



Erasmus+

2020-1-SK01-KA201-078297



Reproduction in animals

World of living animals



OUTLINE

- **Reproduction: definition & modes**
- **Reproduction in animals**
- **Reproduction in vertebrates**
- **Human reproduction**
- **Human reproductive system and health**



REPRODUCTION

- ... is important for sustainability of life**
- ... is how organisms generate progeny**

Different modes of reproduction

- ✓ **Monogony – Asexual (no gametes)**
- ✓ **Amphigony – Sexual (gametes fuse to form the zygote)**

MODES OF REPRODUCTION: MONOGONY

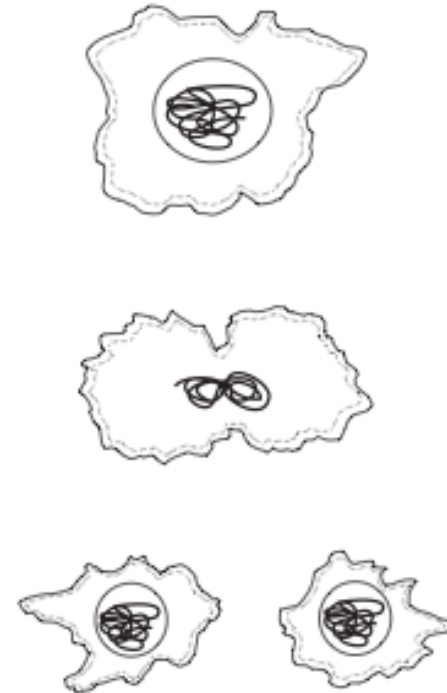


- **Unicellular species, few plants & animals**
- **Example mechanisms include**
 - ✓ Binary fission (cell division)
 - ✓ Budding (bud separates forming a daughter organism)
 - ✓ Parthenogenesis (unfertilized egg develops into an organism)

MONOGONY: BINARY FISSION

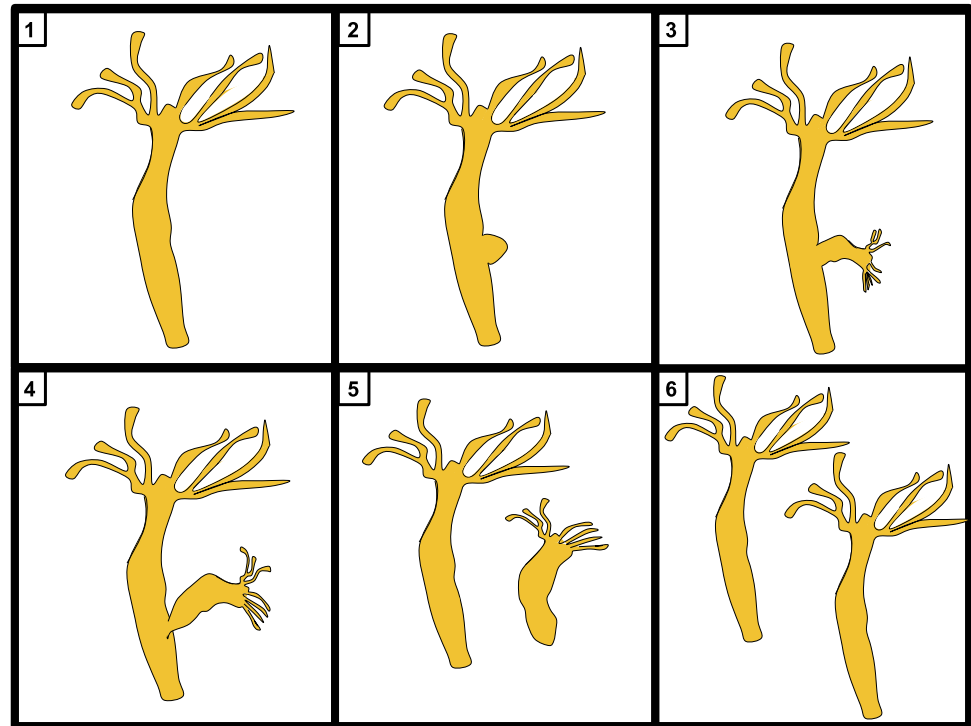


- **DNA replication**
- **Two sister cells**
- **Identical DNA**



MONOGONY: BUDDING

- Buds form on the parent body
- Develop to new individuals
- Identical DNA



MODES OF REPRODUCTION: AMPHIGONY



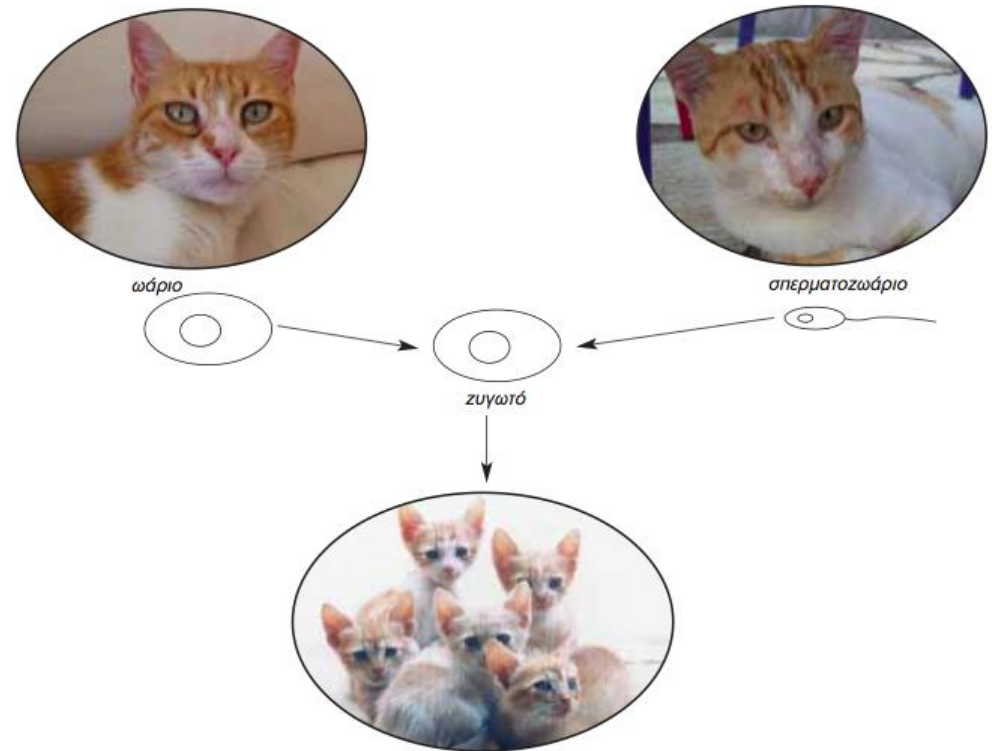
Dominant mode in multicellular species

- **Requires sexes (male/female) and gametes**
- **Meiosis in gonads**
- **Reproductive system**
- **Parents produce gametes**
 - ✓ Female: ovum (egg)
 - ✓ Male: sperm

MODES OF REPRODUCTION: AMPHIGONY (2)



- Parents mate
- Gametes fuse: zygote
- A zygote develops to the new organism



REPRODUCTION IN ANIMALS



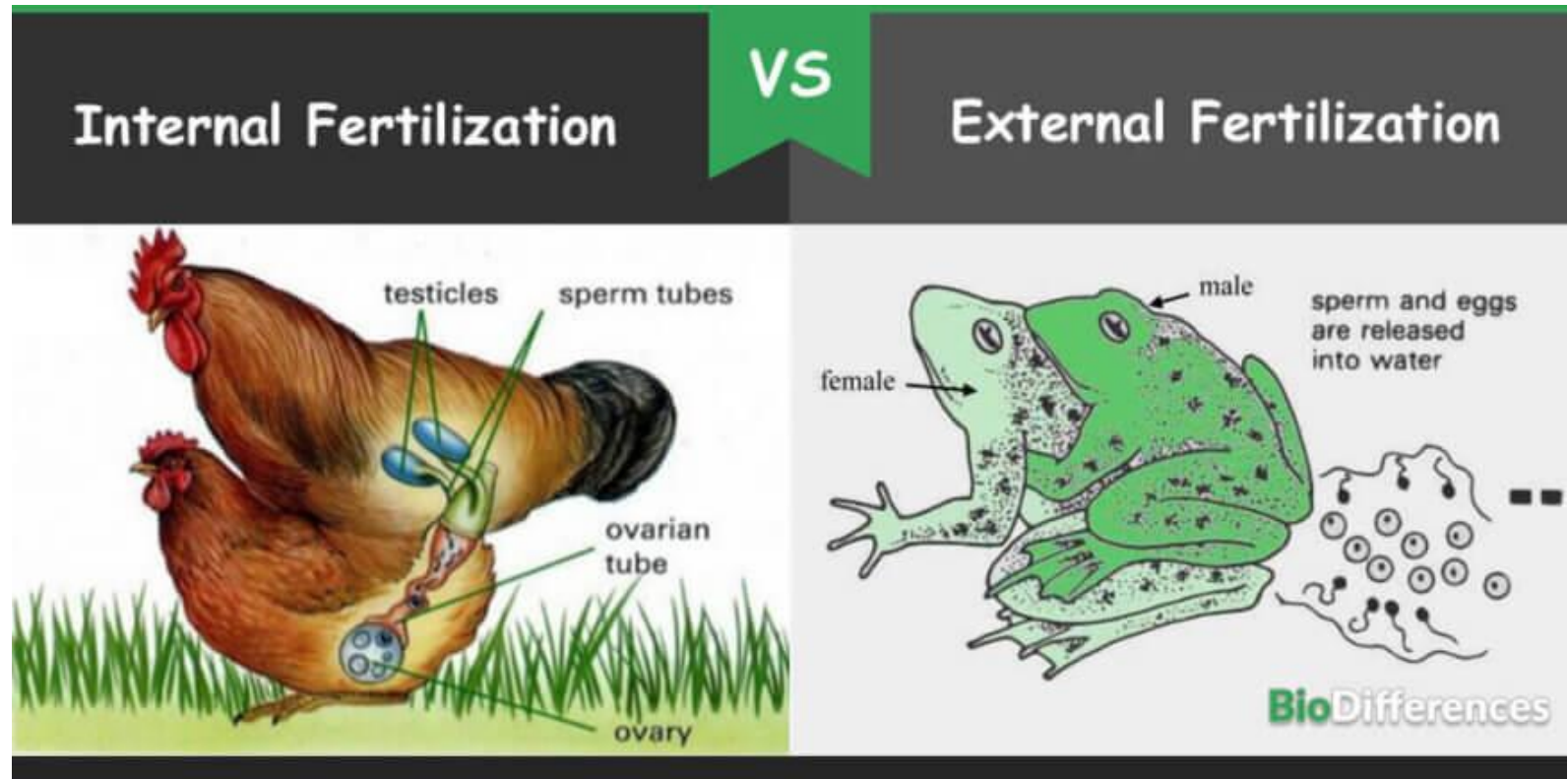
- Invertebrates
 - ✓ Reproduce asexually, sexually (or either way)
 - ✓ Special case: Hermaphrodites
- Vertebrates
 - ✓ Reproduce sexually (with exceptions)



REPRODUCTION IN VERTEBRATES (1)



- Internal vs external fertilization

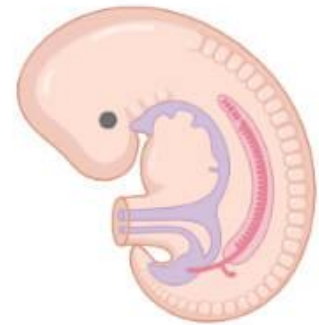
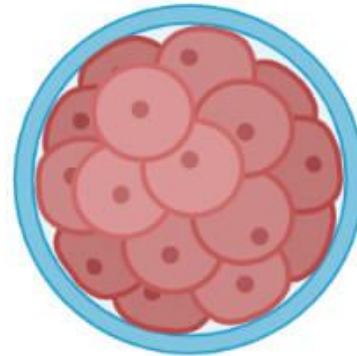


REPRODUCTION IN VERTEBRATES (2)



- Oviparity vs Viviparity

Differences Between Oviparous and Viviparous



REPRODUCTION IN MAMMALS

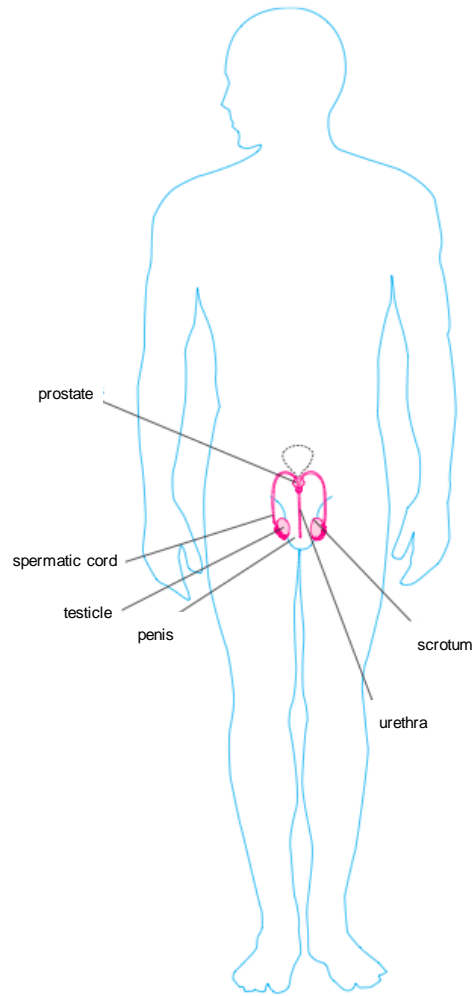


- **Most are viviparous**
 - ✓ Exception: monotremes, platypus, echidna
- **Mammary glands produce milk**
- **Marsupials**
 - ✓ short gestation period
 - ✓ The underdeveloped newborn undergoes further development

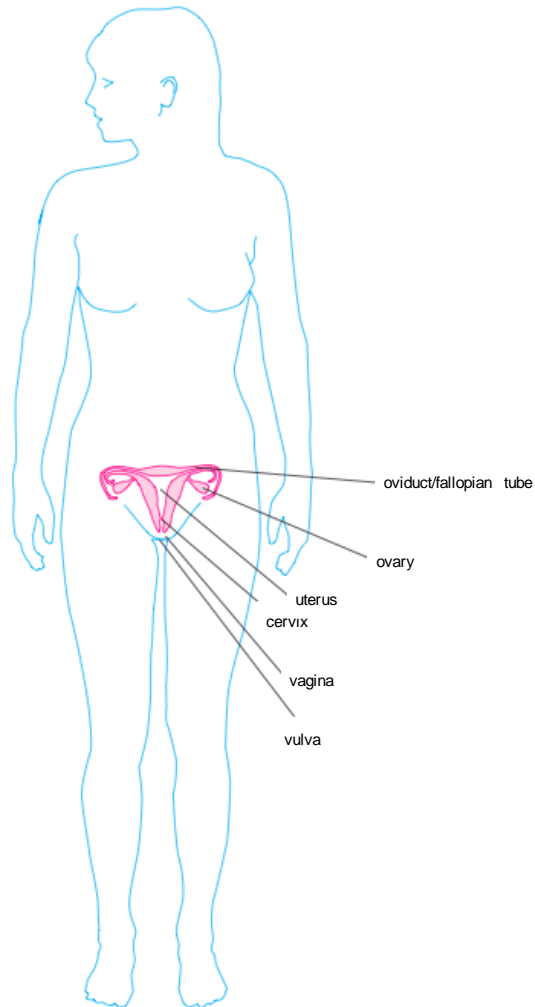
HUMAN REPRODUCTION



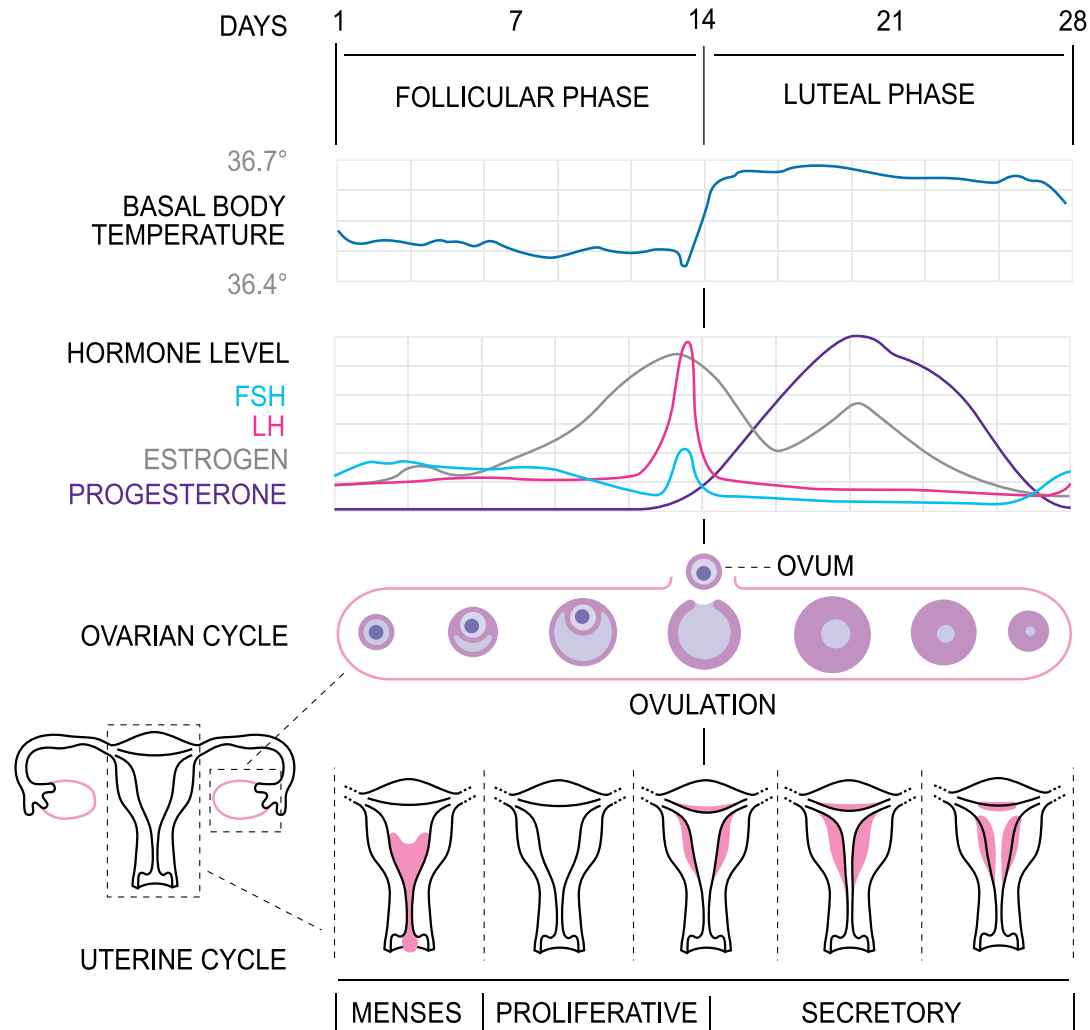
THE MALE REPRODUCTIVE SYSTEM



THE FEMALE REPRODUCTIVE SYSTEM



MENSTRUAL CYCLE



FROM FERTILIZATION TO BIRTH



FETAL DEVELOPMENT



Fertilized egg



2-cell stage



4-cell stage



8-cell stage



16-cell stage



Blastocyst



Foetus
(5 weeks)



Foetus
(40 weeks)



Foetus
(20 weeks)



Foetus
(10 weeks)



HUMAN REPRODUCTIVE SYSTEM AND HEALTH



During pregnancy embryonic/fetal development (mother's health) rely on

- **Environmental factors, including**
 - ✓ **Air pollution**
 - ✓ **Pesticides**
- **Lifestyle, including**
 - ✓ **Diet**
 - ✓ **Smoking/Alcohol consumption**



SUMMARY

- **Monogony and Amphigony**
- **Reproduction in animals typically amphigonic**
- **Differences in the "details" (internal/external, ovi-/viviparity)**
- **Human possesses a complex reproductive system**
- **Several external factors related to a healthy pregnancy**

PICTURES – USED SOURCES



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