

Navarino Nature Center Honey Bee Coloring & Activity Book

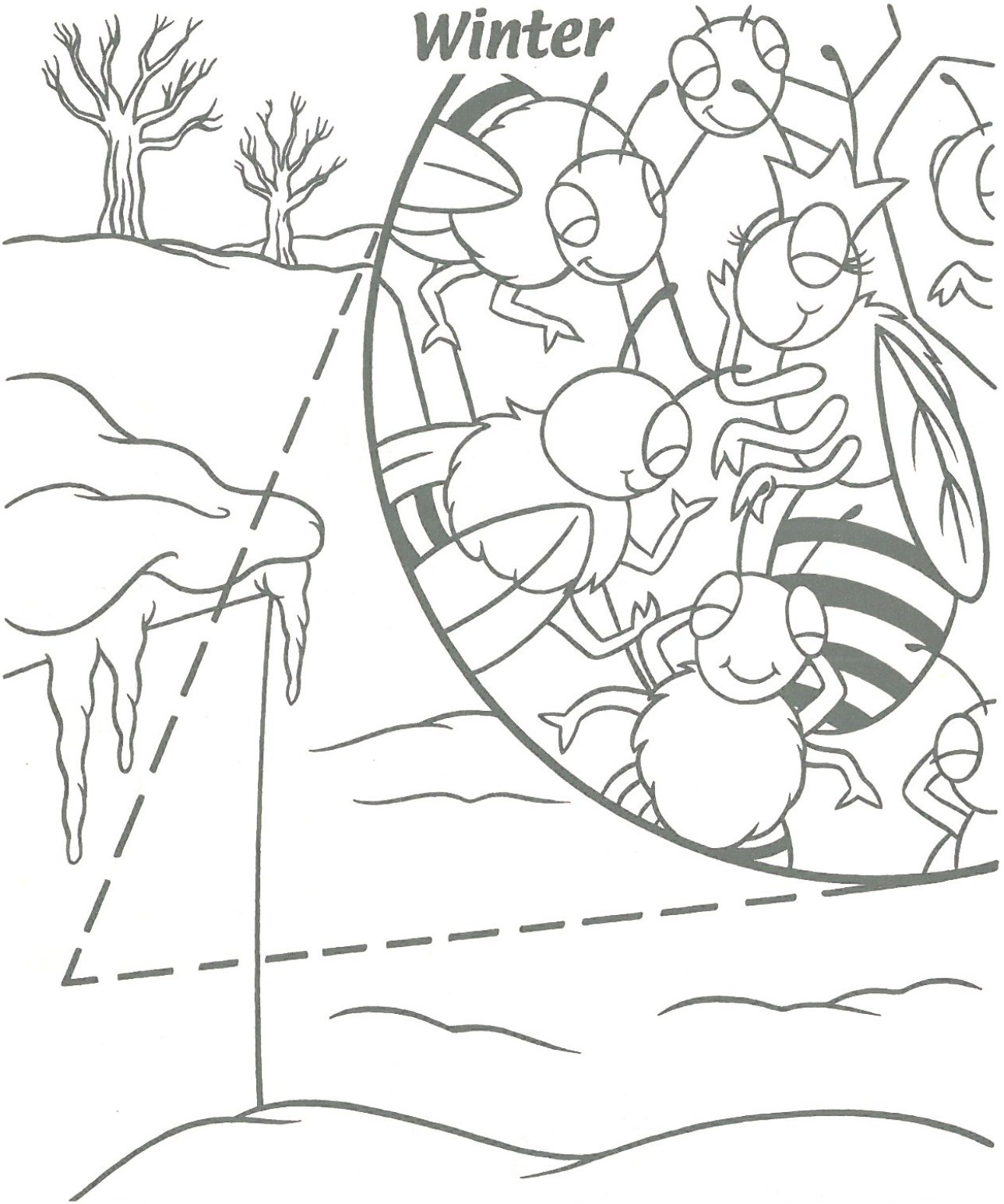




1. In the foreground, **honeybees** (*Apis mellifera*) gather nectar to produce honey. Common throughout the United States and lower Canada, honeybees live in hollow trees or in man-made hives. In the complex social structure within the hive, the queen bee mates with male drones and lays eggs. The sterile female workers gather nectar from flowers, produce the honey, and

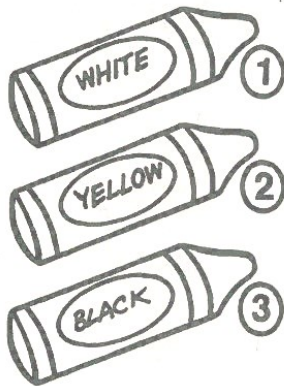
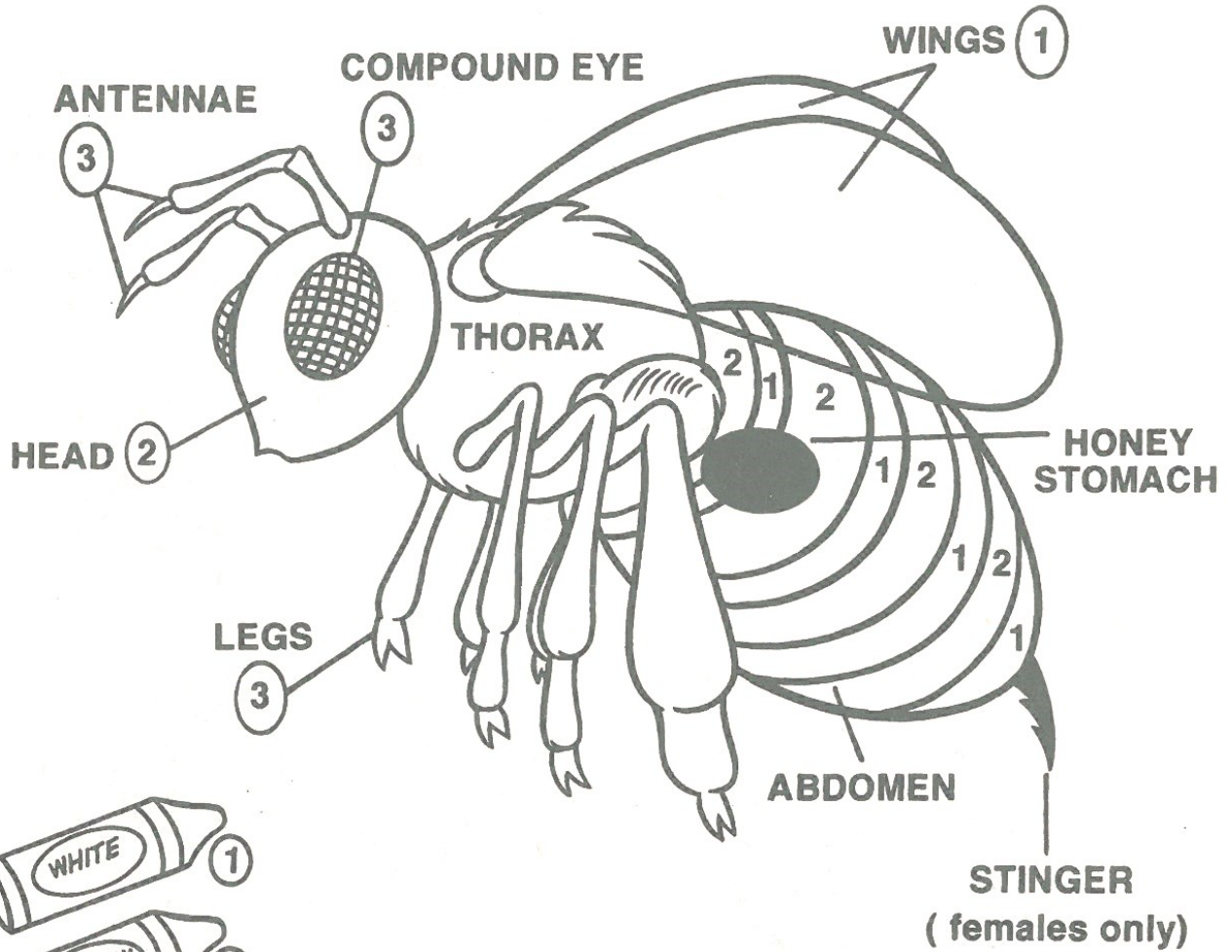
maintain the hive. Honeybees are reddish-brown to black with yellow stripes. The bright yellow **woodland sunflower** (*Helianthus strumosus*) blooms in August and September in woods, thickets, and clearings of transition, mixed deciduous, and oak-hickory forests. It is found from Quebec and New England to Georgia, west to Oklahoma and north to North Dakota.

Winter

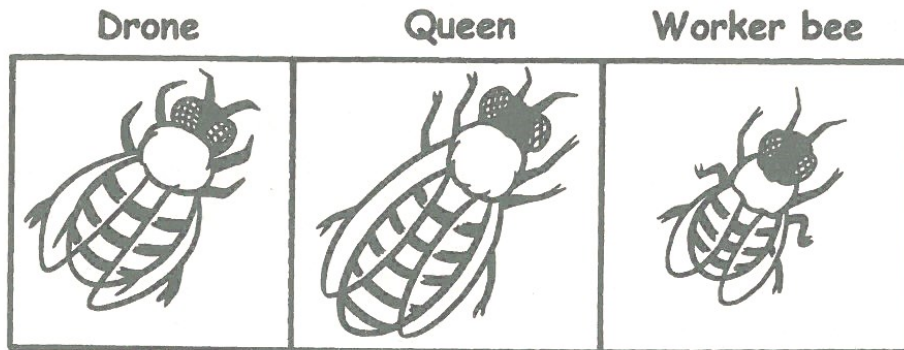


In winter the bees are inside their beehives trying to survive. They don't go outside at all and must rely on food that they have stored inside the hive. When it's cold, all the bees gather around the queen and keep her warm because she's the most important bee in the community or colony. The queen is mother to all the future bees in the colony. It's her only job, but it's an important one.

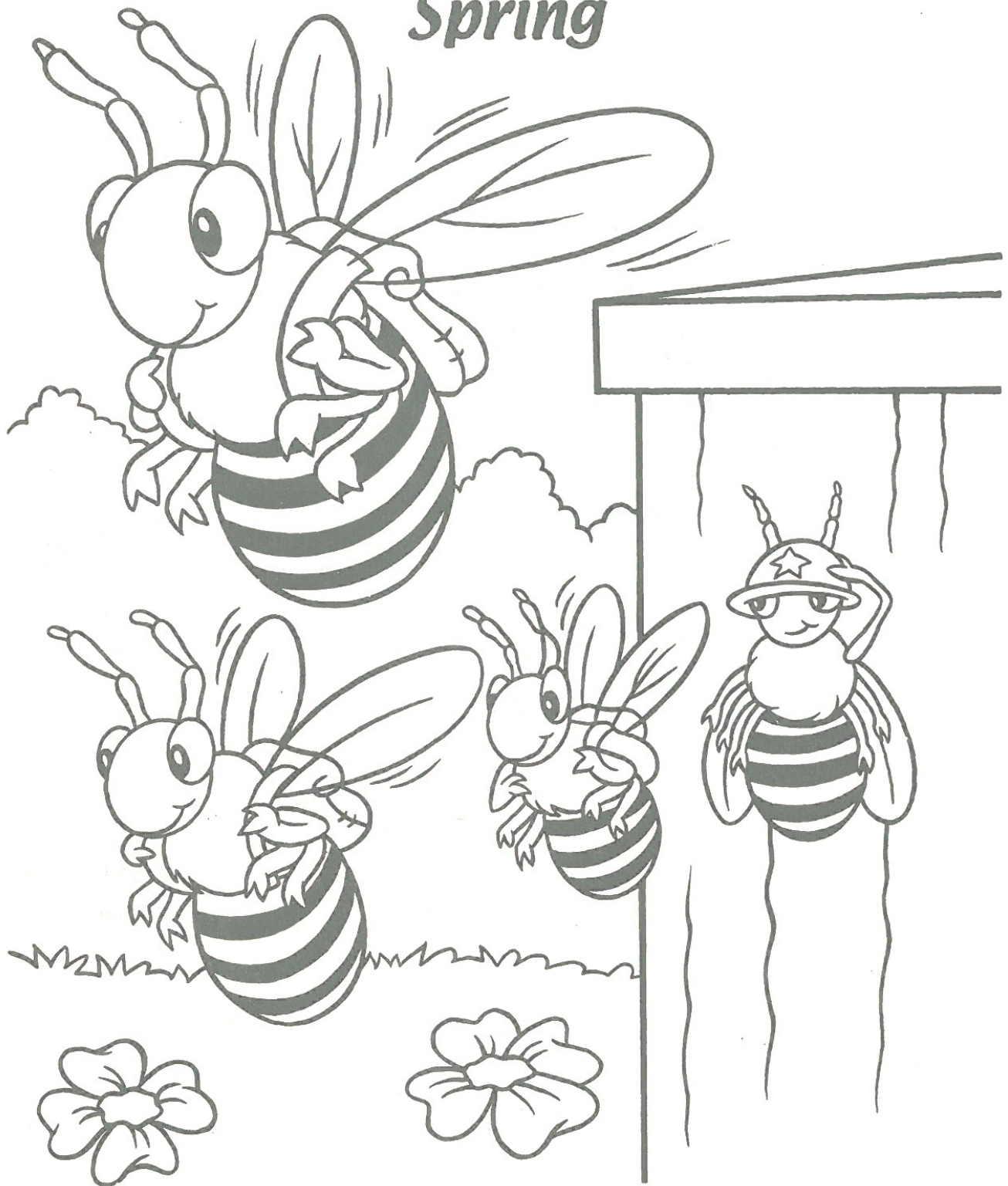
Anatomy of a Bee



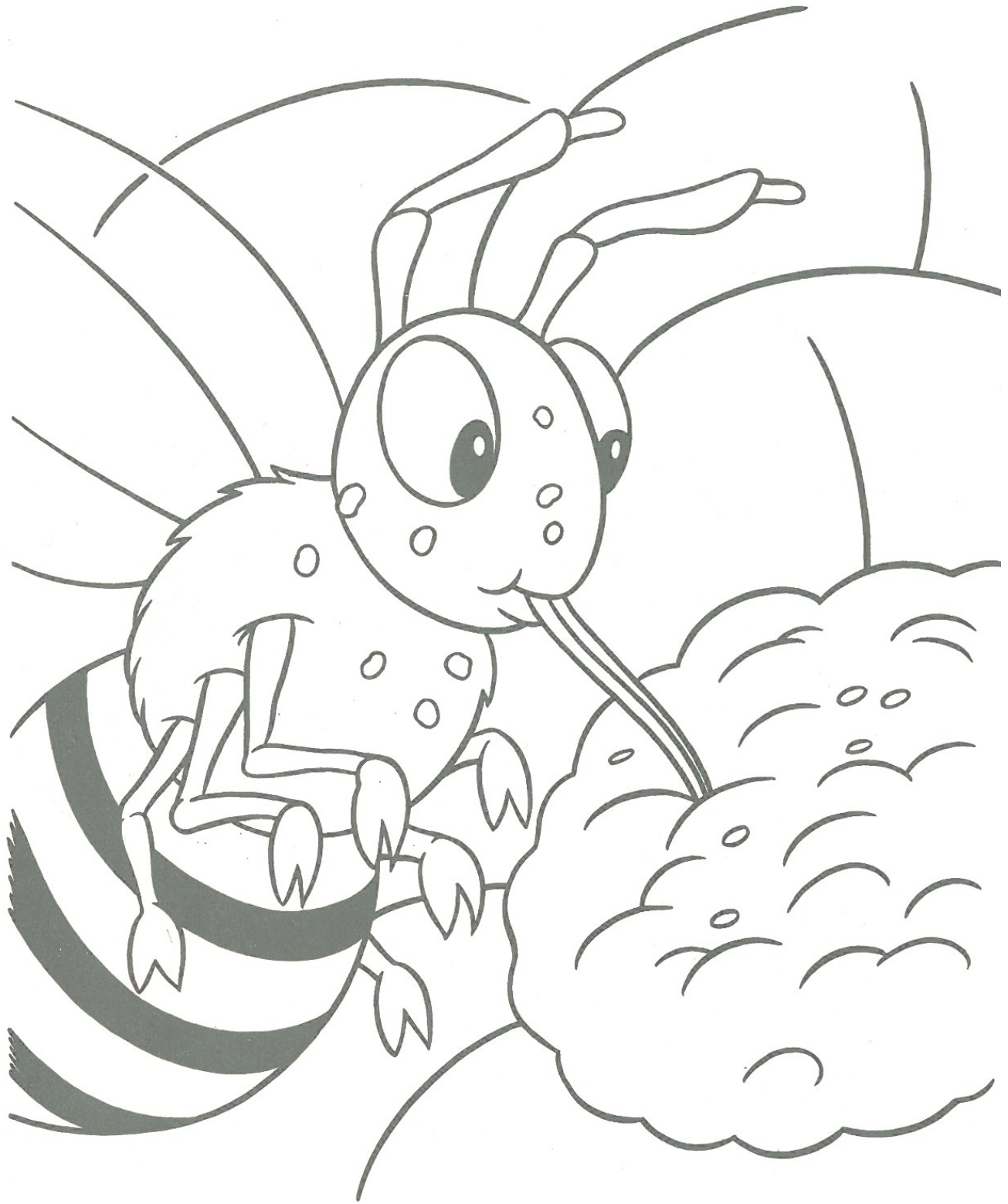
Sizes of the three types of honeybees



Spring

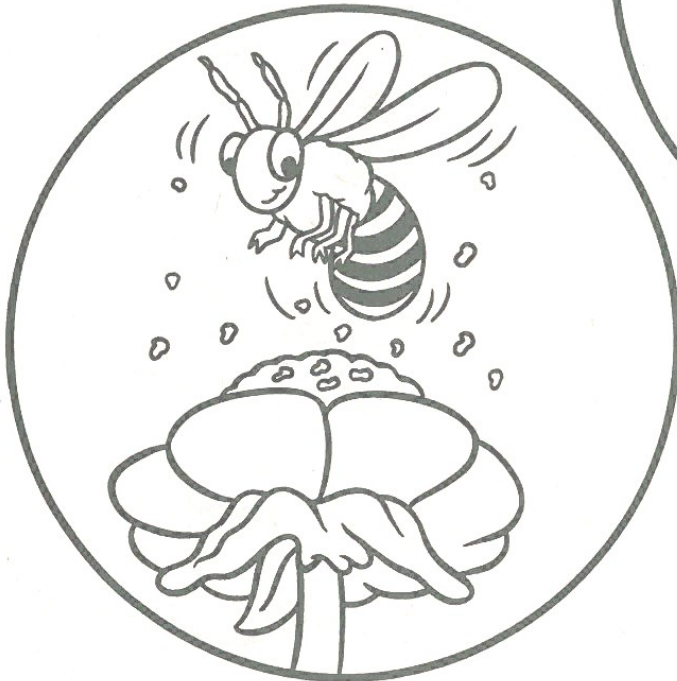


As spring approaches, the weather gets warmer. When the temperature reaches 54° F. worker bees will leave the hive and begin to look for food. The bees will gather pollen and nectar from nearby flowers to make the honey they need to live. Worker bees are the smallest bees in the hive but they do it all- they're nurses, food gatherers, soldiers, housekeepers----and surprise! They're all girls!



When the bee finds a flower it uses its very long tongue (proboscis) to sip up the rich nectar found inside the blossom. The nectar is then stored in one of the bee's two stomachs (the honey stomach). The bee also gathers specks of golden dust called pollen. The bee has storage compartments on the back of its legs to collect the pollen, but other specks will stick to its body as it flies to the next flower.

Pollination



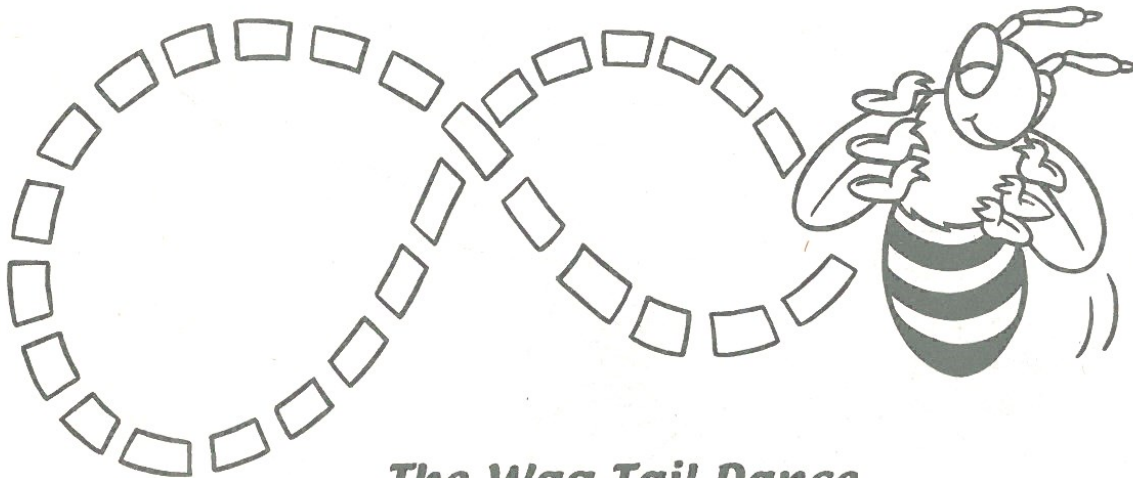
Bees and flowers have a **symbiotic** or special friendship. The flower gives the bees food (nectar and Pollen), and in return the bees give flowers the gift of life. A flower cannot produce seeds to create new plants without the pollen from other flowers, The bee acts like a pollen delivery service. The pollen that sticks to the bee's body will fall off as it visits new flowers, delivering the needed pollen. The plant will then use this pollen to produce seeds.

The Beehive Hop

The Circle Dance

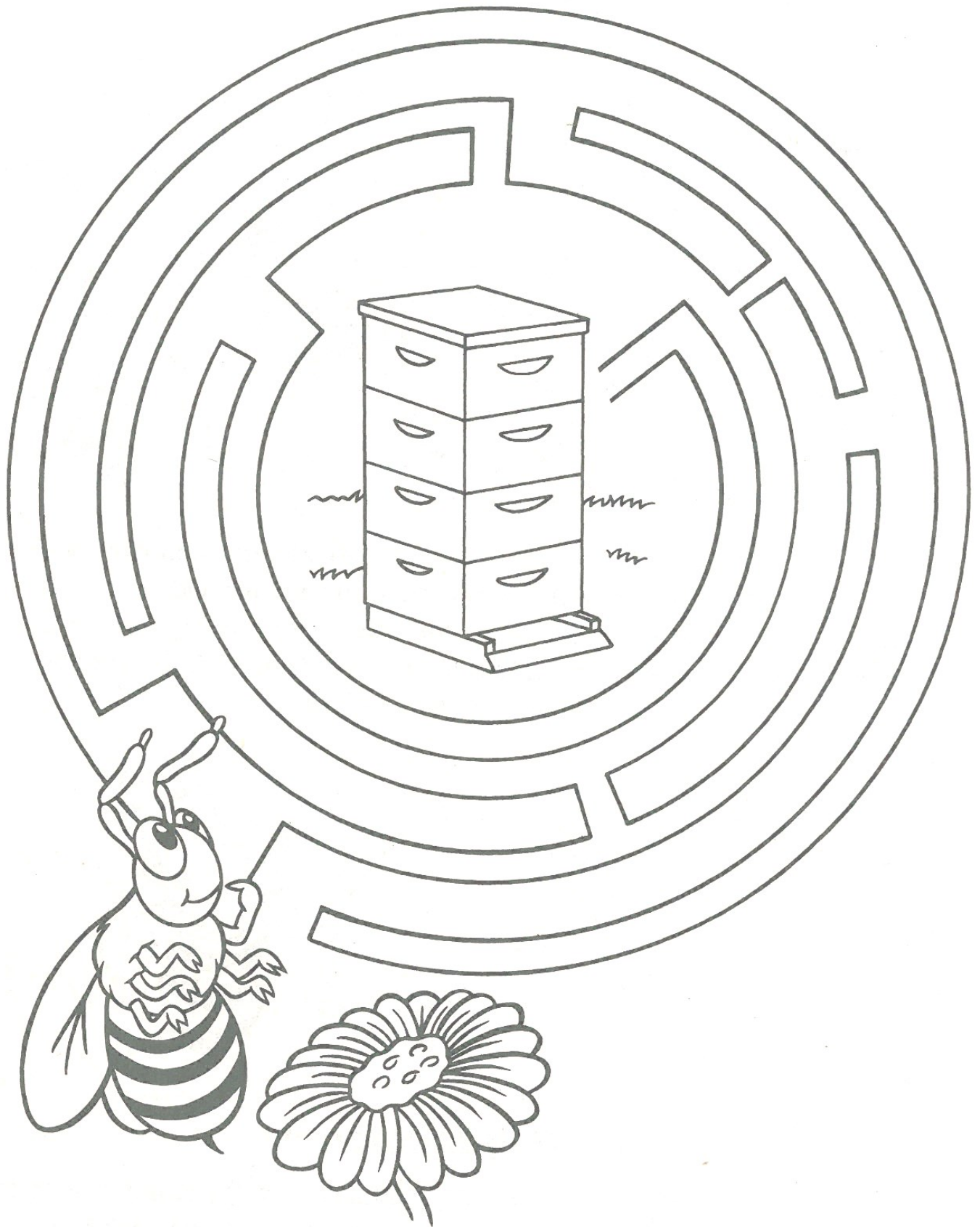


Bees can't talk, but they can let the other bees know when they have found a big, fat, juicy flower. They return to the hive and do a little dance. If the flower is close by (within 100 yards) the bee will do a round dance. It runs in circles, switching directions. The faster the dance, the better the food source!

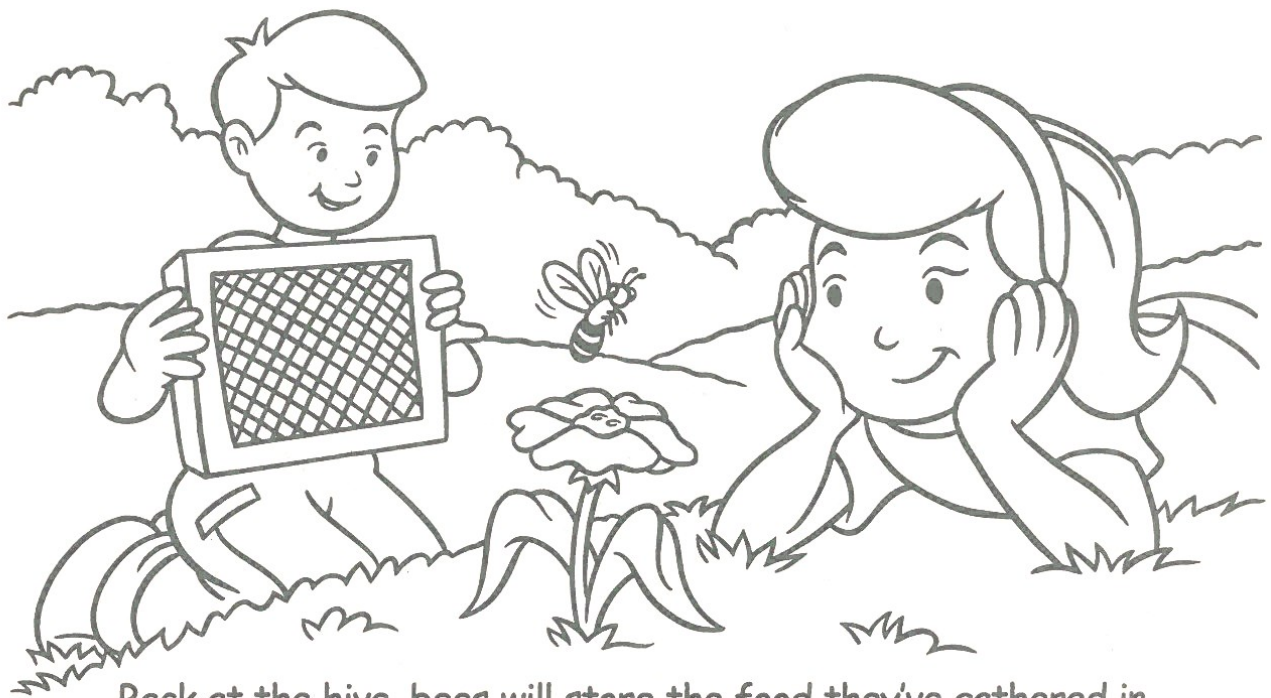


The Wag-Tail Dance

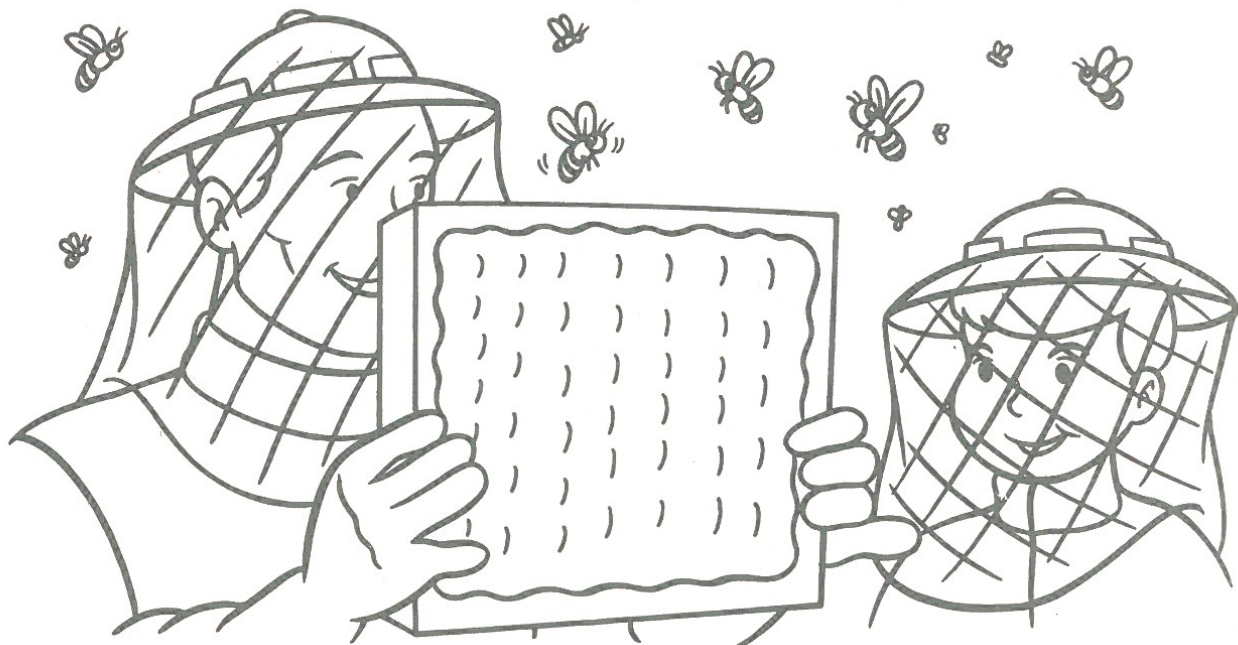
If the flower is farther away (more than 100 yards) the bee will do a "wagging" dance. It dances in a figure-8 pattern, first running in a straight line, wagging it's abdomen back and forth as it runs, and then moving to the right or left to make a half-circle. It then resumes the straight line and then runs a half-circle in the other direction.



When a bee's stomach is about half full of nectar, it's time to return to the hive and unload. The bee recognizes its hive by its smell or scent. Help this bee find its way home.

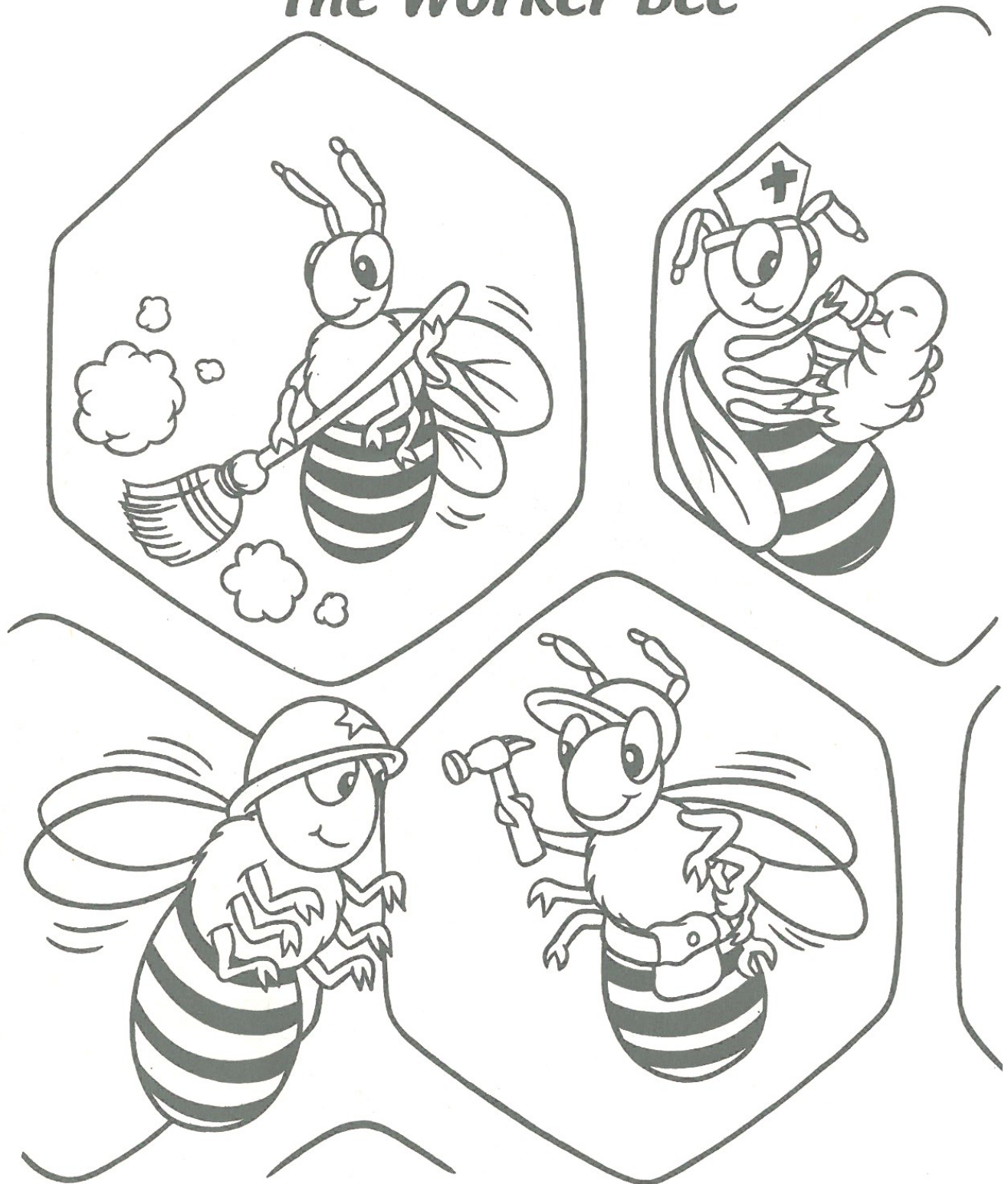


Back at the hive, bees will store the food they've gathered in honeycombs. These combs are built on sheets of beeswax supplied by the apiarist. Sheets are imprinted with hexagonal (6-sided) cells and there are about 8,000 cells on each sheet. Wooden rectangular frames support each sheet and about 10 of these frames occupy each drawer section of the hive.



Bees use a wax-like substance that comes from their abdomen to build cells directly on the honeycomb. The pollen and nectar is stored in these cells, and they are then sealed in with beeswax. Within five days the food will become lip-smacking honey.

The Worker Bee



A worker bee begins life as a maid, keeping cells clean by eating dirt and extra wax. At two weeks old the bee becomes a builder, constructing new cells, and filling them with pollen and nectar. The worker bee also feeds the young, and guards the nest from animals that want its honey. She's one busy lady!

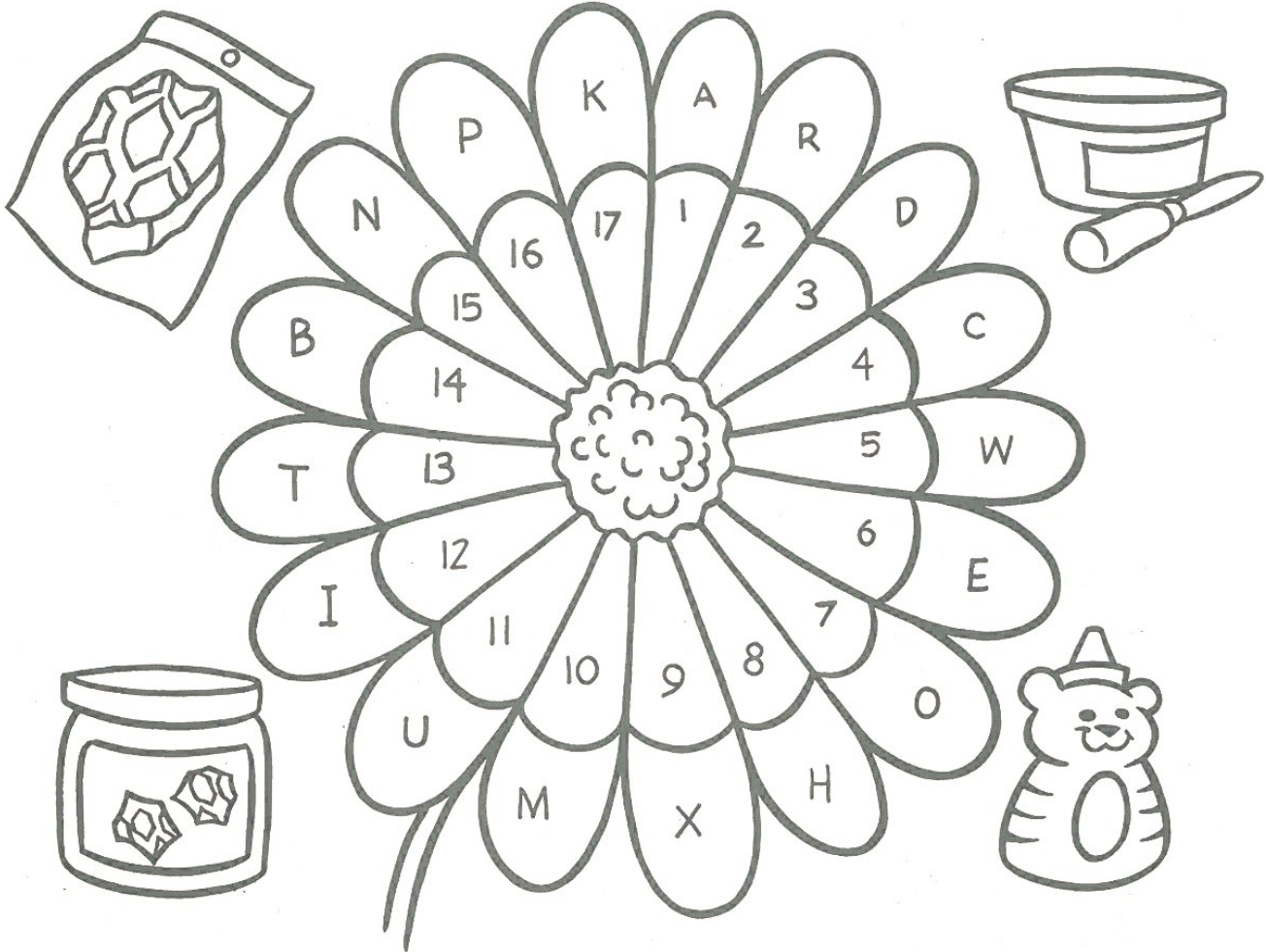
The Drone Bee



Some of the queen's eggs become drones. The drones are devoted to their queen, and they are all boy bees. Drones are the only bees allowed to mate with the queen, creating new bees for the hive.

Sweet Treats

Use the flower petal secret code to replace each numeral with a letter



Some people like honey straight from the hive. Individual pieces are cut directly from the honeycomb and placed in containers. What is this kind of honey called?

4 7 10 14

What kind of honey is made up of a combination of honeycomb and liquid extracted honey?

4 8 11 15 17

This honey is allowed to crystallize (form granules) and is then placed in tubs. It can be spread on your bread, just like butter.

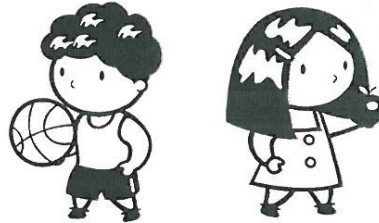
5 8 12 16 16 6 3

This is the most popular kind of honey. It's pure liquid poured into jars or bottles.

6 9 13 2 1 4 13 6 3

HONEYBEES AND ME

Bees are living creatures, just like you. They need to eat, drink, and breathe to stay healthy. Bees are also very different from humans. Fill in the blanks below to describe how you differ from a bee.



I use my antennae to smell and taste.

I use my _____ to smell and my _____ to taste.

I have five eyes.

I have _____ eyes.

I move around by walking and flying.

I move around by _____
_____.

I have six legs.

I have _____ legs.

I live in a hive.

I live in _____
_____.

I breathe through my skin.

I breathe through my _____
_____.

I hatched from an egg. I was first a larva, then a nymph, before I became a bee.

Before I grew up, I was _____
_____.

COUNT THE BEES



How many queens are there? _____



How many drones are there? _____



How many workers are there? _____



WHO AM I?

Find the names of the three types of bees in a colony.



The q _____

I am the mother of the colony.

My abdomen is very long.

I lay more than 1,200 eggs every day.

The w _____

I do all the work in the hive.

I clean, feed, build, fan, guard,
and forage.



The d _____

I have extra large eyes and a stout
abdomen. I do not have a stinger or

pollen baskets and I cannot gather
flower nectar using my tongue. I am a
male bee.



THE BEE'S LIFE CYCLE

These are the stages in the metamorphosis of a worker bee. Use the words at the bottom of the page to fill in the blanks.

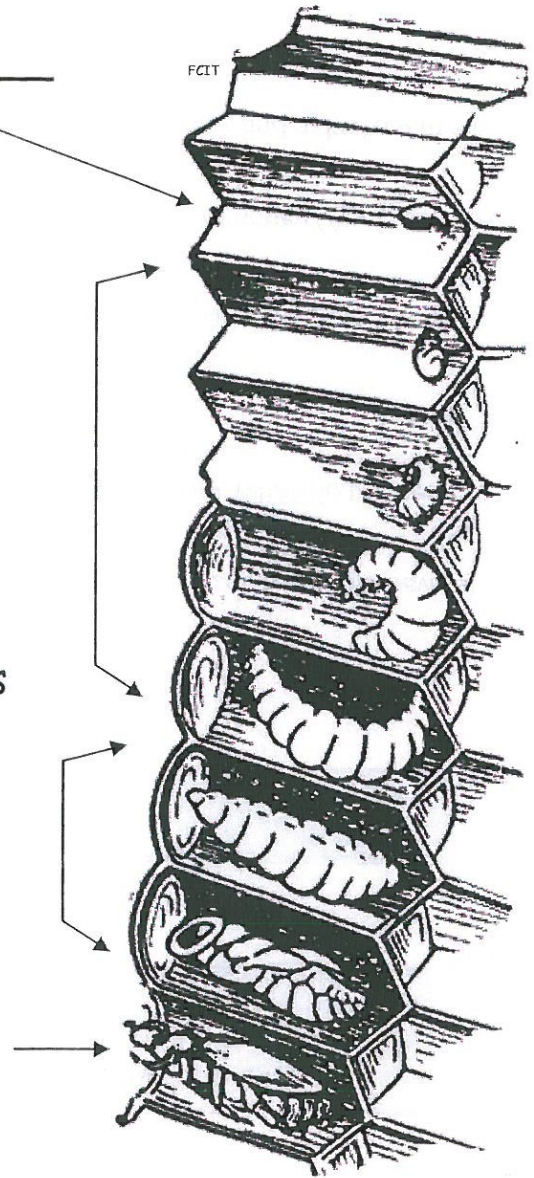
The queen lays an _____
on the bottom of a cell.

The egg hatches. The worker bees
feed the _____.

The larva grows and the worker bees
close the cell with beeswax.

The larva spins a cocoon and transforms
into a _____.

The metamorphosis is complete.
The _____
chews on the wax and leaves its cell.



egg

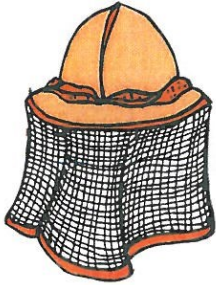
bee

pupa

larva

BEEKEEPING TOOLS

What are these tools used for? Link each tool to the correct description.



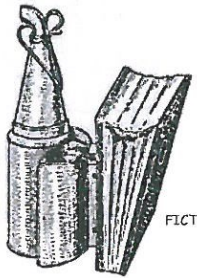
The smoke in the **smoker** calms the bees.



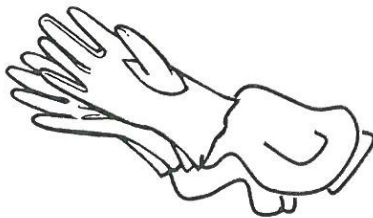
The **hive tool** is used to pry open the hive and separate the frames.



The **beekeeper's gloves** protect hands from bee stings.



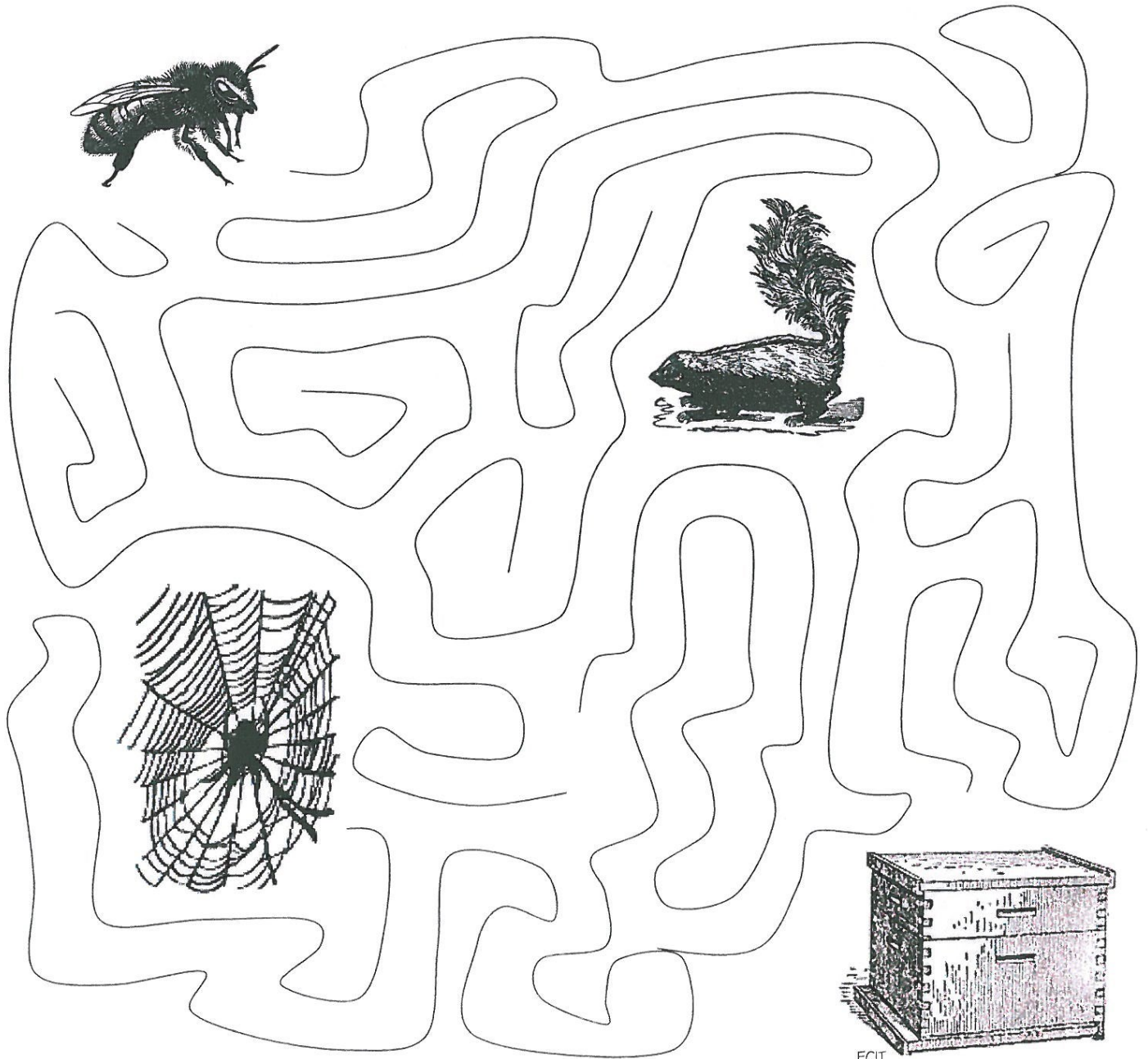
The **bee brush** is used to gently sweep the bees from the combs.



The beekeepers' **hat and veil** prevent the bees from flying into the beekeeper's face and hair.

MAZE

Help the bee find its hive. Watch out for the skunk and the spider!



FCIT

WORD SEARCH

W	C	O	L	O	N	Y	H	I	V	E
A	B	D	A	N	C	E	E	E	G	S
T	F	L	Y	I	N	G	R	N	Q	M
E	H	O	N	E	Y	E	I	D	U	O
R	B	E	A	R	K	P	N	R	E	K
L	S	U	N	R	E	E	N	O	E	E
A	W	K	O	E	L	B	E	N	N	J
R	A	W	K	L	M	E	C	E	P	A
V	X	E	O	O	E	G	T	F	U	R
A	E	P	C	E	P	G	A	A	P	E
B	F	L	O	W	E	R	R	N	A	R

Words to find:

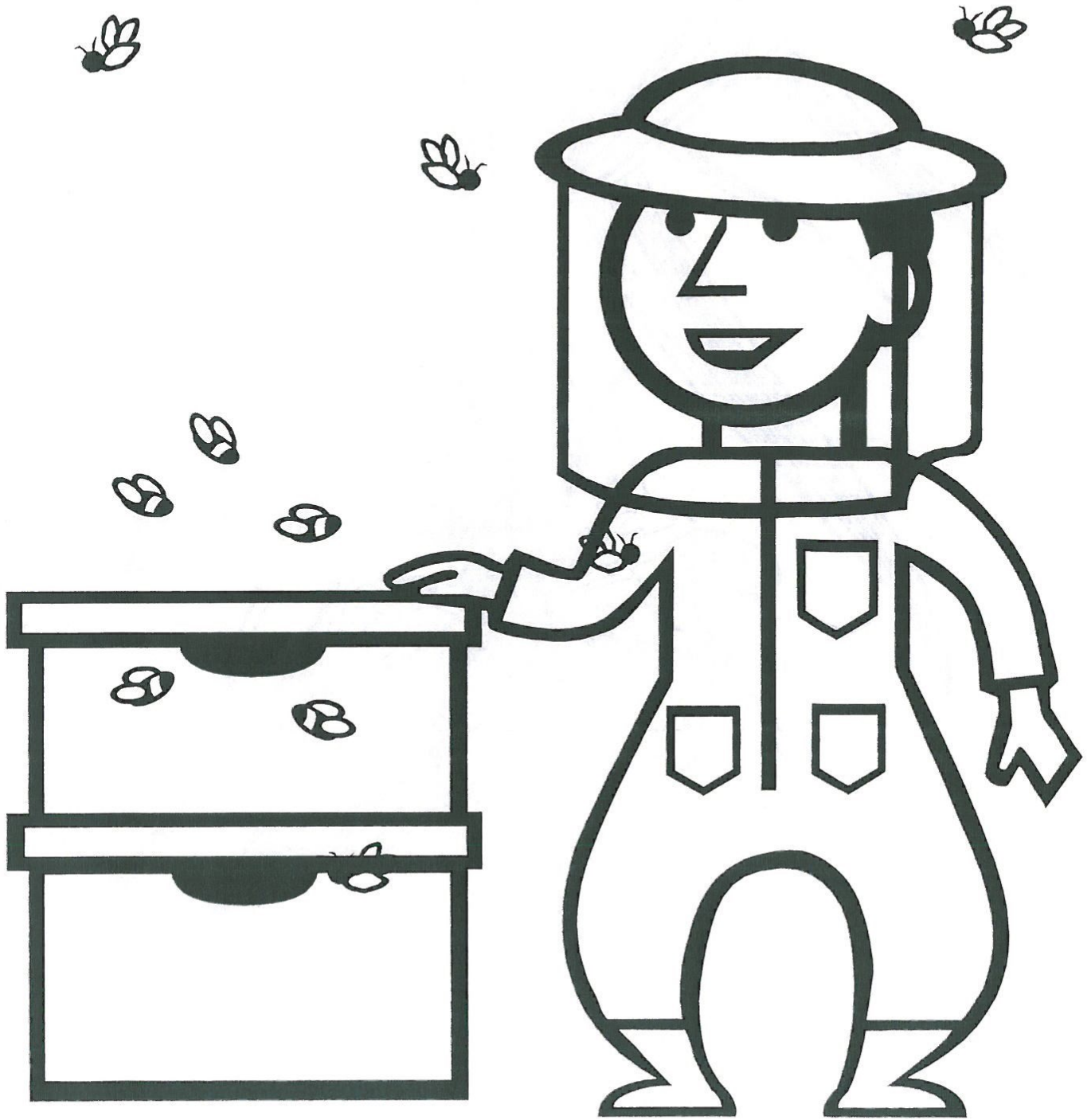
bear	drone	hive	pollen	water
beekeeping	egg	honey	pupa	wax
comb	fan	jar	queen	worker
colony	flying	larva	smoke	
dance	flower	nectar	sun	

Use the leftover letters to complete the sentence:

The person that raises and cares for honeybees is called a

_____.

THE BEEKEEPER AT THE BEE YARD



COMPLETE THE SERIES

Cut out the images at the bottom of the page and glue them in the correct place to complete the series.

