Cell division.

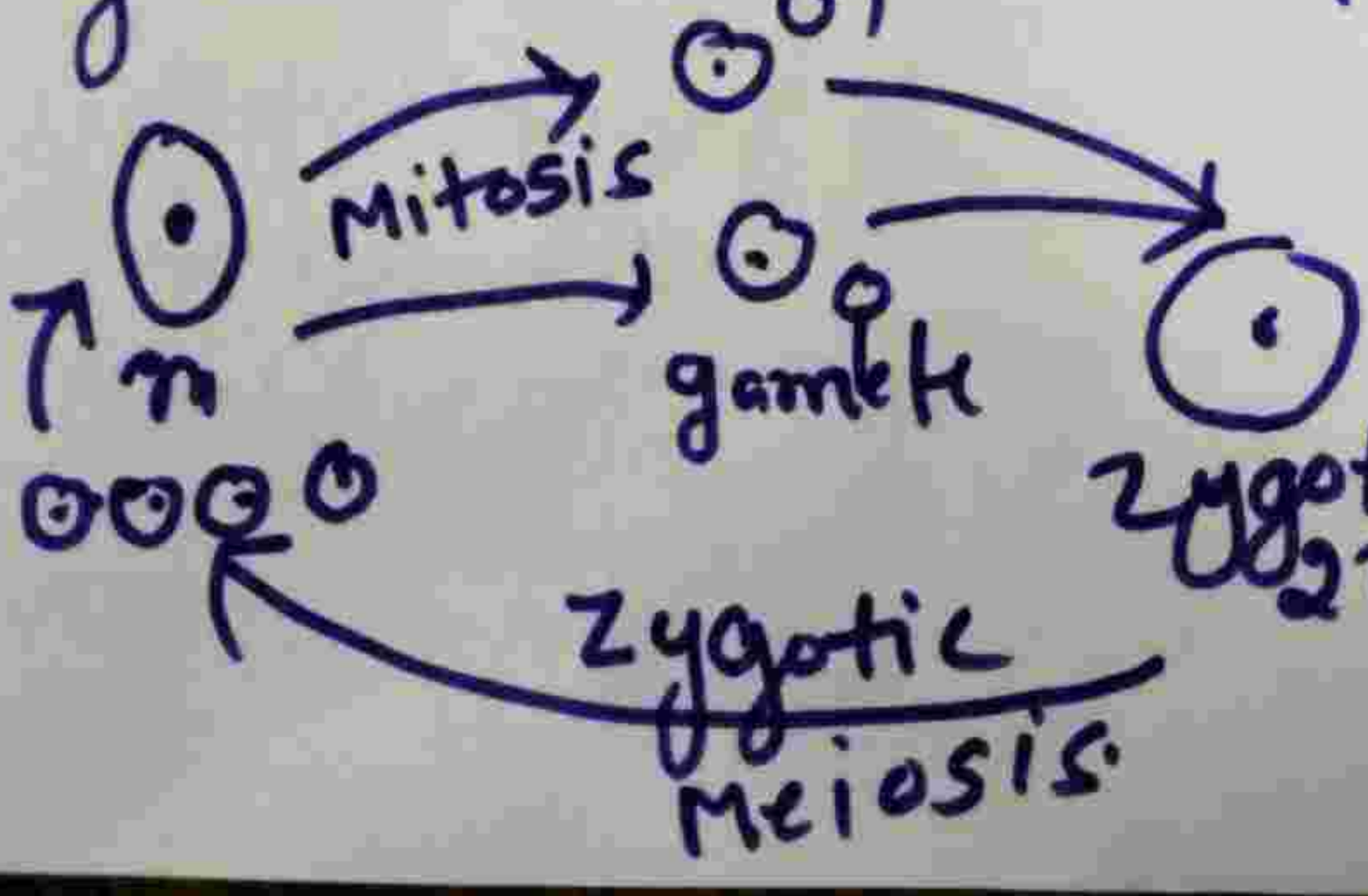
During gamete formation

Cell division
- Mitosis
- Meiosis

→ Gametes are always haploid.

→ organism.

- Haploid (e.g Monera, Algal, fungi)
  - ↓ Mitosis takes place during gamete formation
- Diploid.
  - ↓ Meiosis
    - Sporic Meiosis
    - Gametic Meiosis



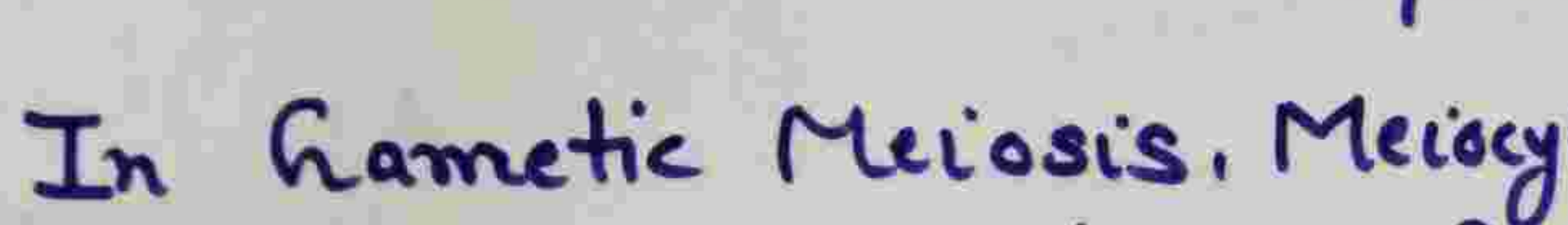
→ cell in which Meiosis occurs is called Meiocyte.

→ Meiosis

- Zygotic Meiosis.
  - ↓
  - Haploid organism
  - ↓
  - Haplontic life cycle
  - e.g Monera, Algae, Fungi
- Sporic Meiosis
  - ↓
  - Haploid / Diploid
  - ↓
  - Haplo-diplontic life cycle.
  - e.g Bryophyte, Pteridophyte, Gymnosperm, Angiosperm
- Gametic Meiosis
  - ↓
  - Diploid organism
  - ↓
  - Animals, Humans

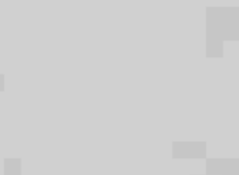
→ In Zygotic Meiosis, Meiocyte is Zygote

→ In Sporic Meiosis, Meiocyte is spore Mother cell.



→ In Gametic Meiosis, Meiocyte are → Spermatogonial cell (2n) → sperm

→ oogonial cell (2n) → ovum



→ Chromosome number in Meiocyte is always 2n and gamete is n.

Chromosome no of Meiocyte and gamete in some organism

Name of organism	Meiocyte	gamete
1. Human beings	46	23
2. Rat	42	21
3. House fly	12	6
4. Fern (ophioglossum)	1262	631
5. Onion	16	8
6. Potato	48	24
7. Rice	24	12
8. Butterfly	446	223.

Gamete Transfer

→ Plants

Pollination

Transfer of Pollen grain from Anther to stigma

→ 

Siphonogamy.

→ In Algae and Fungi both Male and female gamete are released in medium both may be Motile.

♂ ♀ → zygote.

→ Zoodiogamy e.g Bryophyte Pteridophyte.

Transfer of Male gamete from Male gamotophyte to Female sex organ is ~~cotte~~. through water as medium is called Zoodiogamy

Antheridium → ♂gamete → Archegonia ♀ Egg

→ Animals – Transfer of Male gamete to Female sex organs occurs through the Phenomenon called copulation

Fertilization

→ All the events which results in Fussion of gamete or syngamy is called Fertilization.

→ Normaly Fertilization and Syngamy are synonymps

- Externaly Fertili-zation
  - → Male and Female gamete are released in any Medium
  - → synchrony Must
- Internal Fertilisation
  - Female gamete present in ♀ sex organ
  - Male gamete reaches there

→ be present between the realese of gamete.

→ Both the gameks are produced in Large quantity

→ gametes ar prone to Predators. Bony e.g Fishes and Amphibian

→ Some algae and Fungi.

→ The medium for release of gamete is mainly water.

Gametes ar produced in less quantity of gamete more.

Gametes are less prone to predators.

Male gamete reaches to female gamete either by Zoodiogamy, siphanogamy, corpulatory organs.

e.g Reptile, Birds Higher plants Mammals

Fertilization

Self Fertilization

↓

Uniparental

↓

Hermaphrodite

↓

Male and female gamete fusion of same parent

e.g Liver fluke.
Tapeworm

→ chances of variation are less.

Cross Fertilization

↓

Biparental/

↓

Hermaphrodite or Unisexual

↓

Fusion of gamete of different parent.

Botogyny or Botanedry
Presentin Hermaphrodite

e.g Earthworm
Cockroaches
Birds,
Amphibian.

Post Fertilization events

Zygote formation

→ 

Zygote
(2n)

→ Zygote is Univesaly diploid Structure

→ organism with External Fertilization Zygote formation is External

→ organism with Internal Fertilization zygote formation Internal

Embryogenesis

Zygote divides and form embryo so the process of Embryo formation is called Embryogenesis

→ cell division during embryo-genesis is Mitosis

→ Cell differen-tiation occur after cell division.

→ on the basis of development of Zygote Animals. Two type

→ Q why lower organism adopt sexual reproduction during adverse condition.

→ Development of Zygote may be interned orga or external depending about environmental condition.

→ Zygotic Meiosis occur in Zygote in Haploid organism e.g Algae and fungi.

→ In Angiosperms the zygote is developed inside the ovule.

→ Sepal, Petal and stamens of the flower wither and fall off.

→ zygote → Embryo
ovule → seed
ovary → Fruit.

Oviparous Animals

→ animal lay egg i.e zygote development take place outside the body e.g Fishes, amphibians Reptiles, Birds.

→ Egg are covered by hard shell of calcium carbonate. are called cleidoic eggs.

Viviparous animals.

- Animals give birth to young one and zygote development is inside the female body.

→ chances of survival are more as they are better protected. e.g Mammals