Avoid the Rat Race!

Carolina's Perfect Solution® Rat Dissection

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

The Per•fect Contest! \per-fikt\ adj.

To enter:

1. Take a pic of yourself wearing your **Perfect shirt**.
2. Post and tag Carolina on social media by the end of the conference.
3. Winners will be chosen after the show via social.

Bonus points for creativity!

@CarolinaScience

Carolina® Science

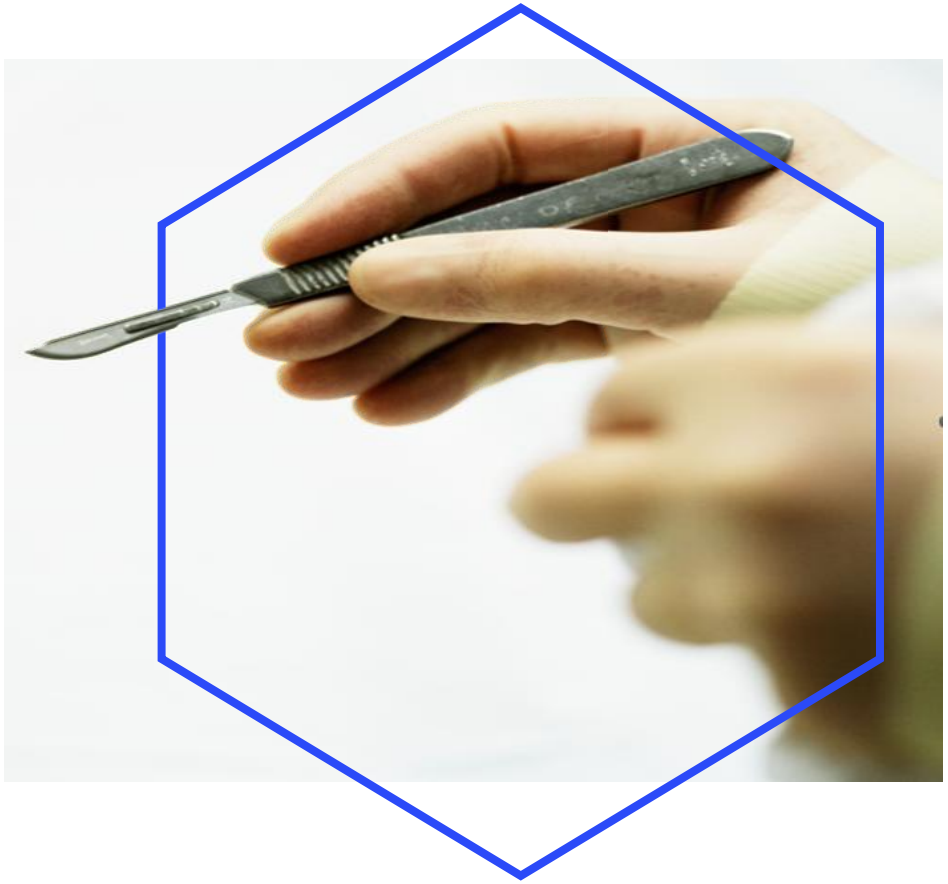
@carolinascience

CAROLINA UNLEASH LEARNING

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Objectives

- Conduct a rat dissection.
- Examine rat anatomy while relating structure to function.
- Experience Carolina's Perfect Solution® specimens.



©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Building Toward 3-Dimensional Learning

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and using models ▪ Develop and use a model based on evidence to illustrate the relationships between systems.	**LS 1: From molecules to organisms: Structures and processes** ▪ Multicellular organisms have a hierarchical structural organization.	**Structure and function** ▪ The shape and structure of objects determine their functions and properties.[1]

Explore Next Generation Dissections

1. NGSS Lead States, Next Generation Science Standards: For States, By States *(Washington, DC: The National Academies Press, 2013), retrieved from www.nextgenscience.org or ngss.nsta.org*

CAROLINA UNLEASH LEARNING

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Carolina's Perfect Solution® Specimens

Quality

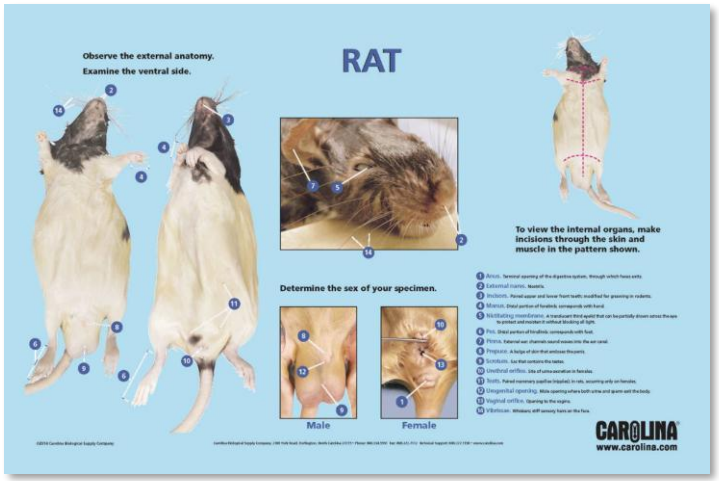
- Superior preservation
- Superior tissue color and texture

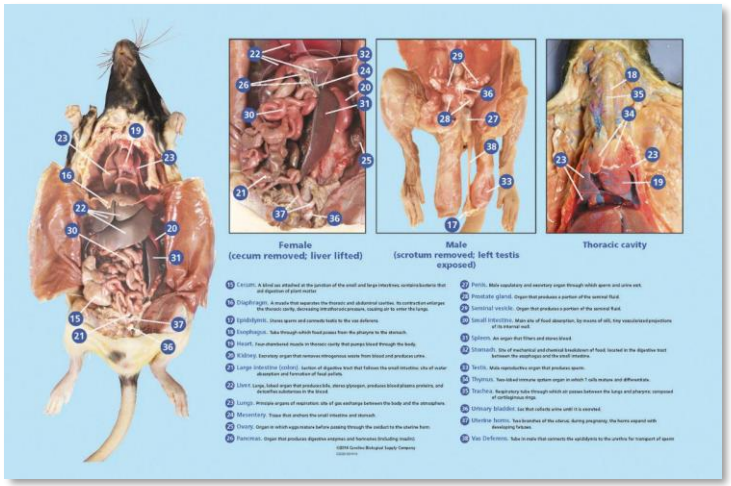
Safety

- No dangerous off-gassing
- No formalin odor

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Carolina® Dissection Mats





- Clear, concise dissection instructions
- Detailed, color photographs
- Labeled internal and external structures with definitions
- Cost-effective
- Reusable—wipe clean

PLEASE DO NOT TAKE THESE MATS!

We need these for future workshops.

CAROLINA
UNLEASH LEARNING

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Dissection Preparation Tips

- **Organize your dissection area:**
  - Take out your dissection tray
  - Put blue absorbent pad under the dissection tray
  - Lay out your instruments
    - Scissors
- **Use appropriate personal protective equipment:**
  Apron, gloves, safety goggles

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Safety Issues

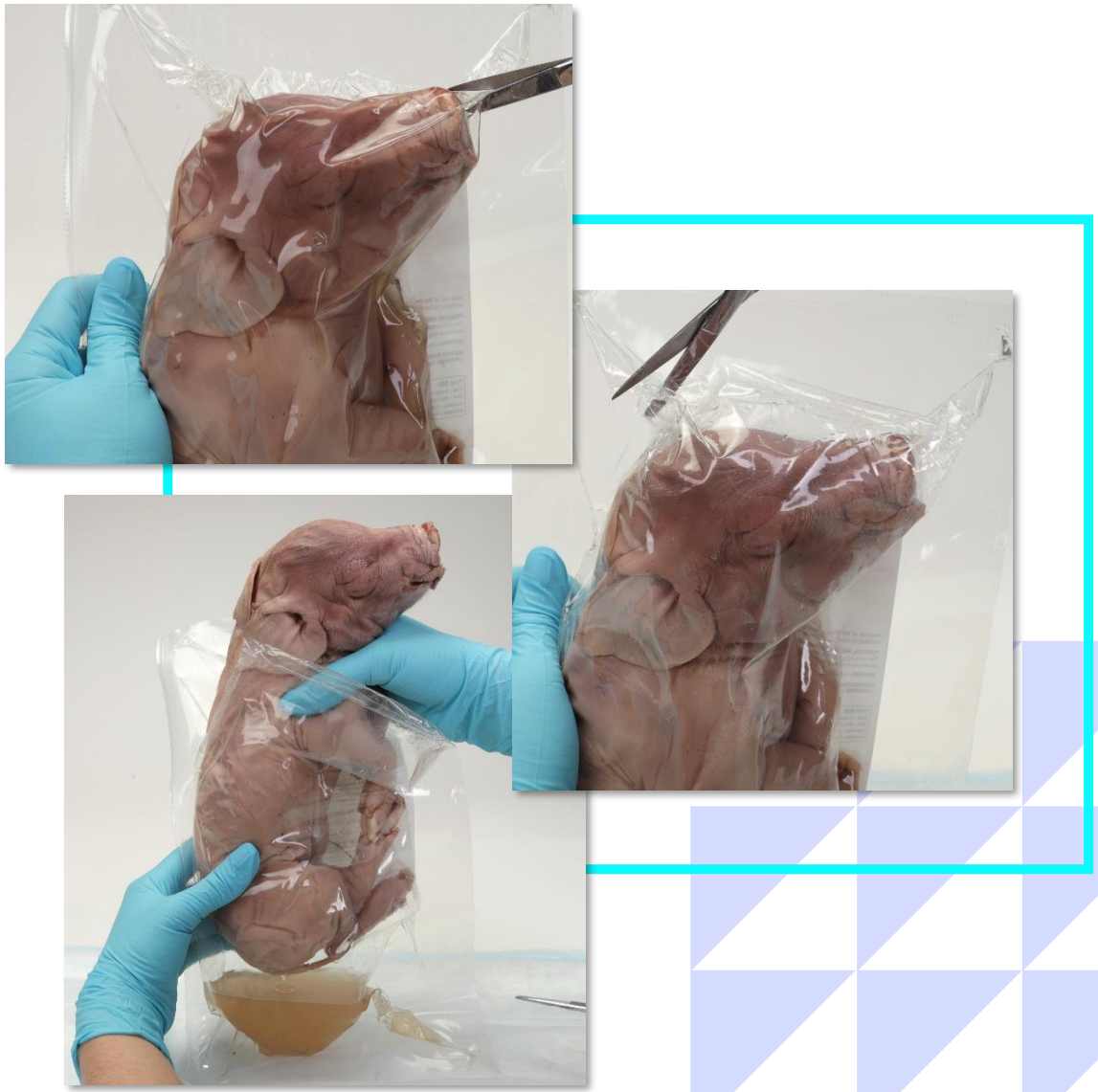
- **Personal protective equipment**
  Apron, gloves, safety goggles
- **Dissection tools**
  Be diligent with sharp tools

Safety Tip
If you are not using an instrument, set it down!

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Teacher Tip

1. At the anterior of the specimen, locate an area where there is excess plastic.
2. Force any fluid out of the area to prevent spills.
3. Cut a small hole in the excess plastic. This will allow the fluid to drain to the bottom of the bag.
4. Continue to cut around the anterior of the specimen until you can easily remove the specimen from the bag.
5. Keep bag upright until we come over to collect the fluid and bag.



CAROLINA UNLEASH LEARNING

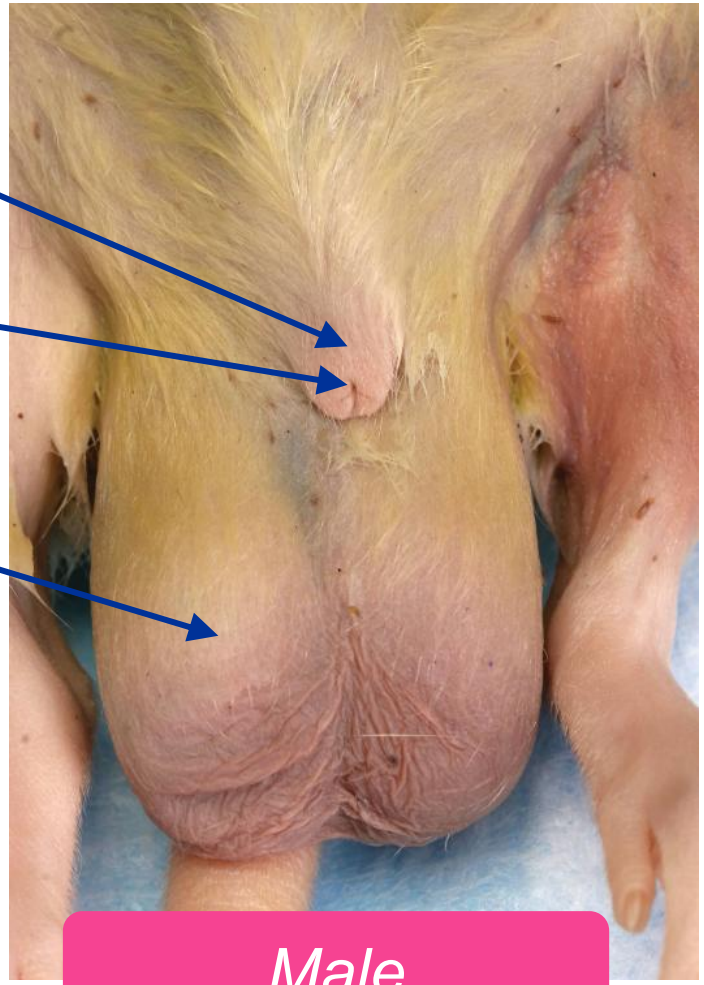
©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Phenomenon: The Lab Rat

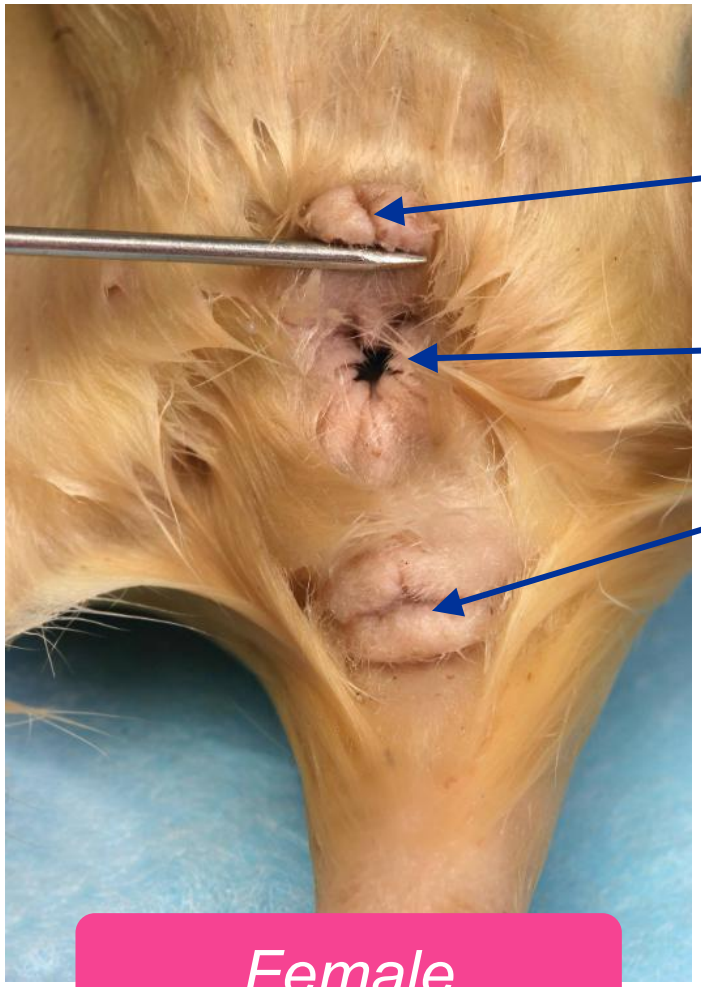
©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

External Anatomy

Determine the sex of your specimen.



Male



Female

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

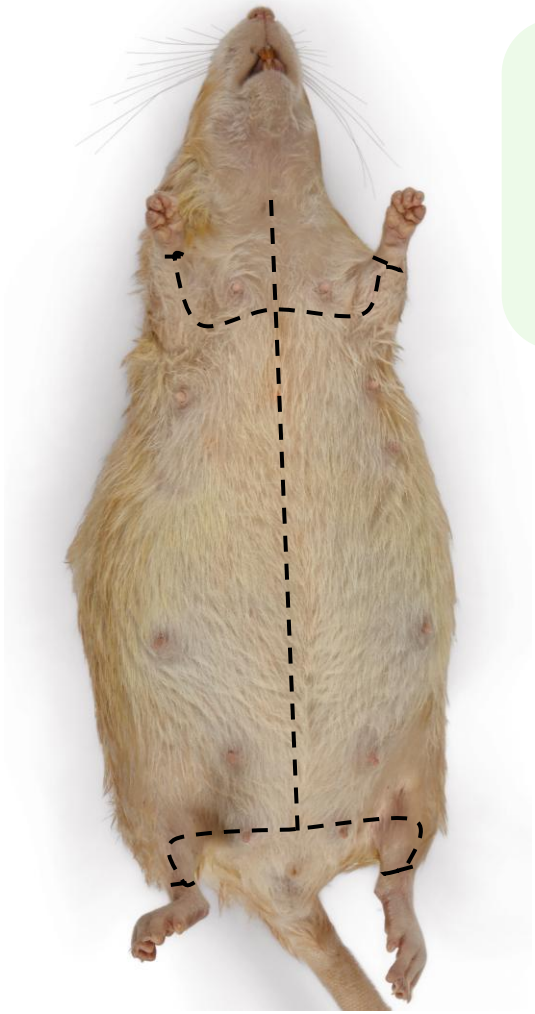
External Anatomy

Locate the structures below on your rat specimen.

CAROLINA UNLEASH LEARNING

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Love the Skin You're in!

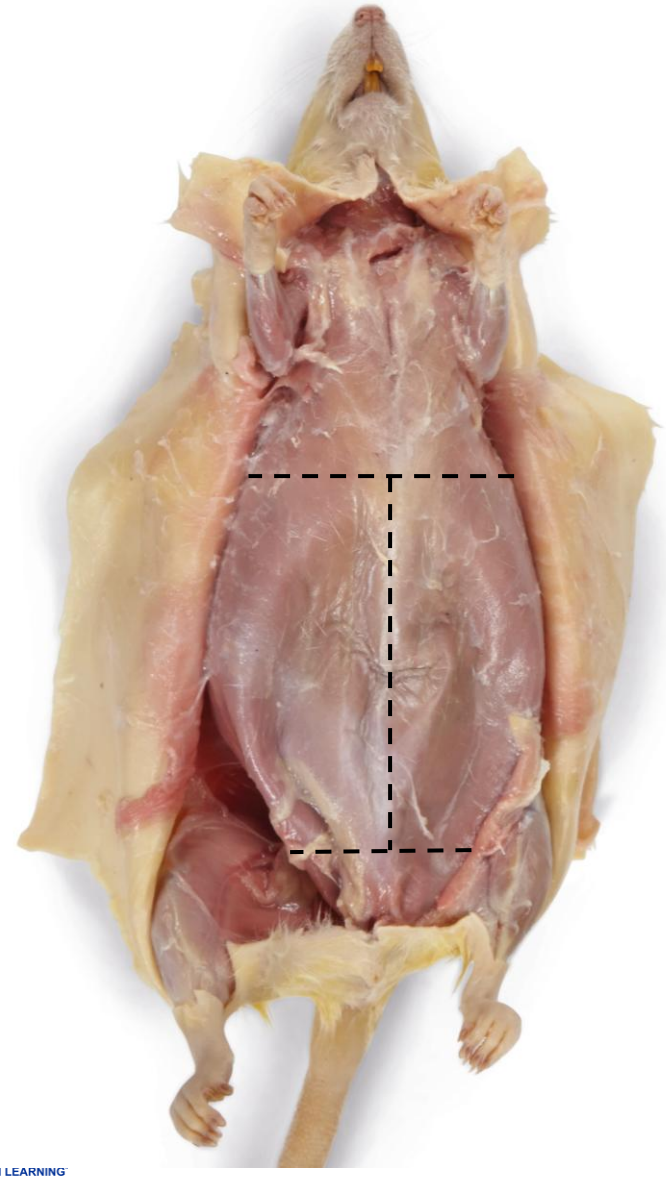


Use your scissors to make the incisions indicated by the dotted lines.

Cut through the skin ONLY.

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Opening the Abdominal Cavity



Make the incisions indicated by the dotted lines.

Begin the mid-sagittal incision near the urogenital opening and stop at the rib cage.

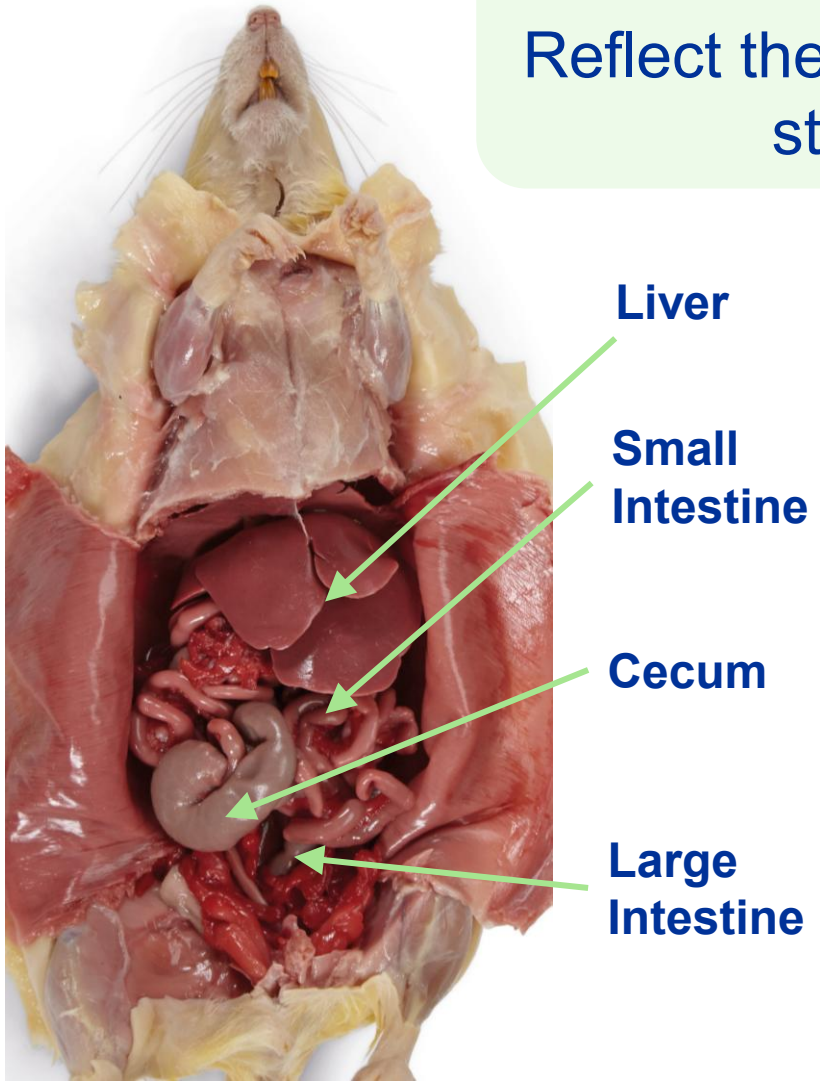
Finish with the lateral incisions.

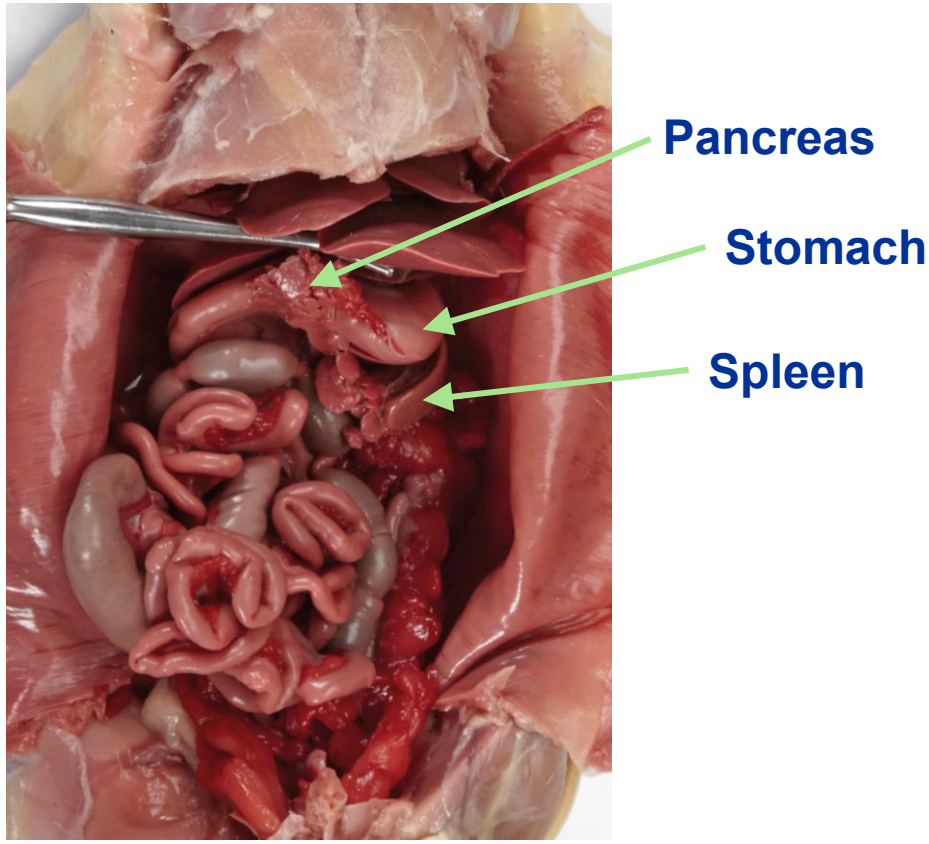
©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Internal Anatomy

Locate the following structures

Reflect the liver to locate the pancreas, stomach, and spleen.



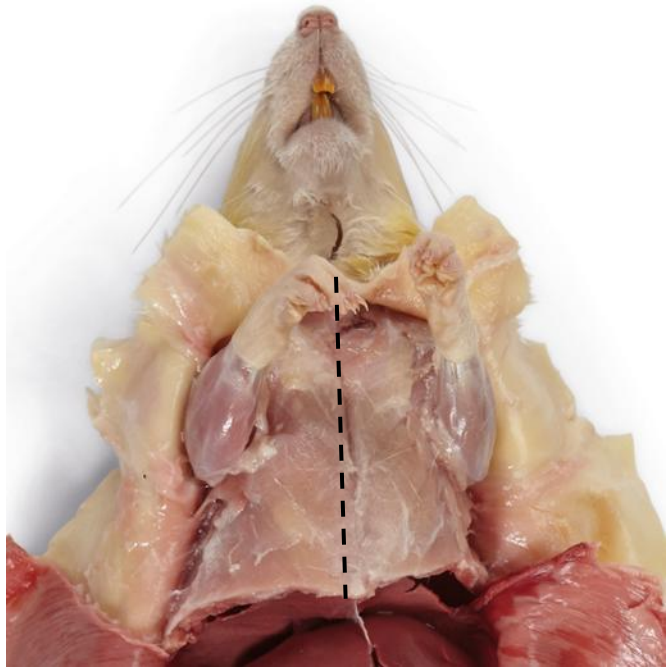


©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Opening the Thoracic Cavity

Complete the mid-sagittal incision from the diaphragm to the mid-neck.

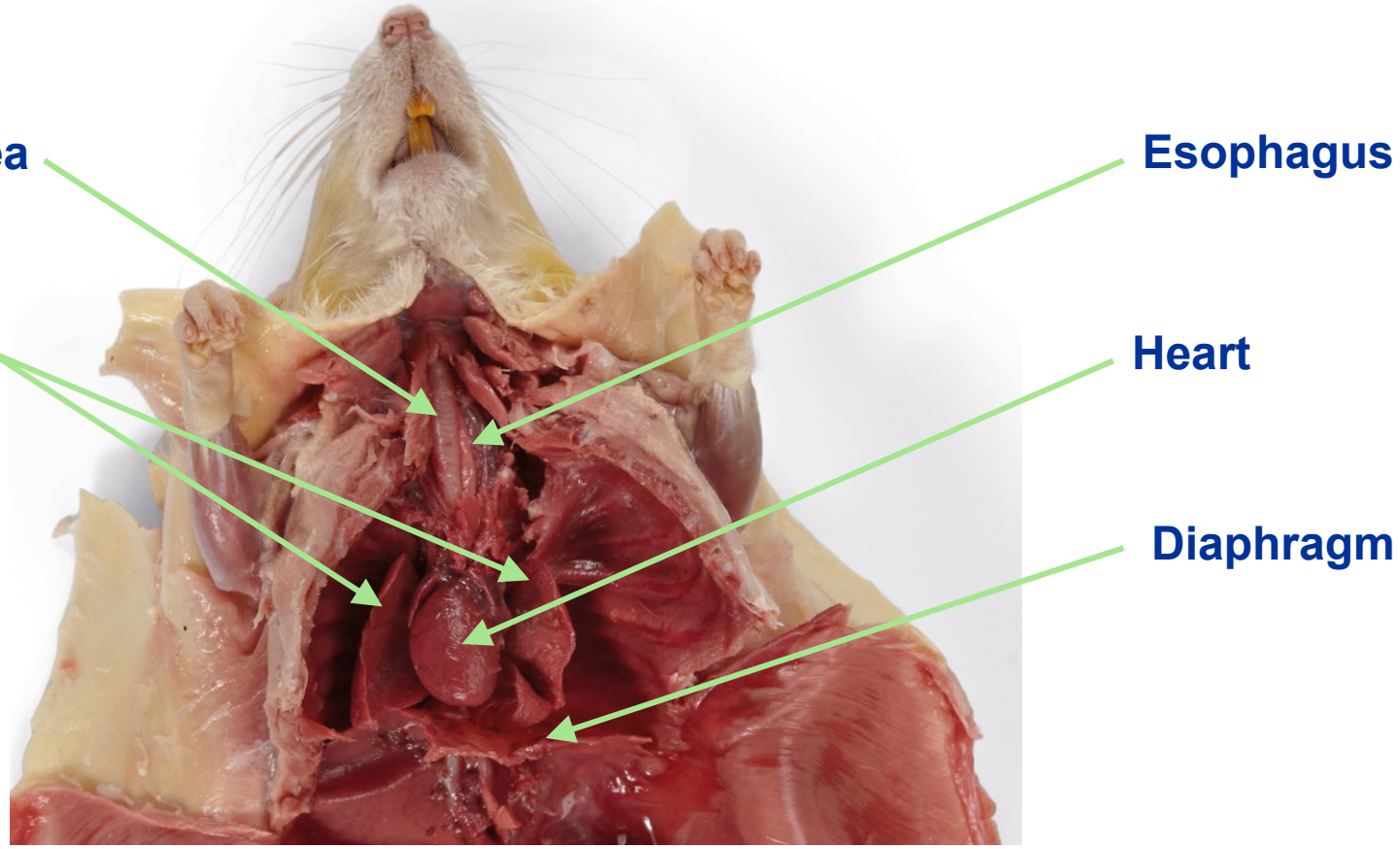
Gently spread open the rib cage with your hands.



©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Internal Anatomy

Locate the structures below.



©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

No Guts, No Glory

Remove the digestive and accessory organs from the abdominal cavity:

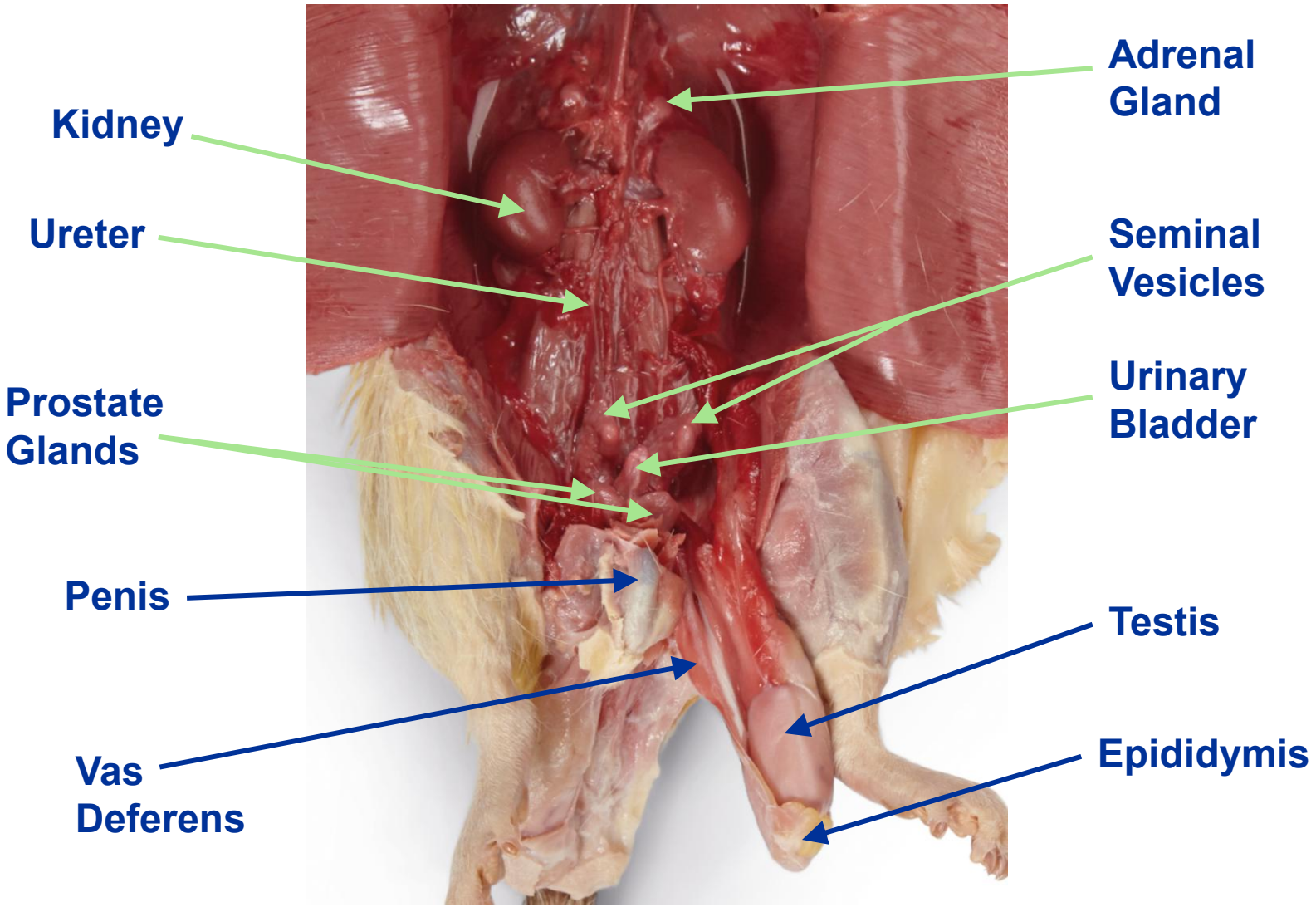
- Liver
- Stomach
- Pancreas
- Intestines
- Spleen

Carefully cut the mesentery holding the intestines together and stretch out.

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

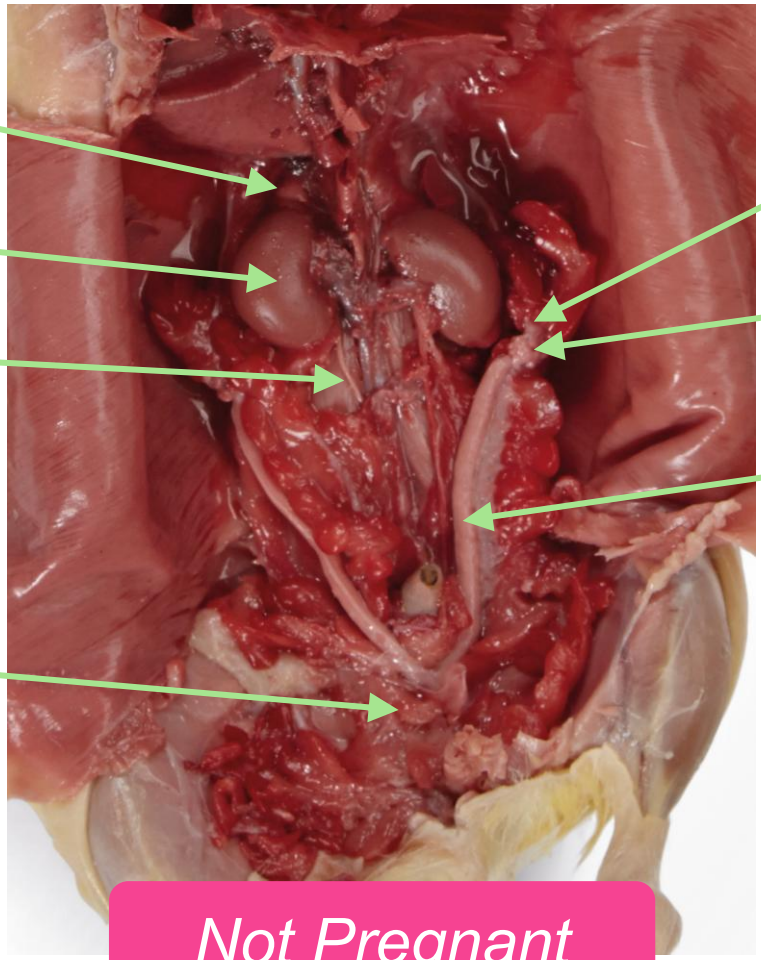
Internal Anatomy: Male

Remove the skin from the scrotum to expose the underlying structures.

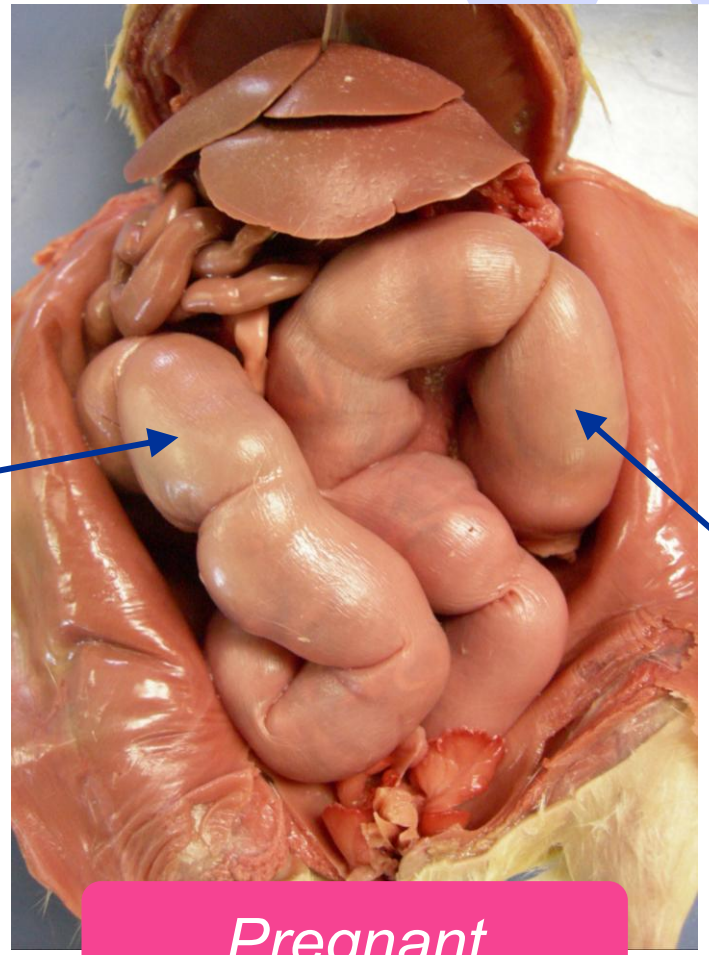


©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Internal Anatomy: Female



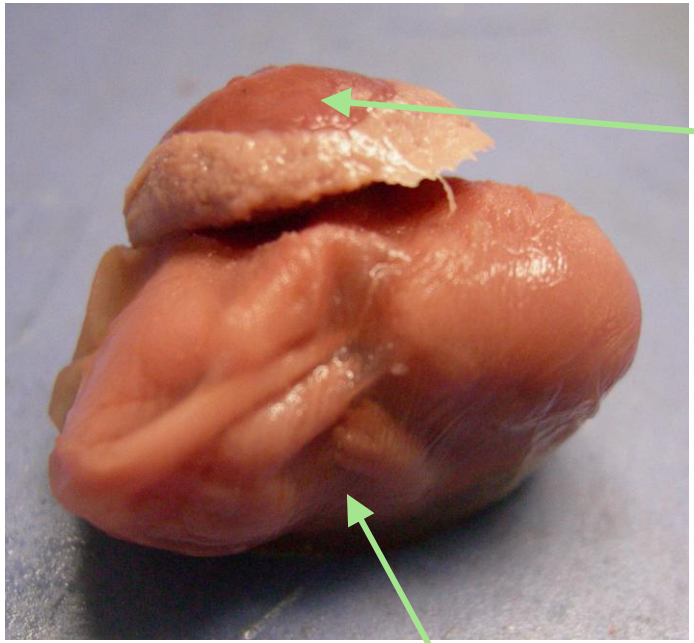
Not Pregnant



Pregnant

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

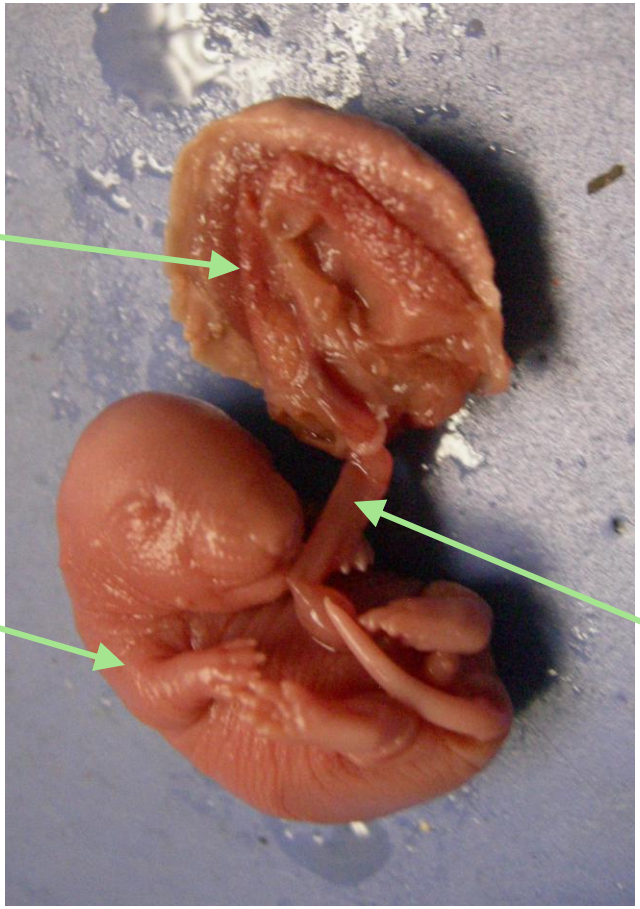
Rat Embryo



Placenta

Embryo

Amniotic Sac

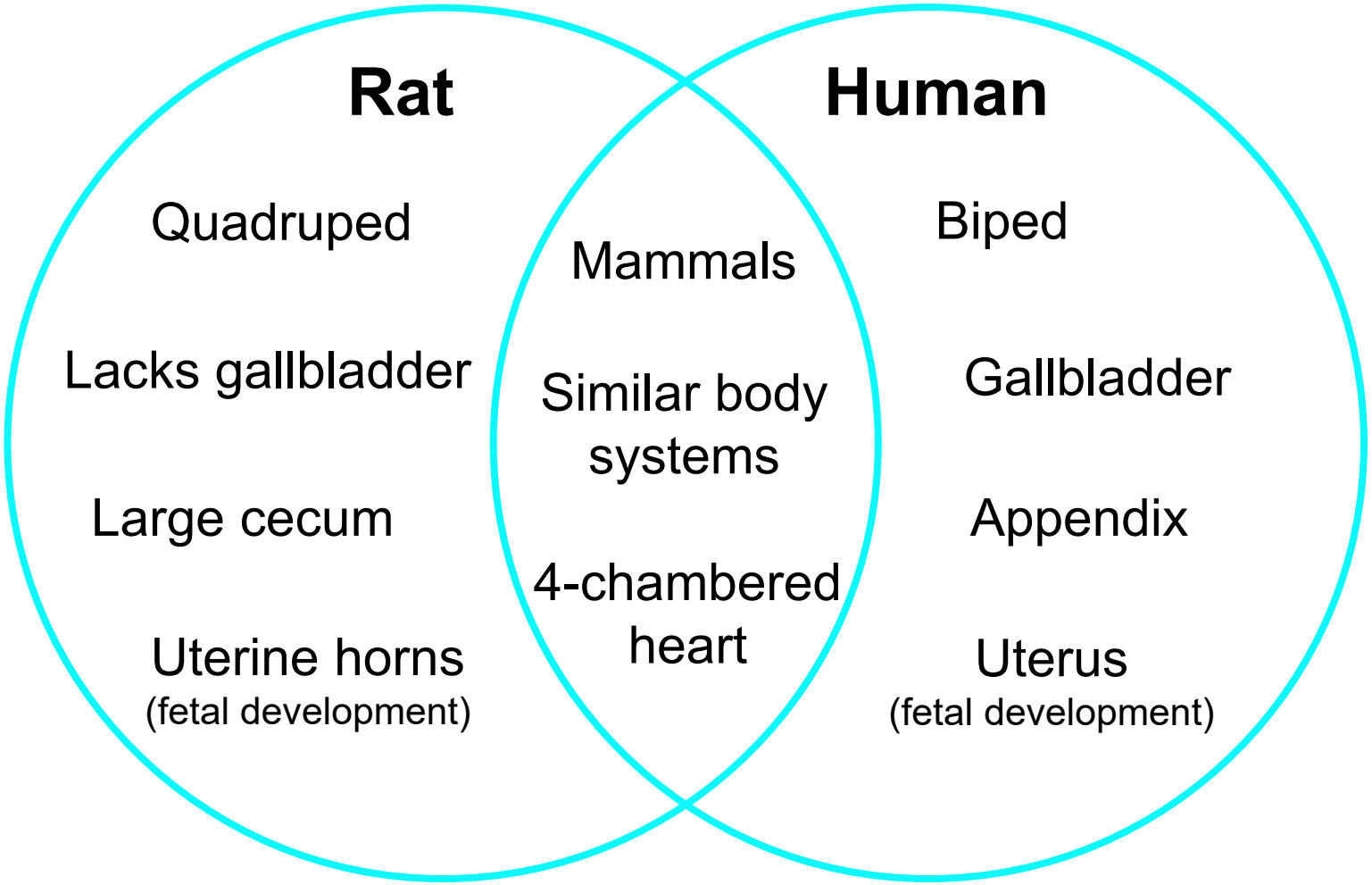


Umbilical Cord

CAROLINA
UNLEASH LEARNING

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Student Artifact & Assessment



©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Cleanup Instructions

STOP!

- **KEEP GLOVES ON!**
- **Separate trash from animal material/waste.**
- **Carolina employees will come and collect ONLY animal waste. Place in buckets.**
- **All other trash goes in trash bags.**
- **Wipe off tools, mats and tables.**

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.

Join us on social media to stay up to date with new kits and free lessons!

YouTube @CarolinaScience

@CarolinaScience

LinkedIn Carolina® Science

@carolinascience

CAROLINA UNLEASH LEARNING

©2025 Carolina Biological Supply Company
Unauthorized reproduction, distribution, or display of copyrighted materials is prohibited.