www.wildillinois.org

River Otter Adaptations

Concepts
Animals have body parts suited for their lifestyle and habitat.

Objectives
Students will be able to:

- List at least 3 otter body parts that make this animal well-adapted to its aquatic habitat.
- Determine which otter body parts and adaptations are not necessarily related to life in the water.

Next Generation Science Standards
3-LS4-3; 4-LS1-1

Materials
Copies of the River Otter photo and River Otter Body Parts and Adaptations diagram.
A set of Otter Matching Cards for each group of students playing the game.

Space
Classroom

Activity
Have the students look at the photo of the River Otter. Ask them what parts of an otter's body make them well-suited to spend much of their time in water. Ask the students to review the Otter Body Parts animal diagram, then give them a set of cards and read them the instructions below.

How to play the game
Divide the students into groups of 2 to 4 students. Provide a set of cards to each group playing the game.

This game is played like the card game "Concentration." Shuffle the cards and spread them face down on the table. Each student takes a turn turning up 2 cards, leaving them in place on the table. The object is to match a body part card with the adaptation. If a student makes a match, the student keeps the 2 cards and turns over 2 more. If the student does not make a match, the cards are turned blank side up and the next player takes a turn. You may wish to encourage students to provide clues to each other or to work in teams. The game ends when there are no more matches to be made.

Follow Up
Not all the otter body parts represent adaptations to aquatic life. After playing the game, have students discuss which otter adaptations are unique to aquatic life, and which are not.

Discuss with the students what body parts they think humans have that make them suited to live on land.

What things do humans sometimes use to be better suited for swimming in water? (e.g., goggles, bathing caps, flippers, scuba tanks or snorkels)

References
Illinois Department of Natural Resources,
https://www.wildlifeillinois.org/gallery/mammals/found-near-water/river-otter/

River Otter Preservation Society
www.riverotter.net/lutra_c.html

Blank Park Zoo
https://www.blankparkzoo.com/

Busch Gardens Animals
https://seaworld.org/animals/all-about/otters/adaptations/

Evaluation:

Group:				
	Participation	**Group Discussion**	**Class Discussion**	**Score**
4 – Excellent	All group members participate in the activity and are engaged.	All group members are engaged in discussion with each other, bringing up new ideas and extending where possible.	Group is engaged in the class discussion and talks about different ideas and conclusions made by their own group following the activity.	
3 – Good	Most group members participate in the activity.	Most group members are engaged in a productive conversation with each other on the topic.	Group is mostly engaged in the class discussion and shares some thoughts on the topic.	
2 – Needs improvement	Some group members participate in the activity. Others are not engaged.	Some group members are engaged in a conversation.	Group is somewhat engaged in the class discussion.	
1 – Poor	Group does not follow directions or participate actively.	Group is off-topic or is not engaged.	Group barely participates in the class discussion.	
0 – No attempt	Group does not participate in the activity.	Group does not discuss together.	Group does not participate in the class discussion.	
				Grand total _____/12

Body Part **Very thick fur**	Body Part **Webbed feet**	Body Part **Sharp teeth**	Body Part **Sharp claws**
Body Part **Long, muscular tail**	Body Part **Eyes on top of head**	Body Part **Small ears on top of head that can be closed**	Body Part **Long whiskers**

Body Part **Heart** **Beat is slower heartbeat underwater**	Body Part **Streamlined body shape**	Body Part **Voice** **Described as a chuckling sound**	Body Part **Scent glands**
Body Part **Nostrils that can be tightly closed**	Body Part **Brown fur**	Body Part **Eye lenses that change shape**	Body Part **Nose - Sense of smell**

Adaptation **Provides insulation in cold water**	Adaptation **Allows their feet to push more water**	Adaptation **Holds and tears fish and other food**	Adaptation **Holds and tears fish and other food**
Adaptation **Serves as a steering rudder and for power**	Adaptation **Able to see surroundings when swimming at surface**	Adaptation **Keeps water out of their ears**	Adaptation **Able to feel in areas of limited visibility (Muddy water, dens)**

Adaptation **Reduces need for oxygen underwater**	Adaptation **Reduces resistance underwater**	Adaptation **To call to young and communicate with other otters**	Adaptation **Marking territory**
Adaptation **Prevents water from getting in their lungs**	Adaptation **Blends in to wooded habitat and makes them less visible in water**	Adaptation **Adapt to improve vision under water.**	Adaptation **Helps locate food on land**

North American River Otter

Photo courtesy USDA Forest Service

River Otter Body Parts and Adaptations

Eyes - On top of head so otter can see when swimming on surface. Eyes can also change shape to compensate for seeing under water

Ears - Small and on top of head. Can be closed to keep water out when swimming

Thick fur - 156,00 hairs per square inch, provides insulation.

Brown fur - Helps camouflage animal in woods, and is less visible in water

Nose - Nostrils can be closed to keep water out. Sense of smell helps otters find food on land.

Photo courtesy USDA Forest Service

Teeth - Sharp, for catching and holding fish and other prey

Whiskers (also called vibrissae) - Detect motion underwater. Help otters feel surroundings in dark dens

Tail - Long and muscular. Serves as rudder for steering and for swimming power

Scent glands - Located under tail. Used to mark territory.

Voice - "Chuckling" sounds help otters communicate to each other

Heart - Beat can be slowed during a dive to conserve oxygen, so otters can stay underwater for up to 8 minutes

Claws - Catch and hold food. Also for digging out dens.

Feet - Webbing between toes pushes more water as otters paddle

Body shape - -Streamlined body shape reduces resistance in water