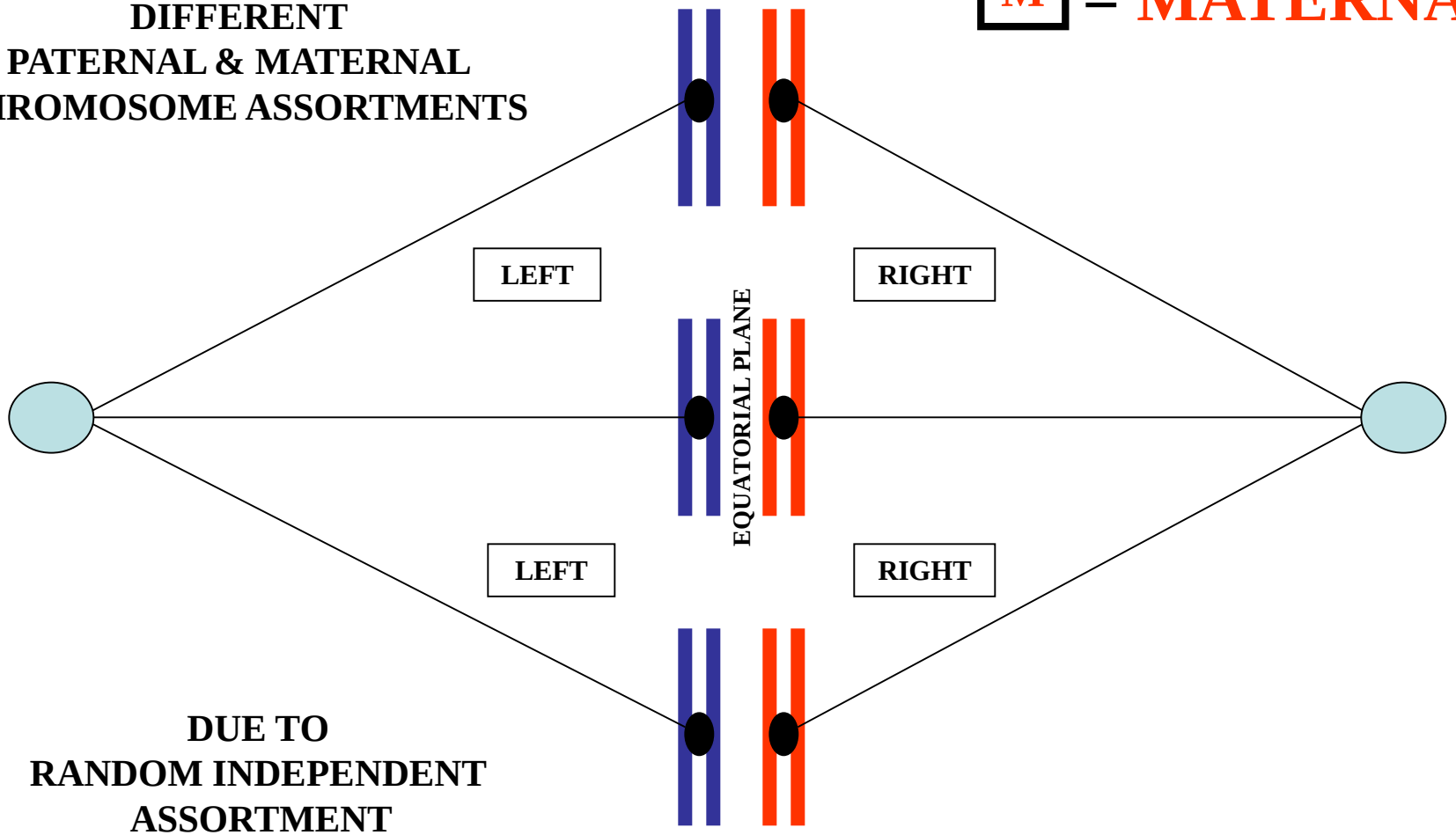
DIFFERENT PATERNAL & MATERNAL CHROMOSOME ASSORTMENT COMBINATIONS

METAPHASE - I

P = PATERNAL

M = MATERNAL

DIFFERENT
PATERNAL & MATERNAL
CHROMOSOME ASSORTMENTS



DUE TO
RANDOM INDEPENDENT
ASSORTMENT

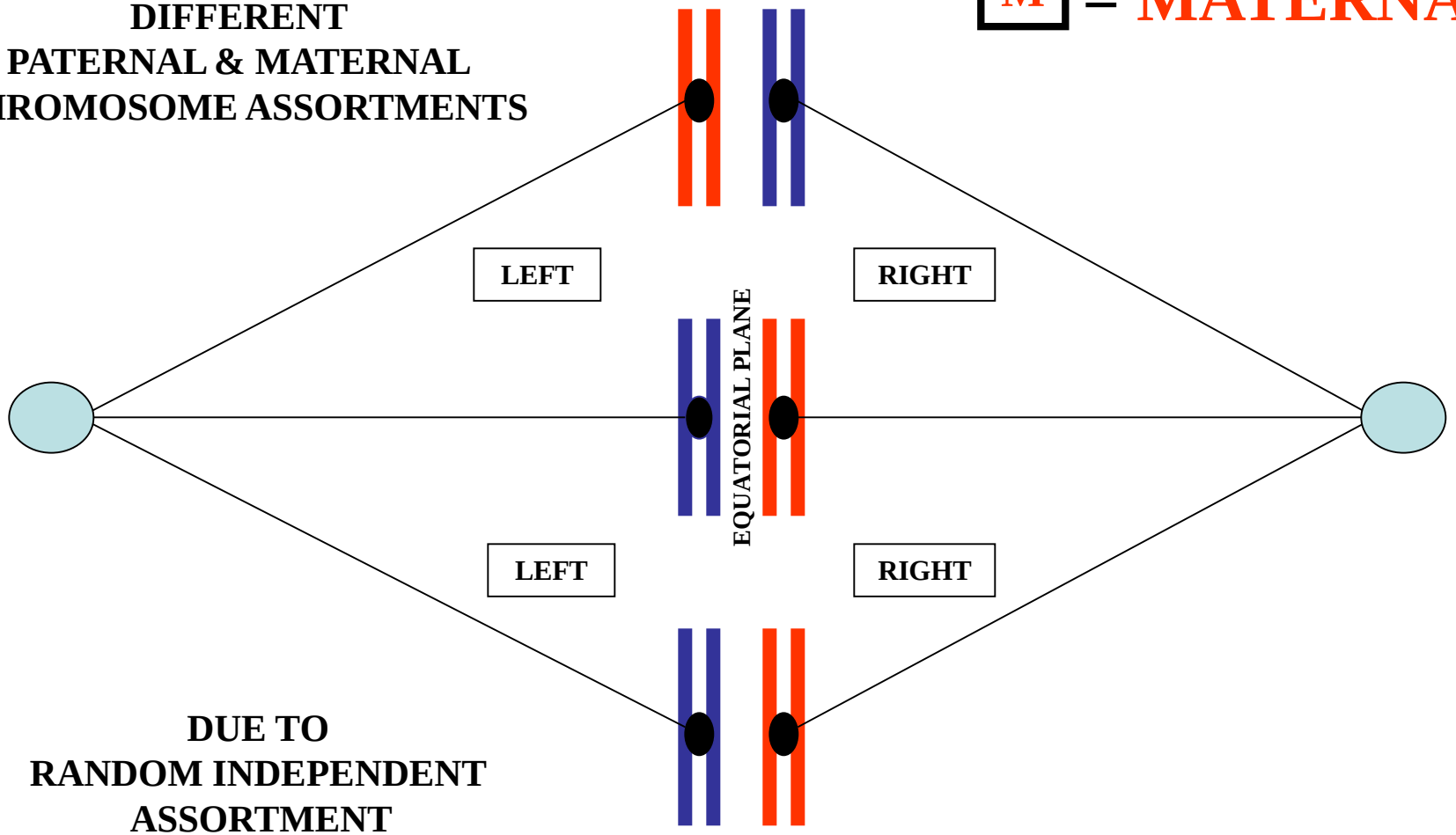
HOMOLOG ASSORTMENT OUTCOME

METAPHASE - I

P = PATERNAL

M = MATERNAL

DIFFERENT
PATERNAL & MATERNAL
CHROMOSOME ASSORTMENTS



DUE TO
RANDOM INDEPENDENT
ASSORTMENT

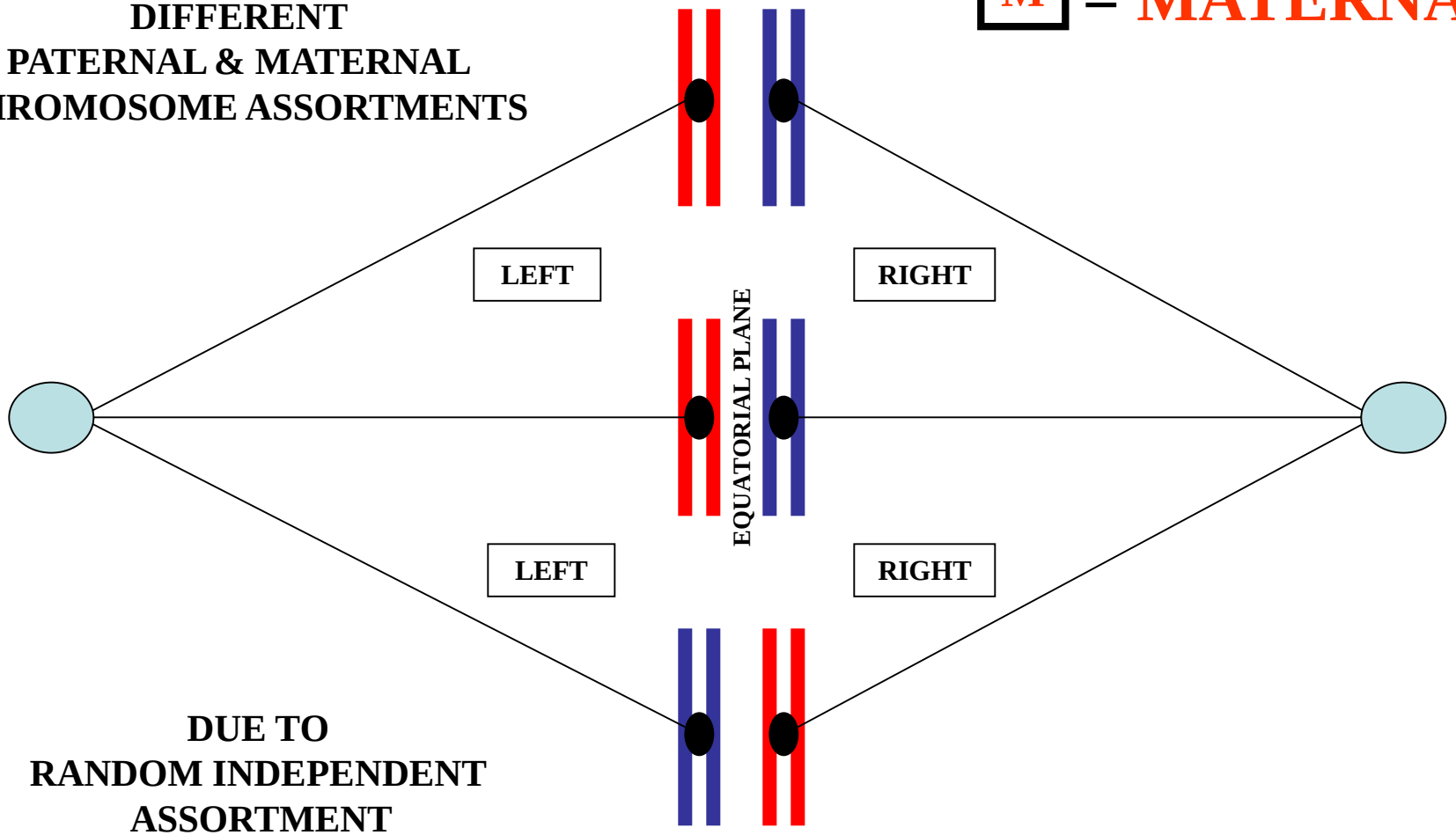
HOMOLOG ASSORTMENT OUTCOME

METAPHASE - I

P = PATERNAL

M = MATERNAL

DIFFERENT
PATERNAL & MATERNAL
CHROMOSOME ASSORTMENTS



DUE TO
RANDOM INDEPENDENT
ASSORTMENT

HOMOLOG ASSORTMENT OUTCOME

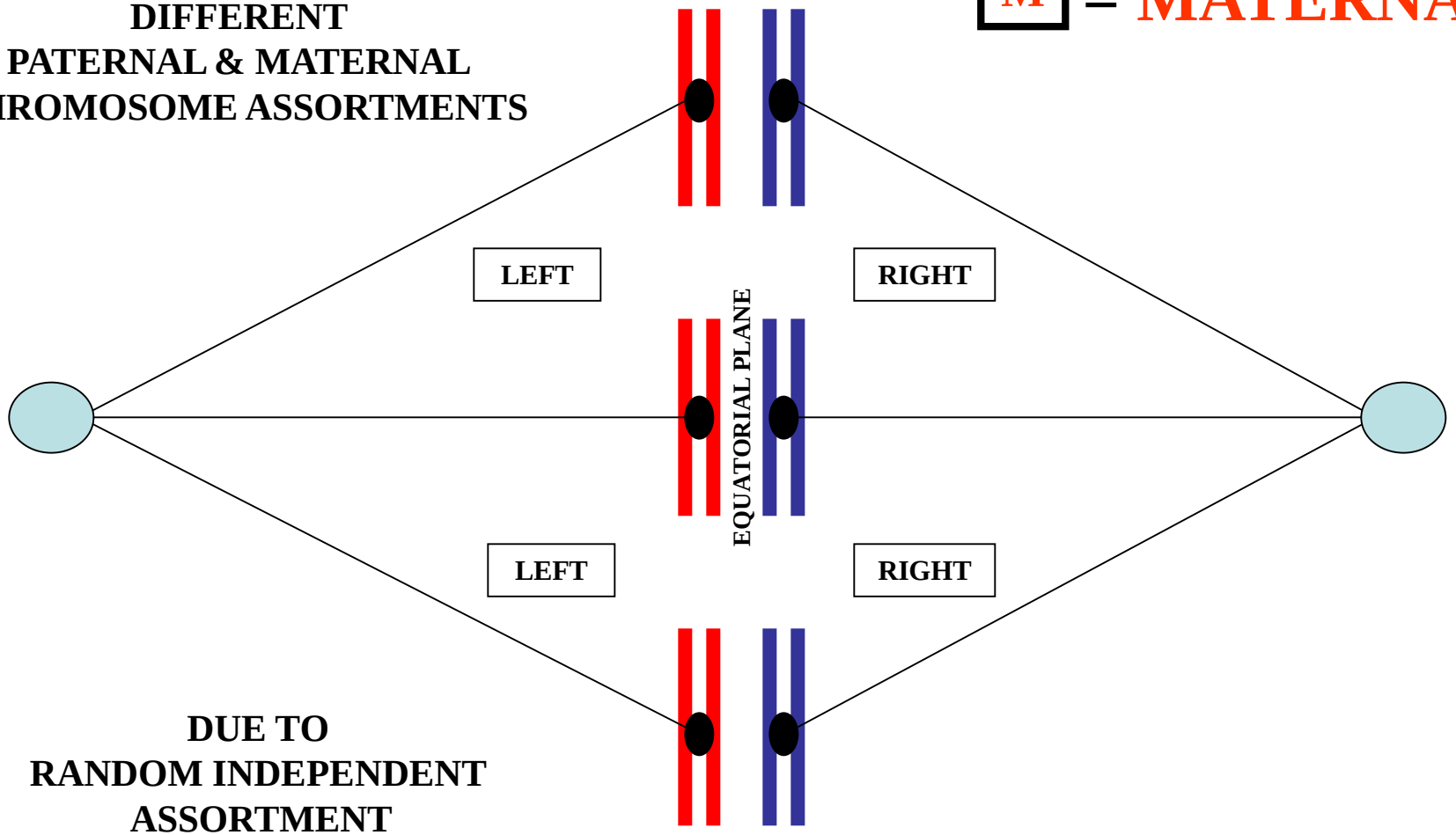
METAPHASE - I

P = PATERNAL

M = MATERNAL

2 +

DIFFERENT
PATERNAL & MATERNAL
CHROMOSOME ASSORTMENTS



DUE TO
RANDOM INDEPENDENT
ASSORTMENT

HOMOLOG ASSORTMENT OUTCOME

DIFFERENT PATERNAL & MATERNAL CHROMOSOME ASSORTMENT COMBINATIONS

F

POSSIBLE ASSORTMENT COMBINATIONS

RANDOM INDEPENDENT ASSORTMENT FORMULA

EG

$$\text{FORMULA} = 2^{N}$$

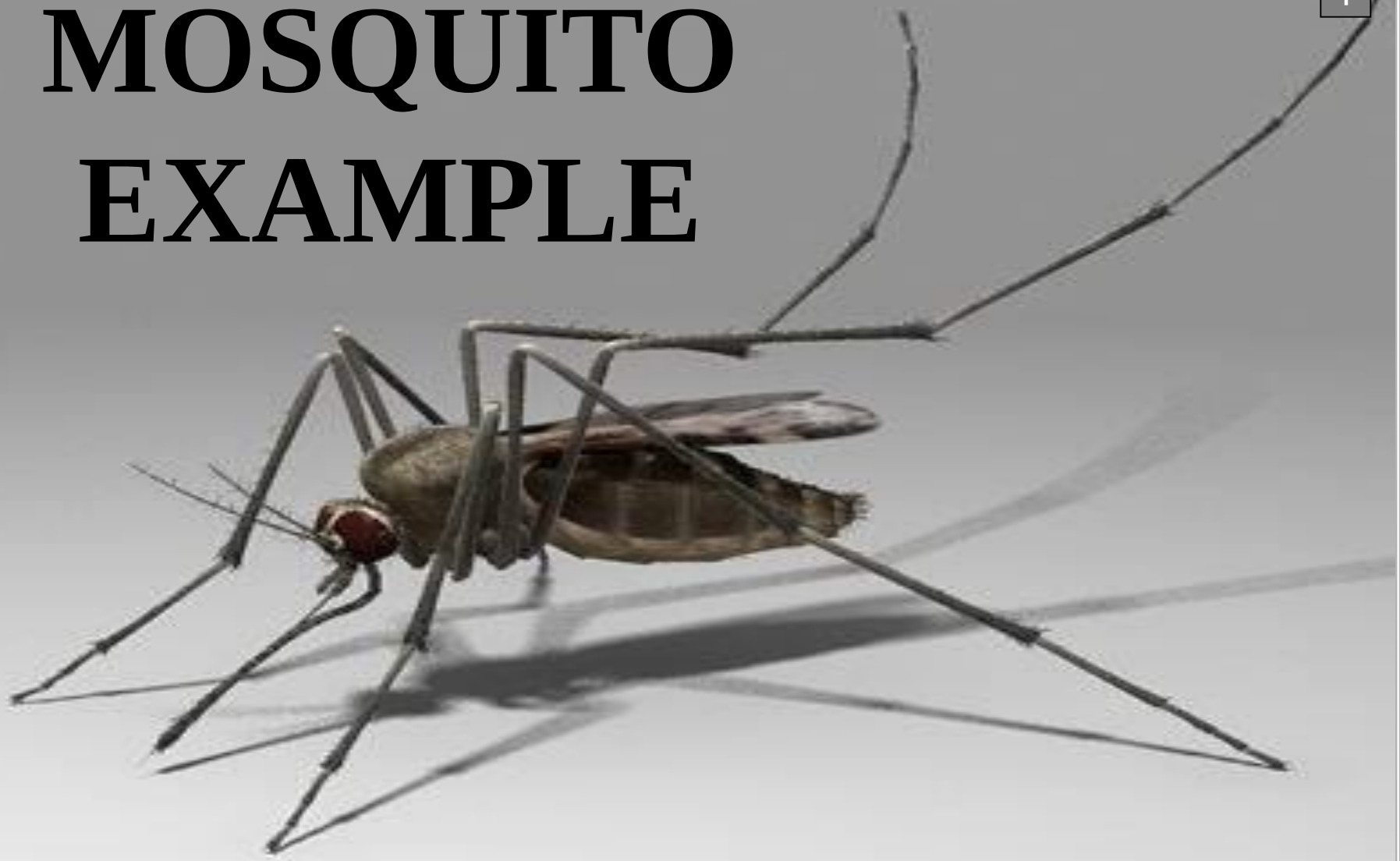
N = NO. HOMOLOGOUS CHROMOSOME PAIRS

RANDOM INDEPENDENT ASSORTMENT

MOSQUITO EXAMPLE

RANDOM INDEPENDENT ASSORTMENT

MOSQUITO EXAMPLE

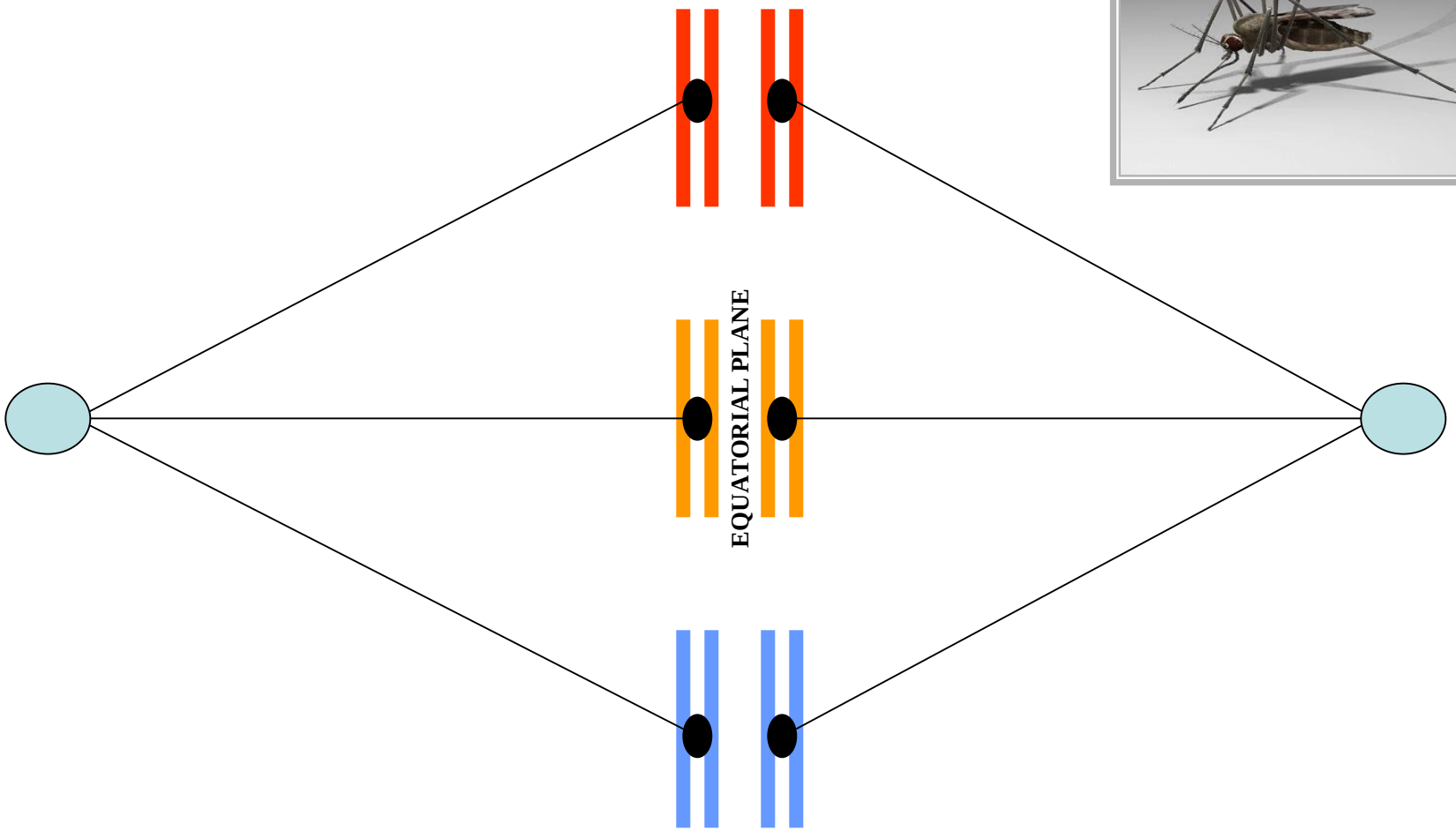


2N = 6

METAPHASE - I

?

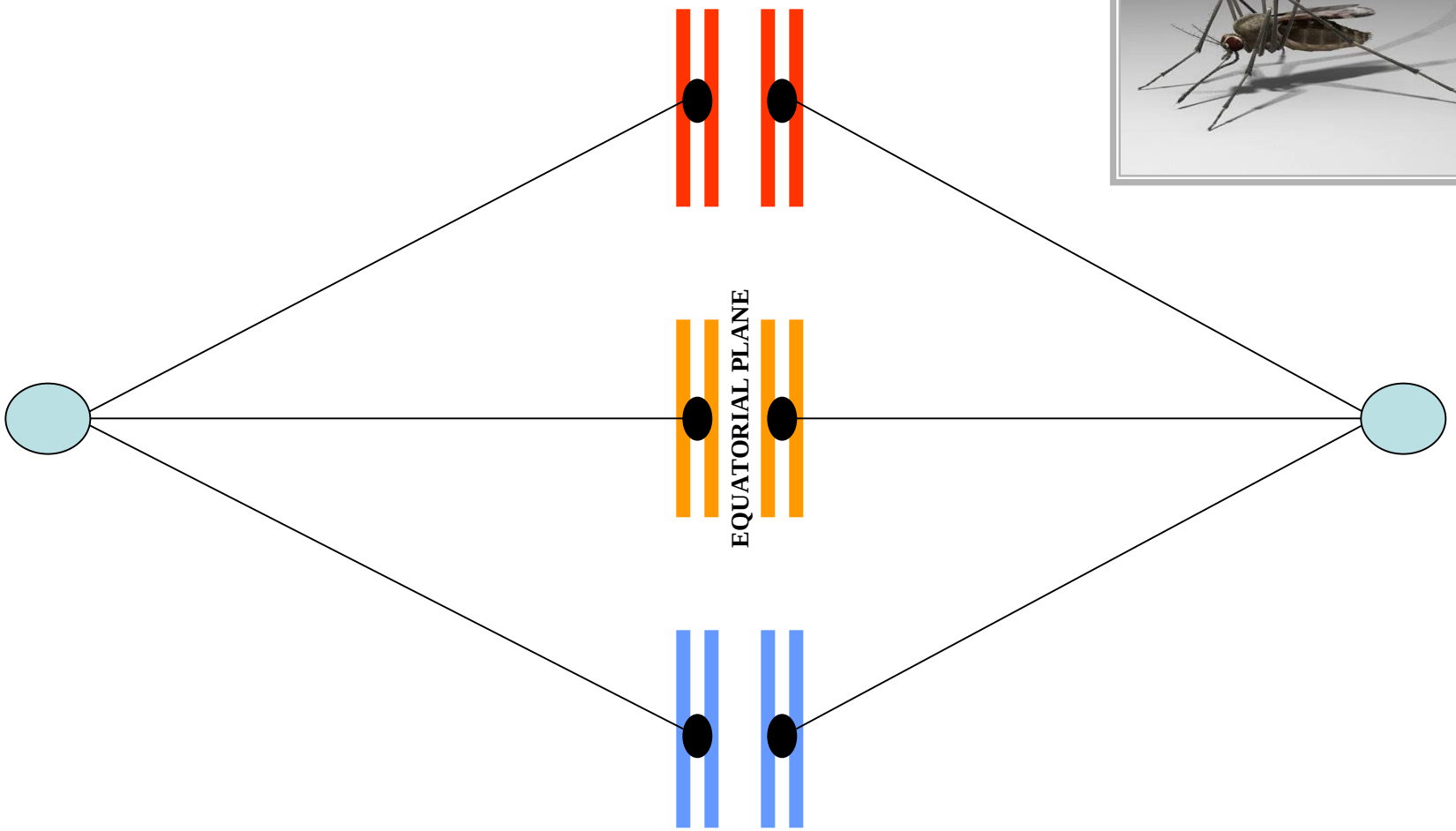
+



2N = 6

METAPHASE - I

3



? HOMOLOGOUS CHROMOSOME PAIRS

METAPHASE - I

F

3 HOMOLOGOUS CHROMOSOME PAIRS

RANDOM INDEPENDENT ASSORTMENT FORMULA

$$N^{\#}$$

FORMULA = 2

N = NO. HOMOLOGOUS CHROMOSOME PAIRS

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT FORMULA

3 ? +

FORMULA = 2

N = NO. HOMOLOGOUS CHROMOSOME PAIRS

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT POSSIBLE COMBINATIONS

#

$$3$$

$$2 = 2 \times 2 \times 2 = ?$$

POSSILE COMBINATIONS

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT POSSIBLE COMBINATIONS

+

8

$$3$$

$$2 = 2 \times 2 \times 2 = 8$$

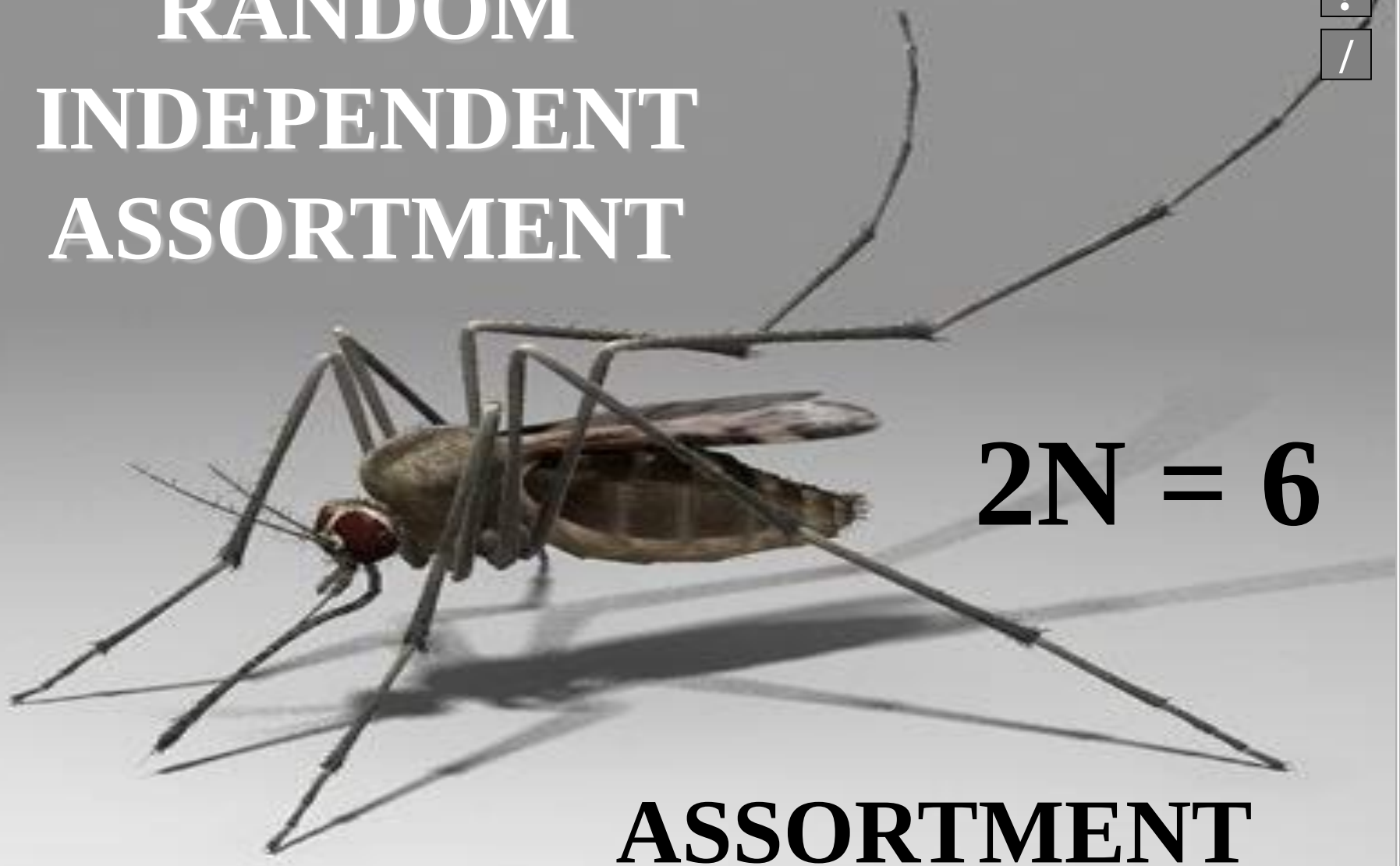
8 POSSILE COMBINATIONS

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT

?

/



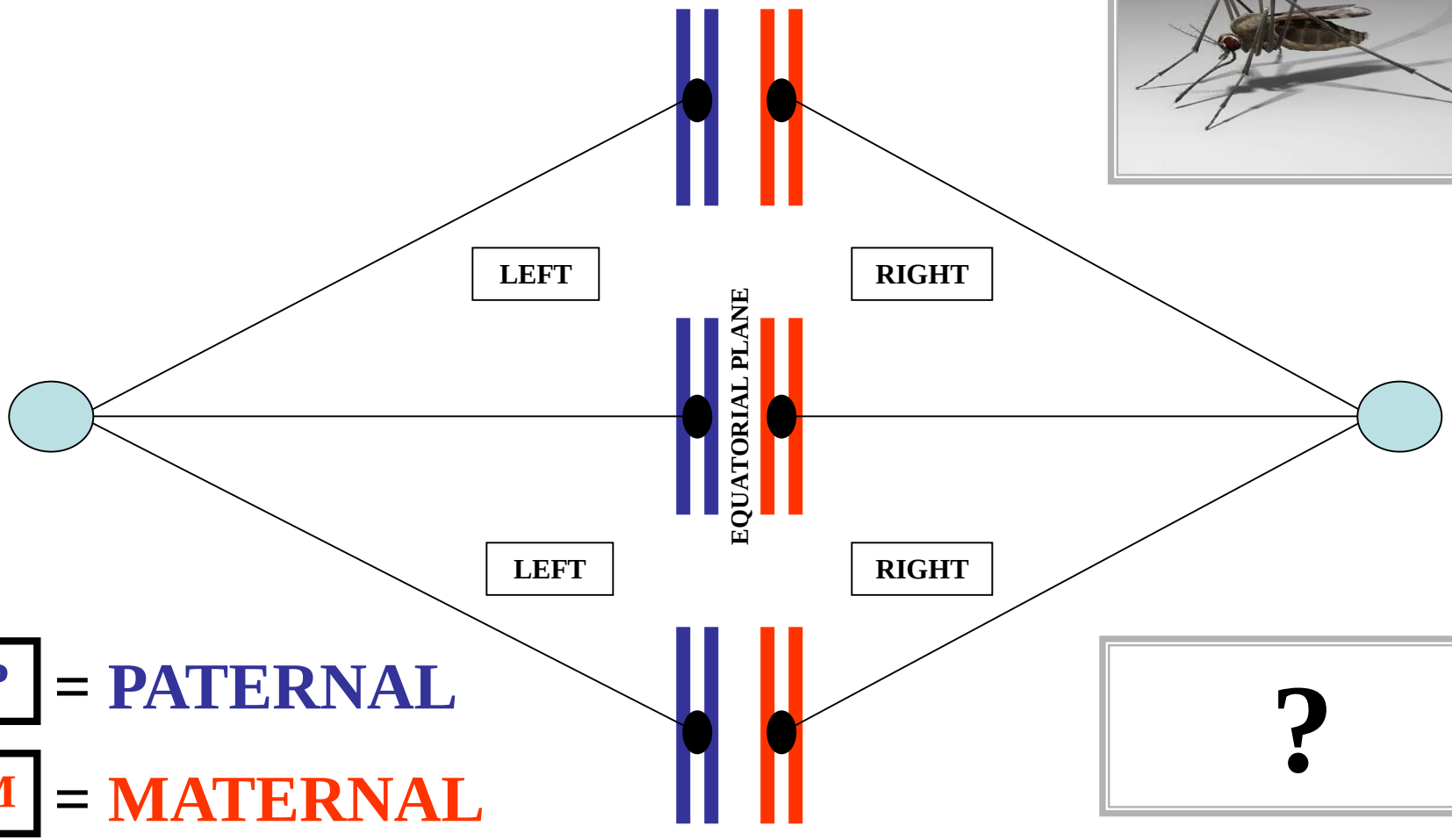
2N = 6

ASSORTMENT

8 POSSILE COMBINATIONS

METAPHASE - I

/



P = PATERNAL

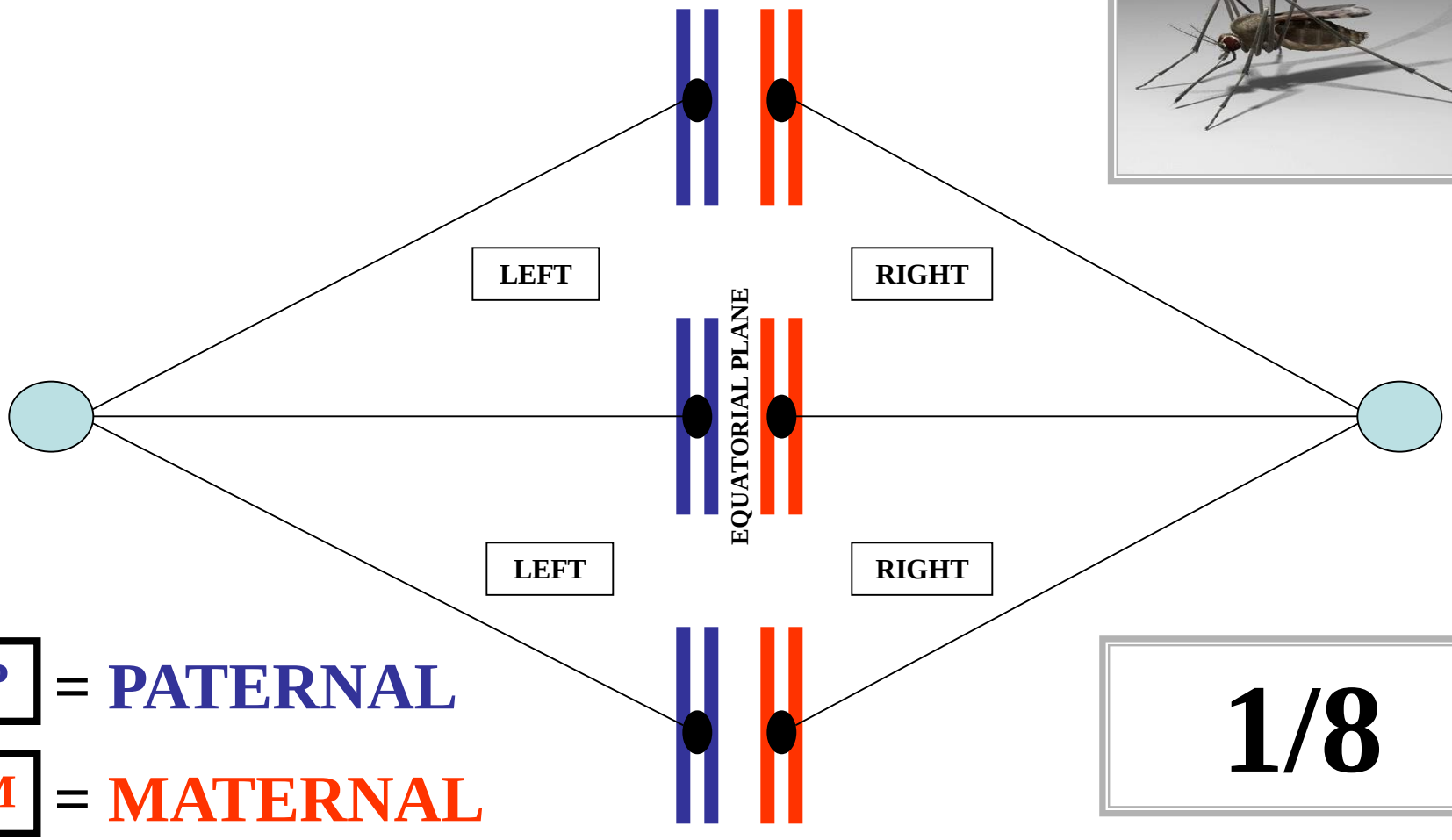
M = MATERNAL

?

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

?



P = PATERNAL

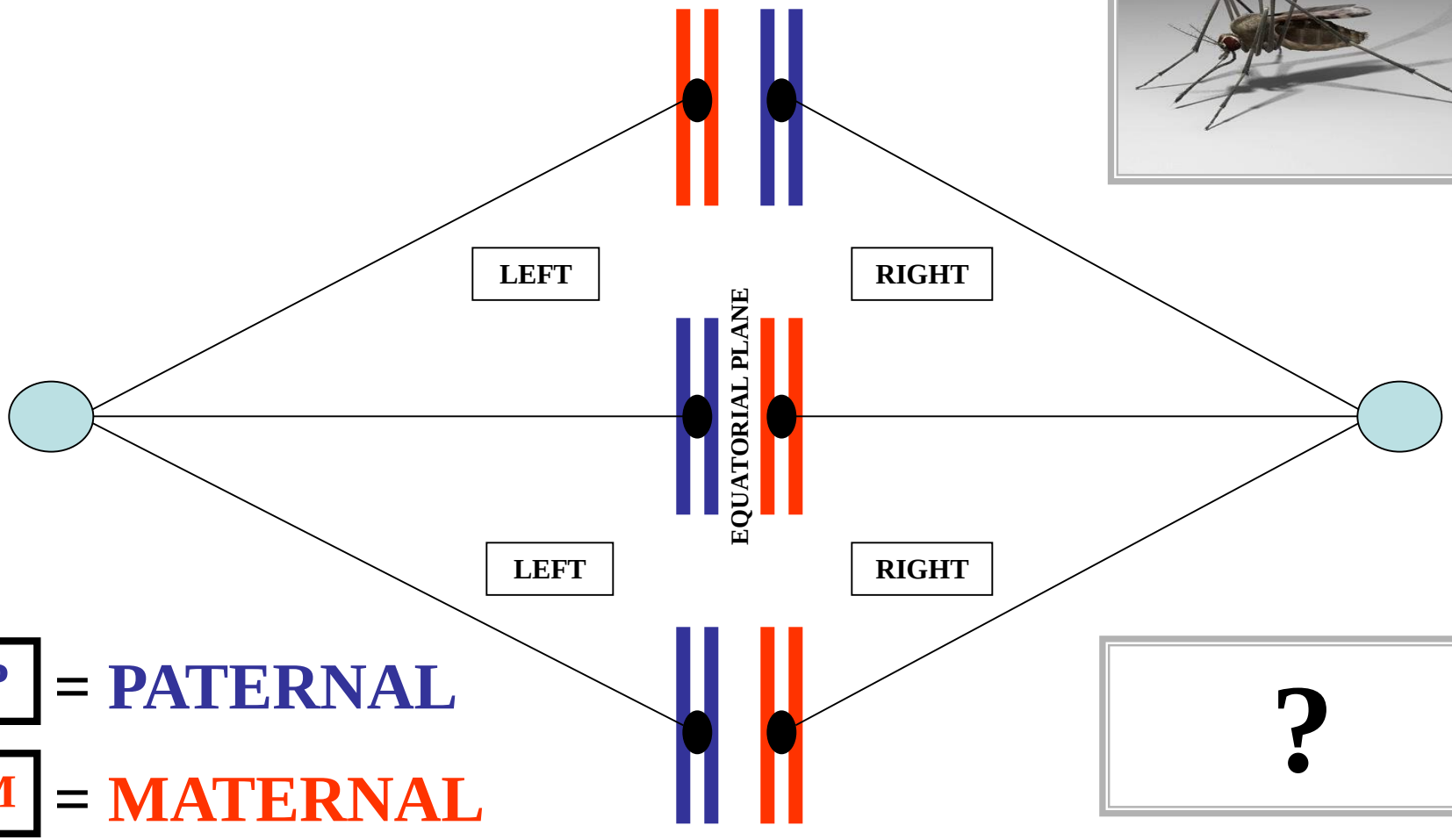
M = MATERNAL

1/8

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

/



P = PATERNAL

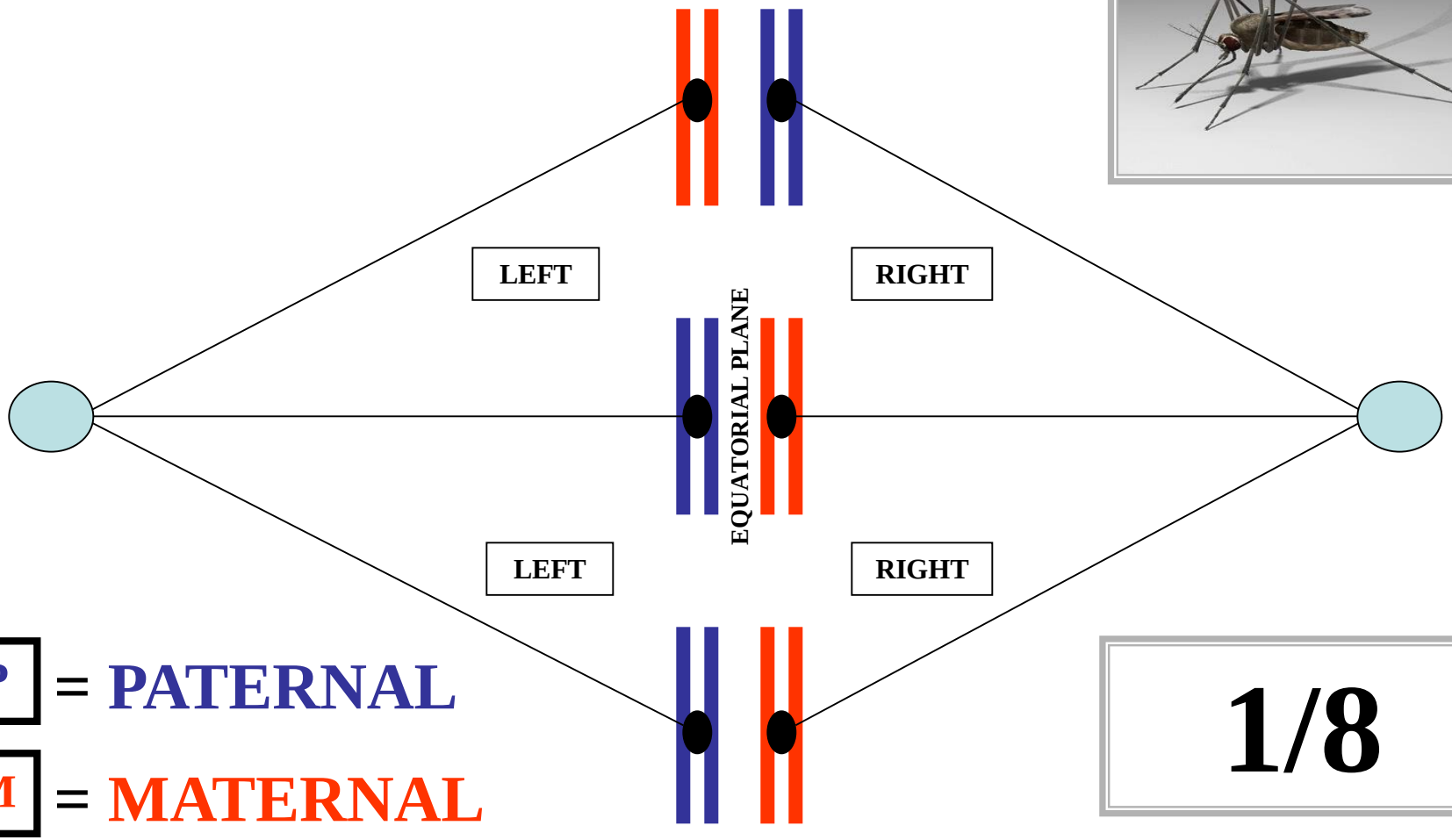
M = MATERNAL

?

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

?



P = PATERNAL

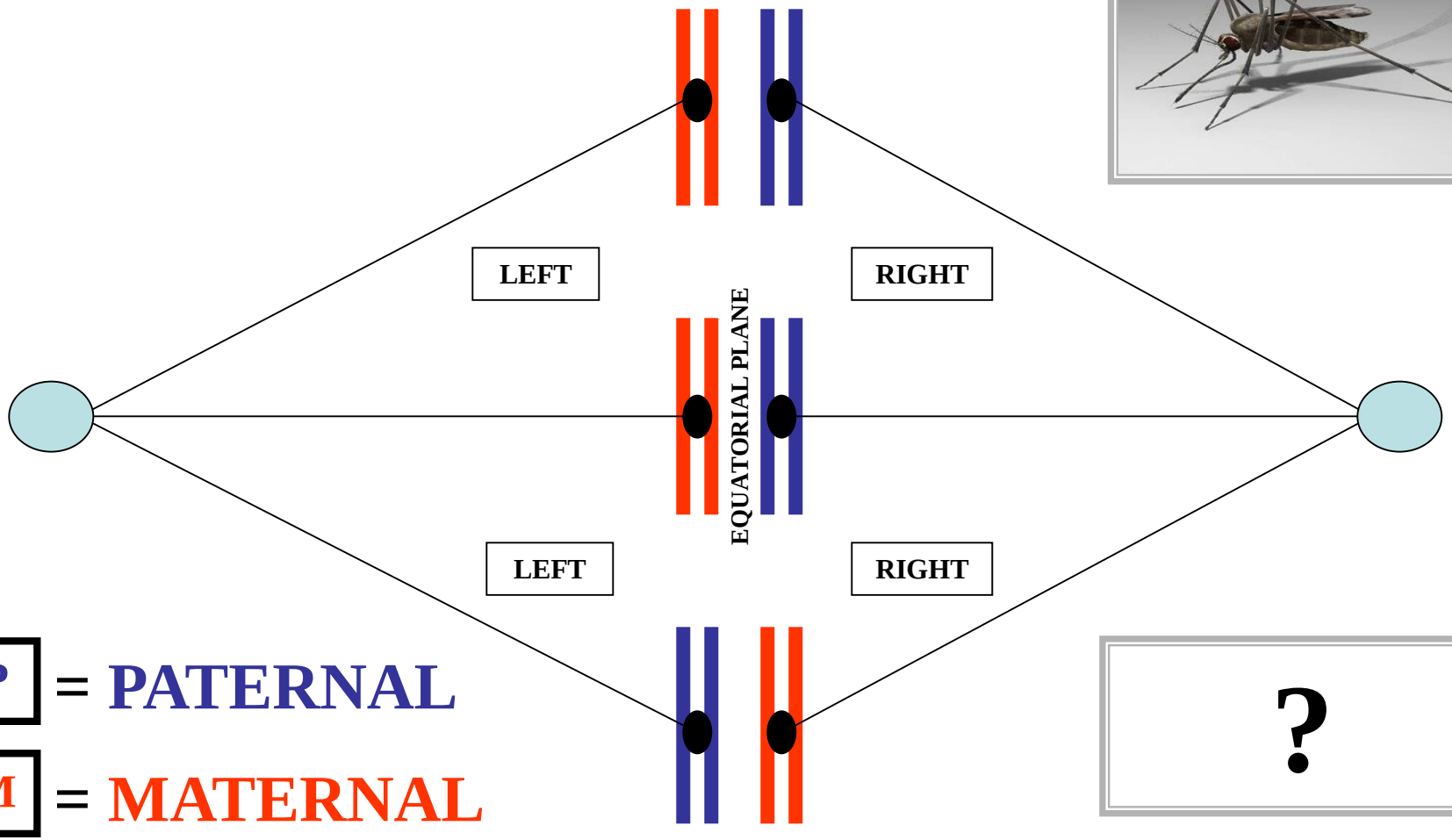
M = MATERNAL

1/8

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

/



P = PATERNAL

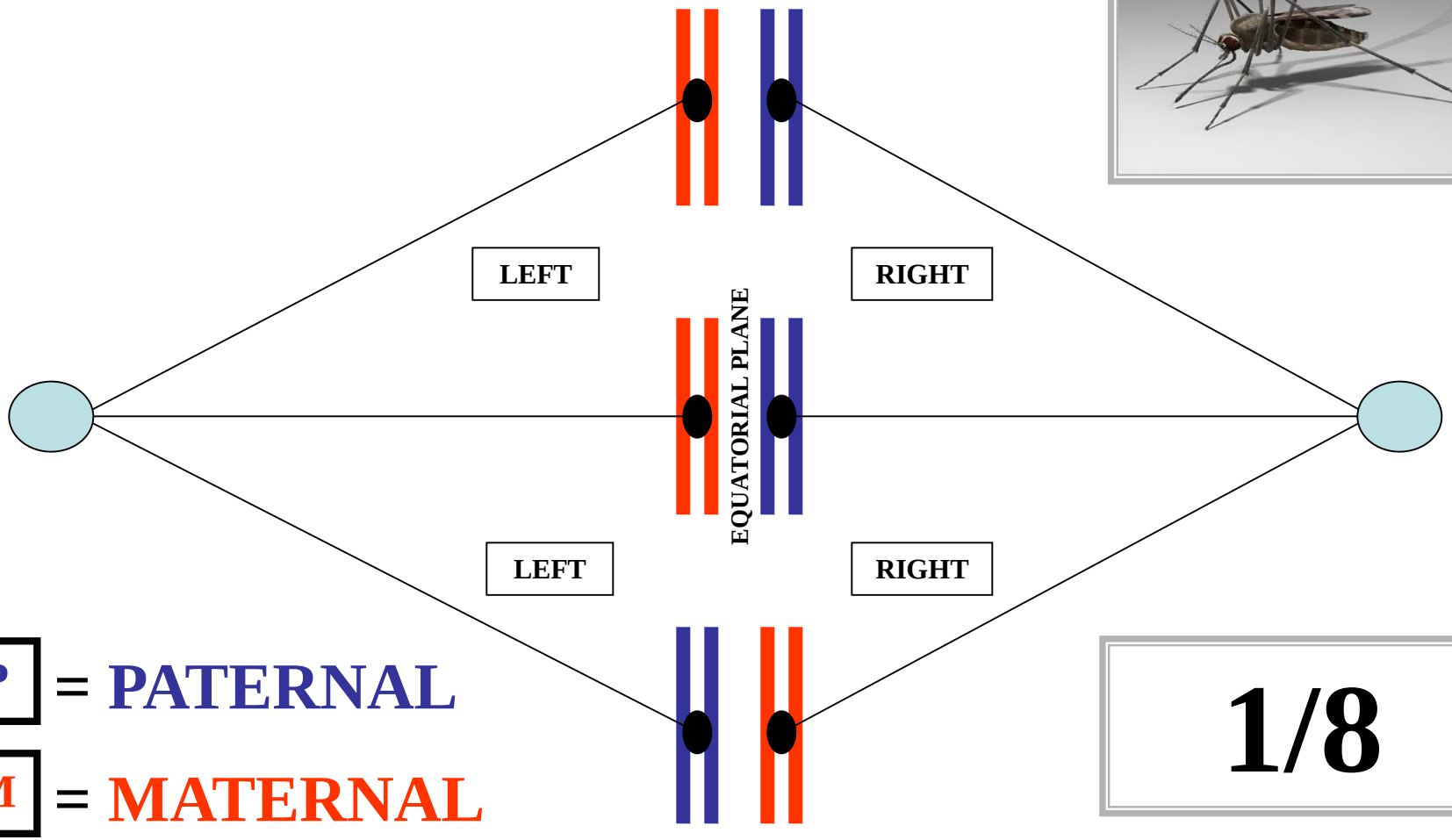
M = MATERNAL

?

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

?



P = PATERNAL

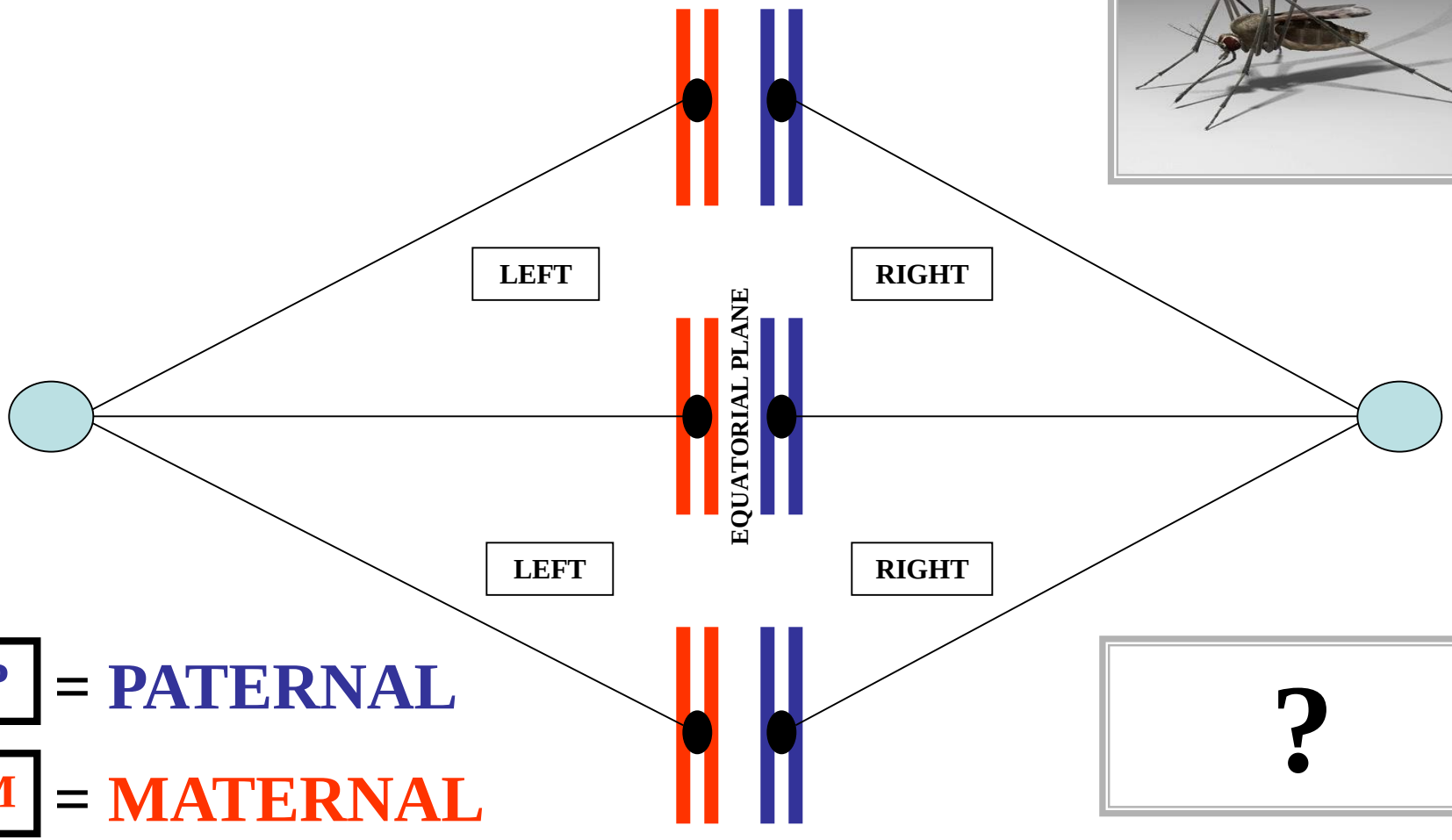
M = MATERNAL

1/8

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

/



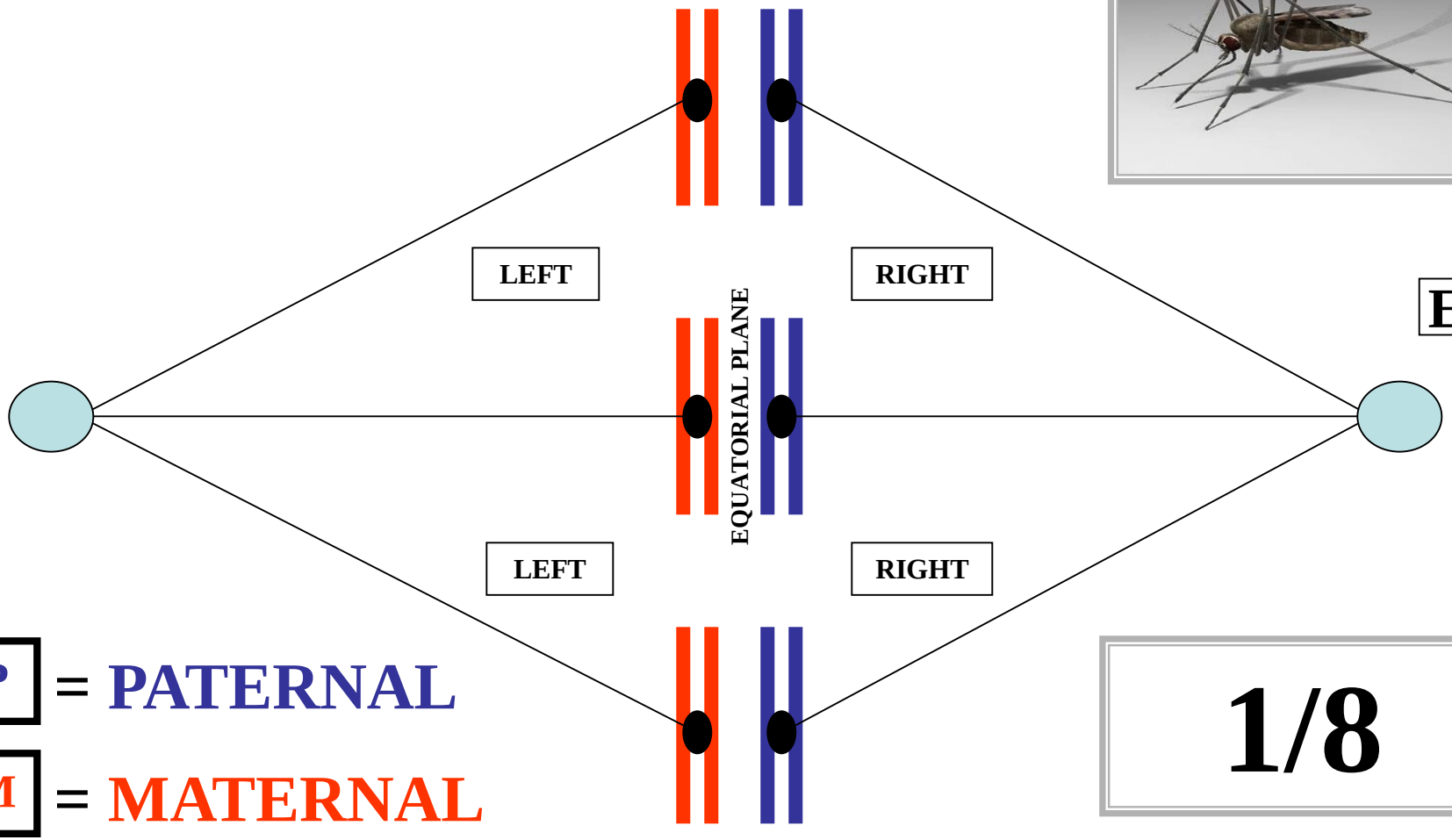
P = PATERNAL

M = MATERNAL

?

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I



Λ

EG

P = PATERNAL

M = MATERNAL

1/8

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT

?

HUMAN EXAMPLE

RANDOM INDEPENDENT ASSORTMENT

HUMAN GENOME

HOMO SAPIENS

HUMAN GENOME

HOMO SAPIENS

HUMAN GENOME

HOMO SAPIENS

HUMAN GENOME

F

HOMO SAPIENS

RANDOM INDEPENDENT ASSORTMENT FORMULA

#

$$\text{FORMULA} = 2^{N}$$

N = NO. HOMOLOGOUS CHROMOSOME PAIRS

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT FORMULA

?

23

FORMULA = 2

N = NO. HOMOLOGOUS CHROMOSOME PAIRS

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT COMBINATIONS

#

23

2 = 2 x 2 x 2 ETC = ?

POSSILE COMBINATIONS

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT COMBINATIONS

+

8.4

8,388,608 = ~8.4 M

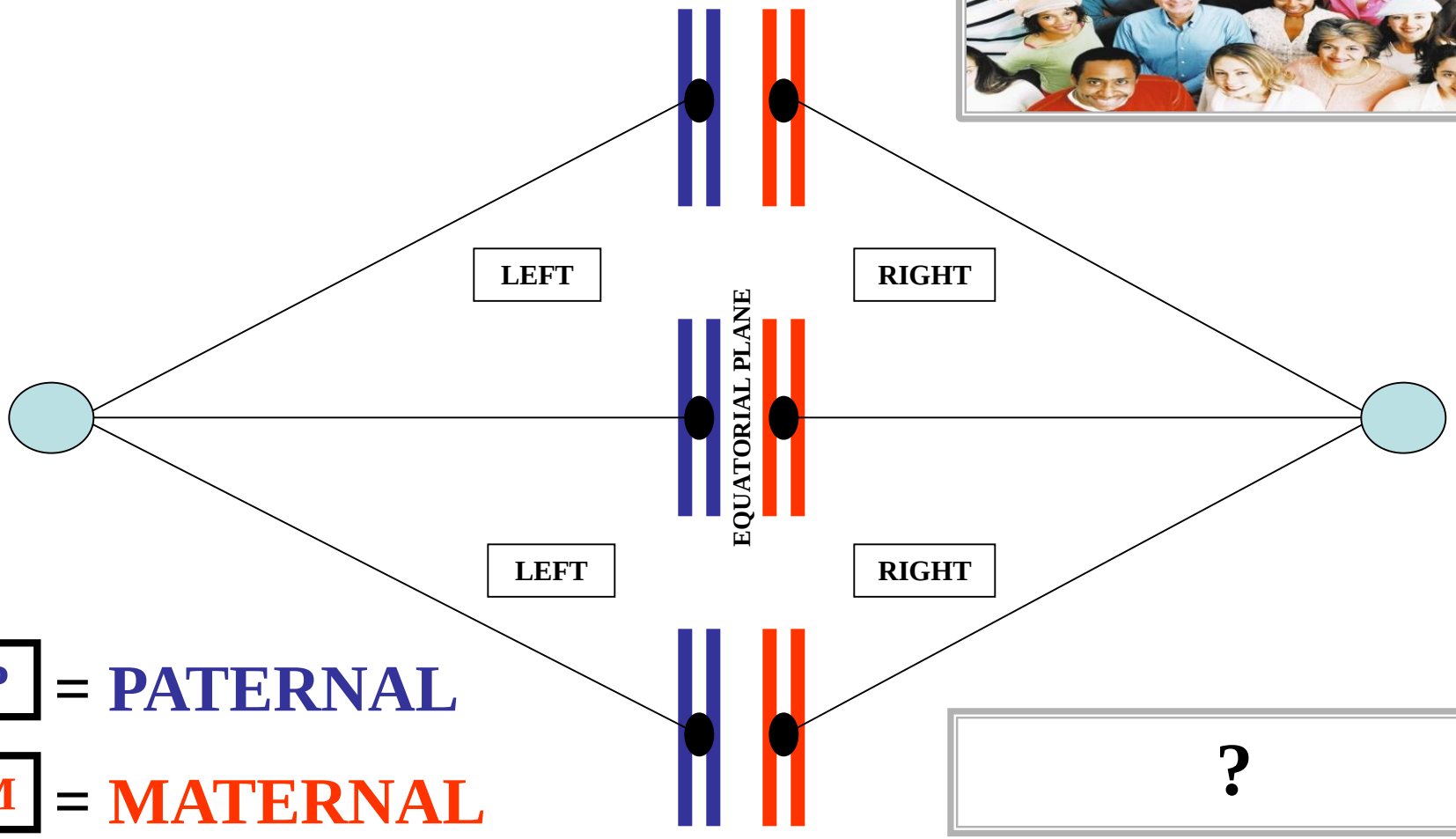
~8.4 MILLION POSSILE COMBINATIONS

RANDOM INDEPENDENT ASSORTMENT

HUMAN GENOME

METAPHASE - I

/



P = PATERNAL

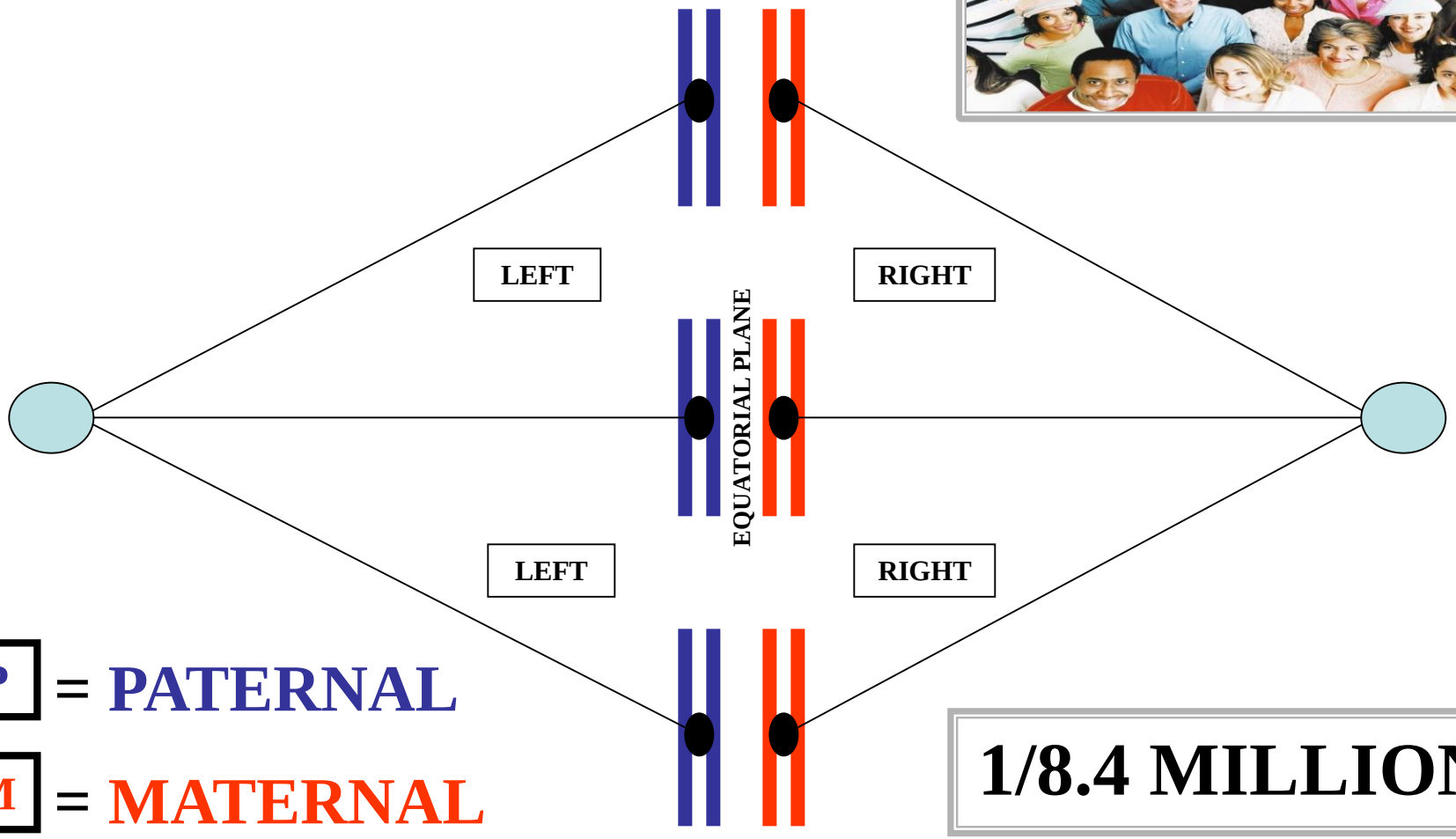
M = MATERNAL

?

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

?



P = PATERNAL

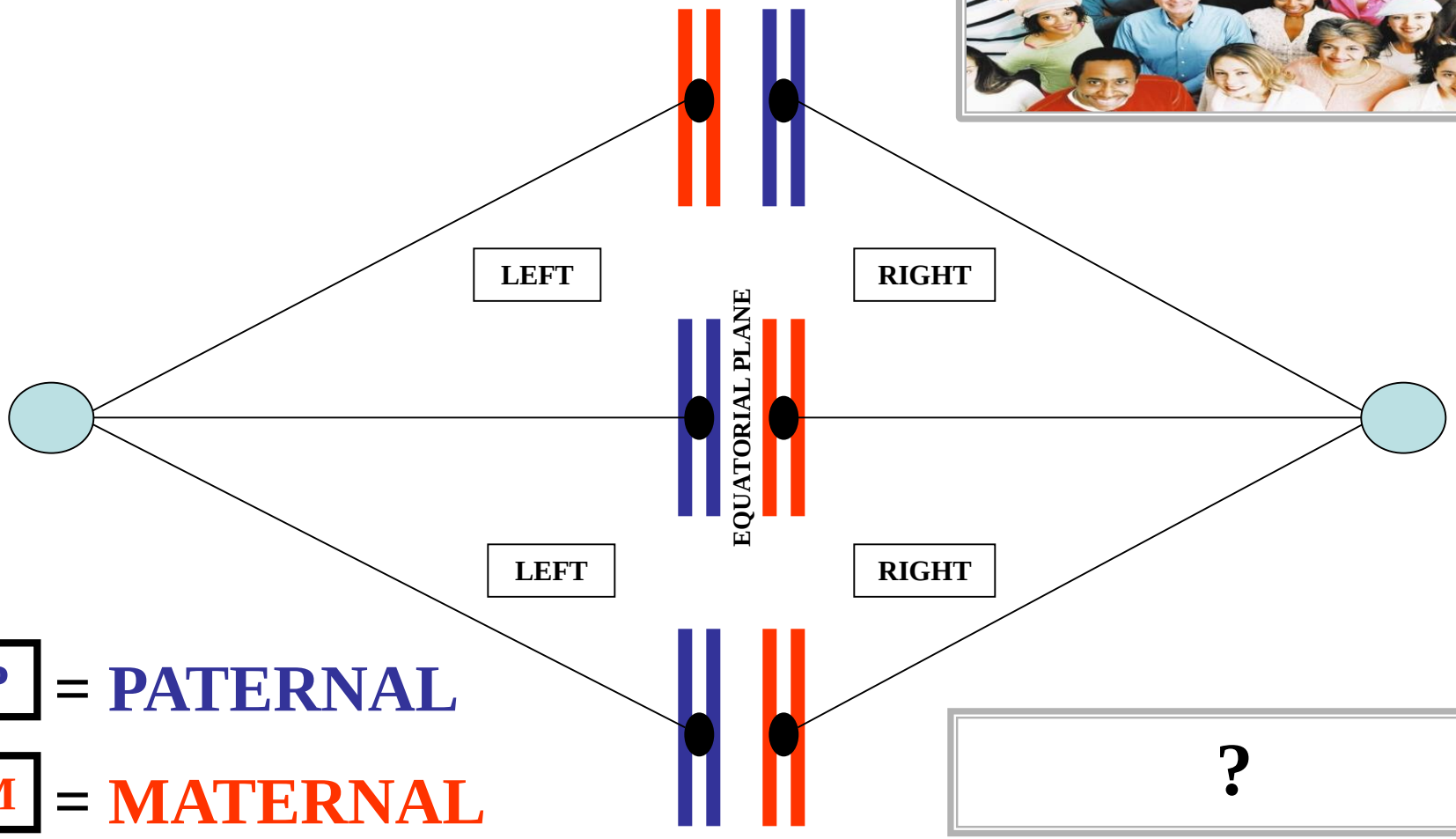
M = MATERNAL

1/8.4 MILLION

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

/



P = PATERNAL

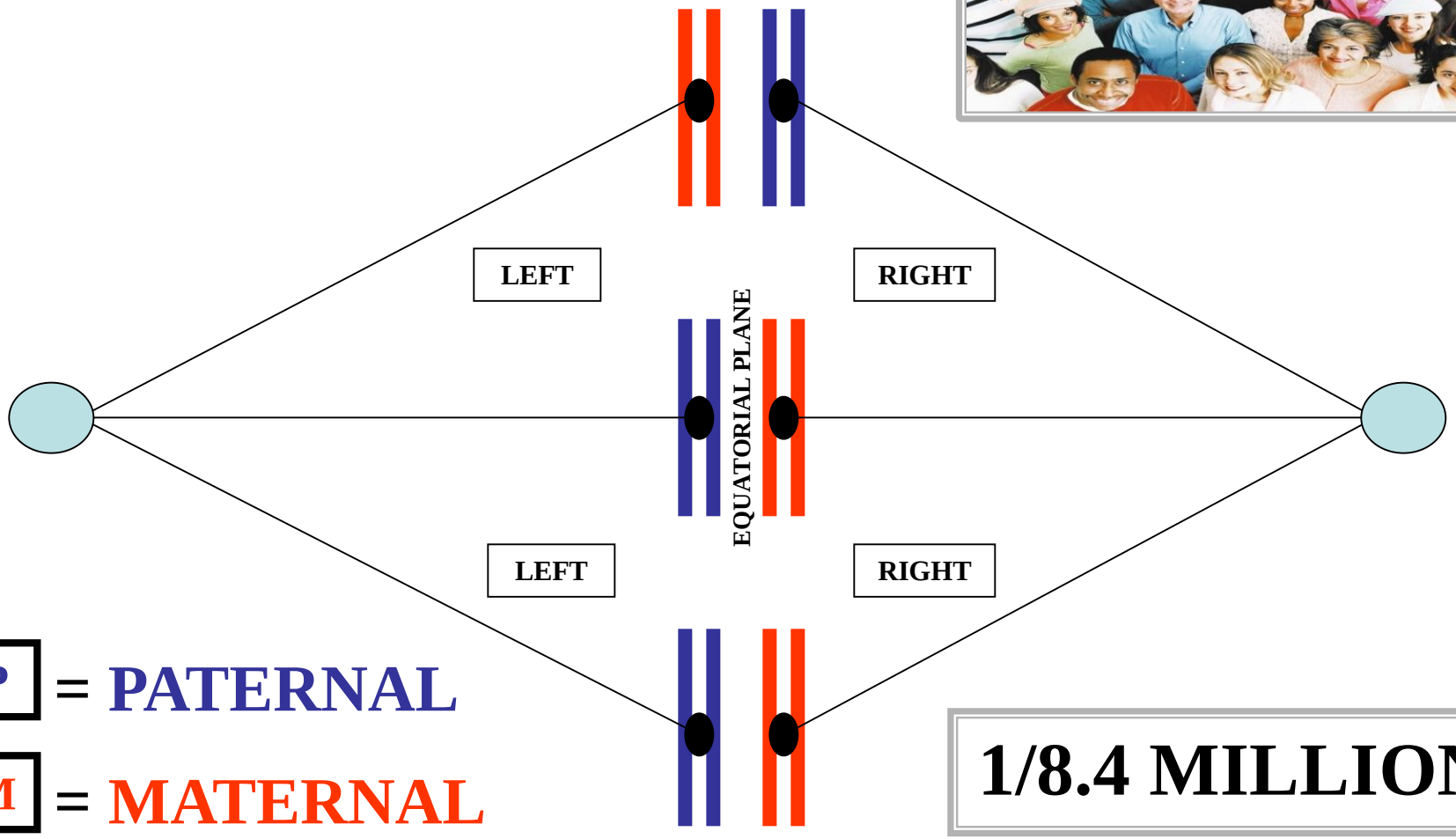
M = MATERNAL

?

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

?



P = PATERNAL

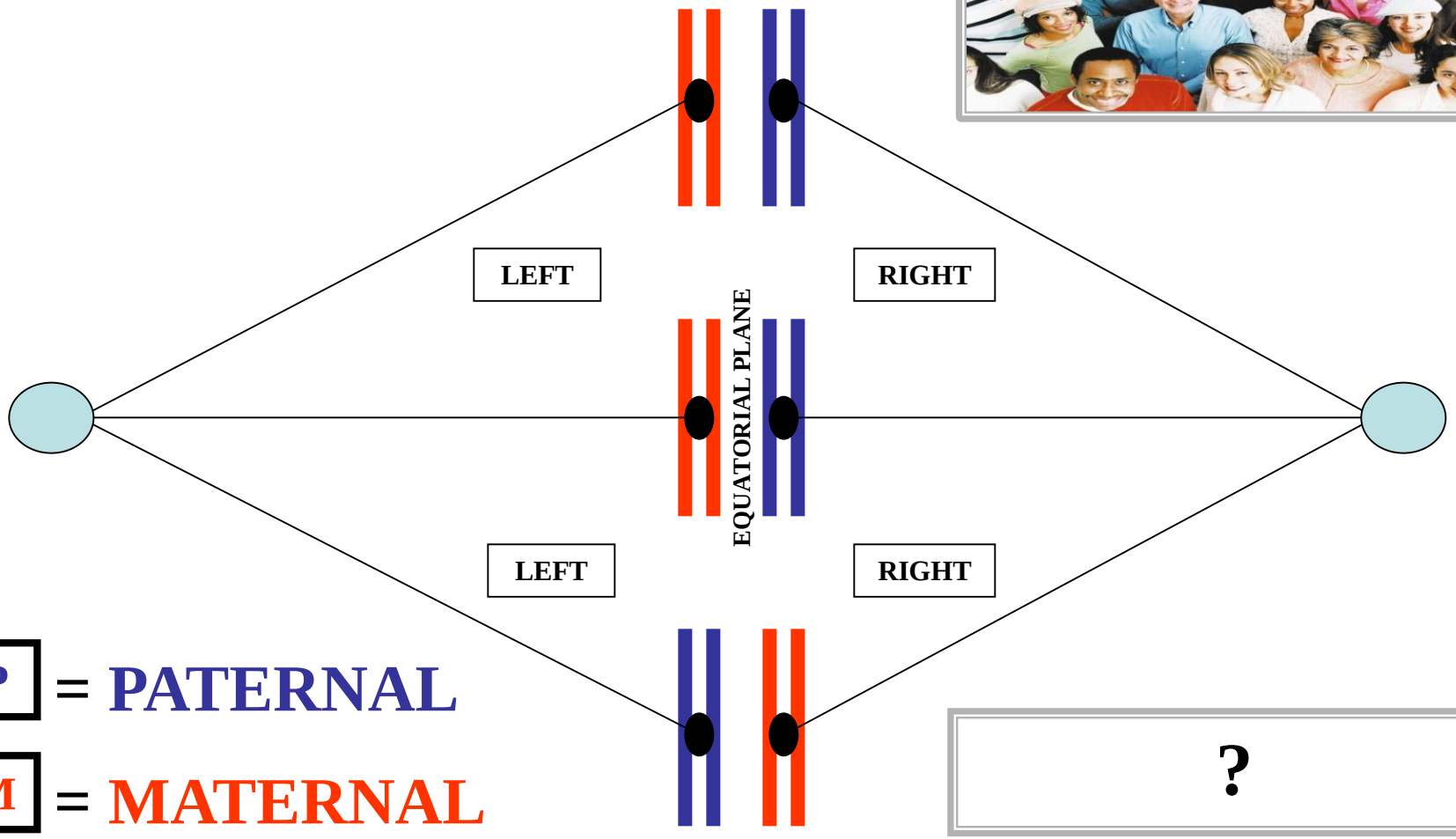
M = MATERNAL

1/8.4 MILLION

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

/



P = PATERNAL

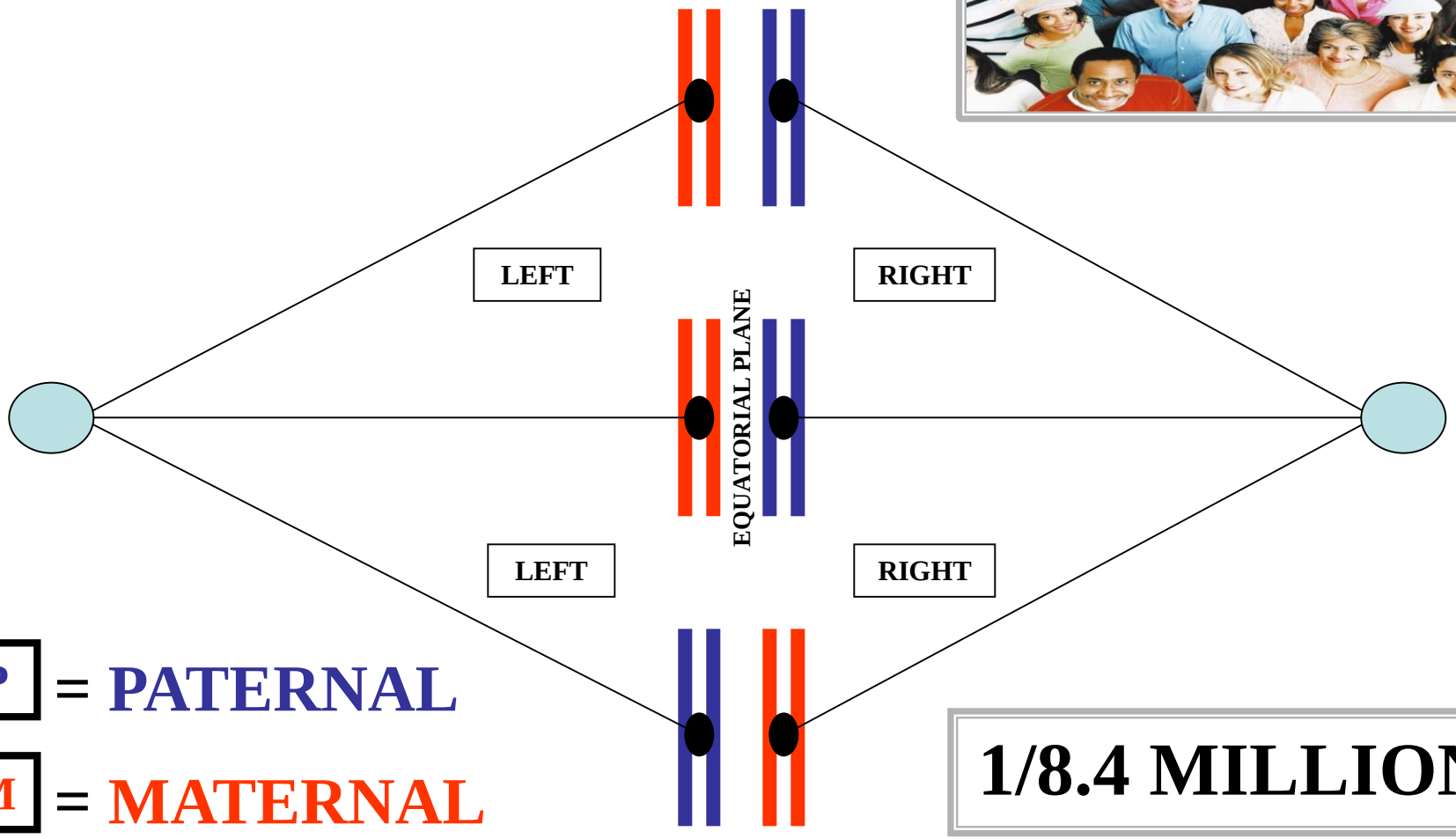
M = MATERNAL

?

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

?



P = PATERNAL

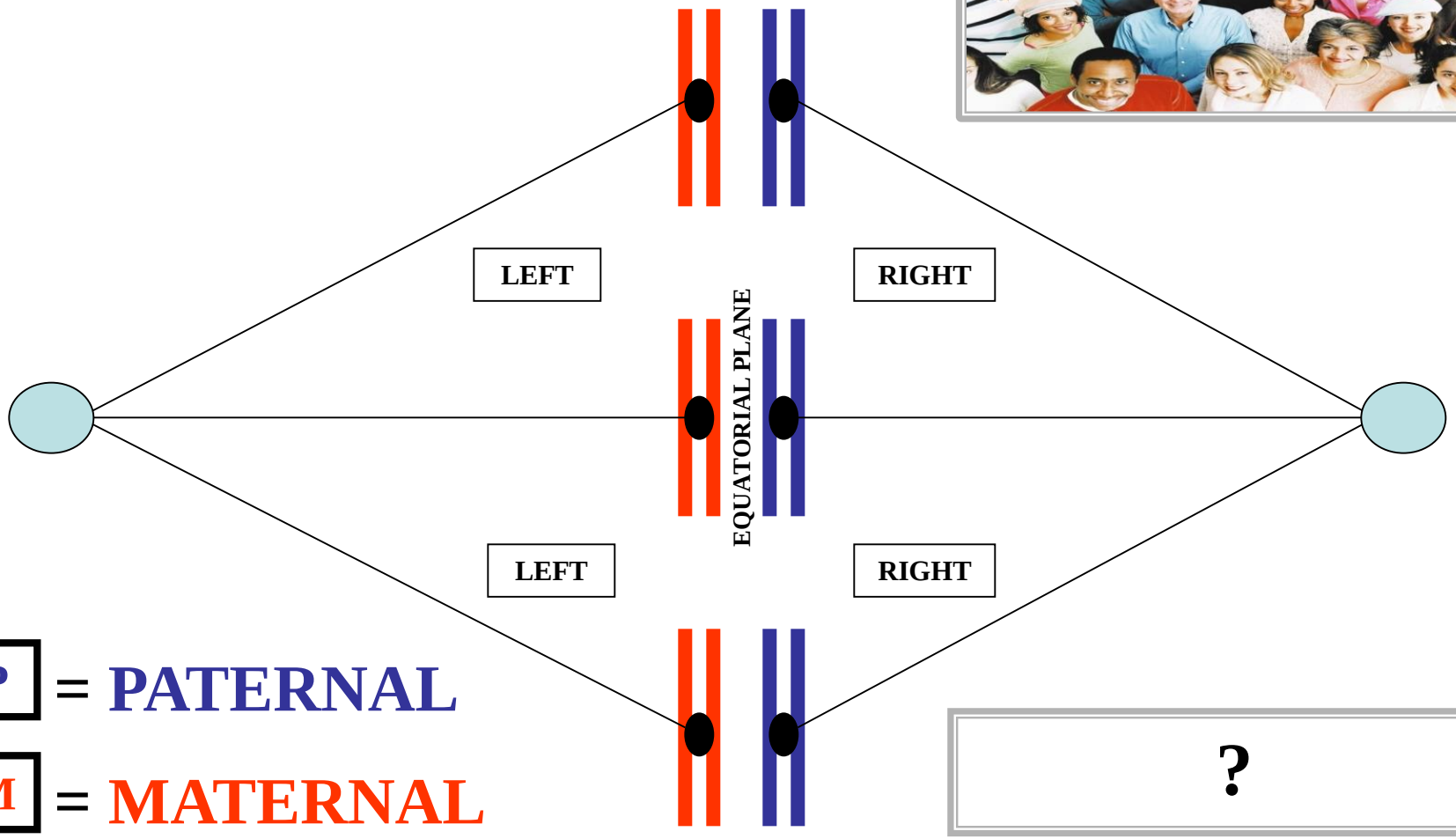
M = MATERNAL

1/8.4 MILLION

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I

/



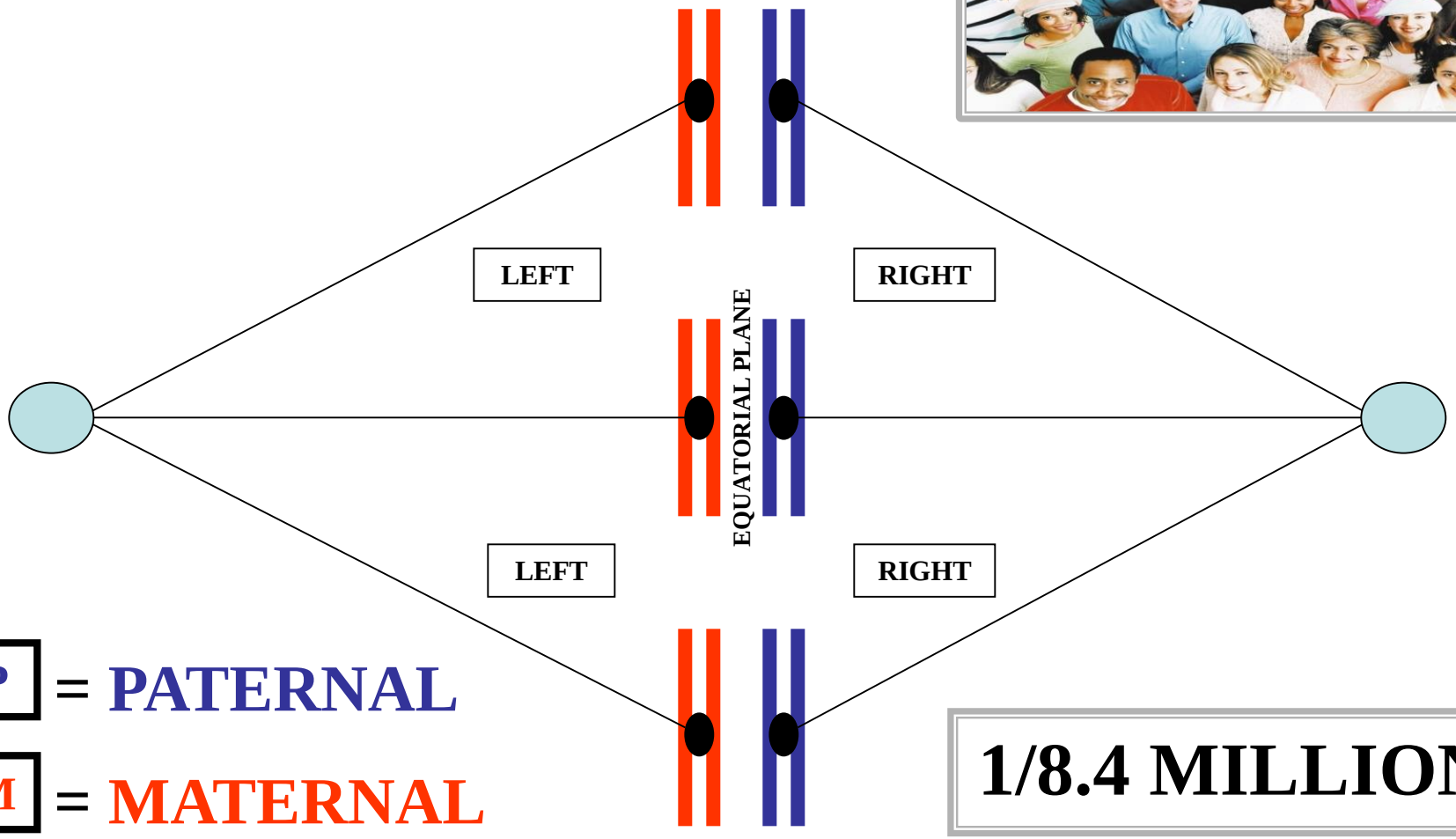
P = PATERNAL

M = MATERNAL

?

RANDOM INDEPENDENT ASSORTMENT

METAPHASE - I



P = PATERNAL

M = MATERNAL

1/8.4 MILLION

RANDOM INDEPENDENT ASSORTMENT

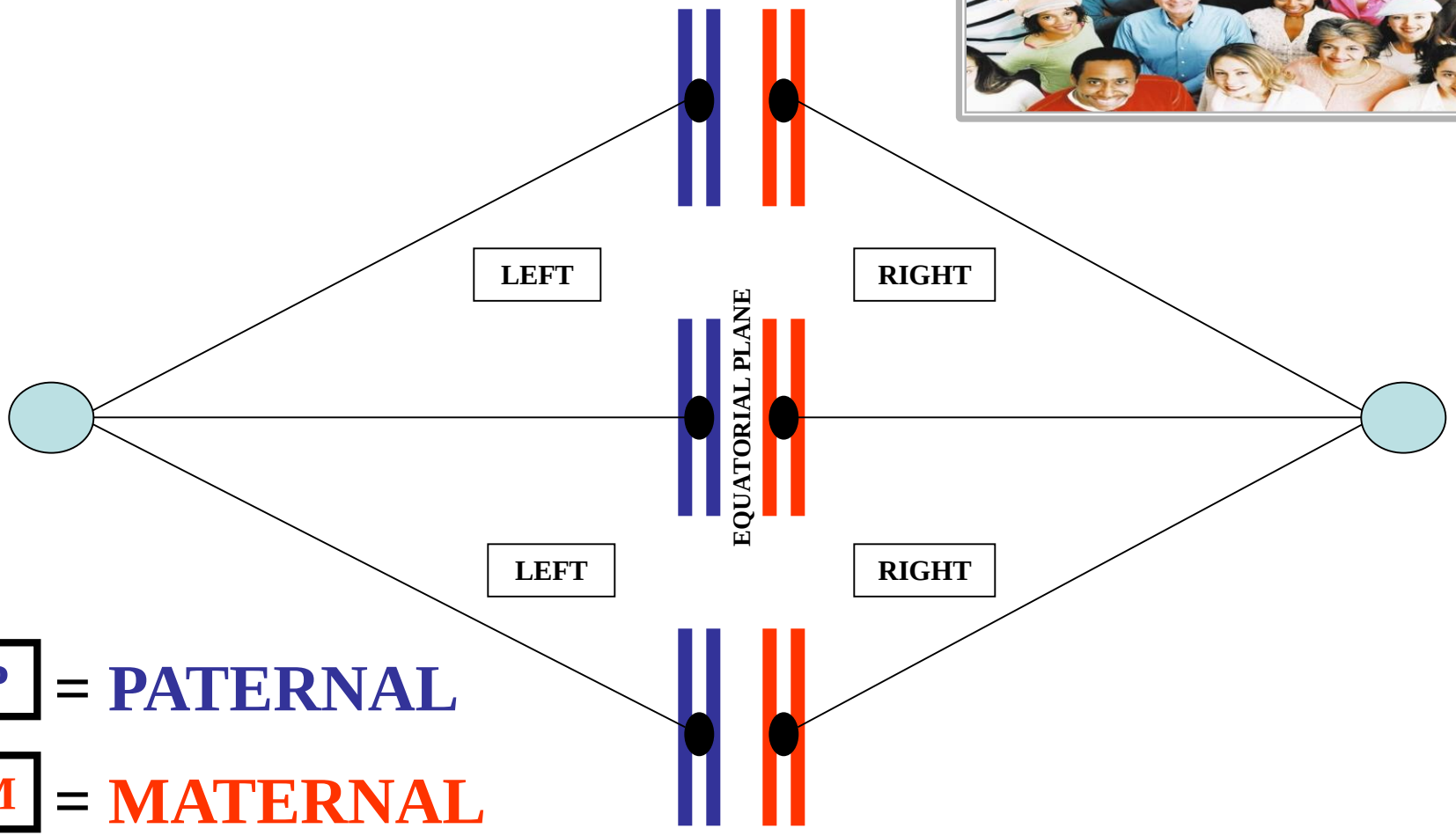
RANDOM
INDEPENDENT
ASSORTMENT
OUTCOME

GAMETES WITH DIFFERENT PATERNAL & MATERNAL CHROMOSOME COMBINATIONS

METAPHASE - I

+

G

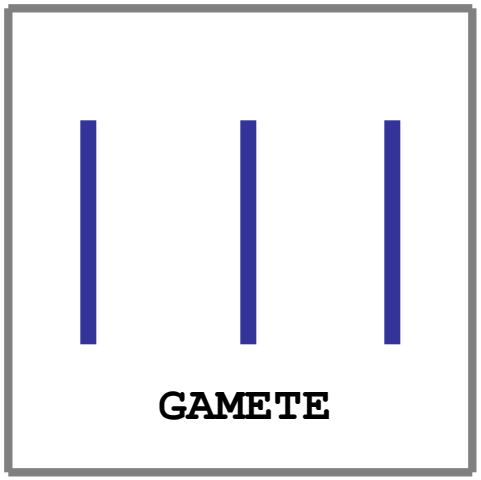


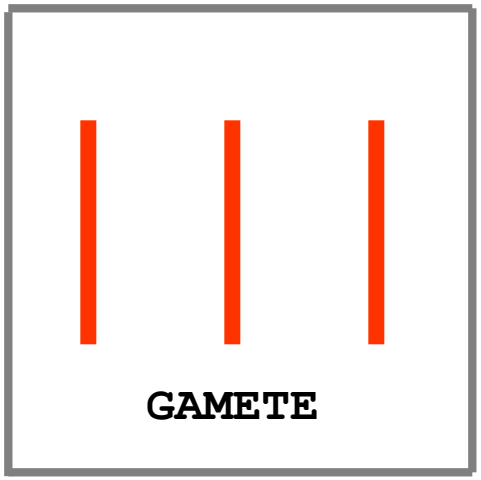
P = PATERNAL

M = MATERNAL

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT OUTCOME



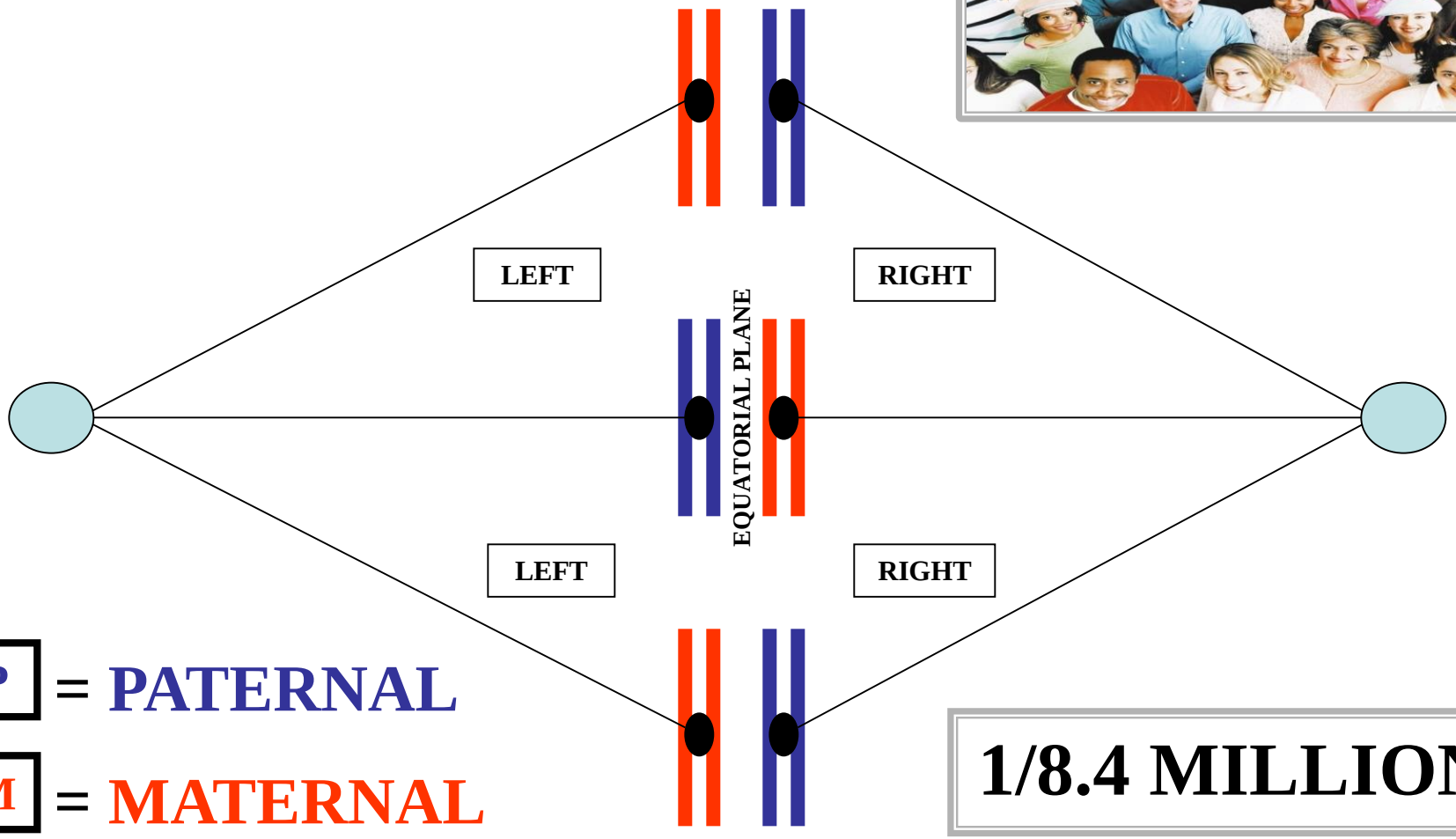


GAMETES WITH ALL PATERNAL & MATERNAL CHROMOSOMES

METAPHASE - I

+

G



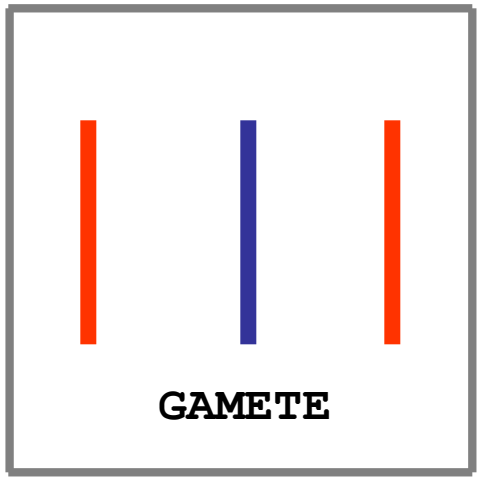
P = PATERNAL

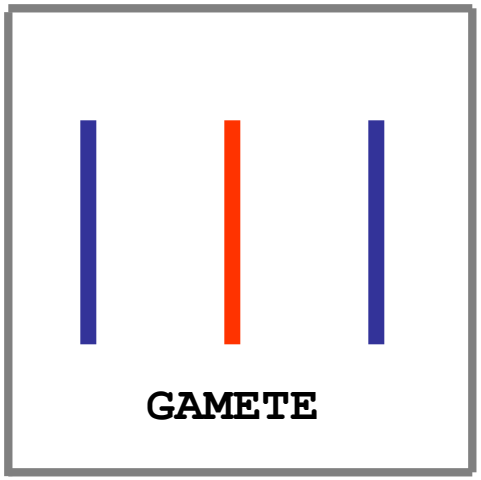
M = MATERNAL

1/8.4 MILLION

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT OUTCOME





GAMETES WITH DIFFERENT PATERNAL & MATERNAL CHROMOSOMES

RANDOM INDEPENDENT ASSORTMENT

INCREASES GENETIC DIVERSITY

RANDOM INDEPENDENT ASSORTMENT

RANDOM INDEPENDENT ASSORTMENT

VIA: DIFFERENT GAMETE
PATERNAL & MATERNAL
CHROMOSOME COMBINATIONS

RANDOM INDEPENDENT ASSORTMENT

?

RANDOM GAMETE FERTILIZATION

A

QUESTION

ARE THERE HUMAN GENETIC CLONES?

QUESTION

ANSWER

YES

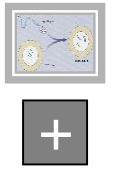
ANSWER


Nikki & Jesse
I

IDENTICAL TWINS

HUMAN CLONES

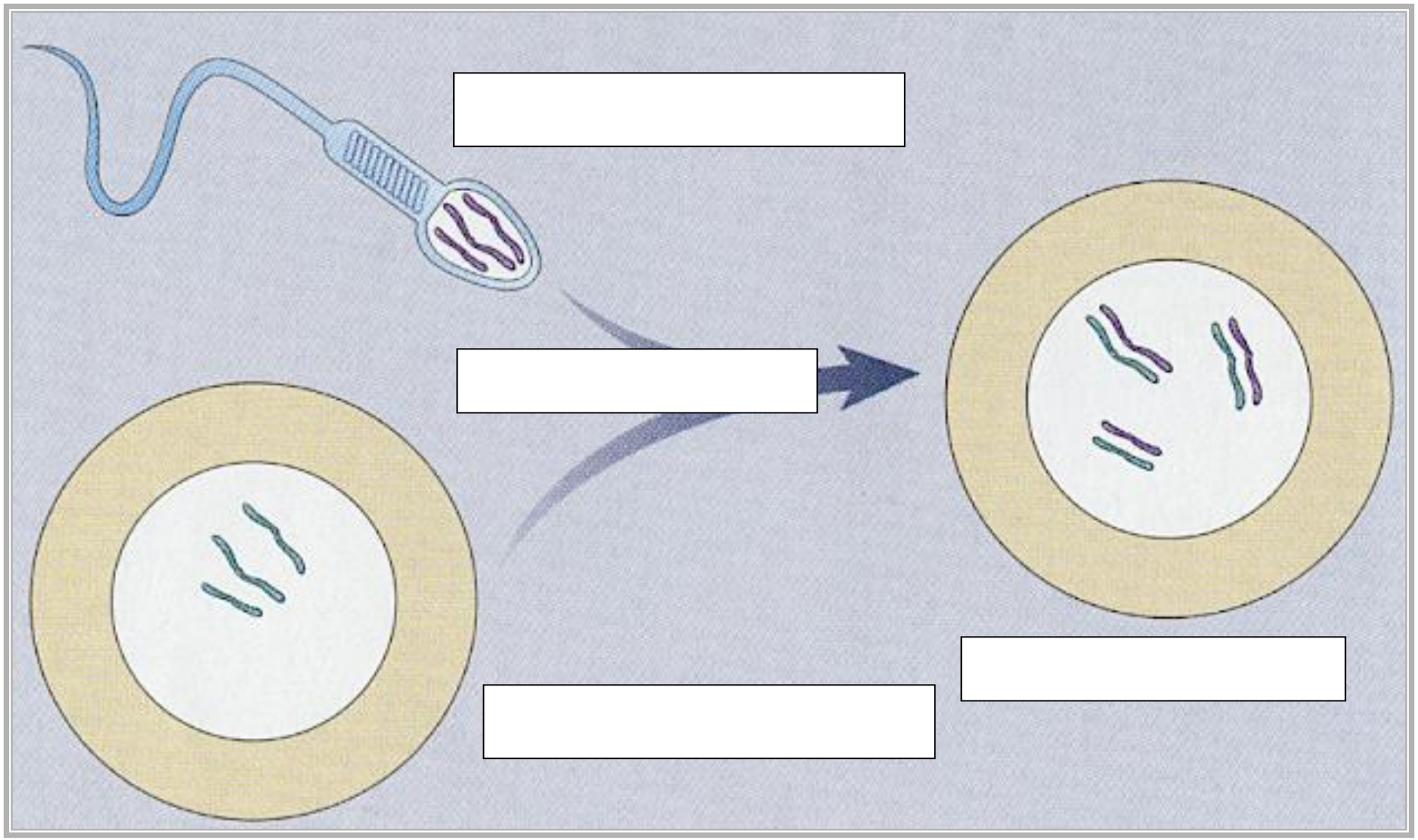
QUESTION



WHAT IS THE PROBABILITY OF A HUMAN COUPLE PRODUCING CLONES FROM TWO INDEPENDENT PREGNANCIES?

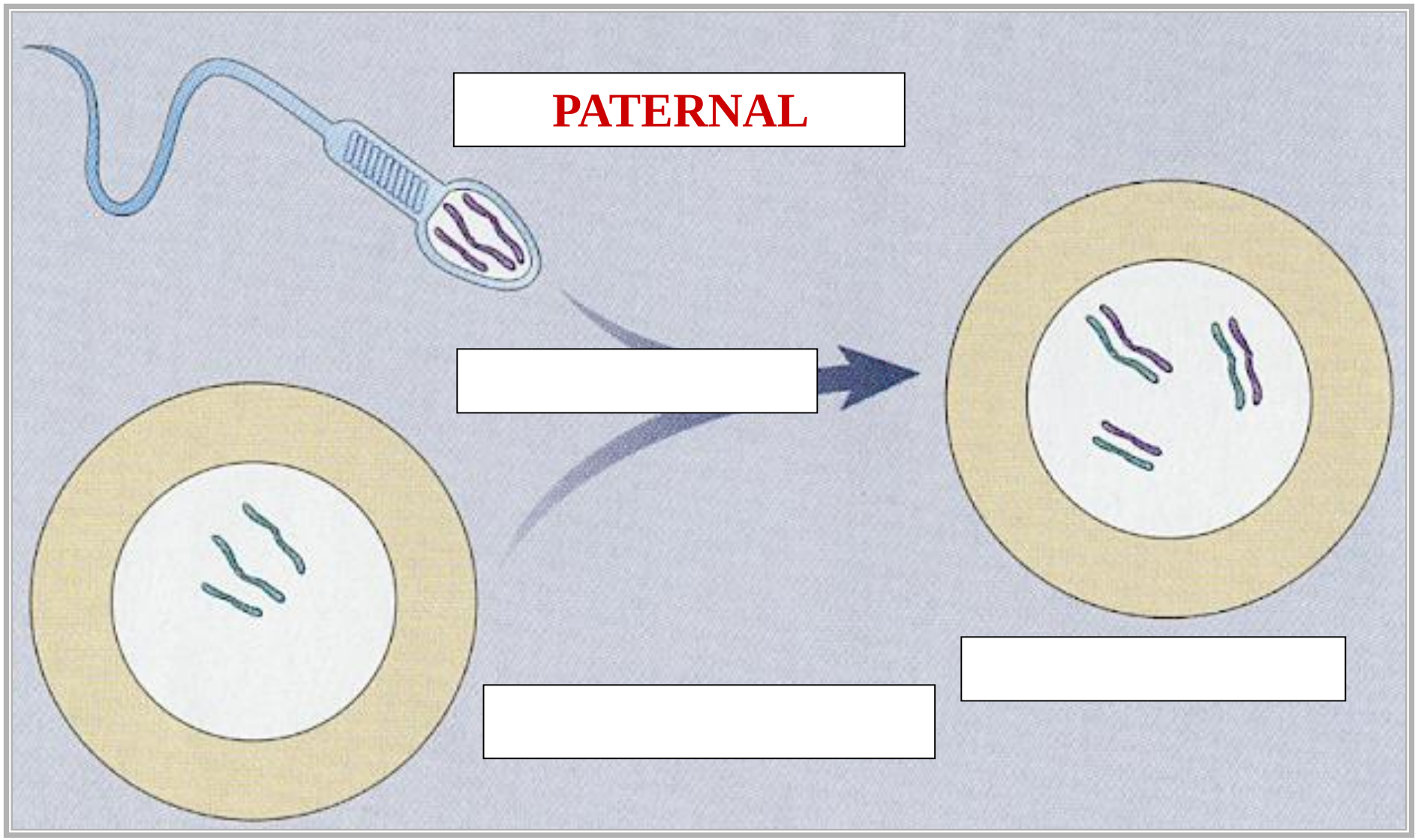
QUESTION

RANDOM GAMETE FERTILIZATION

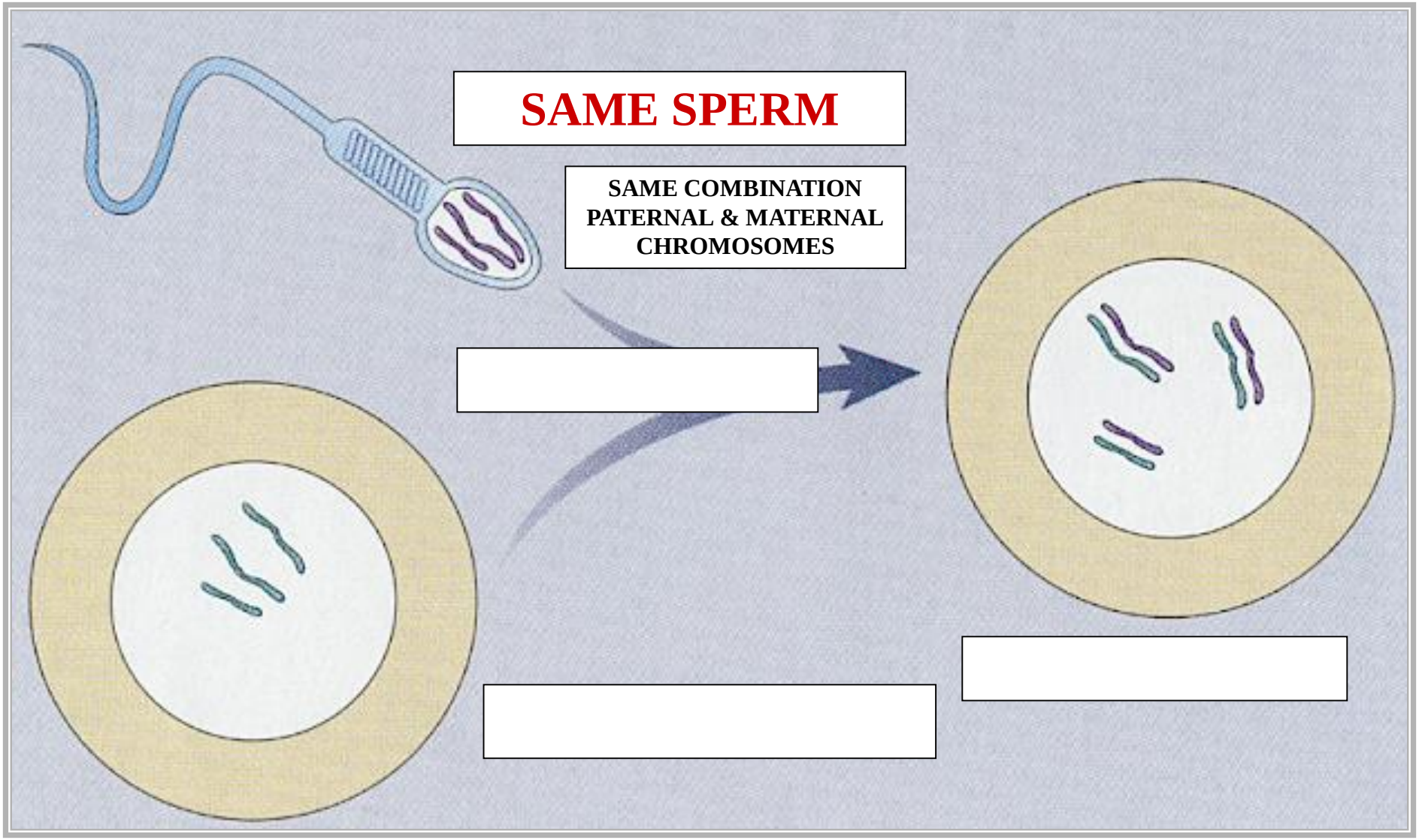


RANDOM GAMETE FERTILIZATION

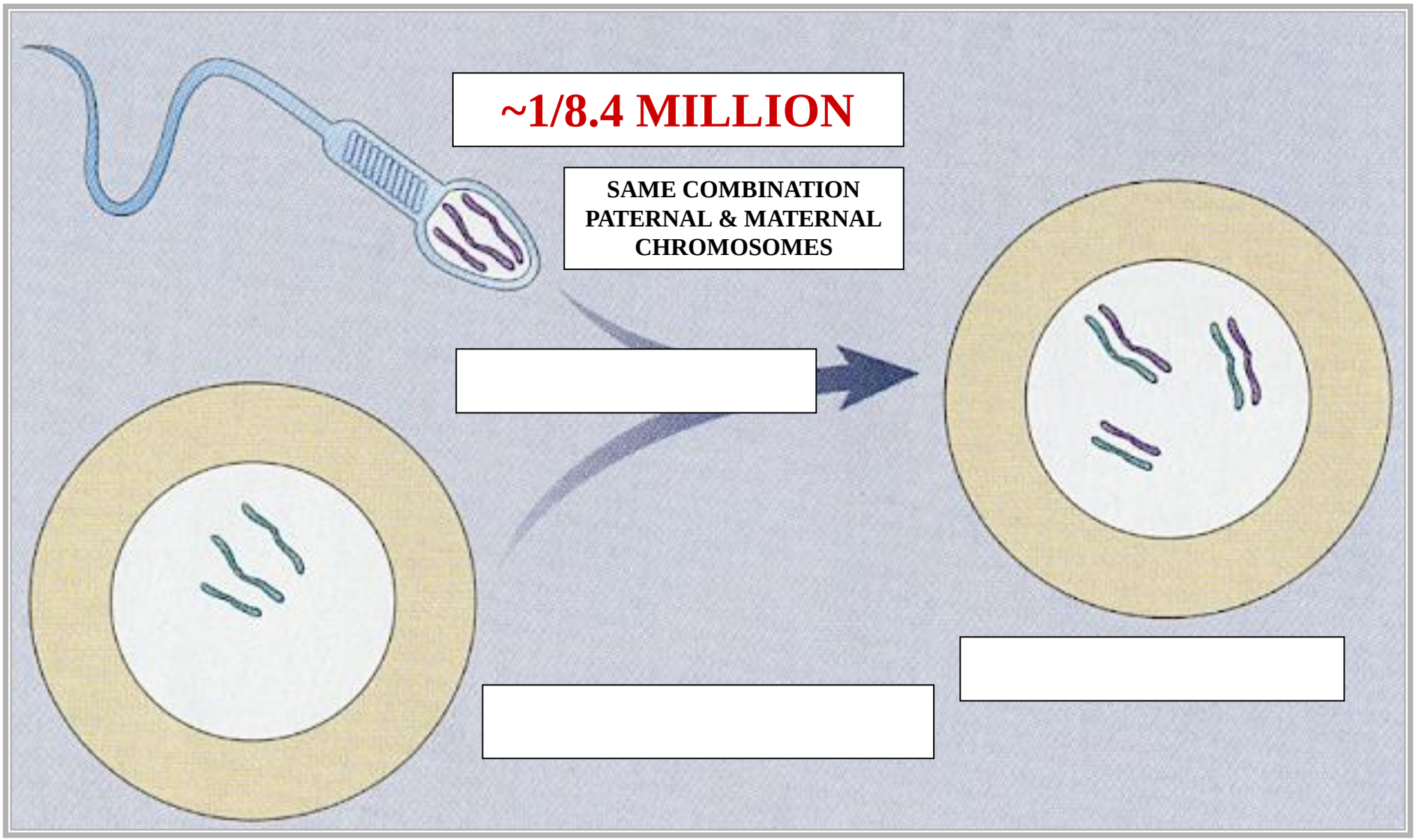
S



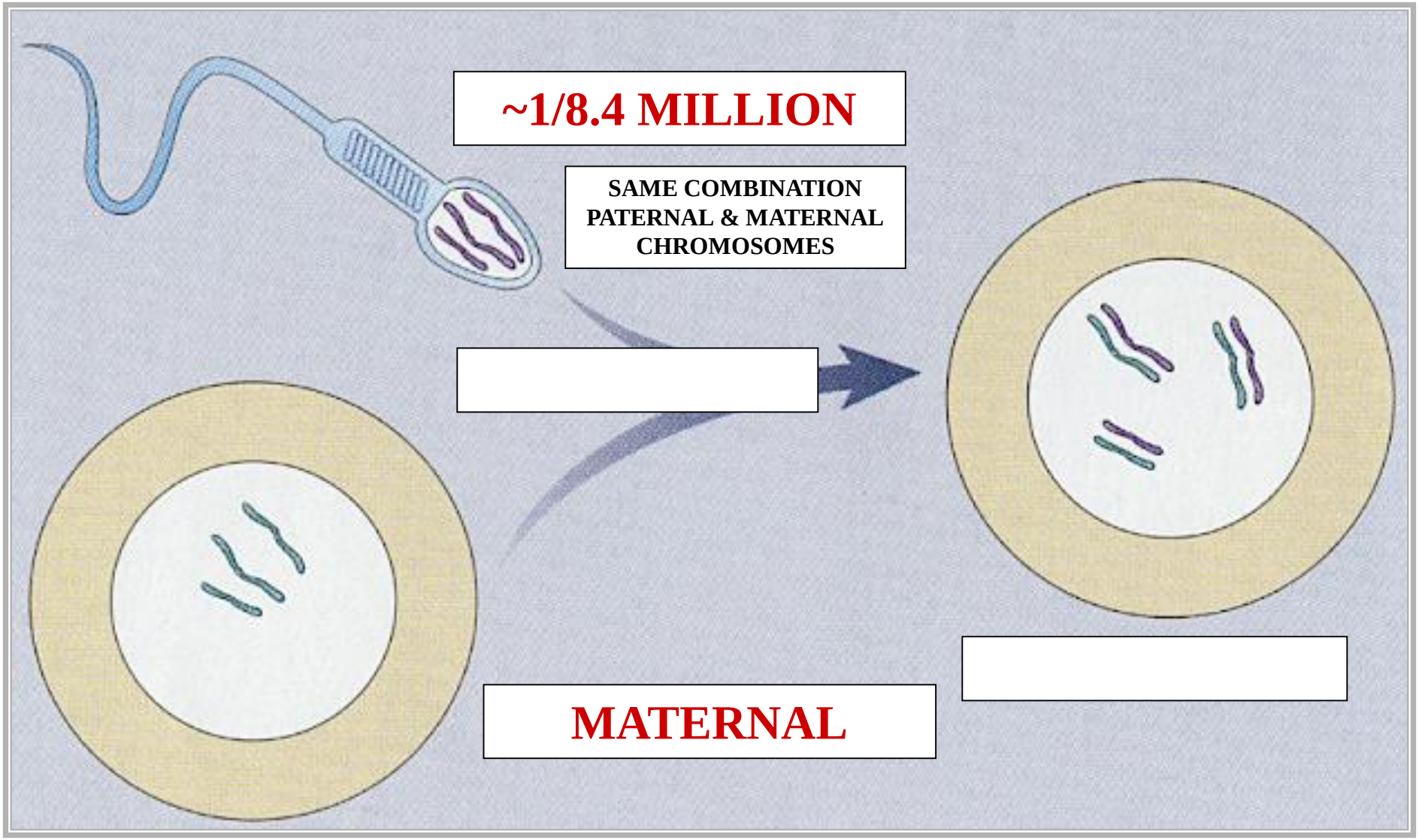
RANDOM GAMETE FERTILIZATION



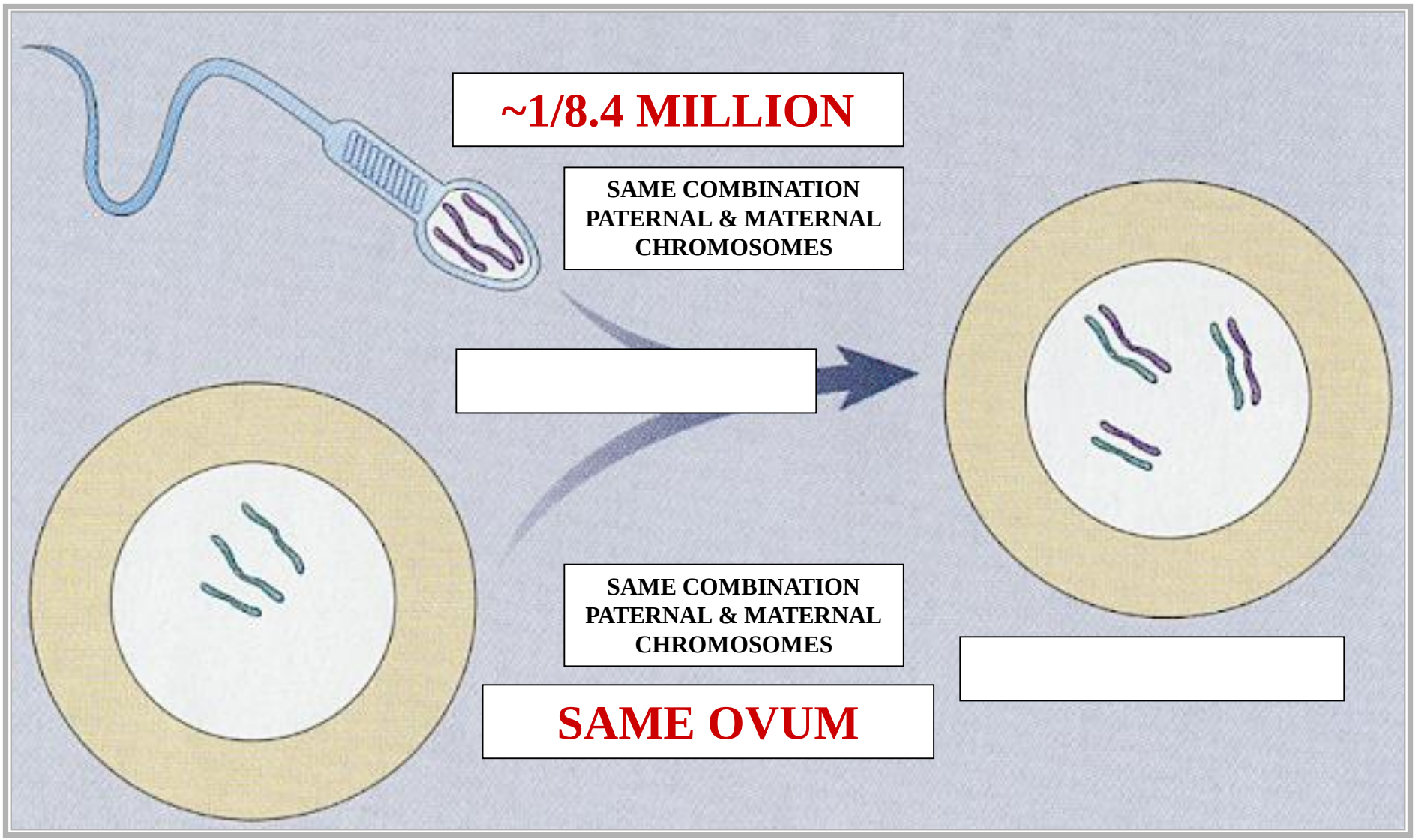
RANDOM GAMETE FERTILIZATION



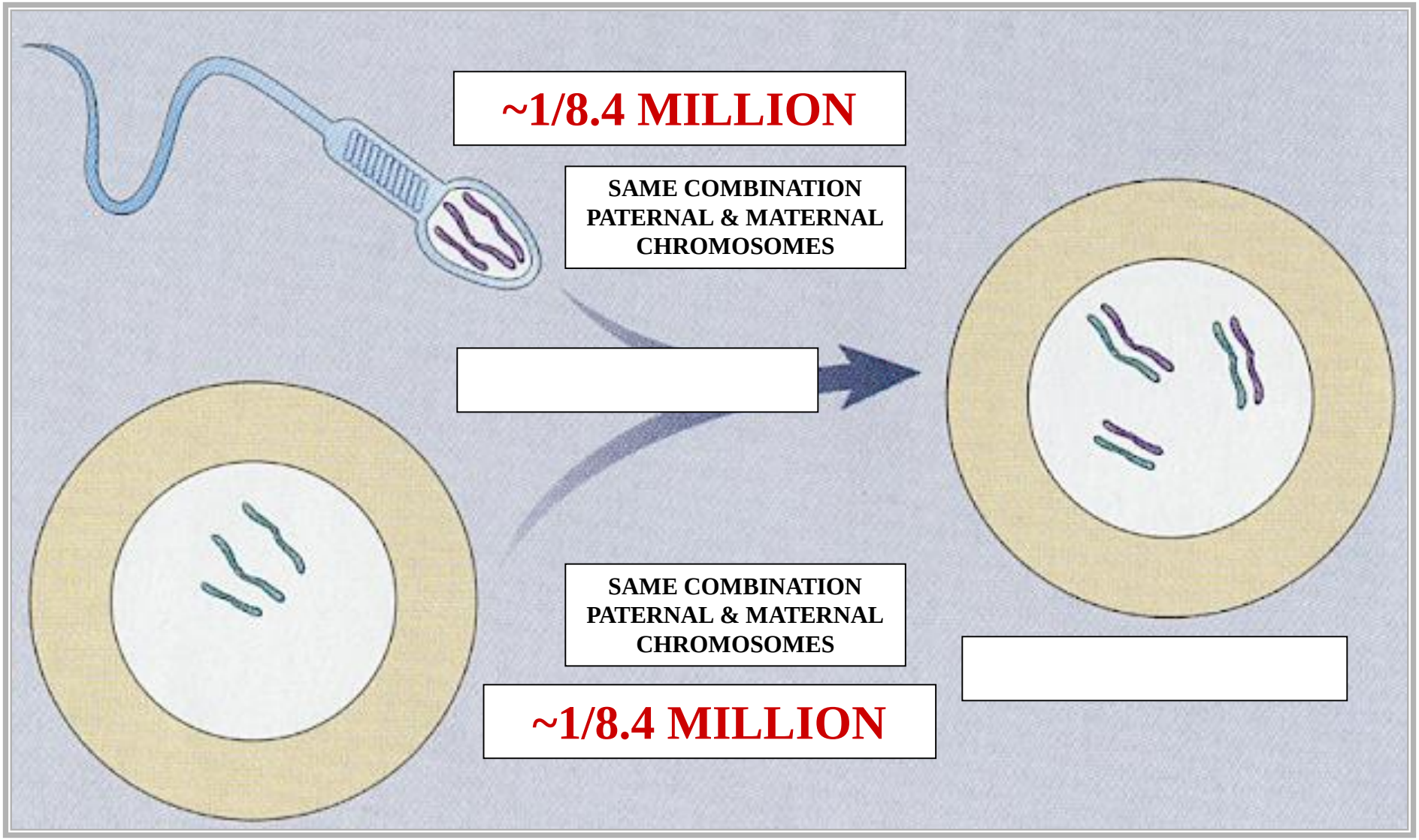
RANDOM GAMETE FERTILIZATION



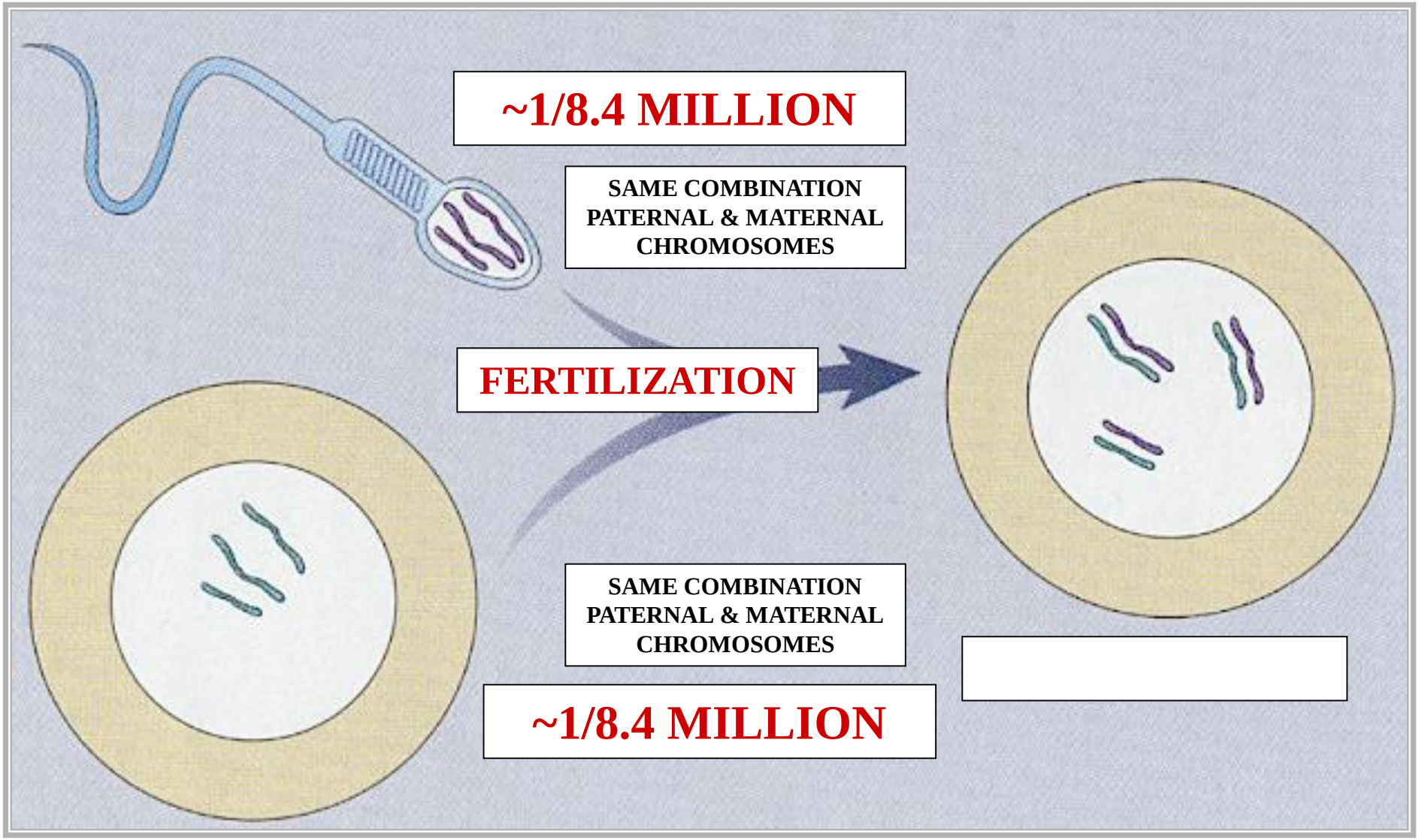
RANDOM GAMETE FERTILIZATION



RANDOM GAMETE FERTILIZATION



RANDOM GAMETE FERTILIZATION



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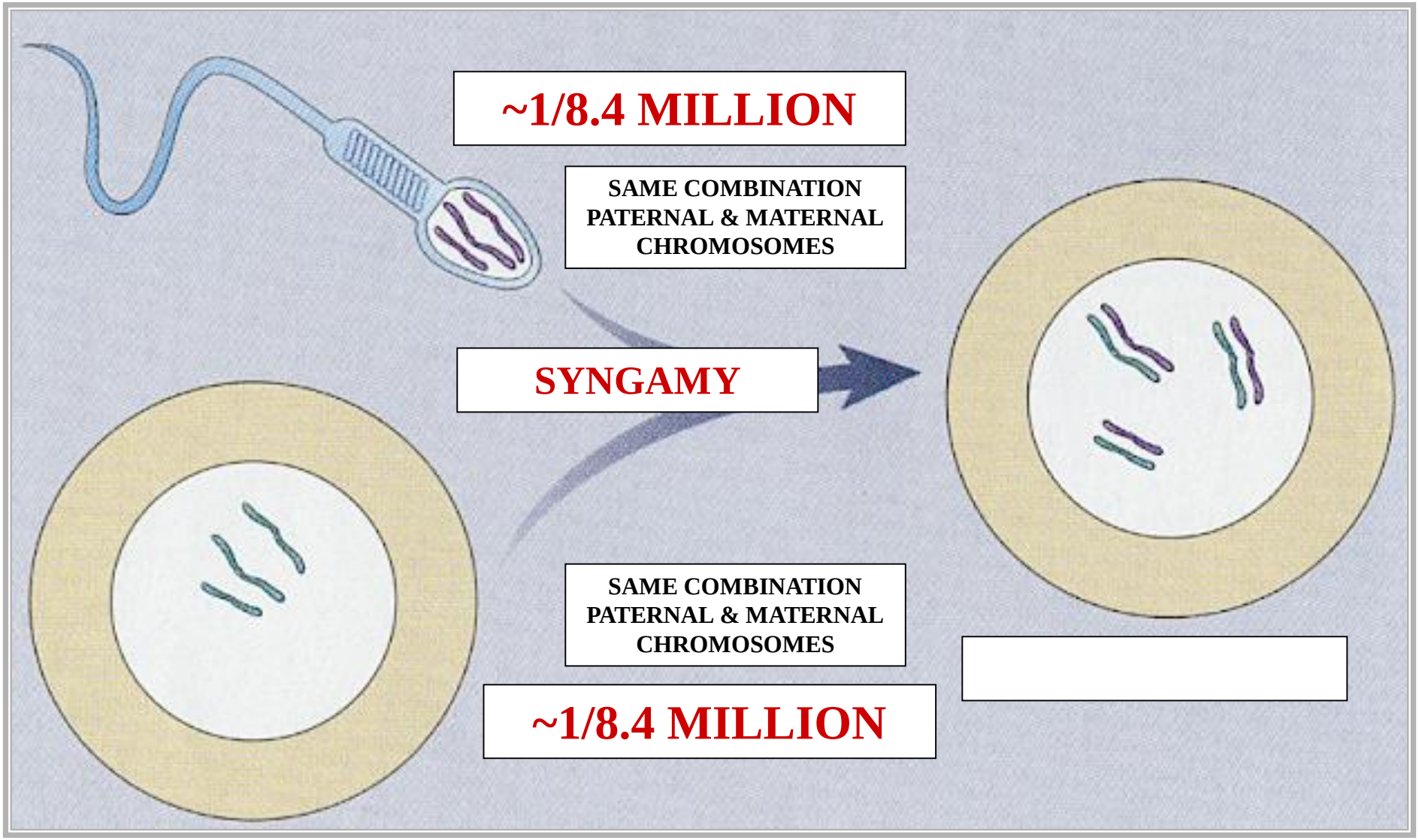

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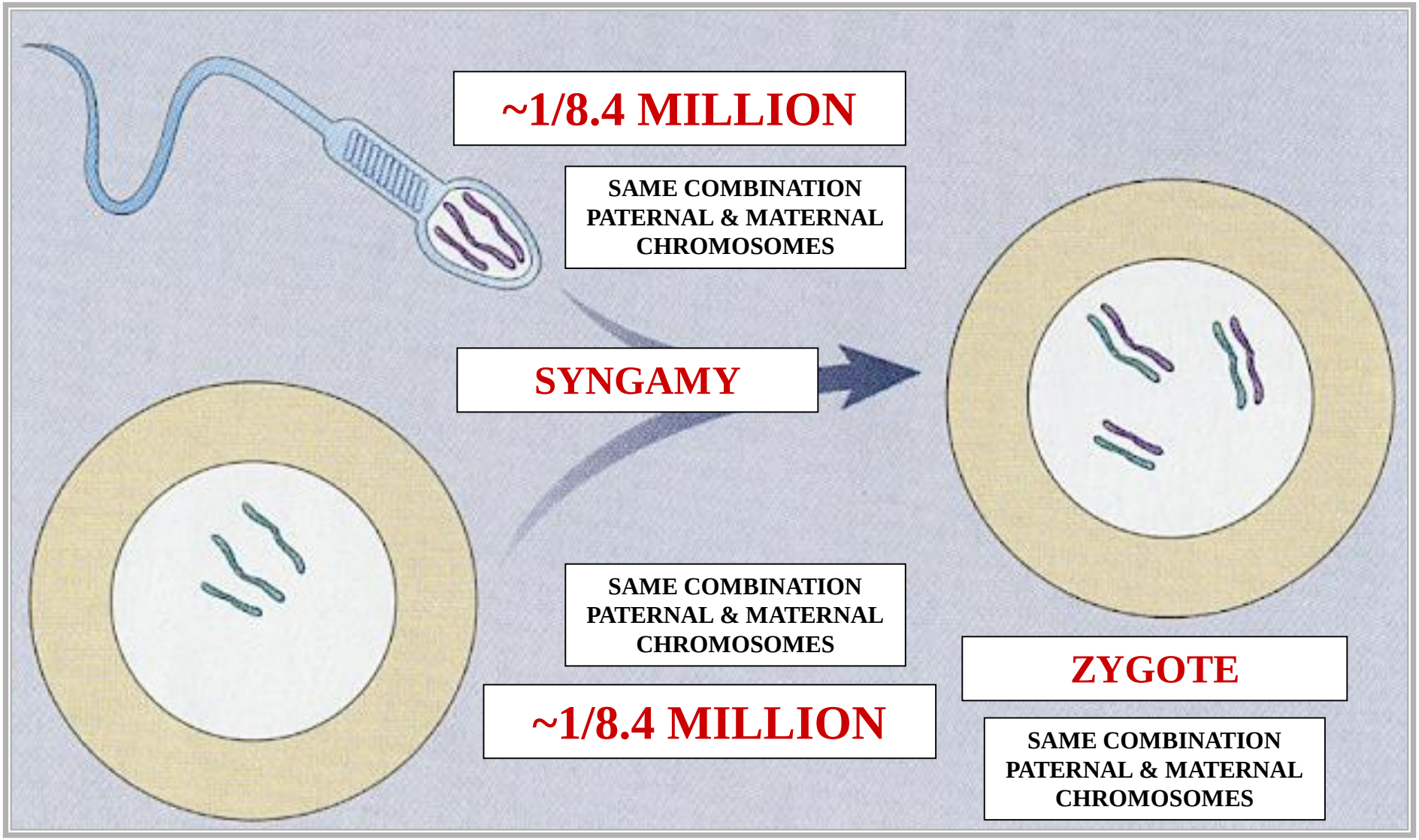

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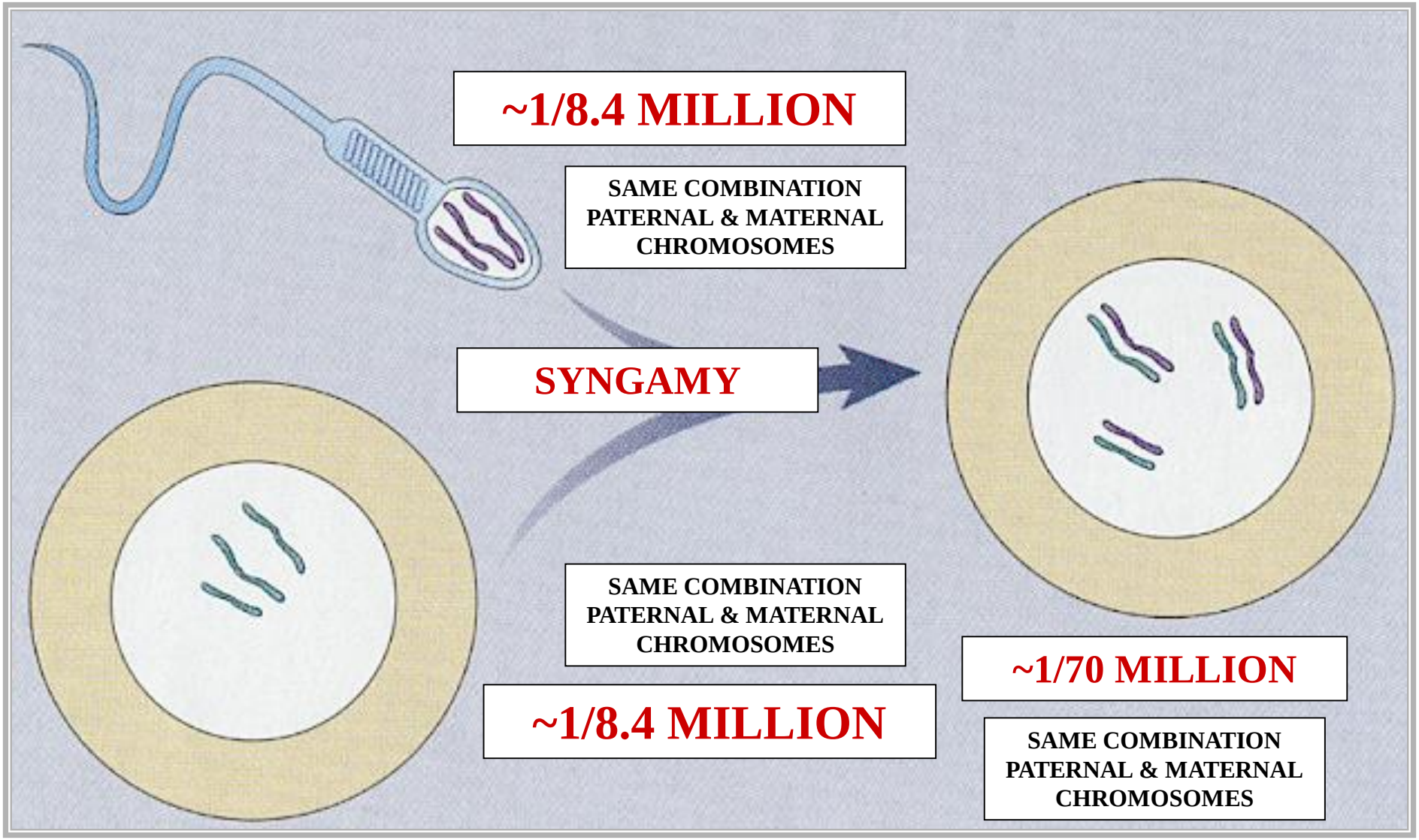

QUESTION

A

WHAT IS THE PROBABILITY OF A HUMAN COUPLE PRODUCING CLONES FROM TWO INDEPENDENT PREGNANCIES?

QUESTION

ANSWER

NONE

ANSWER

RANDOM GAMETE FERTILIZATION

INCREASES GENETIC DIVERSITY

RANDOM GAMETE FERTILIZATION

SEXUAL REPRODUCTION ADVANTAGE

SEXUAL REPRODUCTION

S

GENETICALLY DIVERSE POPULATION

HOMO SAPIENS

SEXUAL REPRODUCTION

SUBJECTED ENVIRONMENTAL CHANGE

HOMO SAPIENS

SEXUAL REPRODUCTION

SUBJECTED ENVIRONMENTAL CHANGE

HOMO SAPIENS

SEXUAL REPRODUCTION

P

ENVIRONMENTAL CHANGE
NON-ADAPTED

HOMO SAPIENS

SEXUAL REPRODUCTION

R

ENVIRONMENTAL CHANGE
NON-ADAPTED PERISH

HOMO SAPIENS

SEXUAL REPRODUCTION

A

NON-ADAPTED
DO NOT REPRODUCE

HOMO SAPIENS

SEXUAL REPRODUCTION

S

ENVIRONMENTAL CHANGE ADAPTED

HOMO SAPIENS

SEXUAL REPRODUCTION

R

ENVIRONMENTAL CHANGE
ADAPTED SURVIVE

HOMO SAPIENS

SEXUAL REPRODUCTION

ADAPTED

REPRODUCE

HOMO SAPIENS

SEXUAL REPRODUCTION

!

NS

OFF-SPRING

HIGHLY ADAPTED

HOMO SAPIENS

SEXUAL REPRODUCTION

NATURAL SELECTION

HOMO SAPIENS

SEXUAL REPRODUCTION

EVOLUTION

HOMO SAPIENS

SEXUAL REPRODUCTION

SEXUAL REPRODUCTION ADVANTAGE

HOMO SAPIENS

SEXUAL REPRODUCTION

ADVANTAGE
GENETIC DIVERSITY

HOMO SAPIENS

EUKARYOTE SEXUAL LIFE CYCLES

SEXUAL LIFE CYCLE TYPES

SEXUAL LIFE CYCLE TYPES

GAMETIC LIFE CYCLE

SEXUAL LIFE CYCLE TYPES

SEXUAL LIFE CYCLE TYPES

GAMETIC LIFE CYCLE
ZYGOTIC LIFE CYCLE

SEXUAL LIFE CYCLE TYPES

SEXUAL LIFE CYCLE TYPES

GAMETIC LIFE CYCLE
ZYGOTIC LIFE CYCLE
SPORIC LIFE CYCLE

SEXUAL LIFE CYCLE TYPES

GAMETIC LIFE CYCLE