

# Fill the Bill

*Please use this checklist to confirm that all of the parts of this station are in this bag both when it is unpacked before the OSF Science Night AND when it is re-packed after your event.*

- Table sign, laminated
- Explanation / What to Do sheet, laminated
- 8 – cards to mark the types of food in the containers listed below, laminated
- “Fill the Bill” worksheet with answers, laminated
- Blank “Fill the Bill” worksheet
- 3 – slotted spoons
- 3 – tongs
- 3 – strainers
- 3 – pair of chopsticks
- 3 – tweezers, plastic
- 3 – pliers
- 3 – pipettes
- 3 – 6x9” envelopes
- 1 – gallon pitcher
- 1 – vase
- 7 – lidded containers with the following labels/ contents
  - Grapes – “Fruit hanging from a branch”
  - Gummy worms in oatmeal – “Worms in the mud”
  - Split peas on bark – “Caterpillars and other insects”
  - Walnuts and pecans – “Seeds with hard coverings”
  - “Fish and other (empty)”
  - “Flying insects” (empty)
  - “Small plants and animals” (empty)

## **What you will need to provide for this activity station:**

- Water
- Tape for attaching labels to table
- ~1 bag of Popcorn
- ~1 cup of Rice Crispies
- ~1 cup of dried elbow macaroni
- Copies of the Worksheet

## **FILL THE BILL**

### **Explanation/Background:**

Each type of bird has a special beak and tongue adapted for eating a certain type of food. Species are adapted to the environments where they live, therefore protecting their habitats is very important. A species is perfectly adapted only to its own habitat's unique types of basic components- food, water, shelter, and space to raise young. Here are eight examples of how beaks of different species of birds have adapted to different environments and the types of food available to them:

- Hummingbirds have long hollow beaks, which protect their tongues as they probe flowers and drink nectar.
- Ibises, curlews, godwits, kiwis, woodcocks, and snipes have very long beaks to probe for worms, crustaceans, and other small creatures in mud and shallow water.
- Cardinals, sparrows, grosbeaks, and other finch-like birds have very short, cone-shaped beaks, which are strong enough to break open tough seeds and shells.
- Pelicans have long, flattened, or pouch-like beaks to scoop up fish and other aquatic creatures.
- Flamingos and some ducks have bills that act like strainers to filter tiny plants and animals from the water. (Only some species of ducks are filter feeders.)
- Nighthawks, whip-poor-wills, swifts, and swallows have large gaping mouths that act like nets to trap insects as the birds fly through the air.
- Warblers have small, sharp, pointed beaks for picking insects from leaves, bark, and twigs.
- Toucans have very long, thick beaks for reaching out and plucking fruit from trees.
- Woodpeckers have strong, sharp, pointed beaks for probing holes, or chiseling into wood or under bark for insects.
- Herons, egrets, and cranes have very long beaks, long necks, and long legs to allow them to feed in deeper water, hunting for fish, frogs, crayfish, and snakes.

### **What You Will Do:**

By visiting different stations and trying to use different tools to pick up various types of "food," participants find out which bird beaks are best for tearing, scooping, cracking, or picking.

### **What You Need: (3 sets of instruments (1 set available in 3 places along table))**

#### **Instruments:**

- |                                                                        |                            |
|------------------------------------------------------------------------|----------------------------|
| ○ Pipette                                                              | ○ Pecans or other nuts     |
| ○ Forceps                                                              | ○ Macaroni                 |
| ○ Pliers                                                               | ○ Rice                     |
| ○ Spoon with holes                                                     | ○ Popcorn                  |
| ○ large open envelope                                                  | ○ Plastic grapes on a vine |
| ○ Tongs                                                                | ○ Oatmeal                  |
| ○ Chopsticks                                                           | ○ Rubber worms             |
|                                                                        | ○ Lentils or split peas    |
| ○ 7 Station containers holding food                                    | ○ Water                    |
| ○ "Food Station" signs                                                 | ○ Pencils                  |
| ○ Fill the Bill Activity worksheets (and answer sheet for facilitator) |                            |
| ○ Vase                                                                 |                            |

## **What To Do:**

**Set-up:** Set up the following stations around the edge a table with the “Food Station” signs signifying the type of food represented. Put one set of instruments in three places spread along the table in the center so they are accessible to students.

**Station 1:** Water in a tall, narrow vase to represent nectar in a flower. (hummingbirds)

**Station 2:** Station container filled with dry oatmeal, with fake worms on the bottom to represent worms buried in the mud. (ibises, curlews, godwits, kiwis, woodcocks, and snipes)

**Station 3:** Station container with whole pecans or other nuts to represent seeds with hard coverings. (sparrows, cardinals, grosbeaks, and other finch-like birds).

**Station 4:** Station container with dried macaroni floating in a bowl or cup of water to represent fish and other aquatic animals. (pelicans)

**Station 5:** Station container with puffed rice in a cup or bowl filled with water to represent tiny aquatic plants and animal. (flamingos and some ducks, such as the Northern Shoveler)

**Station 6:** Station container with popped popcorn tossed in the air (by a partner or activity assistant) and caught while in the air to represent flying insects. (nighthawks, whip-poor-wills and swallows)

**Station 7:** Station container with lentils or split peas spread on a piece of bark to represent caterpillars and other insects. (warblers)



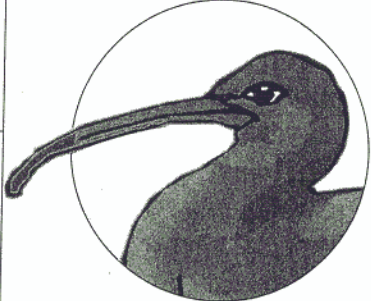
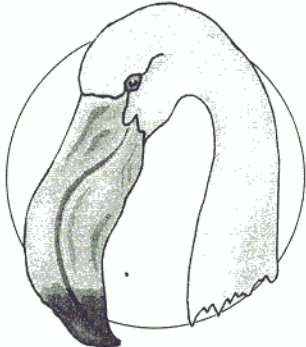
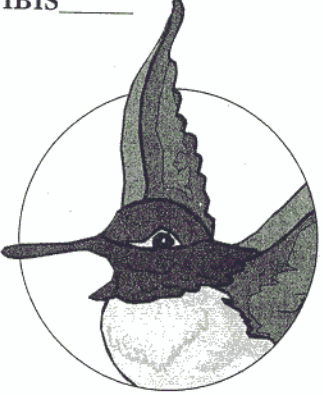
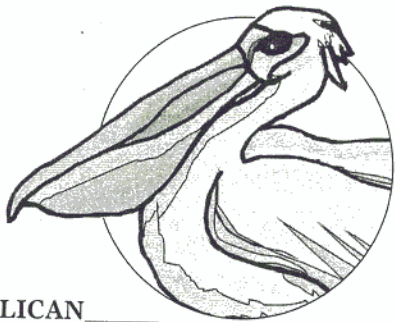
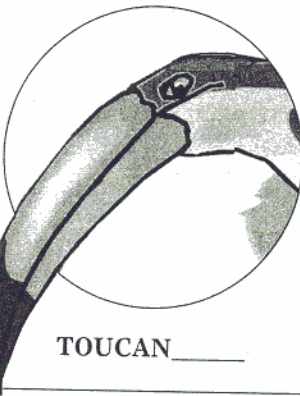
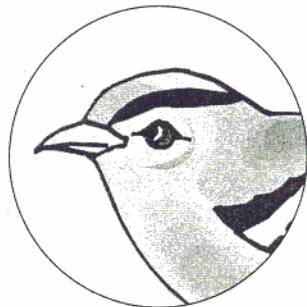
**Station 8:** Grapes on the vine to represent fruit hanging from a branch. (toucans)

## **Activity:**

1. Give a copy of the Fill the Bill Activity worksheet and a pencil to the participant.
2. Explain that each of the different tools at each station represents a different type of bird beak function. (Can give some background on adaptations covered in the explanation)
3. Each participant (or team if there are many students) must try out different tools to decide which one most efficiently collects the food at each station. (Allow 2-3 minutes per station)
4. Participants are to write the name of the correct tool in the appropriate square on the worksheet and write the number of the station next to the bird whose beak is represented by that tool.
5. The goal is to get all matches correct.

*Participants will need facilitator to toss popcorn in the air to be caught with a tool and also to hold grape bunch while they are trying to grab a grape with a tool. Rubber worms will need to be recovered from time to time.*

# Fill The Bill Activity

<p>1</p> <p>NECTAR</p>		
<p>2</p> <p>WORMS IN THE MUD</p>	<p>CARDINAL _____</p>	<p>SWALLOW _____</p>
<p>3</p> <p>SEEDS</p>		
<p>4</p> <p>FISH AND OTHER WATER ANIMALS</p>	<p>IBIS _____</p>	<p>FLAMINGO _____</p>
<p>5</p> <p>TINY WATER PLANTS AND WATER ANIMALS</p>		
<p>6</p> <p>FLYING INSECTS</p>	<p>HUMMINGBIRD _____</p>	<p>PELICAN _____</p>
<p>7</p> <p>CATERPILLARS AND OTHER INSECTS</p>		
<p>8</p> <p>FRUIT</p>	<p>TOUCAN _____</p>	<p>WARBLER _____</p>