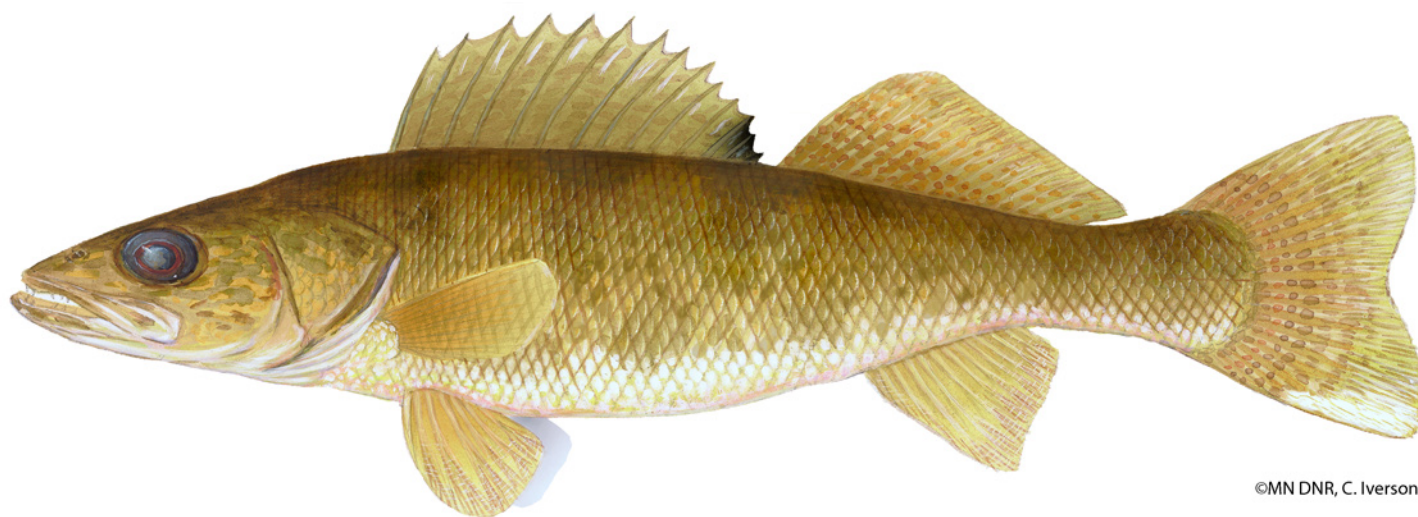


# Fish Families

When it comes to classifying Minnesota fish, it's all in the families.



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**Minnesota's state fish commonly known as the walleye—and scientifically named *Sander vitreum*.**

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## Chapter 2 • Lesson 3

Please note: Academic Standards are updated regularly and our alignments will be updated on the DNR Academic Standards Website at: [www.mndnr.gov/education/teachers/edstandards\\_intro.html](http://www.mndnr.gov/education/teachers/edstandards_intro.html)

# Fish Families

## Minnesota Academic Standards

- ☉ Lesson *introduces* this Benchmark.
- ☪ Lesson *partially* addresses this Benchmark.
- ☺ Lesson *fully* addresses this Benchmark.

### Language Arts

Grades 3, 4, 5

#### *I. Reading and Literature*

##### *B. Vocabulary Expansion:*

**Benchmark 1**—The student will acquire, understand, and use new vocabulary through explicit instruction and independent reading. ☪

### History and Social Studies

Grades K–3

#### *VII. Government and Citizenship*

##### *B. Beliefs and Principles of United States Democracy:*

**Benchmark 2**—Students will recognize symbols that are significant for the state of Minnesota.

(*The walleye is Minnesota's state fish.*) ☉

### Science

Grade 3

#### *I. History and Nature of Science*

##### *A. Scientific World View:*

**Benchmark 1**—The student will explore the use of science as a tool that can help investigate and answer questions about the environment. ☪

Grade 4

#### *I. History and Nature of Science*

##### *A. Scientific World View:*

**Benchmark 1**—The student will explore the uses and effects of science in our interaction with the natural world. ☉

### *IV. Life Science*

#### *B. Diversity of Organisms:*

**Benchmark 1**—The student will classify plants and animals according to their physical characteristics. ☪

**Benchmark 2**—The student will learn that the characteristics used for grouping depend on the purpose of the grouping. ☪

Grade 5

#### *I. History and Nature of Science*

##### *A. Scientific World View:*

**Benchmark 2**—The student will recognize that clear communication of methods, findings and critical review is an essential part of doing science. ☪

#### *I. History and Nature of Science*

##### *C. Scientific Enterprise:*

**Benchmark 1**—The student will describe different kinds of work done in science and technology. ☪

## Environmental Literacy Scope and Sequence

### Benchmarks

- Social and natural systems are made of parts. (PreK-2)
- Social and natural systems may not continue to function if some of their parts are missing. (PreK-2)
- When the parts of social and natural systems are put together, they can do things they couldn't do by themselves. (PreK-2)
- In social and natural systems that consist of many parts, the parts usually influence one another. (3-5)
- Social and natural systems may not function as well if parts are missing, damaged, mismatched or misconnected. (3-5)

For the full Environmental Literacy Scope and Sequence, see:

[www.seek.state.mn.us/ceemn\\_c.cfm](http://www.seek.state.mn.us/ceemn_c.cfm)

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## Chapter 2 • Lesson 3

# Fish Families

**Grade Level:** 3-5

**Activity Duration:** 30 minutes

**Group Size:** any

**Subject Areas:** Language Arts, Science

**Academic Skills:** classification, listing, reading, small group skills

**Setting:** indoor or outdoor gathering area

**Vocabulary:** Agnatha, classification, Chondrichthyes, Osteichthyes

**Internet Search Words:** fishes of Minnesota

## Instructor's Background Information

### Classifying Organisms by Groups

Classification is a method of identifying, naming, and grouping related organisms. In order to communicate with one another, scientists use a worldwide, standardized method of classification called taxonomy. By classifying organisms into groups related to shared physical traits, physiology, genetics, and evolutionary history, scientists hope to discover other similarities among the groups.

Taxonomy uses a hierarchy of groups that starts with kingdoms. Kingdoms are divided into groups called phyla (phylum, in singular form), which are further divided into classes. Fish belong to the Kingdom Animalia and the Phylum Chordata, which includes all vertebrates.

### Classifying Fish

Fish are often grouped into three main classes:

**Class Agnatha:** jawless fishes (Greek, *a* = without, *gnathos* = jaws)

**Class Chondrichthyes:** jawed fishes with cartilage skeletons (Greek, *chondros* = cartilage, *ichthyes* = fish)

**Class Osteichthyes:** jawed fishes with bony skeletons, also known as bony fish (Greek, *osteon* = bone, *ichthyes* = fish)

Fish from two of these classes inhabit Minnesota: the jawless (Agnatha) and bony fishes (Osteichthyes). Class Chondrichthyes contains mostly marine (saltwater) fish, none of which inhabit the fresh water of North America.

Most Minnesota fish belong to the Osteichthyes class; only the lampreys belong to the Agnatha class. And although sturgeon, paddlefish, and bowfin skeletons are composed partially or entirely of cartilage, they're classified as primitive members of the class Osteichthyes.

## Summary

Minnesota boasts 160 fish species (141 of which are native) grouped into 27 fish families (25 native). Scientists classify fish into families depending on physical characteristics, physiology, genetics, and evolutionary history. In this activity, students learn how fish are classified and about the number of fish families in Minnesota. In a group exercise, students learn the key physical characteristics of five important Minnesota game fish families.

## Student Objectives

The students will:

- 1 Recognize external characteristics used to identify fish.
- 2 Classify pictures of fish according to five family groups.

## Materials

- Various pictures of fish, from magazines or other sources
- **Fish Families Cards**, one set per small group of four or five students (laminate the cards if you wish)
- **Fish Characteristics Sheet**, one per small group of four or five students
- **Fish Families Sheet**, one per small group of four or five students
- Glue
- Scissors
- Pencils, one per student
- Clipboards

## The Three-Class System

### Class Agnatha (Jawless Fishes)

Jaws absent  
No paired fins  
Variable gills, slits, or holes  
Primitive cartilage skeleton  
No scales

#### Minnesota Example

Minnesota is home to six species of jawless fishes.



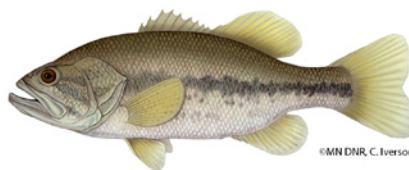
**American Brook Lamprey**  
*Lampetra appendix*

### Class Osteichthyes (Bony Fishes)

Jaws  
Some paired fins  
One covered gill opening on each side of the body  
Bony skeleton  
Some have scales

#### Minnesota Example

Minnesota is home to 154 species of bony fishes.



**Largemouth Bass**  
*Micropterus salmoides*

### Class Chondrichthyes (Cartilaginous Fishes)

Jaws  
Some paired fins  
Five to seven gill slits on each side of the body  
Advanced cartilage skeleton  
Small, sandpaper-like scales

#### Minnesota Example

None—most of this class are marine (saltwater) species, such as sharks, skates, and rays.

## The Five-Class System

Some scientists use a five-class system, in which jawless fish are further classified as hagfishes and lampreys and bony fishes are further classified as lobe-finned and ray-finned fishes.

### Class Myxini (Hagfishes)

No vertebrae  
Cartilaginous skeletons  
No paired fins  
No jaws

These fish are ocean dwellers.

### Class Cephalospidomorphi (Lampreys)

Vertebrae  
Cartilaginous skeletons  
No paired fins  
No jaws

Many are parasites on other fish. Non-parasitic lampreys feed only during their larval stage; adults die soon after reproduction. Minnesota is home to six species of lamprey.

### Class Chondrichthyes (Cartilaginous Fishes)

Vertebrae  
Cartilaginous skeletons  
Paired fins  
Jaws (teeth not fused to jaws)  
No swim bladder

Most are marine species, such as sharks, rays, and chimaeras.

### Class Sarcopterygii (Lobe-finned Fishes)

Vertebrae

Most have bony skeletons  
Paired fins  
Jaws  
Most have lungs

Lungfish and coelacanths belong to this class.

### Class Actinopterygii (Ray-finned Fishes)

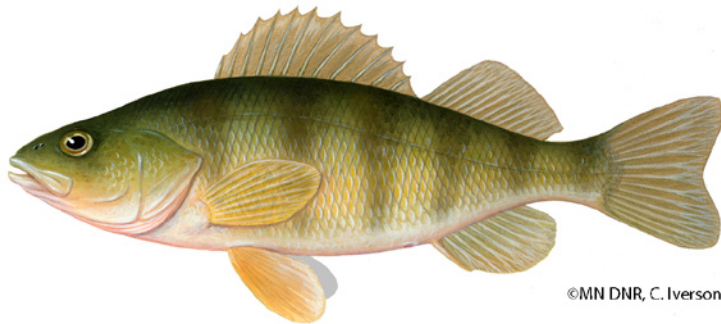
Vertebrae  
Most have bony skeletons  
Paired fins with sturdy rays  
Jaws

More than 96 percent of all living fishes belong to this class. 154 of Minnesota's 160 fish species are in this class.



Classes are further divided into groups called orders. Orders are subdivided into families, which are subdivided into genera (or genus, in singular form), which are further subdivided into species. As the classification system subdivides, individuals within groups become increasingly similar. The members of each progressive subdivision share more and more physical, physiological, behavioral, and genetic traits.

Scientists identify unique fish types by their genus and species names. This scientific name is recognized worldwide, and remains constant, even though locally used common names may vary from place to place. The yellow perch, for example, is called lake perch or ringed perch in different parts of the country. These multiple common names would cause confusion if not for the scientific name for this species, *Perca flavescens*—genus name perca (Greek for perch) and species name *flavescens* (Latin for yellow).



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### Yellow Perch

*Perca flavescens*

Kingdom—**Animalia** Animal

Phylum—**Chordata** With backbone

Class—**Osteichthyes** With bony skeleton

Order—**Perciformes** With numerous short, fine-pointed teeth;  
prefer quiet waters

Family—**Percidae** Perches (walleye, yellow perch, and darters)

Genus—**Perca** Perch

Species—**flavescens** Yellow

### Standardized Taxonomy

#### Hierarchy

Kingdom

Phylum

Class

Order

Family

Genus

Species



**Carolus Linnaeus** (1707-1778), a Swedish scientist who studied and classified plants, developed the standardized classification system used today. He is best remembered for developing binomial nomenclature, which names organisms with two Latin words identifying the genus and species, such as:

### Brook Trout =

*Salvelinus* = a little salmon

*fontinalis* = living in springs



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### Fish or Fishes?

The term **fishes** refers to more than one species of fish:

Two fishes found in the lake are bluegills and largemouth bass.

**Fish** refers to one or more than one individual of the same species. One bluegill is one fish. Ten bluegills are ten fish.



The number of Minnesota fish species could change as additional species are collected in Minnesota and recorded by the scientific community. Such changes can be due to whether a species is collected in Minnesota waters or contiguous waters, or to whether or not a species is actually established in Minnesota waters.



The walleye (*Sander vitreum*) is Minnesota's state fish. It's a member of the Percidae (perch) family.

With 46 species, the Cyprinidae—or minnow family—is Minnesota's largest fish family.

## Minnesota Fish Families

Minnesota has a diversity of water types, from cold, shallow streams to large, cool, or warm rivers, and from large, deep, cold lakes to small, warm-water ponds. This diversity, combined with the sheer quantity of lakes and fishable streams, accounts for the 160 fish species found in Minnesota.

Five of Minnesota's fish families are considered game fish species—these are the fish most often sought by anglers:

- Salmonidae: trout and salmon family
- Centrarchidae: sunfish family
- Esocidae: pike family
- Ictaluridae: catfish family
- Percidae: perch family

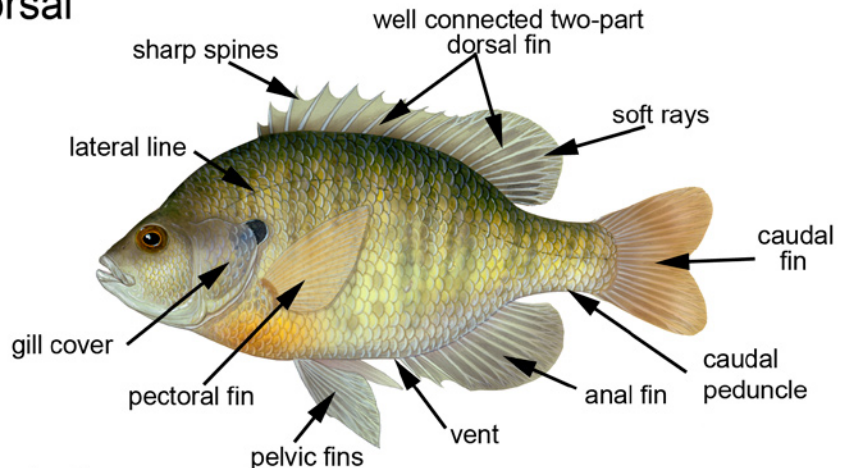
## Physical Characteristics Classify Freshwater Fish

The appearance of external physical characteristics is one factor scientists consider in classifying fish. Scientists examine fins, rays and spines, scales, mouths, body shape, relative size and shape of body parts, and the presence or absence of structures such as barbels.

Internal features and characteristic behaviors, physiology, genetics, and evolutionary history are also used to compare species and taxonomically classify fish.

It's important to remember that size and color aren't always reliable features to use when classifying or identifying fish. These features can vary among individuals of the same species depending on age, sex, maturity, season, available food, and the water quality (minerals and nutrients) where they live.

## Dorsal

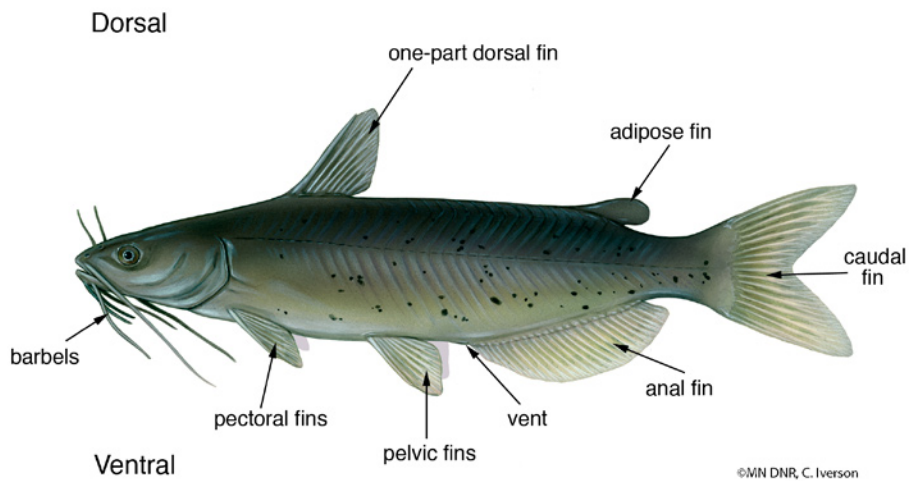


## Ventral

The parts of a fish.

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### The parts of a fish.

## Procedure

### Preparation

- 1 Copy one **Fish Characteristics Sheet** and one **Fish Families Sheet** for each group of four to five students.
- 2 Copy and cut out one set of **Fish Families Cards** for each small group. You may wish to laminate the cards to preserve them for future use.
- 3 Collect fish posters for this activity. Fish identification posters are available from the Minnesota DNR Information Office at 651-296-5481 or 1-888-MINNDNR (646-6367)



## Activity

### Warm-up

- 1 Ask students if they have ever been fishing. Many students will raise their hands. Ask them what kinds of fish they caught. Keep track of how many kinds of fish the students name. Tell them there are 160 species of fish in Minnesota. Can they name Minnesota's state fish? (It's the walleye.)
- 2 Tell students that, because there are so many different types of fish, scientists organize them into groups to make it easier to talk about and study them.
- 3 Divide the class into groups of four or five. Give each group a variety of fish pictures cut from fishing magazines. Have the student groups work together to sort the fish pictures any way they choose. Ask each group to explain how they sorted their fish, and to explain their reasons for doing so. After discussion, ask the students to list some other ways that the fish could be sorted (such as color, body shape, location of fins, or size of mouth). Then discuss how scientists sort organisms—including fish—into groups according to physical features and behavioral characteristics.



Some fish become more colorful or grow tubercles on their heads during mating season.

- 4 Using the fish pictures, ask the students to brainstorm different ways to distinguish one fish from another.
  - body shape
  - color and pattern
  - size
  - size, structure, shape, and location of fins
  - presence or absence of barbels (“whiskers”)
  - presence or absence of adipose fins
  - number of spines in dorsal or anal fins
  - presence or absence of scales
- 5 Distribute the **Fish Characteristics Sheet** to each group. Point out the differences between the fish in the pictures, comparing them to illustrations on the **Fish Characteristics Sheet** so that each student can see the characteristics. Explain that scientists use physical characteristics to sort fish into family groups, but that not all characteristics are reliable traits for classifying fish. For example, many fish are olive-green, but a fish’s color can change with the seasons, or due to minerals in the water. So in classifying fish, color should only be considered along with several other characteristics. Size is another example of a trait that may be unreliable—even within in the same species, a fish’s size can vary with age, nutrition, and the length of the growing season. (All Minnesota fish hatch from eggs and begin their lives as “small fish.”)
- 6 Discuss with students how the world’s scientists use a universal classification system to communicate more precisely about organisms. Ask students to think about how difficult it would be to discuss fish characteristics if everyone didn’t use the same classification system. For example, if one person’s system classified fish according only to behaviors, instead of physical characteristics, muskellunge and largemouth bass could be grouped in the same family because they’re both predators. Do these two fish look alike?



### A largemouth bass, compared to a muskellunge.

No, they don’t share similar physical characteristics, such as body shape, fin shape, or mouth type. In a classification system based on physical characteristics, muskellunge could be grouped with northern pike and largemouth bass could be grouped with sunfish.

### Lesson

- 1 Divide the class into groups of four or five. Give each group a **Fish Families Sheet** and a set of **Fish Families Cards**.
- 2 Discuss the **Fish Families Sheet**. The five important game fish families in Minnesota are listed along with identifying characteristics. Minnesota has 27 fish families with 160 species, but this classification lesson is limited to the five families of game fish

found in Minnesota. These game fish families are well-known to anglers.

- 3 Have each group sort the pictures into the five family groups based on the characteristics listed. Ask students to write the names of each fish under the appropriate heading on the worksheet.
- 4 After each group is finished, ask the groups to explain why they sorted the fish as they did. Compare and discuss the different grouping systems. In which group did students place Minnesota's state fish?
- 5 Ask students to choose a fish from the **Fish Families Sheet**, and, as a class, identify the family into which most scientists have classified that fish.
- 6 Continue working through the **Fish Families Sheet** as a class by identifying the family group of each fish on the sheet.

### Wrap-up

- 1 Some students may know of fish not mentioned in this activity. Ask the students to name other fish commonly found in Minnesota. Do they belong to the families listed on the worksheet? Why or why not? Minnesota is currently home to 160 fish species grouped into 27 different families. For a complete list, and for additional information on classification, conduct an Internet search using the keywords "fishes of Minnesota" to direct you to the University of Minnesota's Bell Museum of Natural History Fishes of Minnesota website.
- 2 Review with the students that a standardized classification system provides scientists with a precise method for talking about, classifying, and studying organisms.

### Assessment Options

- 1 Evaluate student discussion conducted in Steps 3-5 of the Lesson. Collect and evaluate the worksheets.
- 2 For an authentic measure of the objectives, provide students with a blank sheet of paper. Pass out a set of fish cards to each student. Ask the students to sort the fish cards into family groups. Ask them to write a rationale for their grouping system, and to include illustrations of key characteristics for each of their family groups. Evaluate the rationale for the grouping system they develop.
- 3 Assessment options include Checklist and Rubric on following pages.



Checklists are tools for students and instructors. Checklists involve students in managing their own learning. They help students understand and set learning goals before the lesson begins, and help them monitor their progress during the lesson, ensuring that they meet learning goals and objectives by the end of the lesson. Students can also use checklists to discover areas that may need improvement. Checklists help instructors monitor each student's progress throughout the lesson, facilitating appropriate adjustment of instruction to ensure learning by the end of the lesson. The instructor may wish to have students add several of their own learning goals to the checklist to personalize it, and to accommodate varied learning needs and styles.

### Grade

#### 19-21 points = A

Excellent. Work is above expectations.

#### 15-18 points = B

Good. Work meets expectations.

#### 14-17 points = C

Work is generally good. Some areas are better developed than others.

#### 10-13 points = D

Work doesn't meet expectations; it's not clear that student understands objectives.

#### 0-12 points = F

Work is unacceptable.

## Fish Families Checklist

Possible Points	Points Earned	Points Earned	
	Student	Instructor	
2	_____	_____	Student can state the number of fish families in Minnesota.
3	_____	_____	Student can explain that fish from the same family group share similar characteristics.
4	_____	_____	Student identifies five key traits used to classify Minnesota game fish into family groups.
2	_____	_____	Student can explain two reasons for using their grouping system to classify fish into family groups.
2	_____	_____	Student can discuss two problems they had sorting fish into their groups.
2	_____	_____	Student can identify two reasons why scientists classify organisms into family groups.
4	_____	_____	Worksheet is completed correctly and is legible.
2	_____	_____	Student can define <i>Osteichthyes</i> .
<b>Total Points</b>			
<b>21</b>	_____	_____	<b>Score</b> _____

# Fish Families Scoring Rubric

Fish Families Criteria	4 Excellent	3 Good	2 Fair	1 Poor	0 Unacceptable
<b>Recognize features used to classify fish into family groups</b>	Can state number of fish families in Minnesota, and that family group members share similar characteristics. Can identify five key traits used to classify Minnesota game fish into family groups.	Can state that Minnesota fish are classified into groups called families, and that family group members share similar characteristics. Can identify four key traits used to classify Minnesota game fish into family groups.	Can state that Minnesota fish are classified into families. Can identify three key traits used to classify Minnesota game fish into family groups.	Can state that Minnesota fish are classified into families. Can identify two key traits used to classify Minnesota game fish into family groups.	Can't state that Minnesota fish are classified into families. Can't identify key traits used to classify Minnesota game fish into family groups.
<b>Grouping fish</b>	Can sort a set of fish cards into family groups according to shared characteristics that they've identified.	Can sort a set of fish cards into family groups according to shared characteristics that they've identified with some assistance.	Can sort a set of fish cards into family groups, not necessarily following a rationale based on shared characteristics or features of the fish.	Can sort a set of fish cards into family groups, but uses no criteria for grouping method.	Can't sort a set of fish cards into family groups.
<b>Rationale for family grouping systems</b>	Can explain two reasons for using their sorting system to classify fish into family groups. Can discuss two problems that arose as they sorted fish into groups.	Can explain two reasons for using their sorting system to classify fish into family groups. Can discuss one problem that arose as they sorted fish.	Can explain one reason for using their sorting system to classify fish into family groups.	Can't identify a reason for using their sorting system to classify fish into family groups.	Didn't classify fish into family groups.
<b>Reasons for classifying organisms into family groups</b>	Can identify two reasons why scientists classify organisms into family groups.	Can identify one reason why scientists classify organisms into family groups.	Can explain one reason why organisms would be grouped.	Can't correctly identify a reason why organisms would be grouped.	Didn't try to identify a reason why organisms would be organized into groups.
<b>Worksheet and legibility</b>	Worksheet is completed correctly and is legible.	Worksheet is 80% correct and is legible.	Worksheet shows half of the correct answers, but is barely legible.	Worksheet shows less than half of the correct answers, and isn't legible.	Worksheet not completed.

Score \_\_\_\_\_ (Calculate score by dividing total points by number of criteria.)

## Diving Deeper

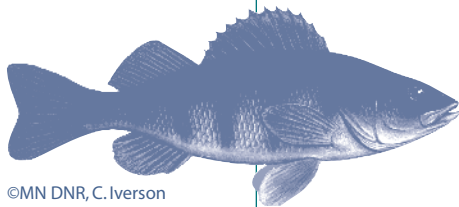
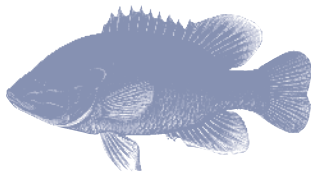
### Extensions

- 1 Instead of using worksheets, make a set of heading cards with the family names on them for each small group. Then ask the students to sort the **Fish Family Cards** by placing them under the correct heading on their tables.
- 2 Explore Minnesota fish families. You can use information from the University of Minnesota's Bell Museum of Natural History Fishes of Minnesota website. Assign each student a different family. Have the students report on the identifying characteristics of the assigned family, and give examples of Minnesota fish that belong to this family.
- 3 Create fish family posters to display on the classroom walls.

## For the Small Fry

### K-2 Option

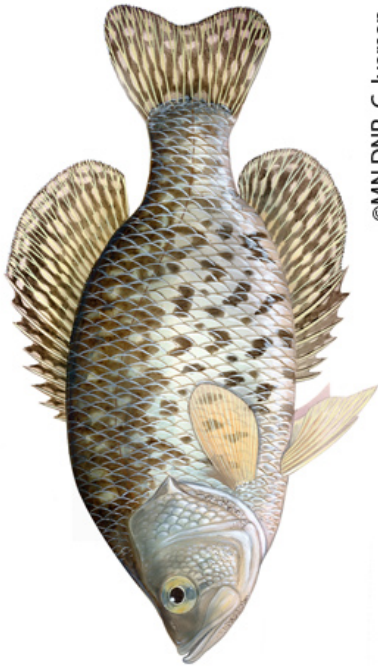
Have students use the **Fish Families Cards** to classify fish into five different family groups by sorting the fish according to the illustrations of physical characteristics.



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### Black Crappie

*Pomoxis nigromaculatus*

**Body Shape:** Pan-Shaped

**Fins:** Connected two-part dorsal fin (sharp spines and soft rays)

**Scales:** Present



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### Brook Trout

*Salvelinus fontinalis*

**Body Shape:** Torpedo-shaped

**Fins:** Small dorsal fin center of back; (soft rays) adipose fin near tail

**Scales:** Present; very small



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### Black Bullhead

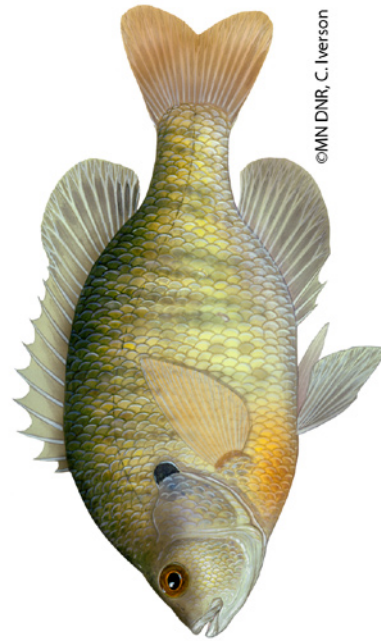
*Ameiurus melas*

**Body Shape:** Flat-bottomed

**Fins:** Small dorsal fin center of back; (one spine and soft rays) adipose fin near tail

**Unique Traits:** Barbels (“whiskers”) near mouth

**Scales:** Absent



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### Bluegill

*Lepomis macrochirus*

**Body Shape:** Pan-Shaped

**Fins:** Connected two-part dorsal fin (sharp spines and soft rays)

**Scales:** Present



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### **Brown Bullhead** *Ameiurus nebulosus*

**Body Shape:** Flat-bottomed  
**Fins:** Small dorsal fin center of back; (one spine and soft rays) adipose fin near tail  
**Unique Traits:** Barbels (“whiskers”) near mouth  
**Scales:** Absent



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### **Channel Catfish** *Ictalurus punctatus*

**Body Shape:** Flat-bottomed  
**Fins:** Small dorsal fin center of back; (one spine and soft rays) adipose fin near tail  
**Unique Traits:** Barbels (“whiskers”) near mouth  
**Scales:** Absent



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### **Coho Salmon** *Oncorhynchus kisutch*

**Body Shape:** Torpedo-shaped  
**Fins:** Small dorsal fin center of back; (soft rays) adipose fin near tail  
**Scales:** Present; very small

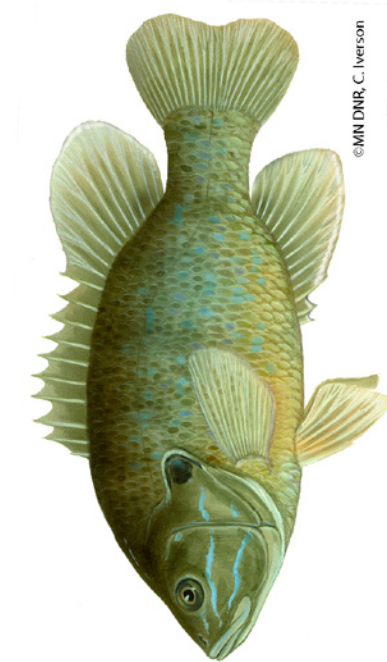


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### **Flathead Catfish** *Pylodictis olivaris*

**Body Shape:** Flat-bottomed  
**Fins:** Small dorsal fin center of back; (one spine and soft rays) adipose fin near tail  
**Unique Traits:** Barbels (“whiskers”) near mouth  
**Scales:** Absent





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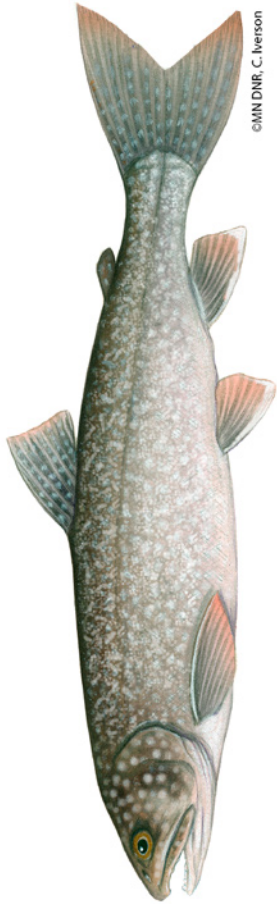
### Green Sunfish

*Lepomis cyanellus*

**Body Shape:** Pan-Shaped

**Fins:** Connected two-part dorsal fin (sharp spines and soft rays)

**Scales:** Present



©MN DNR, C. Iverson

### Lake Trout

*Salvelinus namaycush*

**Body Shape:** Torpedo-shaped

**Fins:** Small dorsal fin center of back; (soft rays) adipose fin near tail

**Scales:** Present; very small



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### Lake Whitefish

*Coregonus clupeaformis*

**Body Shape:** Torpedo-shaped

**Fins:** Small dorsal fin center of back; (soft rays) adipose fin near tail

**Scales:** Present; very small



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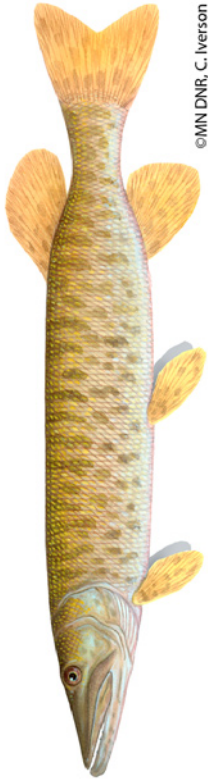
### Largemouth Bass

*Micropterus salmoides*

**Body Shape:** Pan-Shaped

**Fins:** Connected two-part dorsal fin (sharp spines and soft rays)

**Scales:** Present



©MIN DNR, C. Iverson

### Muskellunge

*Esox masquinongy*

**Body Shape:** Torpedo-shaped  
**Fins:** Small dorsal fin near tail (soft rays)  
**Unique Traits:** Duckbilled mouth, sharp teeth  
**Scales:** Present



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### Northern Pike

*Esox lucius*

**Body Shape:** Torpedo-shaped  
**Fins:** Small dorsal fin near tail (soft rays)  
**Unique Traits:** Duckbilled mouth, sharp teeth  
**Scales:** Present



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### Pumpkinseed

*Lepomis gibbosus*

**Body Shape:** Pan-Shaped  
**Fins:** Connected two-part dorsal fin (sharp spines and soft rays)  
**Scales:** Present



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### Smallmouth Bass

*Micropterus dolomieu*

**Body Shape:** Pan-Shaped  
**Fins:** Connected two-part dorsal fin (sharp spines and soft rays)  
**Scales:** Present





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### Walleye *Sander vitreum*

**Body Shape:** Torpedo-shaped

**Fins:** Separated two-part dorsal fin (sharp spines and soft rays)

**Unique Traits:** Sharp teeth

**Scales:** Present



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### Yellow Bullhead *Ameiurus natalis*

**Body Shape:** Flat-bottomed

**Fins:** Small dorsal fin center of back; (one spine and soft rays) adipose fin near tail

**Unique Traits:** Barbels (“whiskers”) near mouth

**Scales:** Absent



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### Yellow Perch *Perca flavescens*

**Body Shape:** Torpedo-shaped

**Fins:** Separated two-part dorsal fin (sharp spines and soft rays)

**Unique Traits:** Sharp teeth

**Scales:** Present

## Pike Family: *Esocidae*

Members of this family have torpedo-shaped bodies, a small one-part dorsal fin near the tail, and duck-billed snout.

## Catfish Family:

### *Ictaluridae*

Members of this family have flat undersides, an adipose fin near the tail, no scales and barbels (“whiskers”) on their faces.

## Sunfish Family:

### *Centrarchidae*

Members of this family have pan-shaped bodies and a connected two-part dorsal fin (sharp spines and soft rays).

## Trout and Salmon

### Family: *Salmonidae*

Members of this family have torpedo-shaped bodies and an adipose fin near the tail.

## Perch Family:

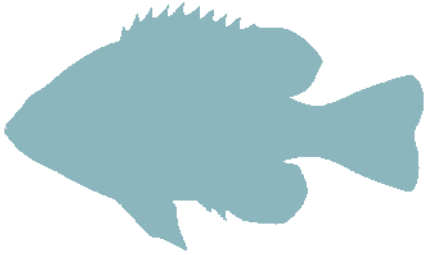

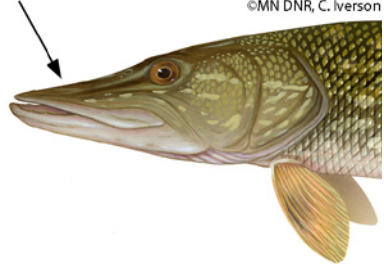

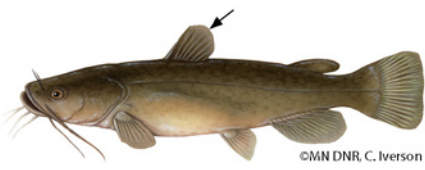
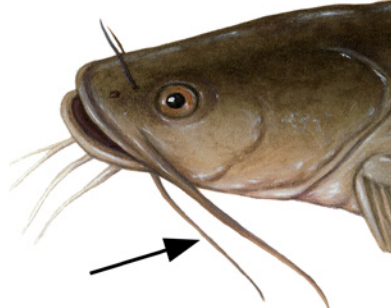

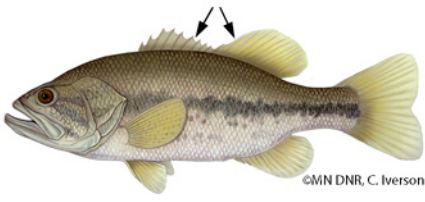
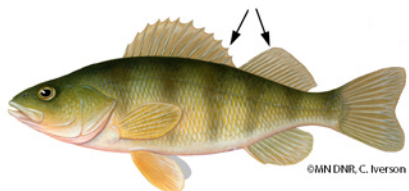
### *Percidae*

Members of this family have torpedo-shaped bodies and a separated two-part dorsal fin (sharp spines and soft rays).



## STUDENT COPY

## Fish Characteristics Sheet

Body Shape	Fins	Unique Traits
 <p>Pan-shaped</p>	 <p>Adipose fin</p>	 <p>Duck-billed snout</p>
 <p>Flat underside</p>	 <p>One-part dorsal fin</p>	 <p>Barbels ("whiskers")</p>
 <p>Torpedo-shaped</p> <p>©MN DNR, C. Iverson</p>	 <p>Connected two-part dorsal fin</p>	
	 <p>Separated two-part dorsal fin</p>	

## STUDENT COPY

Name(s) \_\_\_\_\_ Date \_\_\_\_\_

*Fish Families Sheet*

**First, use what you know about classification to sort your fish into these family groups.  
Then list the members of each family under the correct heading.**

**Catfish Family: Ictaluridae**

Members of the catfish family have flat undersides, an adipose fin near the tail, no scales, and barbels (“whiskers”) on their faces.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Sunfish Family: Centrarchidae**

Members of the sunfish family have pan-shaped bodies and a connected two-part dorsal fin (sharp spines and soft rays).

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

**Trout and Salmon Family: Salmonidae**

Members of the trout and salmon family have torpedo-shaped bodies and an adipose fin near the tail.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

**Perch Family: Percidae**

Members of the perch family have torpedo-shaped bodies and a separated two-part dorsal fin (sharp spines and soft rays).

1. \_\_\_\_\_
2. \_\_\_\_\_

**Pike Family: Esocidae**

Members of the pike family have torpedo-shaped bodies, a small one-part dorsal fin near the tail, and a duck-billed snout.

1. \_\_\_\_\_
2. \_\_\_\_\_

**INSTRUCTOR COPY***Fish Families Answer Sheet*

First, use what you know about classification to sort your fish into these family groups. Then list the members of each family under the correct heading.

**Catfish Family: Ictaluridae**

Members of this family have flat undersides, an adipose fin near the tail, no scales and barbels (“whiskers”) on their faces.

1. Black Bullhead  
*Ameiurus melas*
2. Brown Bullhead  
*Ameiurus nebulosus*
3. Channel Catfish  
*Ictalurus punctatus*
4. Flathead Catfish  
*Pylodictis olivaris*
5. Yellow Bullhead  
*Ameiurus natalis*

**Perch Family: Percidae**

Members of this family have torpedo-shaped bodies and a separated two-part dorsal fin (sharp spines and soft rays).

1. Walleye  
*Sander vitreum*
2. Yellow Perch  
*Perca flavescens*

**Sunfish Family: Centrarchidae**

Members of this family have pan-shaped bodies and a connected two-part dorsal fin (sharp spines and soft rays).

1. Black Crappie  
*Pomoxis nigromaculatus*
2. Bluegill  
*Lepomis macrochirus*
3. Green Sunfish  
*Lepomis cyanellus*
4. Largemouth Bass  
*Micropterus salmoides*
5. Pumpkinseed  
*Lepomis gibbosus*
6. Smallmouth Bass  
*Micropterus dolomieu*

**Pike Family: Esocidae**

Members of this family have torpedo-shaped bodies, a small one-part dorsal fin near the tail, and a duck-billed snout.

1. Muskellunge  
*Esox masquinongy*
2. Northern Pike  
*Esox lucius*

**Trout and Salmon Family: Salmonidae**

Members of this family have torpedo-shaped bodies and an adipose fin near the tail.

1. Brook Trout  
*Salvelinus fontinalis*
2. Coho Salmon  
*Oncorhynchus kisutch*
3. Lake Trout  
*Salvelinus namaycush*
4. Lake Whitefish  
*Coregonus clupeaformis*