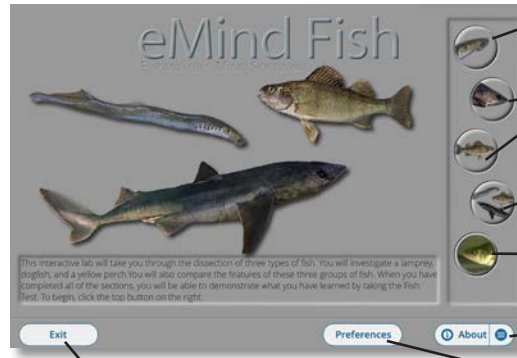


# GETTING STARTED WITH eMind FISH

## How to Begin



Click the Lamprey icon to begin exploring the first fish in the recommended sequence

Click these icons to begin exploring other fish

Click here to compare the major systems of the three fishes

Click here to begin the fish MiniLabs

Click here to navigate through the program

Click here to set preferences

Click here to exit the lesson



### The Lamprey

The External, Head, and Internal views are explored.



### The Spiny Dogfish

A look at the External, Head, and Internal views.



### The Yellow Perch

Examine the External, Head, and Internal views.



### Fish Comparisons

Compare all major systems of the three fishes.



### Fish MiniLabs

Investigate respiration, circulation and dissolved oxygen.

## Completing the Guided Dissection

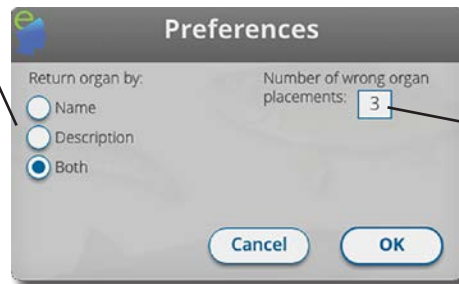
As you complete each view of the three fishes, *eMind Fish* enables you to review topics and test your knowledge with the system quizzes.

1. Click the **External Lamprey** button on the main screen.
2. Complete the module by clicking the specified parts of the fish. When you finish, the program gives you the option to continue or review.
3. If you are ready for the External Lamprey Quiz, click **Continue**, or click a fish part on the screen to review its function.
4. Click **Continue** and complete the quiz as directed by the software.
5. Click **Repeat** to take the quiz over, or click **OK** and then **Next** to continue to another module in the dissection. Some modules ask you to click specified parts of the fish, while others ask you to drag specified organs to and from their proper locations in the fish's body.
6. When you are done with the three screens of each animal, *eMind Fish* gives you the option of completing the comprehensive Fish Test, or reviewing other modules before continuing into the test.

## Setting Preferences

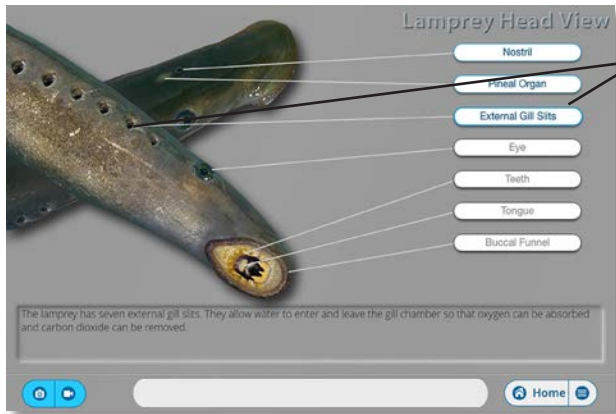
Press the Preference button on the topics screen to display the Preferences dialog box.

Click a button to be quizzed by organ names, their descriptions, or both



Sets the number of incorrect placements of organs accepted during a quiz

# D I S S E C T I N G T H E F I S H

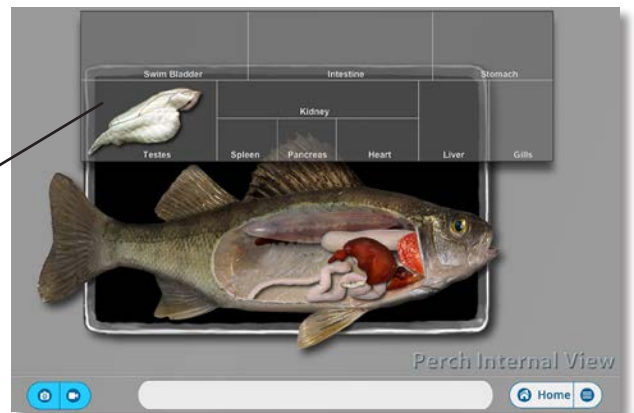


Click a part or its label to view more information

## Examining the Exterior Lamprey External, Lamprey Head, Dogfish External, Dogfish Head, Perch External, and Perch Head

## Internal Features Lamprey, Dogfish, and Perch

Drag each organ to the correct location on this dissection tray.



**Comparing Fish**

System	Lamprey	Dogfish	Perch
Classification			
Outer Covering			
Digestive System			
Respiratory System			
Reproductive System			
Excretory System			
Nervous System			
Skeletal System			

The main function of the digestive system is to break down food into usable molecules and then absorb the nutrients. It usually consists of a tube that has several areas that have been modified into specialized organs, like a stomach and intestine. Several accessory organs also assist in digestion.

Due to its parasitic nature, the lamprey has a comparatively simple digestive system. The mostly fluid meals that it receives from its host require very little mechanical digestion. Therefore, the lamprey lacks a stomach and all of the digestion, as well as the absorption, take place in its intestine. The pharyngeal glands aid in feeding by secreting an anticoagulant to keep the prey's blood from clotting.

In the dogfish, food travels through the esophagus and short esophagus into the stomach where the chemical and mechanical digestion begins. Food then travels into the intestine where digestion is completed and absorption occurs. The spiral valve of the intestine increases its surface area without the need for a bulky coiled intestine, allowing the shark to maintain its streamlined shape.

The perch usually consumes its prey whole. The mouth, esophagus, and cardiac portion of the stomach are aligned as a straight tube. The perch to eat prey that is larger than its stomach. The tail of its prey may extend out of its mouth until part of the prey gets digested. At the point where the pyloric portion of the stomach connects to the intestine, there are blind pouches: the pyloric caeca.

Click on the system here

Compare the features of the selected system of the four invertebrates

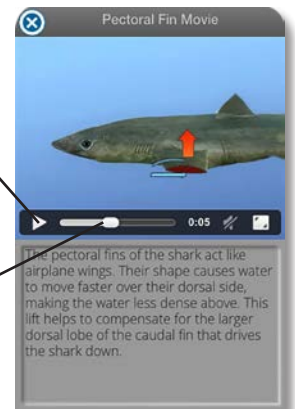
## Using the Media Window

Look for the media icons in the lower corner of each dissection screen to flash. Click any flashing icon to see a media window that includes pictures or movies of the indicated fish part.



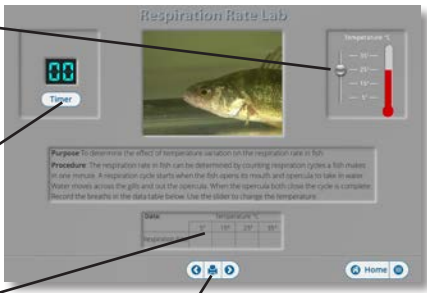
Click here to start or stop a movie

Drag this slider to advance or rewind a movie



# DOING THE MINILABS

## Gathering Data

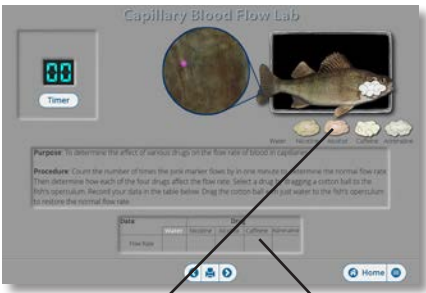


**Drag this slider to set the temperature of the fish's environment**

**Click here to start and stop the timer**

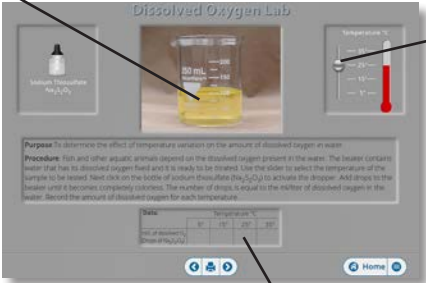
**Type your findings in these fields**

**Use these buttons to print the current MiniLab screen or move to the next and previous screens**



**Drag the cotton containing different drugs to the fish's head**

**Type your findings in these fields**

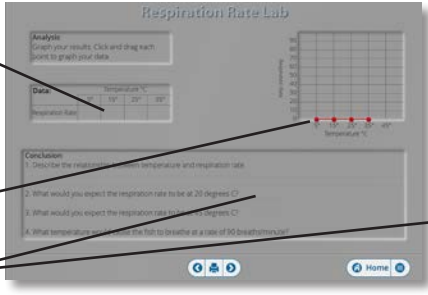


**Click the eye dropper and then click here**

**Drag this slider to set the temperature of the water**

**Type your findings in these fields**

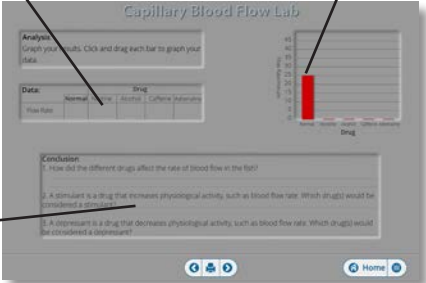
## Drawing Conclusions



**The data you gathered on the previous screen appears here**

**Drag these sliders to graph the correct data values**

**Complete your analysis by answering these questions**



**The data you gathered on the previous screen appears here**

**Drag these bars to graph the correct data values**