

# Tarpon: Funny Fish with Flapable Fins!

## Objectives:

At the end of the activity students will demonstrate their understanding of tarpon body shape and fin placement with an overall focus on fin shape, location and function in regards to finfish in general and different scale types that fish possess.

## Differentiation:

Having students work in heterogeneous groups will allow for students to work as a team to complete tasks, and allow for each student to complete different parts of the task based on their own readiness and unique skills and talents. Students who might experience issues with writing in the limited space allocated could list the function of the fins or body anatomy on the bottom of the page or may use the teacher example/answer key in place of hand-writing the answers.

## Lesson background:

Fish have multiple fins and body structures that all are imperative for their survival. Just as humans have legs for running or walking, fish have specific fins that aid them in movement forward, backward and within the water column. In this lesson, students will explore these fins, their functions as well as scale types and other anatomy parts that finfish depend on for survival.

## Florida State Standards (NGSSS)

- SC.2.L.14.1: Distinguish human body parts (brain, heart, lungs, stomach, muscles and skeleton) and their basic functions.
- SC.2.L.16.1: Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.
- SC.2.L.17.1: Compare and contrast the basic needs that all living things, including humans, have for survival.

## National Standards (NGSS)

- 2-LS2-2: Interdependent Relationships in Ecosystems
- 2-LS4-1: Biodiversity & Humans
- 3-LS4-2: Natural Selection
- 3-LS4-3: Adaptation



# Form and Function

## Procedure:

- Prior to teaching the lesson, the teacher should review readings about tarpon and personally familiarize him/herself with tarpon as a finfish, including fin form and function along with body scale types as described below. This page talks about life cycle, habitat and anatomy for teachers to best be prepared to present the material to the students.
- Students should be asked to name their common (school/camp appropriate) anatomy. Students will likely say common anatomy such as eyes, nose, teeth, ears etc. and their function. The teacher can draw these parts on human figure or just list the part and their function. The students are going to be aligning their body parts which they are familiar with to the function. This will pave the way for early introduction and understanding of fish anatomy and the function. Students will have their own anatomy worksheet in which they can list their answers as well.

The list may look like: (There is no right or wrong answer, only inappropriate for camp or school)

Nose	Smelling
Eyes	Seeing
Hands	Picking things up/ hugs/ touching
Feet/ legs	Movement
Ears	Hearing

As the students name the parts of the fish the teacher can draw the parts onto the oval. If making a list the teacher will list the part named and what the students think the function might be. The list might look like this:

Eyes	Seeing
Fins	Swimming/ movement
?	

Teachers might want to hit on the fact that they know that fins are used for swimming but can pique students' interest in the activity by asking them if they can name the fins or the scale types. If students can in fact name the fin types, continue the conversation and start listing the fin types that students do name and then use this as a lead in to the activity and begin to pass out the student worksheets that they will use for the activity at this time. Once students have the activity sheets in their possession have them write the list of body parts and functions on their sheet and then continue with the introduction of the fins and purposes.

*This is the complete listing of the fin types. The student version is missing keywords (which are highlighted in this version) so it is imperative that teachers stress these missing pieces and also allow ample time for the students to fill in the missing pieces.*

FIN TYPE	FUNCTION
Dorsal	Located on the <b>back</b> of the fish; keeps fish from rolling over; assists in <b>sudden stops and turns</b> .
Caudal	Tail fin located on the <b>rear</b> of the fish. Used for <b>propulsion</b> and fast <b>forward</b> movement.
Anal	Located on the <b>underside</b> of the fish in the <b>rear</b> . Used for keeping the fish <b>stable</b> while swimming.
Pectoral	Allows fish to maintain <b>depth</b> in the water. They are found in pairs and assist with turning <b>sharply</b> and <b>stopping</b> quickly. Located on each side of the fish and are the equivalent of human's <b>arms</b> .
Ventral	Found behind the <b>pectoral</b> fin on the <b>bottom</b> of the fish. They help in <b>turning</b> sharply and <b>stopping</b> quickly.
Finlets/Keels	Help stop "turbulence" on <b>very fast</b> swimming fish (species like tuna etc. often have finlets)

SCALE TYPE	DESCRIPTION
Cycloid	They are <b>circular</b> and <b>smooth</b> . The overlap in a pattern and this helps them reduce <b>drag</b> on the fish as it swims through the water. 
Ctenoid	Have a " <b>toothed</b> " edge and are commonly found on <b>spiny</b> fin ray fish. 

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(say it three times fast!)

You will be learning about finfish fins and anatomy along with their form and function (another tongue twister!) You will explore a tarpon to learn about this. Tarpon are amazing fish that have swum the world's oceans since the days of the dinosaurs. Tarpon are popular sportfish because they are smart, difficult to catch, and make great leaps into the air when hooked. They are also long distance swimmers. Just like an Olympic swimmer, tarpon are speedy and streamlined, which they owe to their fins. We are going to dive into what those fins are called and their role in this speedy fish's survival.

Fill in the chart below with some common HUMAN PARTS and their FUNCTION:

HUMAN PART	FUNCTION

## Now let's learn about finfish anatomy and their form and function.

Fill in the chart below with the FUNCTION of each fin as you read or discuss these features with your group, partner or teacher.

FIN TYPE	FUNCTION
Dorsal	Located on the _____ of the fish; keeps fish from rolling over; assists in _____.
Caudal	Tail fin located on the _____ of the fish. Used for _____ and fast _____ movement.
Anal	Located on the _____ of the fish in the _____. Used for keeping the fish _____ while swimming.
Pectoral	Allows fish to maintain _____ in the water. They are found in pairs and assist with sharply _____ and _____ quickly. Located on each side of the fish and are the equivalent of human _____.
Ventral	Found behind the _____ fin on the _____ of the fish. They help in _____ sharply and _____ quickly.
Finlets/Keels	Help stop "turbulence" on very _____ swimming fish (species like tuna etc. often have finlets)

All finfish have SCALES and they need these to help protect their soft and fleshy bodies. These scales come in multiple shapes and different fish have differently-shaped scales. Below are two common scale types. Fill in the chart to complete what type of fish has which scale type and the general appearance of each scale type.

SCALE TYPE	DESCRIPTION OF THE SCALE	DRAWING OF THE SCALE
Cycloid	They are _____ and _____. They overlap in a pattern and this helps them to reduce _____ on the fish as it swims through the _____.	
Ctenoid	Have a " _____ " edge and are commonly found on _____ fin ray fish.	
		Ctenoid

# Activity Rubric:

Area	1 Does not meet expectations	2 Partially meets expectations	3 Meets expectations	4 Exceeds expectations
Science Content	NONE of the fish anatomy is placed in the correct location for any of the specified parts. Function or purpose is not listed on any parts.	SOME of the fish anatomy is placed in the correct location and some specified parts are missing. Function or purpose is not listed on most of the parts.	MOST fish anatomy is placed in the correct location. Function or purpose is listed on most parts correctly and with detail.	ALL anatomy is placed in the correct location and great detail and explanation of purpose is present on all of the pieces.
Use of science vocabulary	NONE of the introduced scientific vocabulary is present in the writing portion of the activity on the varied fish pieces.	SOME of the introduced scientific vocabulary is present in the writing portion of the activity on the varied fish pieces but many key terms are missing.	MOST of the introduced scientific vocabulary is present in the writing portion of the activity on the varied fish pieces and few key terms are missing.	ALL of the introduced scientific vocabulary is present in the writing portion of the activity on the varied fish pieces. no key terms are missing.
Writing fluency	Writing flow and errors in sentence structure are multiple, making the activity close to impossible to comprehend.	Writing flow and errors are evident, but few, and make the activity difficult to comprehend.	Writing flow and errors are few, and the activity is easy to read and understand.	Writing flow and errors not present, and the activity is easy to comprehend.
Conventions	Spelling, capitalization, and punctuation are numerous and make the written narrative difficult to understand.	Spelling, capitalization, and punctuation errors are evident and make the written narrative difficult to understand.	Spelling, capitalization, and punctuation errors are few.	Spelling, capitalization, and punctuation errors not in the writing at all.