CARIBBEAN REEF FISH FOUNDATION

Student Activity Pack

Lionfish Education Collection — Volume 1

Name: _____ Grade: _____ Date: _____

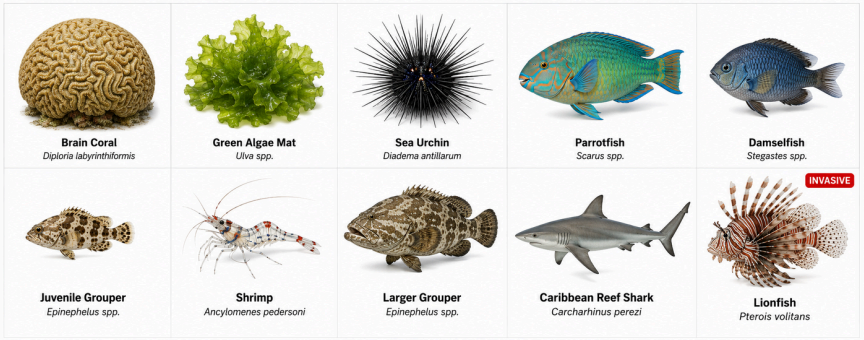
Act	Title	Grade Band	Pg
01	Food Web Builder	Grades 4–8	2
02	Anatomy Labeling Diagram	All Grades	4
03	Caribbean Invasion Timeline	Grades 5–12	6
04	Population Math Scenarios	Grades 6–12	8
05	Field Observation Sheet	All Grades	10

ACTIVITY 01

Caribbean Reef Food Web Builder

Grades 4–8

Instructions: The species cards below show Caribbean reef animals. Draw arrows between them to show who eats whom — arrows point FROM the food TO the eater. Then answer the questions below.



Species: Coral · Algae · Sea Urchin · Parrotfish · Damselfish · Juvenile Grouper · Shrimp · Larger Grouper · Shark · **Lionfish (INVASIVE)**

DRAW YOUR FOOD WEB HERE

Questions

1. Which species does the lionfish eat in your food web? List them:

Your answer:

2. If lionfish ate all the parrotfish in an area, what would happen to the coral? Explain:

Your answer:

3. Circle the **invasive species** on your web. How is it different from the others?

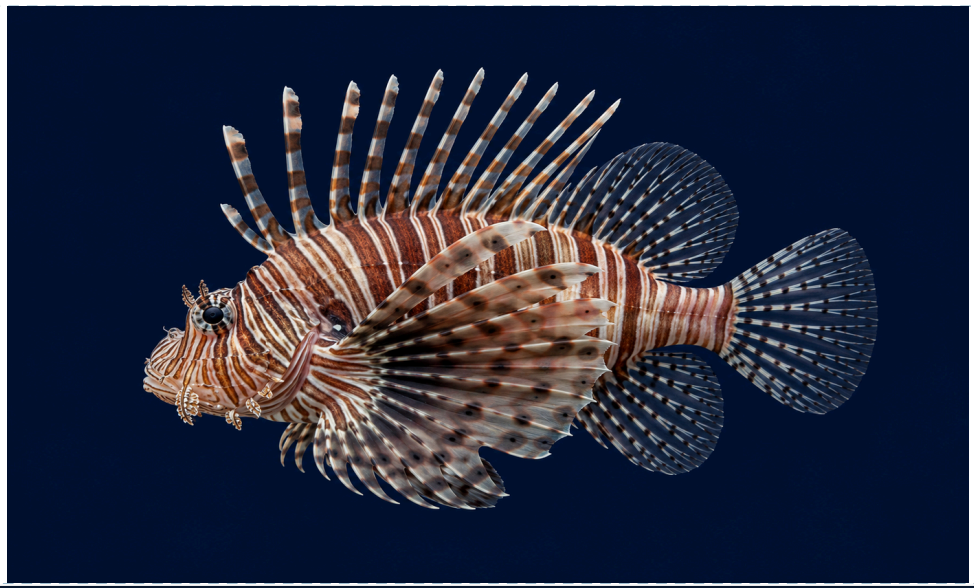
Your answer:

ACTIVITY 02

Lionfish Anatomy Labeling

All Grades

Instructions: Using the word bank below, label each numbered part of the lionfish. Then answer the questions.



WORD BANK

Dorsal spines (13) · Anal spines (3) · Pelvic spines (2) · Pectoral fins · Jaw · Eye · Tail fin · Color banding

Questions

1. How many total venomous spines does a lionfish have? _____

2. Which fins do lionfish use to herd prey? _____

3. True or False: A lionfish sting is always fatal. _____ Explain why or why not:

ACTIVITY 03

Caribbean Invasion Timeline

Grades 5–12

Instructions: Read each event and write the correct year in the blank. Then answer the question below.

Year: _____	First confirmed Atlantic sighting off the Florida coast
Year: _____	Hurricane Andrew releases aquarium lionfish into Biscayne Bay, Florida
Year: _____	Lionfish confirmed off North Carolina and Bermuda
Year: _____	First Caribbean sightings reported in the Bahamas
Year: _____	Explosive range expansion reaches the U.S. Virgin Islands
Year: _____	CRFF founded on St. Croix with 2,500+ lionfish removed by partner network

How many years passed between the first Florida sighting and the first Caribbean sighting? What does this tell us about how quickly a marine invasion can spread?

ACTIVITY 04

Population Math — The Exponential Problem

Grades 6–12

CRFF FIELD INSIGHT — ST. CROIX, USVI

FACTS: A single female lionfish produces approximately 2,000,000 eggs per year, spawning every 3–4 days. Approximately 1% of larvae survive to adulthood under Caribbean conditions. A native Nassau grouper female produces approximately 100,000 eggs per year with an estimated 0.1% larval survival rate.

Part A — Lionfish Year 1

Starting with 1 breeding pair (1 female, 1 male), calculate adult lionfish at end of Year 1 if 1% of eggs survive. Eggs produced: _____ × 1% survival = _____ new adults Total population end of Year 1 (include original pair): _____

Show your work:

Part B — Lionfish Year 2

Now assume all Year 1 survivors are female and reproducing. Calculate Year 2 adults. Year 1 females: _____ × 2,000,000 eggs × 1% = _____ new adults Total population end of Year 2: _____

Show your work:

Part C — Nassau Grouper comparison

Starting with 1 grouper breeding pair, calculate grouper population at end of Year 1 using 100,000 eggs and 0.1% survival. Grouper eggs: _____ × 0.1% = _____ new adults How many times larger is the lionfish population? _____×

Show your work:

Part D — Graph it

On the back of this sheet, draw a bar graph showing lionfish vs. grouper population at Year 1, Year 2, and Year 3. Label each bar clearly.

Show your work:

Part E — Discussion

Why does this math make continuous removal so important? What would happen to a reef if removal stopped for just one year?

Show your work:

ACTIVITY 05

Citizen Science Field Observation Sheet

All Grades — Reef Dive, Aquarium Visit, or Video Observation

This sheet follows the same format used by CRFF volunteer divers on St. Croix. Complete it during or immediately after your observation and submit your data to **reef.vi/maps**.

Date of observation:	_____
Location / Site name:	_____
Observation method:	Dive ■ Snorkel ■ Aquarium ■ Video ■
Estimated depth (ft or m):	_____
Water visibility:	Excellent ■ Good ■ Fair ■ Poor ■
Observer name:	_____

Species Observed

Species	Est. Count	Behavior Noted	Lionfish Seen?
Nassau Grouper			
Parrotfish			
Damselfish			
Surgeonfish			
Moray Eel			
Sea Urchin			
LIONFISH (invasive)			
Other:			

General reef health observations (coral cover, algae presence, water clarity, unusual conditions):