



Erasmus+

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# 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

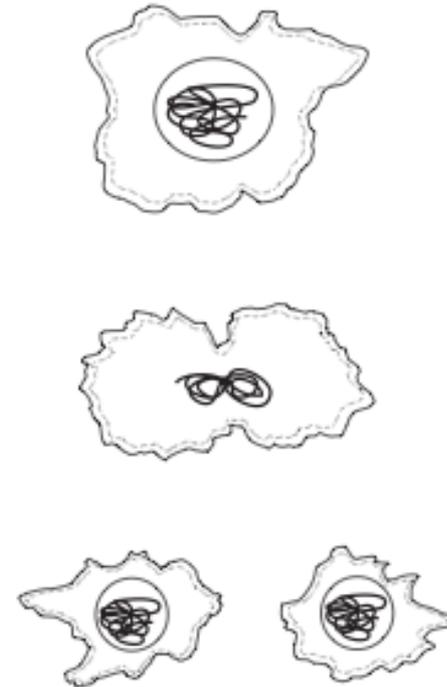


- **Unicellular species, few plants & animals**
- **Example mechanisms include**
  - ✓ Binary fission (cell division)
  - ✓ Budding (bud separates forming a daughter organism)
  - ✓ Parthenogenesis (unfertilized egg develops into an organism)

# MONOGONY: BINARY FISSION

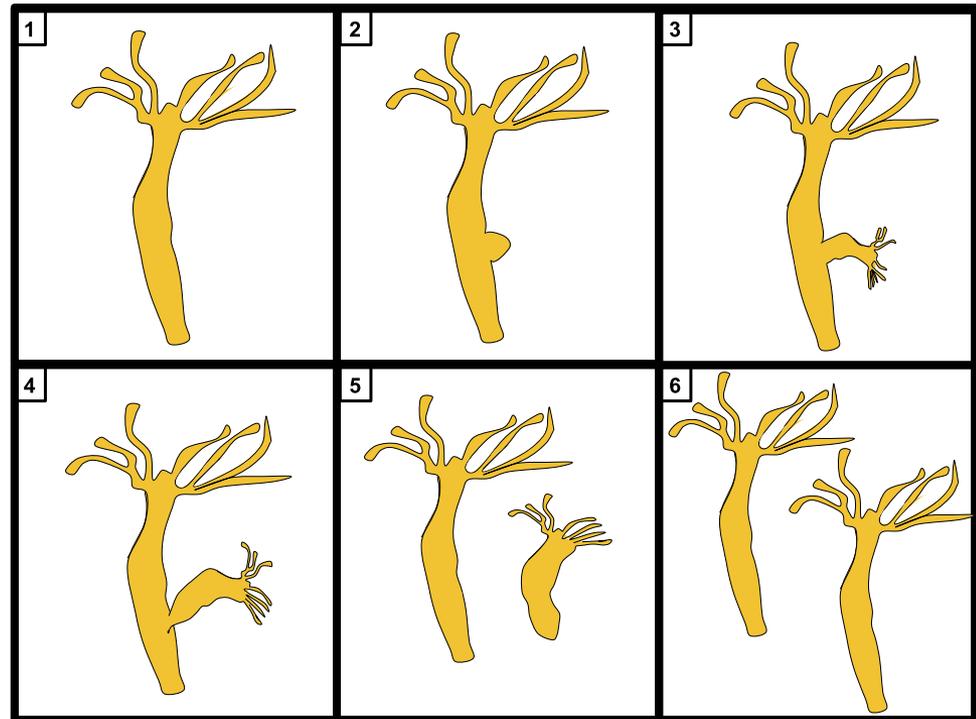


- **DNA replication**
- **Two sister cells**
- **Identical DNA**



# MONOGONY: BUDDING

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



# MODES OF REPRODUCTION: AMPHIGONY



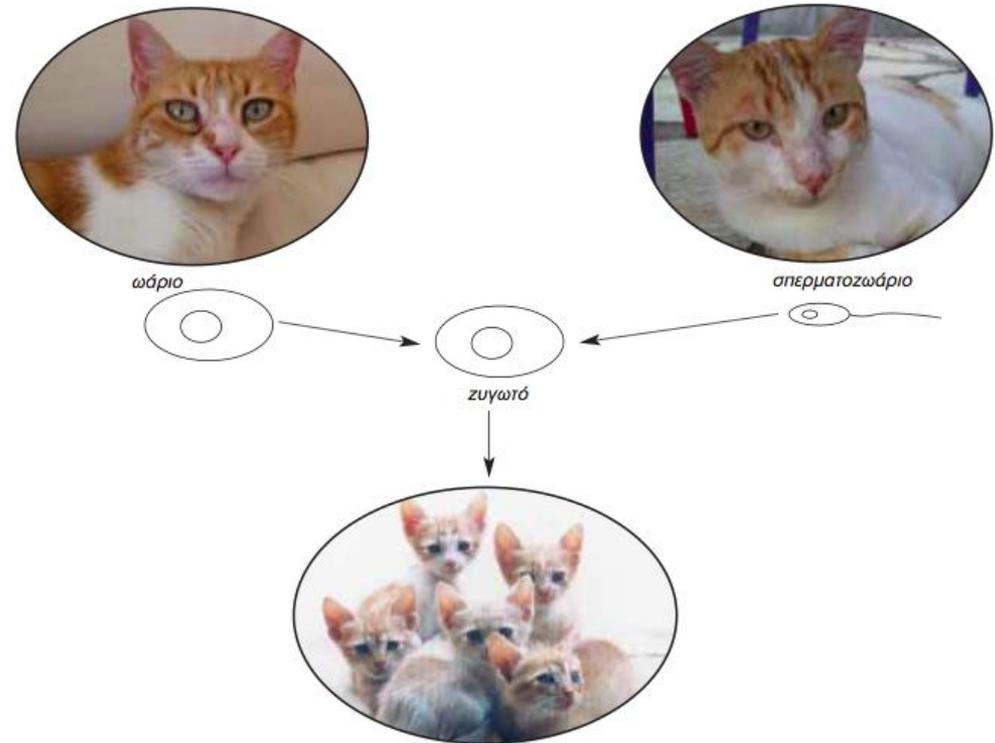
## **Dominant mode in multicellular species**

- **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



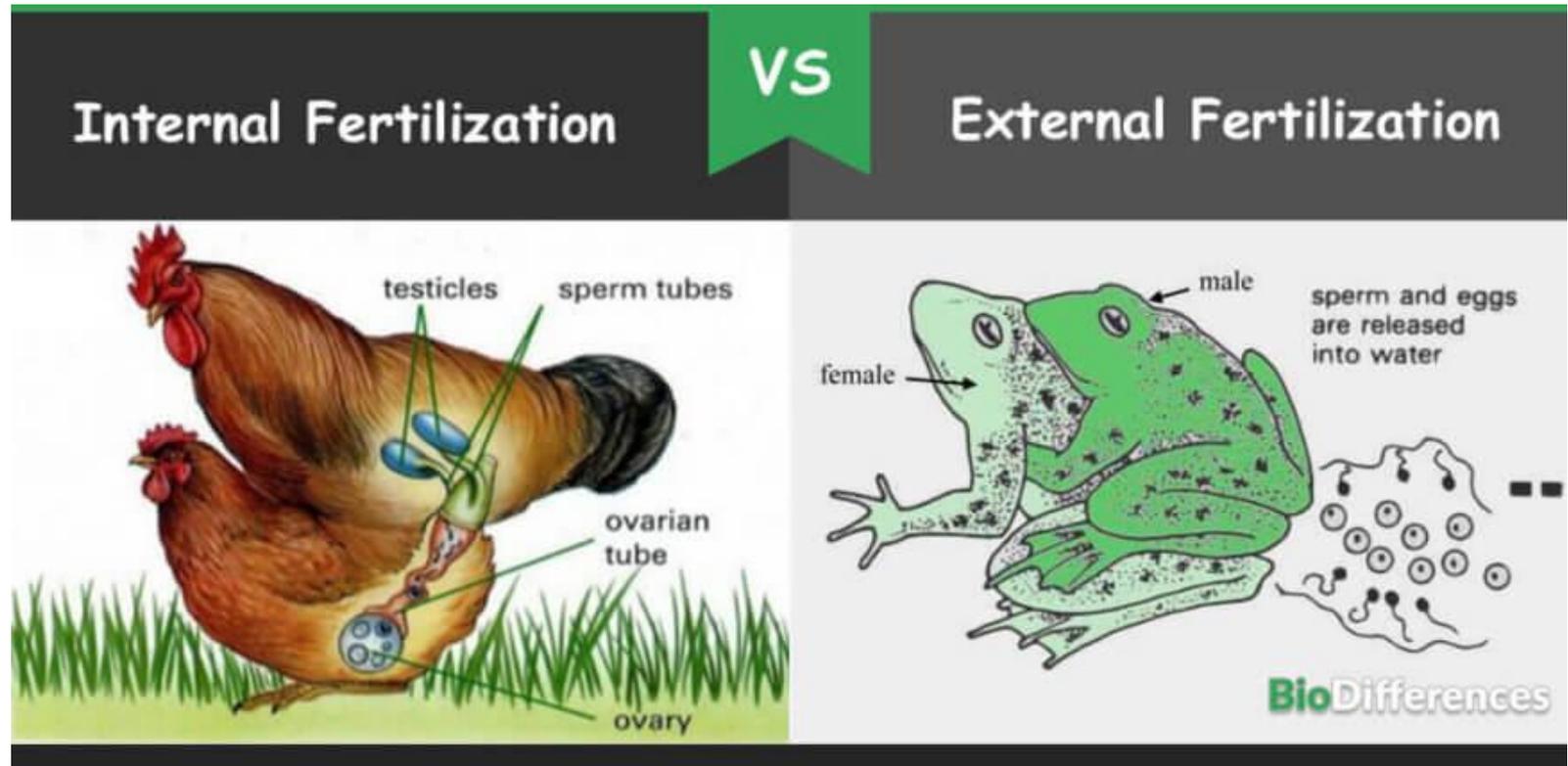
- Invertebrates
  - ✓ Reproduce asexually, sexually (or either way)
  - ✓ Special case: Hermaphrodites
- Vertebrates
  - ✓ Reproduce sexually (with exceptions)



# REPRODUCTION IN VERTEBRATES (1)



- Internal vs external fertilization

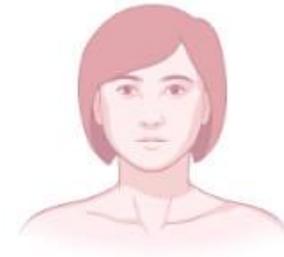
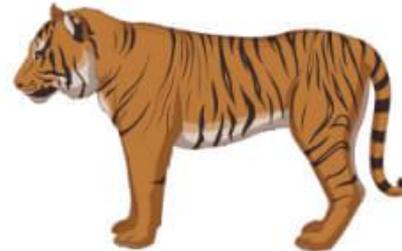
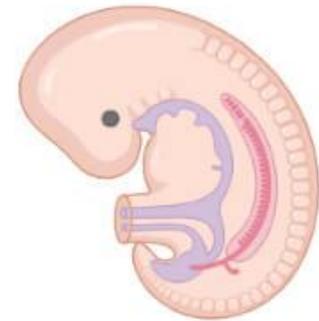
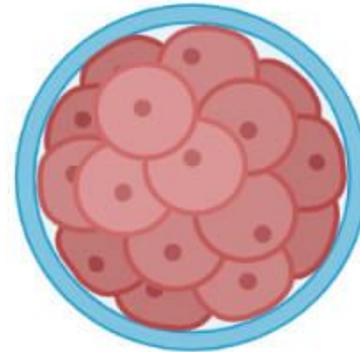
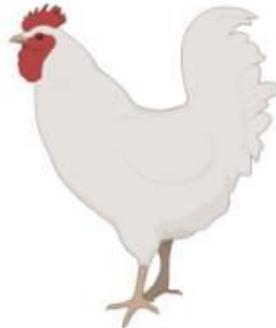
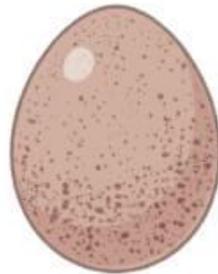


# REPRODUCTION IN VERTEBRATES (2)



- Oviparity vs Viviparity

## Differences Between Oviparous and Viviparous



# REPRODUCTION IN MAMMALS

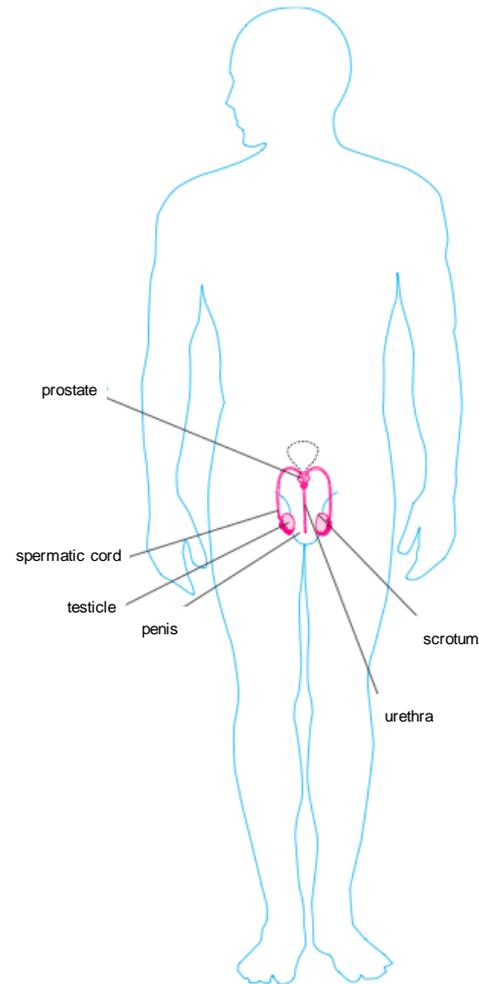


- **Most are viviparous**
  - ✓ Exception: monotremes, platypus, echidna
- **Mammary glands produce milk**
- **Marsupials**
  - ✓ short gestation period
  - ✓ The underdeveloped newborn undergoes further development

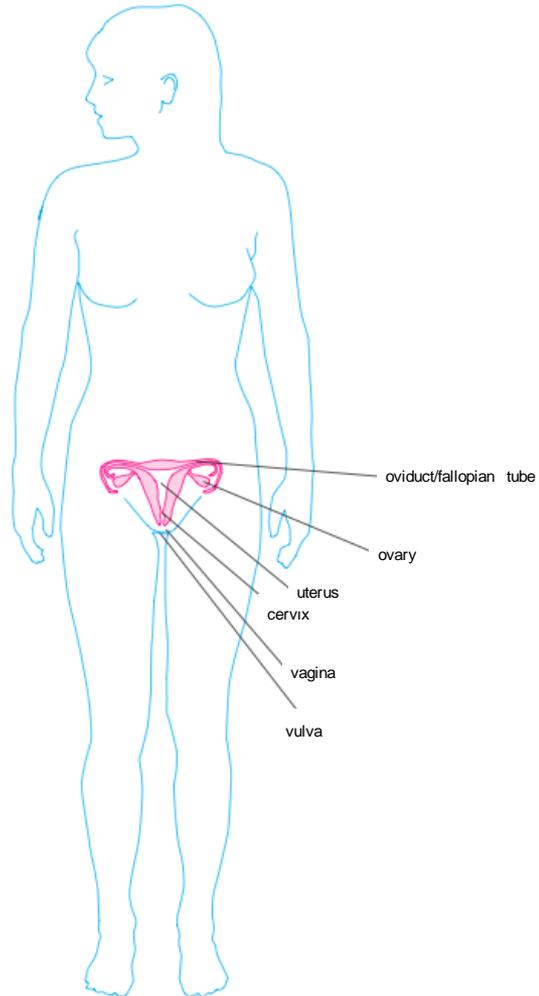
# HUMAN REPRODUCTION



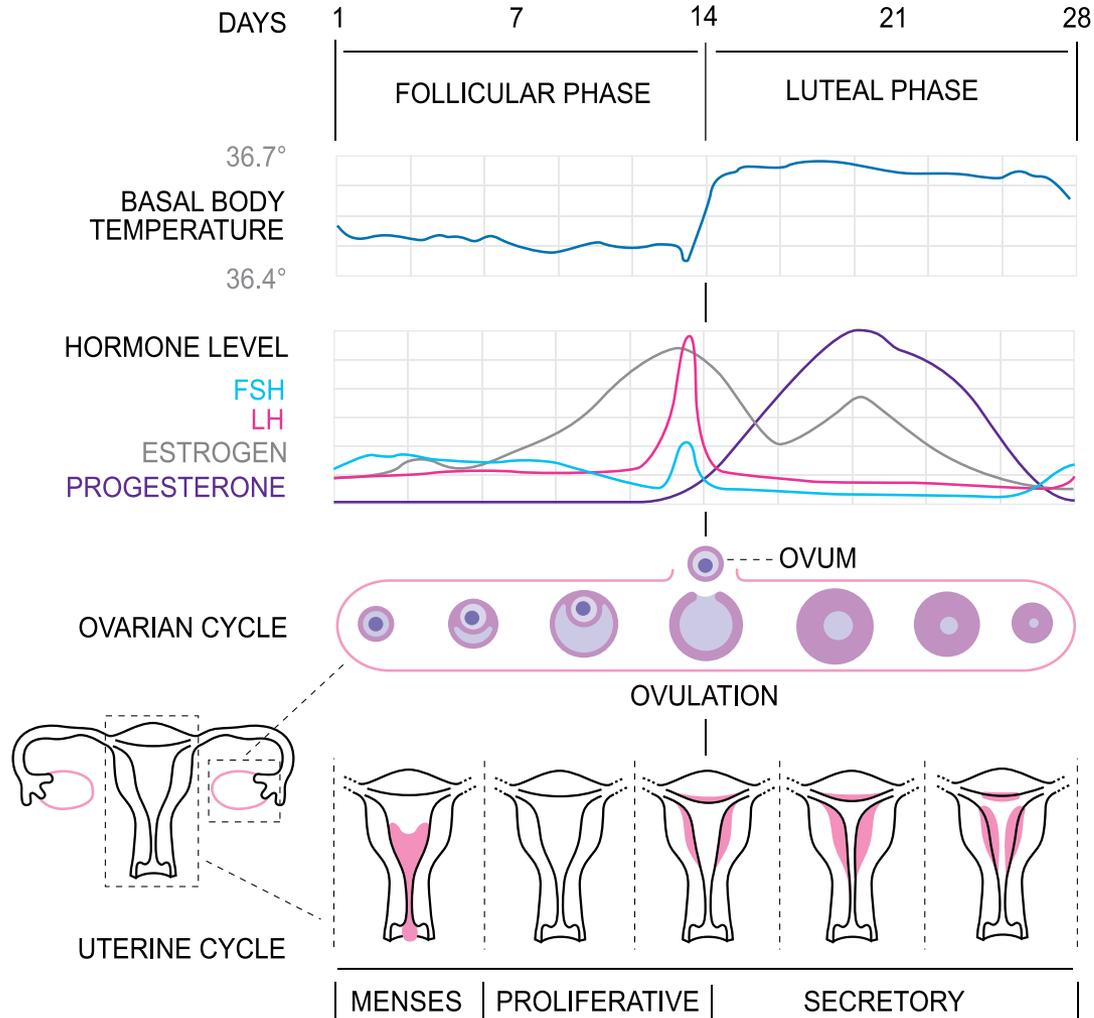
# THE MALE REPRODUCTIVE SYSTEM



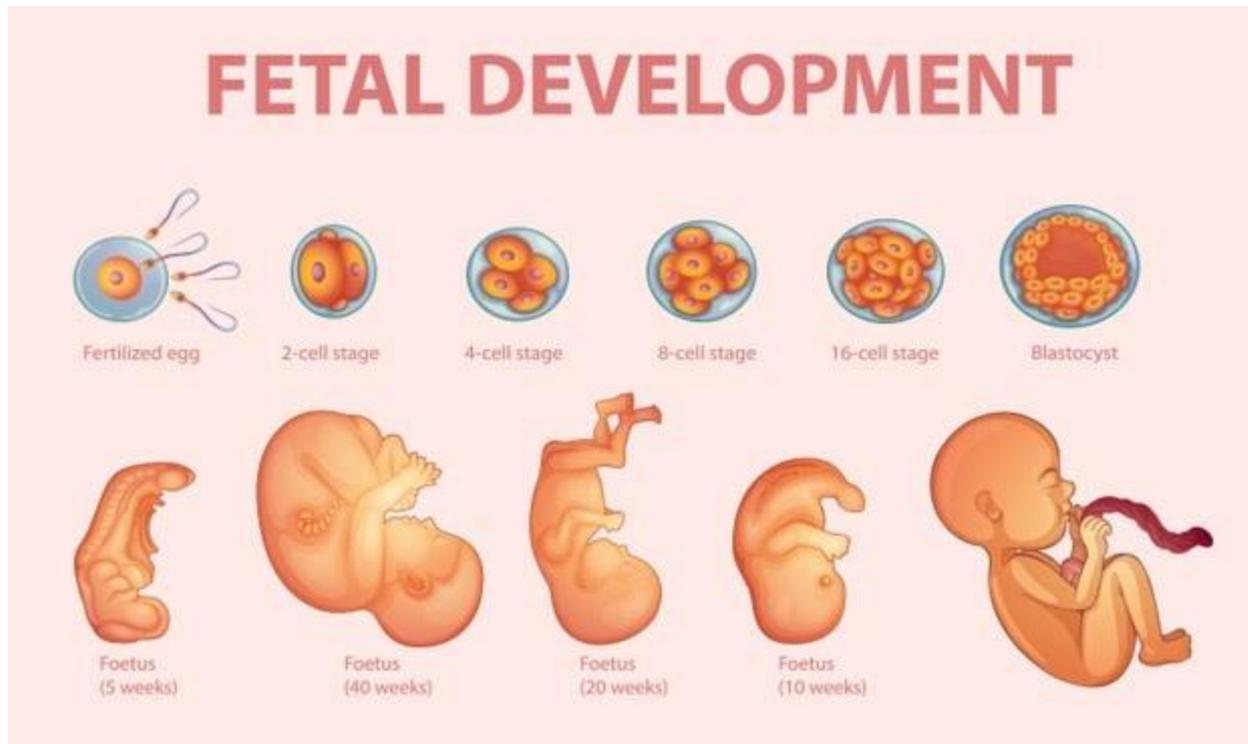
# THE FEMALE REPRODUCTIVE SYSTEM



# MENSTRUAL CYCLE



# FROM FERTILIZATION TO BIRTH



# 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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