Obtain and complete this book each year the beekeeping project is taken.

Name ____________________________________________________________

Age (as of January 1 of the current year) __________________________________

4-H Club _________________________________________________________

4-H Advisor ______________________________________________________
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Note to the Project Helper

Congratulations! A 4-H member has asked you to serve as a project helper. You may be a family member, project leader, club advisor, or another person who is important in the 4-H member’s life. As a project helper, it is up to you to encourage, guide, and assist the 4-H member. How you choose to be involved helps to shape the 4-H member’s life skills and knowledge of beekeeping.

Your Role as Project Helper

- Review this Beekeeping Project and Record Book and, using the section called Where to Find Information about Bees: Suggested Resources, be prepared to offer guidance on selecting at least one source of information about bees. Some of the suggested resources have scientific and technical information that may be difficult for younger 4-H members to comprehend without your help.

- Guide the youth and provide support in setting goals and completing this project.

- Encourage the youth to apply knowledge from this project book to the care and management of bee hives.

- Serve as a resource person.

- Encourage the youth to go beyond the scope of the 4-H project book to learn more about particularly interesting topics.

The Beekeeping Project and Record Book

Every 4-H member completing the beekeeping project must use this Beekeeping Project and Record Book. It is designed for members in grades 3 through 12. A new project and record book should be completed each year. Members with more than one hive should copy the Beekeeping Records section so that every project hive has its own set of records.

The Member Project Guide helps the 4-H member get the most out of the beekeeping project. The 4-H member is required to set goals and complete “learning activities” that pertain specifically to their projects. Members are encouraged to study particular topics of interest of beekeeping knowledge and the beekeeping industry. Youth are also encouraged to develop leadership, citizenship, communications, and life skills through “learning experiences” and through “leadership and citizenship activities.”

Colony Care and Management is designed to make youth aware of the issues surrounding the care of bees and of being responsible beekeepers. The activities provide youth with hands-on experiences that teach the knowledge and skills needed.

The Beekeeping Records section gives youth the opportunity to develop scientific and basic mathematical skills. Skills such as record-keeping, comparing and measuring, observing, questioning, and evaluating are examined in the context of owning and managing a project hive. Activities in this section also give youth the opportunity to develop life skills such as
time and money management. If a 4-H member has more than one hive, it is all right to copy the blank record pages. **Begin the project with a complete set of record pages for each hive.** The 4-H member also needs to name or number each hive for ease in identification.

Some concepts and activities in this book are difficult for young members to grasp. They will require your assistance. Be patient. Help them understand that although an activity may not seem useful, it is designed to help them learn something new and master important skills.

**Learning Science**

The design of this project and record book uses the latest information on how youth best learn science. The 4-H member experiences, comprehends, and applies information using a variety of science processing skills. The 4-H member:

- Keeps records
- Compares and measures
- Observes
- Communicates with others
- Uses scientific tools
- Evaluates
- Experiments
- Questions
- Conducts research

Experts agree that these skills, once mastered, are applied to other aspects of the 4-H member’s life in a way that goes beyond just content recollection. You can support the 4-H member by encouraging effort on activities and records throughout the project experience. Every activity helps the 4-H member learn something new and master important life and science skills.
Are you ready to begin your beekeeping project? The activities in this book invite you to explore the fascinating bee family. Have fun!

**Your Project Helper**
Before you begin your project, select a project helper. Your project helper can be a parent, project leader, club advisor, or an older friend who knows about beekeeping. Your project helper is someone who can help you if you have difficulty understanding or completing an activity, and who can help you find more information about a topic in which you are interested. After you complete the activities in this book, review them with your project helper. Discuss what you did and what you learned.

Write your project helper’s contact information here:

<table>
<thead>
<tr>
<th>Name:</th>
<th>__________________________________________________________________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone:</td>
<td>_______________________________________________ E-mail: ___________________________________</td>
</tr>
</tbody>
</table>

As you complete this project and record book:
- Do your best to answer the questions and complete the activities.
- Think about the ways in which the knowledge you gain applies to the way you care for and manage your bees.
- Work with a project helper to complete the activities in this book. Remember that your project helper is a valuable resource person.
- Look beyond the project books to explore areas of the project that interest you. You can find more information about particular topics from magazines, books, beekeepers, and the internet. Your project helper can help you find more information.

**Your Project Level**
Use this project and record book for all 4-H beekeeping projects. For each year of the project, you should complete a new book. If you have more than one hive, you should copy the Beekeeping Records before writing on them and complete a set for each one.

There are three project levels:

**Beginning**—Members with no experience in a project area, or those who are 8 to 10 years old. Youth at this level are learning about the basics of beekeeping, including types of bees, honey and wax, plants that attract bees, and beekeeping equipment. At this level, youth are not required to have any bees, but are expected to learn about beekeeping firsthand by observing the hive(s) of a local beekeeper.
Intermediate—Members with some experience in a project area, or those who are 11 to 13 years old. Youth at this level acquire a colony of bees and learn how to care for and manage a beehive throughout the year. A realistic goal at this level is to manage basic beekeeping operations that result in the production of extracted, chunk, or cut comb honey.

Advanced—Members with experience in a project area, or those who are 14 years old or older. Youth at this level can expect to learn more about honey production, special kinds of honey, bee societies, and bee diseases and parasites.

**Project Guidelines**

Each year, complete these project components:

1. Sign-up for the project by the required date for your county. Contact your club advisor or county Extension office for this date.

   The project sign-up date for my county is ____________________________.

2. Set at least three project goals and objectives.

3. Complete the Member Project Guide section of this book, including the following:
   - Study **one or more** topics of interest. Topics can be simple or more complex depending on your age and skill level in the project.
   - Complete **five or more** learning activities that support your goals.
   - Participate in **two or more** learning experiences.
   - Take part in **two or more** leadership and citizenship activities.

4. Complete the Colony Care and Management section of this book.

5. Complete the Beekeeping Records section of the book.

6. Take part in a project review at a club meeting or on the county level. This project review can take place with your parent or project helper. Ask this person to review your *Beekeeping Project and Record Book* with you. This review helps you evaluate what you have learned and how you have grown as a 4-H member. Members who take part in this type of evaluation may receive a 4-H project achievement certificate. These certificates are awarded based on the member’s level of involvement (beginning, intermediate, advanced) and whether the member has met the minimum completion requirements for the project.

7. Take part in county project judging. (This step may be optional. Check your county’s guidelines.)
Introduction to Beekeeping

Beekeeping as a 4-H project can be fun and rewarding. Whether you want to keep bees as a way to improve pollination, as a hobby, or for harvesting and selling honey and bee products, this project will help you plan for and manage your honey bees. Before we talk about your project, let’s talk a little bit about what makes bees so amazing.

Bees have been buzzing around our earth for millions of years. Thanks to bees, honey has been an easy source of sweetness for people throughout the centuries. Egyptians used honey in many of their medicines. In Spain, 10,000-year-old cave paintings show people stealing honey from a natural hive. For hundreds of years, honey was the main sweetener in American diets. Today we still enjoy honey in all kinds of recipes, from peanut butter and honey sandwiches to honey-glazed chicken.

Do you ever wonder how bees make honey? Or how honey gets from the hive to your local grocery store? To understand where honey comes from, you have to understand bees.

The United States is home to more than 3,500 species of bees. Some are suited to living in man-made hives, others are very protective of their own hives, and others are prone to swarming. Like other insects, bees have six legs, three body segments, and a hard outer skeleton. Bees live in very structured societies called colonies. Although bees within a colony may look alike, they are not all the same.

Three basic groups—the drones, the workers, and the queen—each have a specific job that helps the colony create honey; their food source and our treat. The European Honey Bee (what we call our “honey bee”), Apis mellifera, is not native to the United States.

Bees communicate with each other primarily using scent to show the location of the best flowers. Bees also communicate when the hive is in danger or when workers are needed to take nectar from bees returning after a successful gathering mission. Bees can even punish other bees that don’t follow the rules of the hive.

In addition to producing honey, bees are very important to people because they are pollinators. Without bees, many of the foods we eat would not exist. Bees spread pollen particles from plant to plant as they visit flowers, making it possible for the plants to produce fruits and vegetables.
People have been beekeeping for centuries, but it wasn’t until about the 1850s that beekeeping as we know it today started. In 1851, Lorenzo Lorraine Langstroth, known as the “Father of American Beekeeping,” discovered bee space, the exact space needed for bees to move and work between the honeycombs. Even wild bees have a set bee space in their hives. Langstroth built the first modern beehive, complete with frames for the honeycombs, making it much easier to remove the comb, collect the honey, and check on the hive.

To get started in beekeeping, you need to collect many tools and supplies. Beekeepers often wear jumpers to protect their clothing from propolis, the sticky resin bees collect to coat and protect the hive. Part of the beekeeper’s uniform includes a veil—a large hat with a screen to protect his or her face from curious bees. Perhaps the most important tool a beekeeper has is the smoker. Smoke from the smoker calms the bees down, making it possible for the beekeeper to work without upsetting them. Bees do not usually attack unless they feel threatened.

Honey is only one of the products we get from bees. People also use beeswax, the substance bees make to create their combs, in candles, lip balm, and soap. Whole honeycombs filled with honey can sometimes be found at local farmers markets. Bee venom is used for medicinal purposes. Even royal jelly, the food given to the queen by her worker attendants, is used in beauty products.

Where to Find Information about Bees

Suggested Resources

Many good sources of information about beekeeping exist. You may be interested in using the beekeeping project books that are offered online by Purdue Extension, not as project books but for the information they provide.

Carroll, Natalie, and Greg Hunt. Understanding the Honey Bee (4-H Beekeeping, Division I). Purdue Extension. extension.purdue.edu/extmedia/4h/4-h-571-w.pdf

Carroll, Natalie, and Greg Hunt. Working with Honey Bees (4-H Beekeeping, Division II). Purdue Extension. extension.purdue.edu/extmedia/4h/4-h-586-w.pdf

Hunt, Greg, and Natalie Carroll. Advanced Beekeeping Methods (4-H Beekeeping, Division III). Purdue Extension. extension.purdue.edu/extmedia/4h/4-h-593-w.pdf

As you learn more about bees and beekeeping, you may find it helpful to stay up-to-date by subscribing to one or both of the following periodicals:

American Bee Journal
dadant.com/journal
Phone: (217) 847-3324

Bee Culture: The Magazine of American Beekeeping
beeculture.com
Other Book Resources

Other Helpful Websites
Iron County 4-H Beekeeping, Cedar City, Utah. ironbeekeeper.org
Maine Beekeepers. mainebeekeepers.org/information-for-the-general-public/kids-corner-puzzles-and-games/
The National Honey Board. honey.com
North Carolina Beekeepers. ncbbeekeepers.org/education/kids-links
Ohioline, The Ohio State University. ohioline.osu.edu, search “beekeeping.”

How to Find a Beekeeper
To find a beekeeper in your area willing to help you learn more about beekeeping, go to beeculture.com and click on Who’s Who in North American Beekeeping. Go to ohiostatebeekeepers.org and click on “Associations” to find a list of Ohio beekeeping associations in your region or county.

Need help? Many local beekeeping associations offer scholarships to youth interested in beekeeping. Be sure to check with the beekeeping association in your area for more information.