

## Unit A - Aggressive Behavior of Siamese Fighting Fish Background (*Betta splendens*)

**Purpose:** To observe, record, and analyze the displays of aggressive behavior of male Bettas

**Question:** What behaviors will a male Betta display when faced with another male Betta?

**Materials:** Male Betta, half round glass tank, small mirror/cover, clock

**Background:** Bettas, or Siamese Fighting Fish, are the pretty colored fish in very small bowls in the pet shops. Bettas are classified within the family Anabantidae. This species is native to the [Mekong](#) basin of [Laos](#), [Cambodia](#), [Vietnam](#) and [Thailand](#), the latter formerly known as Siam. The fish can be found in standing waters of canals, rice paddies and floodplains.

- All members of this group have an accessory-breathing organ called a labyrinth that forms when they are 1-2 months old. The labyrinth is a primitive lung that the fish forces air from above the water into. The oxygen is then transported across a thin membrane into the fish's bloodstream. As a result Bettas can live in places where there is less oxygen, such as the rice paddies of Thailand, or even puddles during the summer!

Many people in Thailand catch Bettas for pets, fighting, or export. Most Bettas survive in captivity about 1 to 2 years, but can last 3-4 in optimal conditions.

- The larger, short finned Betta males are still fought in many places of the world. These fish were spawned for just that purpose, unlike the Betta splendens we find in our local pet stores. These fish are spawned to gain the longest fins, and the brightest colors. However, these Bettas are plenty aggressive, and may fight to the death when attacked or faced with a realistic image of another Betta.

History of Bettas: <http://www.bettafishcenter.com/Betta-Origins.shtml>

Life cycle of bettas: <https://www.youtube.com/watch?v=Au-wv6Hdt-U>

**Betta Behaviors:** There are three general types of behaviors you will be observing.

**Avoidance behavior** - this occurs when the Betta does any of the following behaviors:

- Faces Away from mirror with fins flared or drooped

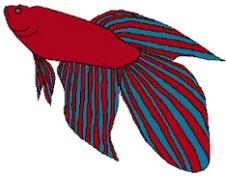
**Display behavior** - this occurs when the Betta does any of the following behaviors:

- Faces Sideways to the mirror, changes color, spreads fins out,

**Attack behavior** - these are three phases to a Betta's attack behaviors:

- 1 • Faces the mirror, changes color, fins flared
- 2 • Faces the mirror, changes color, flares fins, gill covers flared
- 3 • Faces the mirror, changes color, flares gill cover(s), and attacks mirror

If the Bettas does these behaviors behind the mirror - count them also!



## Unit A - Aggressive Behavior of Siamese Fighting Fish Background (*Betta splendens*)

**Read** Betta Background before you do this lab. ([click here](#))

**Purpose:** To observe, record, and analyze the aggressive behavior of male Betas.

**Question:** Will Bettas become more aggressive when they see a reflected image of themselves?

**Procedure:** You will do two 6 minute spot behavior samples with 20 second observations,

### Materials

Betta <i>splendens</i>	Fish bowl (1/2 round works best) with 1" gravel
Small child's mirror about 3"	Clock

Observation One: Control Trial - mirror covered

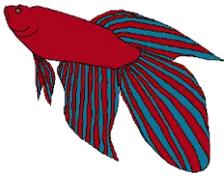
Observation Two: Experimental Trial - mirror uncovered.

Follow these steps for each of the two trials above.

1. Select a timekeeper, observer(s), and a recorder(s) for the Control Trial
2. Cover place mirror upright in the gravel so the non surface faces toward the long axis of the bowl.
3. Begin observations every 20 seconds for six minutes.
  - Observe which of the 3 aggressive behaviors is occurring at the end of 20 seconds.
  - Silently signal 1, 2, or 3 fingers indicating. Avoidance, Display or Attack to Recorder.
  - After trial Recorder enters totals of each type of behavior in the Class data table.
4. Everyone copy class averages.
5. Repeat process for the Experimental Trial
5. Neatly bar graph the frequency of each behavior in this order on your graph. Leave room on the graph for both the Control Trial and the Experimental Trial's data.
  - Select the appropriate range, color the bars differently for Control and Experimental Trials, write the number of occurrences atop the bar of the behavior it represents.
5. Answer each of the questions on the lab sheet neatly and completely, using data appropriately.

### Important Note:

*If your Betta begins attacking the mirror by constantly banging on it or repeatedly bumping into it, remove the mirror immediately, notify the teacher, and record the results for the period of time you observed the fish.* This will ensure the fishes safety. Bettas will actually beat themselves to death if an image of another Betta remains in their "space".



**Unit A - Aggressive Behavior of Siamese Fighting Fish**  
**Background** (*Betta splendens*)

Data Table 1 - Aggressive Behavior of Betta Lab							
Control Trial	Avoid	Display	Attack	Exp. Trial	Avoid	Display	Attack
0:20				0:20			
0:40				0:40			
<b>1:00</b>				<b>1:00</b>			
0:20				0:20			
0:40				0:40			
<b>2:00</b>				<b>2:00</b>			
0:20				0:20			
0:40				0:40			
<b>3:00</b>				<b>3:00</b>			
0:20				0:20			
0:40				0:40			
<b>4:00</b>				<b>4:00</b>			
0:20				0:20			
0:40				0:40			
<b>5:00</b>				<b>5:00</b>			
0:20				0:20			
0:40				0:40			
<b>6:00</b>				<b>6:00</b>			
<b>Totals</b>							

Observer(s) -  
 Recorder -

Timekeeper -