

# INTRODUCING....



Grade 2

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## Lesson at a Glance

Students piece together clues to learn more about introduced stream animals in Hawai'i.

## Key Concept

Freshwater fishes, insects, prawns and frogs have been introduced to Hawaiian streams and wetlands. Some were brought in accidentally, others were intentionally introduced.

## Objectives

Students will be able to:

- 1) Differentiate between native and introduced stream life.
- 2) Identify some of the stream animals introduced to Hawai'i.
- 3) Write statements about why some stream animals were introduced.

## Time

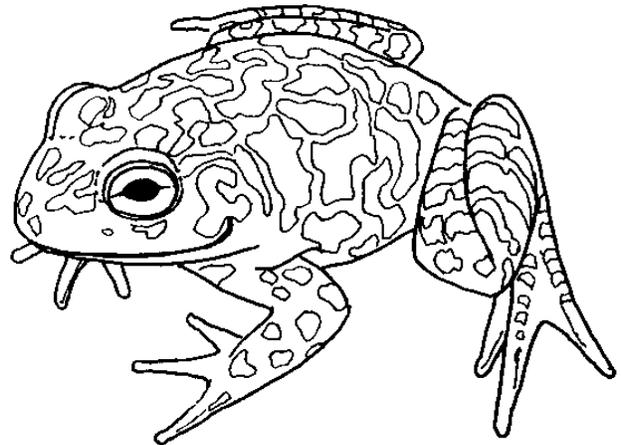
One to two class periods

## Subject Areas

science, language arts, Hawaiian studies

## Materials

animal cards (provided)  
clue sheets (provided)  
student activity sheet (provided)  
briefcase or small suitcase  
colored markers or crayons  
scissors



## Preparation

Copy and cut the animal cards, color the animals according to the directions on the student activity sheets, and laminate them or glue them to oak tag. Place them in a briefcase or suitcase.

## Prerequisite

“Waterfall Wizard” or “Damsels and Dragons,” Plants and Animals, Grade 2

## Teacher Background

People have introduced more stream organisms to Hawai'i than any other Pacific island area. Most of these plants and animals were brought to the Hawaiian Islands within the last 100 years. Of the 400 or so streams in the state that flow year-round, only a handful host undisturbed native species, that is, species that arrived without the aid of people.

Among the more common introduced stream animals are mosquitos, flies, minnows, guppies, tilapia, and frogs. In most cases, the insects were introduced accidentally. However, virtually all amphibians and many fishes were deliberately introduced. Some, like the Tahitian prawn, were

brought in for food, some for sport, and others, like the tilapia and bullfrog, were brought in to control previously introduced species. Most non-native species have had some impact on native stream life. For example, tilapia prey upon native gobies (*'o'opu*) and compete with them for food and habitat. Tahitian prawns also compete with or consume native prawns, which are becoming rare in Hawaiian streams.

The four introduced animals presented in this activity are the tilapia, the bullfrog, the night mosquito (officially called the southern house mosquito), and the Tahitian prawn.

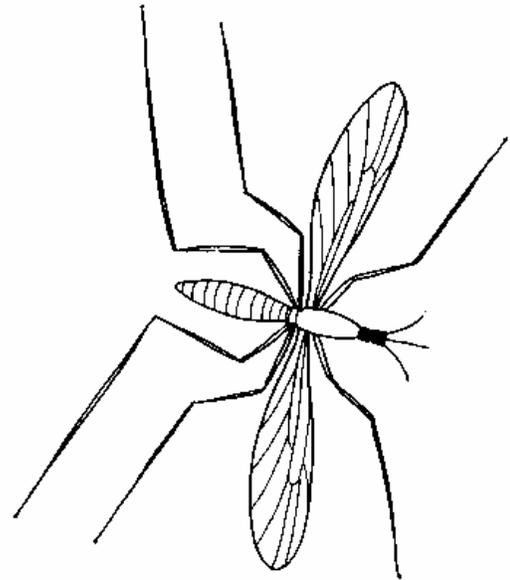
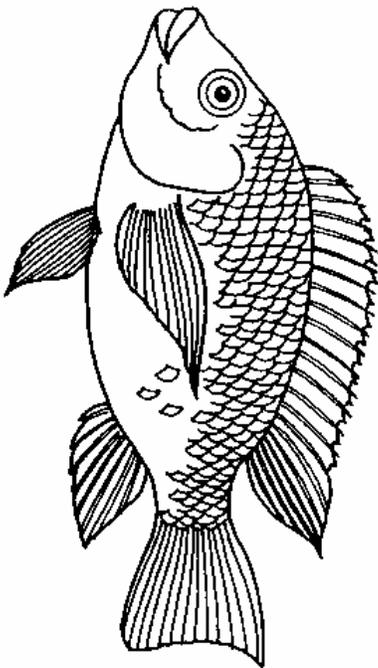
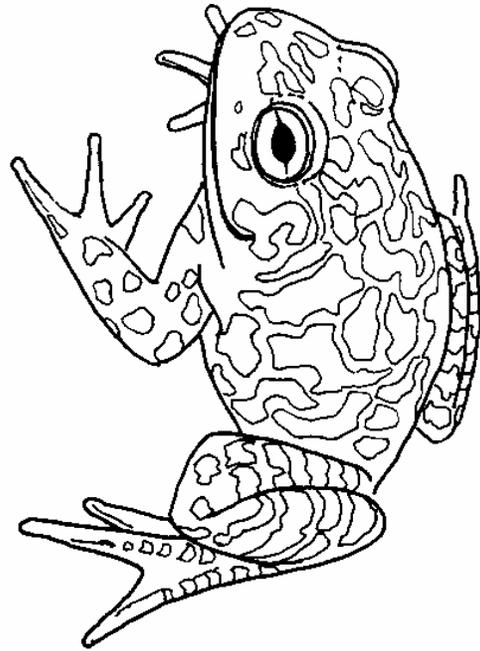
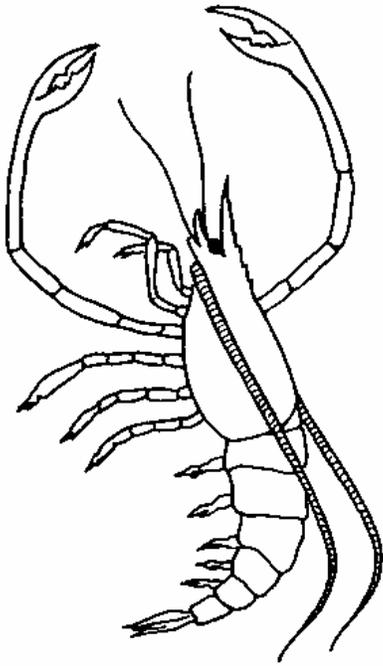
### Teaching Suggestions

1. Parade around the classroom with a briefcase, explaining that you are traveling to Hawai'i. When you return to the front of the room mention that you have brought an animal with you. Explain that plants and animals that arrived in the Islands without human help are called "native." (Refer to prerequisite activities.) Plants and animals that were brought by people, intentionally or accidentally, are "introduced."
2. Open the case and remove the mosquito card and tape it to the board, with the blank side facing out. Challenge the class to identify the animal using the clues provided.
3. Read the clues in sequence, and after each, allow students to either identify the animal or ask one question that can be answered with a "yes" or "no" response. The class could be divided into quarters with each section taking turns.
4. Periodically repeat the known clues. If students guess the animal before all the clues are read, summarize the more important points from the clue sheet.
5. When students correctly guess the animal, turn over the card, and pull another one from the briefcase. When all four introduced animals have been identified, mention that many other plants and animals have been introduced to Hawai'i over the years.
6. Challenge students to solve one final riddle. What do all of these introduced animals have in common, besides the fact that they are introduced? (They all spend at least part of their life cycle in streams.)
- ✓ 7. Distribute the student activity sheets. Have students complete the illustrations of the introduced animals, color them, and write statements about why they were introduced. (Students having difficulty may wish to fold the pictures in half, hold them to a window, and trace them.)
8. Review students' statements and discuss reasons for not introducing new animals to Hawaiian streams.)

## Extended Activities

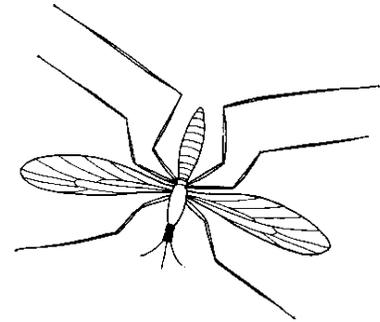
- Visit a nearby stream or other body of fresh water. Observe and try to identify members of the stream community. Refer to the illustrated stream life cards provided in the 'Ōhi'a Project Grade 4, Plants and Animals Unit, for more information and to the Field Sites Appendix in this guide for suggested sites.
- Make small models of the introduced stream animals to add to the stream scenario created in "Damsels and Dragons."
- Have students write clues for other introduced animals, and challenge classmates to identify mystery critters.
- Have students illustrate the life cycle of the bullfrog and mosquito, noting at which stage they live on land and when they live in water. Bring a tadpole into a classroom aquarium and observe its metamorphosis into an adult. (See the Unit Resources—*Hawaii Nature Study Program—Small Animals* by Sr. Edna Demanche.)
- Have students make stream animal booklets or riddle books with their illustrations. Stream animals introduced in other lessons can be added to their books.



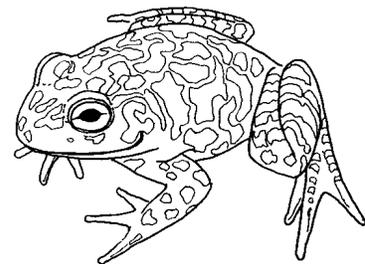


**Mosquito**

1. My Hawaiian name is *makika*.
2. Some people believe I was accidentally brought to Hawai‘i more than 150 years ago in a ship’s water barrel.
3. Most people don’t like me or my sisters.
4. I lay eggs in water. After they hatch, the babies will be fully grown in 15 days.
5. Sometimes native stream animals, such as the dragonfly (*pinao*) or goby fish (*‘o‘opu*) eat my babies.
6. I am now found all over the world.
7. Our females suck blood.
8. I can make people itch.
9. Hearing me buzz around your head at night might keep you awake.
10. My name begins with an “m.” Who am I?

**Bullfrog**

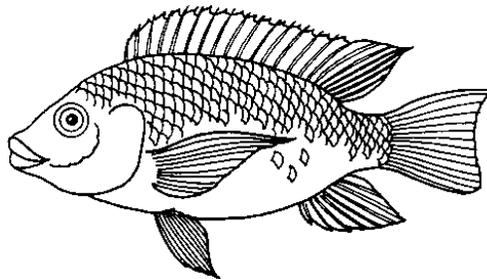
1. My Hawaiian name is *poloka luna*.
2. More than 100 years ago, people brought me to Hawai‘i to eat mosquitoes.
3. Some people like to eat me.
4. I am now found on all main Hawaiian Islands.
5. Some people like me because I eat mosquitoes, centipedes, slugs, mice and other garden pests.
6. Some people don’t like me when I make a lot of noise at night.
7. I earned the first part of my name because of my size, strength and bellowing voice. An animal with a similar name is a male cow.
8. I was brought to Hawai‘i from California.
9. I am the first introduced amphibian to survive in Hawai‘i.
10. I live along streams, marshes, ponds, or wherever there is fresh water.



11. I am the largest type of frog in the United States-up to 17 cm (7 in) long.
12. I have smooth brown and green skin.
13. I like to sing at night.
14. The first letter in my name is “b.”
15. The next three letters are “u-1-1.” Do you know who I am?

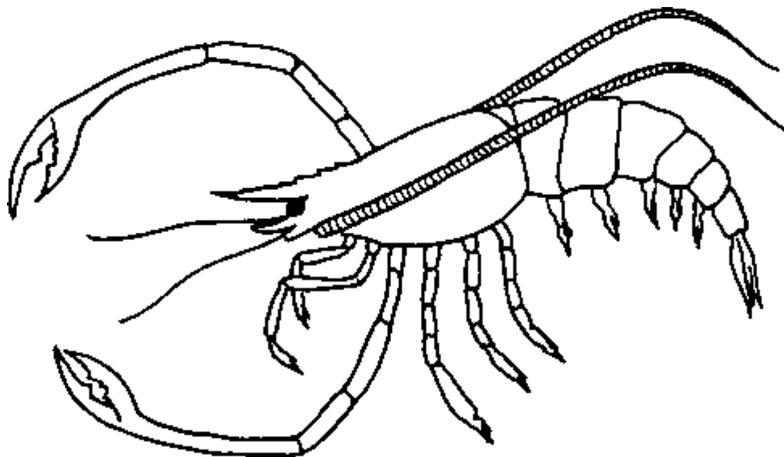
**Tilapia**

1. I am a fish.
2. My native home is Africa, but I live in many places now.
3. About 30 years ago, people brought me to Hawai‘i to eat algae in sugar cane ditches.
4. My name begins with a “t.”
5. I like water that is partly salty, partly fresh.
6. Some people like to eat me.
7. I like to eat native Hawaiian shrimp.
8. The second letter in my name is “i.”
9. I can grow to be twice as long as your hand.
10. When my babies are born, I can hold them inside my big mouth to protect them.
11. The third letter in my name is “l.”
12. Sometimes I am dark blue. Other times I am gray or brown.
13. The fourth letter in my name is “a.”
14. I now live on all main Hawaiian Islands.
15. The last letters in my name are “p-i-a.” Do you know who I am?

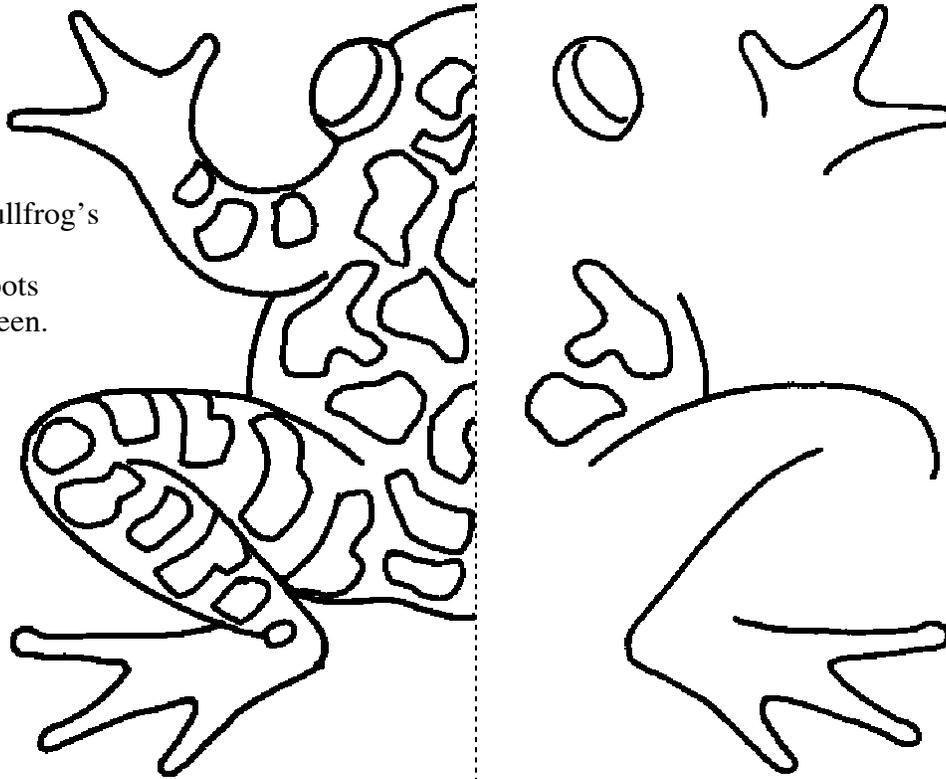


**Tahitian Prawn**

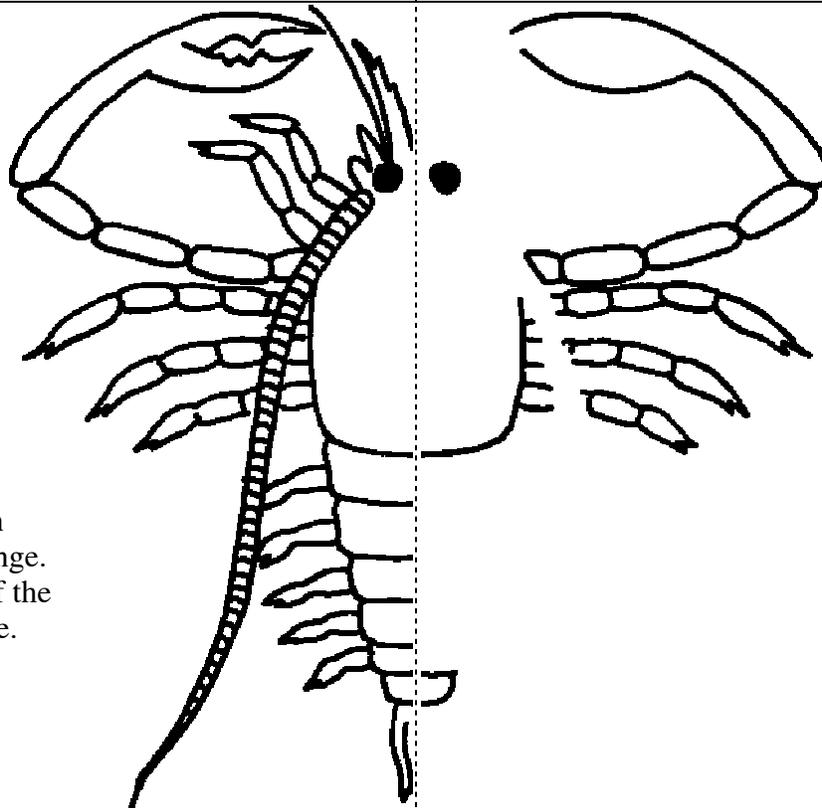
1. People brought me to Hawai'i 30 years ago because I'm good to eat.
2. I was only introduced to a few streams, but I escaped and now you can find me on all the main Hawaiian Islands.
3. I also live in Tahiti.
4. My arms are long and thin.
5. The first part of my name is "Tahitian."
6. I can grow as long as your foot-about 16 cm (7 in).
7. A native Hawaiian animal that shares the same last name with me is called the 'ōpae 'oe ha'a. It has one large claw and is only half my size.
8. I am a crustacean. I have a hard shell.
9. I eat native and introduced stream animals and compete with my native cousin for food.
10. The second part of my name rhymes with "yawn."
11. I have claws at the end of my long arms.
12. I sometimes hide under rocks and wait for food to swim by.
13. My last name is "prawn."

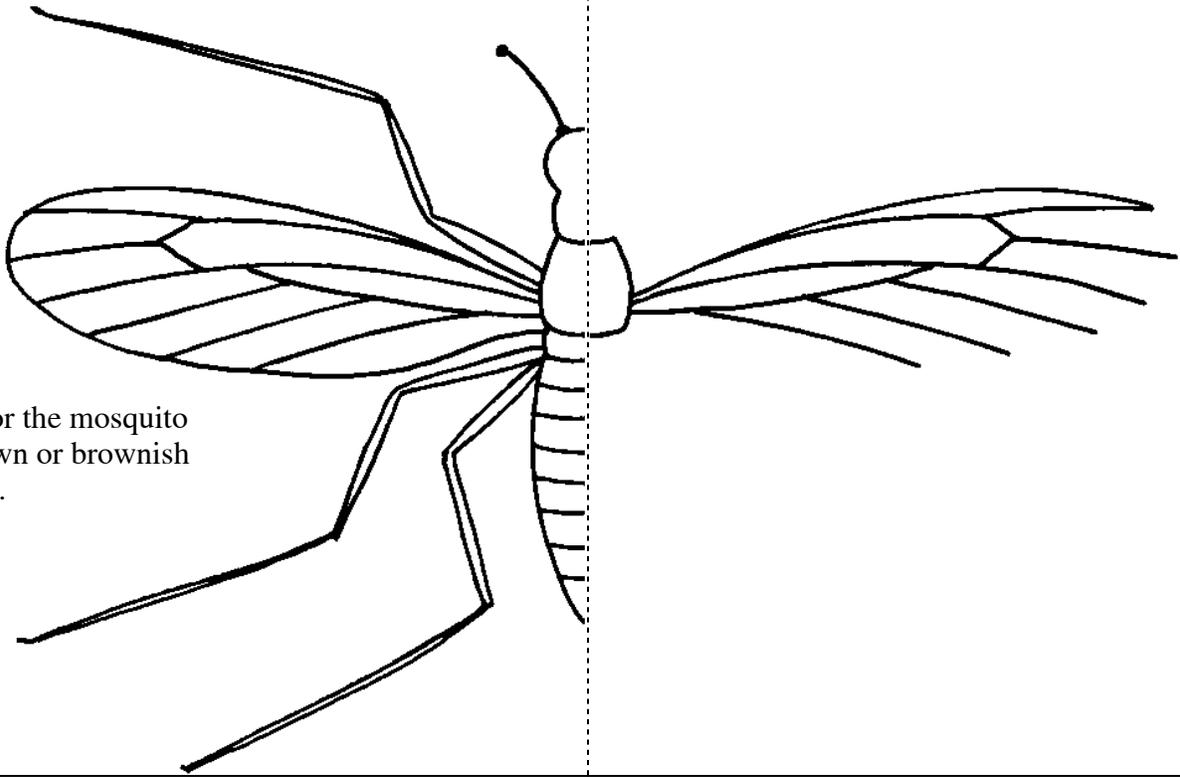


Color the bullfrog's  
body tan.  
Color the spots  
brown or green.

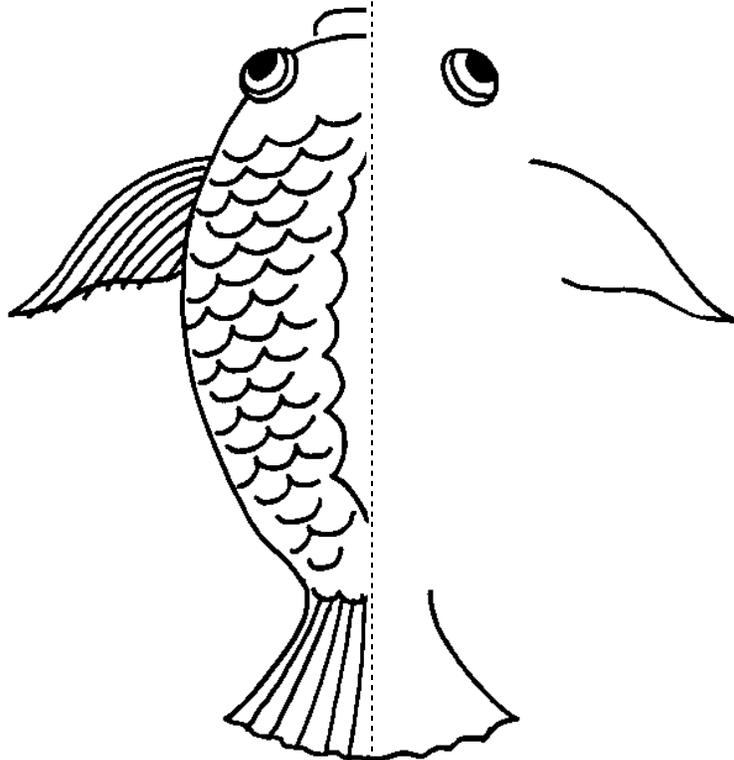


Color the Tahitian  
prawn's body orange.  
Color the edges of the  
body and legs blue.





Color the mosquito  
Brown or brownish  
gray.



Color the tilapia  
gray or silver.