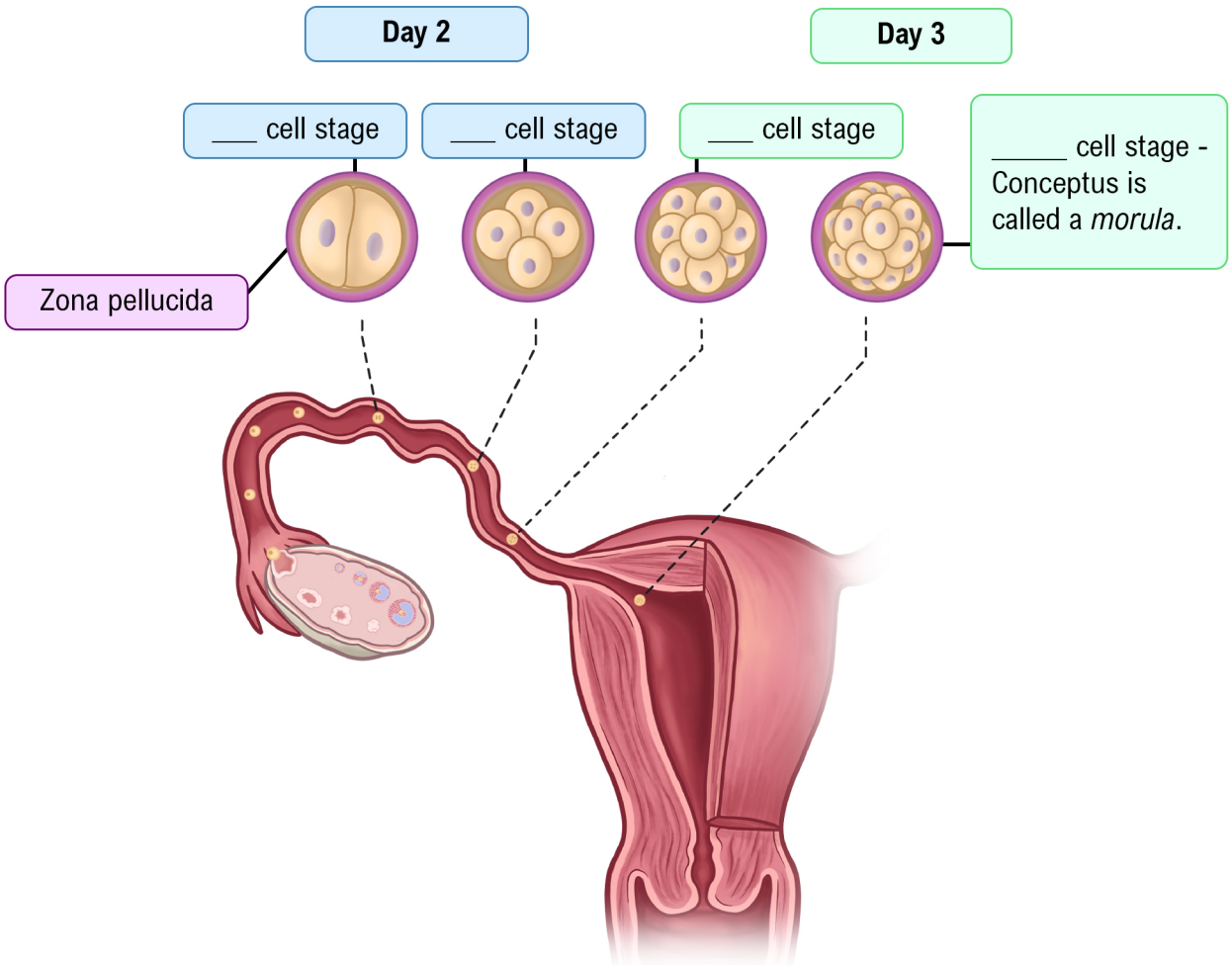
TOPIC: EARLY EMBRYONIC DEVELOPMENT

Cleavage: Days 2-3

- **Cleavage:** A series of _____ mitotic divisions that produce genetically identical cells called *blastomeres.*
  - Cell _____ increases, cell _____ becomes progressively smaller.
- During cleavage, the embryo is contained in *zona pellucida*.



EXAMPLE

What is the primary outcome of cleavage in embryonic development?

a) Formation of the zona pellucida.

b) Formation of body organs.

c) Production of blastomeres.

d) Differentiation of primary germ layers.

TOPIC: EARLY EMBRYONIC DEVELOPMENT

PRACTICE

Which of the following is a benefit of cells getting smaller as cleavage occurs?

a) Smaller cells are more resilient.

b) Their surface area to volume ratio increases, allowing more efficient uptake of nutrients.

c) Increased storage capacity for cellular organelles.

d) None of the above

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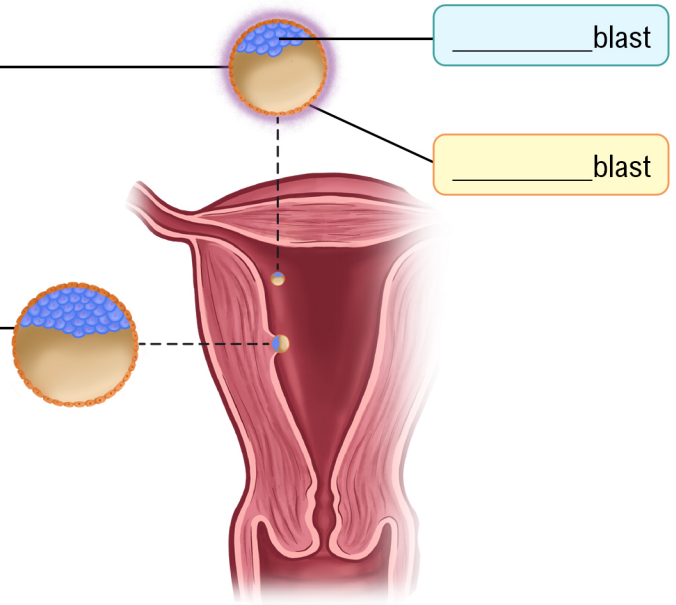
Blastocyst Formation: Days 4-5

- Around day 4-5 the conceptus 'hatches' from zona pellucida; now called a _____.
- Develops ____ distinct cell types:
  - **Embryoblast:** _____ cluster of cells – will form the *embryo*.
  - **Trophoblast Cells:** Outer layer; surrounds fluid-filled cavity and embryoblast – will form the _____.

Day 4-5
Zona pellucida degrading. Blastocyst is free-floating in uterine cavity.

Day 6-7
Blastocyst implantation begins.



Memory Tip:
Tropho means *nourishment* – this structure will form the placenta and nourish the embryo.

EXAMPLE

Which of the following is the correct sequence of development stages during cleavage?

a) Amnion > zygote > blastocyst > morula.
b) Blastocyst > blastomeres > chorion > zygote.
c) Zygote > blastocyst > blastomeres > trophoblast.
d) Zygote > blastomeres > morula > blastocyst.

PRACTICE

A hollow ball of cells created by cleavage is called a(n)?

a) Blastocyst.
b) Morula.
c) Trophoblast.
d) Embryoblast.