



5.11 Excretory System

Lesson Concept The Excretory System transports waste from the blood stream to outside the body.

Link In the previous lesson, students shared what they know about the structure and function of the digestive system. In this lesson, students will discover the structure and function of the excretory system. Following this lesson, students will be assessed on their knowledge of the human body systems.

Time 60 minutes

Materials

Whole class

Projector/computer for video

Per Group

Excretory system diagram (R1)

3 Kidney beans (Represents the Kidneys)

3 Spaghetti pieces (Represents the Ureters)

2 Marshmallows (Represents the Bladder)

2 Straw pieces (Represents the Urethra)

2 Pieces of red yarn (Represents the Arteries)

2 Pieces of blue yarn (Represents the Veins)

Glue

Poster board

Individual

Science notebook

Advance Preparation

1. Gather materials for each group; duplicate excretory system diagram.
2. Download video: sbceoportal.org website. The video is titled "Human Body: Excretory System. If time is an issue, play only sections 4 and 5.

Procedure:

Engage (10 minutes) The excretory system transports waste from your bloodstream and extra water to outside of the body.

1. Write the word “waste” on the board and ask students, in partners to discuss what the word means and brainstorm types of body waste.
2. Have several groups share. Chart their ideas. Hopefully the list will include carbon dioxide (from respiratory system) and solid waste (from digestive system). If not, ask probing questions—what was considered waste in the respiratory system? What was considered waste in the digestive system?
3. If students mention urine as a type of body waste, circle the word. Clarify what kind of waste it is (liquid). If they don’t say urine, write the word on the board and ask what it is.
4. Ask students where urine comes from. Chart their ideas. If they say the excretory system, circle it. If not, write the word.
5. As individuals, have students, in their science notebook, draw and label what they think their excretory system looks like.
6. Ask students to share their drawing with a partner and then compare and contrast the parts they drew. Have several students share their ideas aloud with the classroom and sketch a class drawing.

Teacher Note: Keep this drawing for use in the Explain stage of this lesson.

Explore #1 (10 minutes) The excretory system consists of the kidneys, ureters, urinary bladder, and the urethra

7. Display a picture of the excretory system and show the video of what the excretory system does. Remind students to listen carefully so that they can discuss what they learned from the video.

Teacher Note: Point out that arteries are going into the kidneys and the veins are going out and then continuing up and down the body. Students will need to cut arteries and veins to replicate this in the model later in the lesson.

8. Ask students, in partners, to discuss two things they learned from the video. Have several partners share and chart their discussion.

Explore #2 (20 minutes) The excretory system consists of the kidneys, ureters, urinary bladder, and the urethra

9. Explain to students that they will be creating their own excretory system model with the items in the bags.
10. Conduct a discussion (similar to the one on the digestive system) on the advantages and disadvantages of using models. Make sure students understand that the model is a representation of the real thing.

11. Provide each group with a bag of materials, diagram page, glue and poster board. Tell the students that there is an extra of each type of material for them to create a key/legend for their model.
12. Remind students that the model must include parts of the excretory system (kidneys, ureters, bladder, urethra) and the circulatory system (arteries and veins). Allow the students to cut arteries and veins as needed to create an accurate model.
13. Give students 15-20 minutes to create their model and key.

Explain/Evaluate (10 minutes) The structure and function of the excretory system allows it to remove liquid waste from the body.

14. Once all groups have completed their model, have students do a gallery walk of the classroom, noting how the different groups made their posters.
15. Have students share out what they noticed during the gallery walk. Refer to the original class drawing. How do the models they made compare to what they originally thought? What is the same/different in the overall structure?
16. Ask the class, how does the blood supply help the excretory system do its job (lots of blood supply so that kidneys can filter blood to make urine).
17. Ask each student to turn to their partner, and using their model as a guide, explain to their partner the structure and function of each part of the excretory system and how the excretory system works.
18. Ask students to return to their original drawing in their notebook and make any corrections (in a different colored pen/pencil) to their drawing based on what they learned.
19. Have students complete an exit slip that answers this prompt: I used to think _____; now I think _____. I am still wondering about _____.

Extend (homework) The excretory system transports liquid waste in many animals.

20. Ask students, as homework, to research 4 fun facts about urine in humans and in other animals.

Teacher note: when students bring their fun facts, create a bulletin board or use the information for "fun facts" cards.

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