

*Give a man a fish and he will eat for a day.
Teach him how to fish, and he will sit in a boat
and drink beer all day.*

– George Carlin

As a Master Beekeeper, I have taken on an obligation to educate others about our hobby and I get the opportunity to do so many times every year. Chances are that once The Public finds out that you are a beekeeper, people will begin beating a path to your door too, looking for somebody to speak to their garden club or child's elementary school. I encourage you to explore that kind of thing, because in my experience, the best way to learn is to teach. Get in touch with your local beekeepers' association's Outreach Director to volunteer.

My audiences fall into two broad categories: 1) people who are interested in taking up beekeeping or have already done so; and 2) people who have a general interest in what is a strange and fascinating activity. The two groups are focused on different aspects of the beekeeping topic and my pitch to each must be tailored to what will provide that group with what they are seeking. Usually kids fall into the second, non-beekeeper group.

The non-beekeeper group doesn't need to know anything at all about things like Varroa treatments, methods for clearing supers, product labeling requirements and so forth. Nor do they need to know about the traits of different bee races or the architecture of modern hive variants. Their curiosity is sated by a few basic points:

1. Honey bees are not the same thing as yellow jackets.
2. Honey comes from plants (nectar). Honey bees are just little factory workers that convert the nectar into honey. As such, there is no such thing as "generic honey"; instead there is tupelo honey, sourwood honey, clover honey etc., just as there is grape jam, strawberry jam, apple jam etc. depending on the plant source. (I've encountered lots of people who think honey comes from pollen, or that bees



A future beekeeper dons protective gear while his classmates gleefully watch.

somehow "produce" honey similar to how chickens produce eggs or cows produce milk.)

3. Despite what the newspapers say, honey bees are not on the verge of extinction. Our county/state/nation/world has lots of beekeepers and lots of honey bee colonies. Responsible beekeepers take good care of their colonies and they are doing just fine, on average. (See "[Just the Facts, Ma'am](#)" for more on this topic.)
4. There is more to beekeeping than collecting honey. Pollination is far more valuable than honey. We wouldn't starve without honey bees but our diets would be a lot less tasty. Do you like almonds, pickles, blueberries or apples? If so, give a honey bee a hug! (See "[Just the Facts Part Two](#)" for a link to a list of honey bee-dependent foods.)

A few guiding principles

I like sharing with kids but they can be a lot more challenging than adults. Presentations for kids certainly require more creativity and props than those given to adults. That isn't to say adults don't appreciate creativity and props, but they'll let you get away without them. Kids won't.

Some teaching tips that have helped me over the years are:

1. Make sessions age-appropriate, especially

with respect to time. In the younger grades, most classroom teachers don't want lessons that take more than 20 minutes. It can be a challenge to squeeze everything in that you want to share, so don't do it. Cut stuff out, saving it for another day.

2. Along those same lines, focus only on one or two main messages, particularly for the younger kids. This isn't the only lesson on honey bees that they'll ever get in their whole lives; leave them wanting more.
3. Give kids the same intellectual respect that you would give adults. That doesn't mean I bring up Chinese trade tariffs when speaking to 3rd graders, but it does mean that everybody gets the straight truth as I know it. Kids get a lot of honey bee education in school and on television these days and they know a great deal about them. I don't have to dumb down any aspect of beekeeping or honey bee biology with school-age kids.
4. Kids like active/hands-on stuff. Include interactive activities where kids must get out of their chairs and move around.
5. Don't mindlessly parrot bull-poop from internet activist sites. Use the time to educate with fundamental facts, not indoctrinate with agenda-serving myths. Honey bees are not dying out, our food supply is not in jeopardy, pesticides are not wiping out honey bees. There is plenty of fascinating true stuff to talk about without all that nonsense.

My go-to toolbox for teaching kids

I have a grab-bag of teaching modules that I can assemble into school presentations as the circumstances and my mood dictate. Feel free to use these as you share with kids.

Honey bee basics

- A. Honey bees aren't yellow jackets!
 1. They are very fuzzy, not shiny (illustrate with large photos/posters)
 2. They are not shaped like Barbie (not waspish)
 3. They are not bright yellow

4. Honey bees can only sting people once and they don't bite. Not so for yellow jackets. Also, honey bees leave their stinger in your skin when they sting. If you are stung by an insect and there isn't a stinger, then it most likely wasn't a honey bee that did it!
 5. Honey bees only eat nectar (or honey) and pollen. Yellow jackets eat nectar, pollen and meat.
- B. Honey is made from nectar that the bees bring back to the hive from flowers. Flowers produce nectar to bribe honey bees and other pollinators to visit the flower and, in doing so, the pollinator will also accidentally transfer pollen from one flower to another. Honey bees dry the nectar so that it doesn't spoil over winter.
 - C. There are three different types of honey bees (illustrate with large photos/posters)
 1. Workers
 2. Queen
 3. Drones
 Each has a very different role and they all work together in a complex society.

Active lessons

Roles of bees in the hive

Choose children to represent each role, providing them with the props indicated. For workers, assign roles only to girls, according to their ages, starting with the youngest for housekeepers and progressing in age through the list of tasks. The oldest girls will be foragers.

1. The queen lays eggs (plastic Easter eggs)
2. Workers:
 - a) Housekeepers (whisk brooms)
 - b) Nurse bees (baby dolls)
 - c) Wax-builders (hammers/screw drivers)
 - d) Guards (police badges)
 - e) Foragers (baskets/buckets)
3. Drones (boys) just stand around saying things to the queen like, "Want to go on a date?" Mention that they are

playboys and don't have stingers.

The bee dance

1. Honey bees do a dance to convey information about the location of food sources
2. They orient based on the position of the sun
3. The straight run portion of the figure-8 dance (the waggle dance) is in the relative direction of the food source. It is based on the angle of sun, where straight up is position of the sun.
4. Smell is very important too

Get the kids to dance along with you as you perform the waggle dance. For extra points, you can play "The Chicken Dance" music as you sing the following:

*I am a honey bee
Won't you come along with me?
And get some food ---
(Clap clap clap clap)*

Waggle your waggle-end during the clapping part.

For even more fun, instead of singing "And get some food", have the kids say their favorite food, e.g., "And get some pizza." Different kids can say different things (pizza, ice cream, hamburgers, etc.). When two kids notice that they are saying the same favorite, they can



Every self-respecting guard bee needs a badge!



What do drones do all day? They hang out together and look for girls!

form a conga line together as they dance. This gets longer and longer as more kids agree with their favorite. Explain that honey bees recruit other foragers to their favorite food source in a similar fashion.

How beekeeping works

1. Dress up a kid in veil, suit (the baggier the better) and gloves. Let her/him pump a smoker (not lit!).
2. Have a box with frames, bottom board and cover. A nuc box works great for this. Open it up to show what is inside. This doesn't have to be elaborate or time-consuming. Simply pulling out a frame illuminates what was previously a mysterious "black box." If you've ever seen "Bee Movie" you know that Normal People, especially Hollywood writers, have no idea whatsoever what the inside of our hives look like!
3. Describe how the caps are cut off of comb, the frames are placed in an extractor and spun. Pictures will suffice.

"Where Does Honey Come From?" game

A couple of years ago my friend Mary Dietz and I were asked to talk about honey bees at the Person County 5th Grade Ag Day. There were about a half dozen "stations" set up in Roxboro's Huck Sansbury Park, each dealing with some aspect of local agriculture (dairy farming, vegetable gardening, etc.). All of the county's 5th graders rotated with their classes



Demonstration hives are a great tool but work best in one-on-one or few-on-one settings, not large classrooms.

from station to station. The time allowed at each station was only ten minutes and was strictly enforced since a delay at one station impacted all of the others.

Those who know me will confirm that I cannot even introduce myself in only ten minutes. But we needed a meaningful, engaging activity that could be conducted in the time allowed. The solution was my “Where Does Honey Come From?” game.

I found seven pictures to represent steps in the creation of honey. I printed and laminated each of the following pictures on large cardstock paper:

1. A tulip poplar flower
2. A honey bee using its proboscis to slurp up nectar
3. Honey bees depositing nectar into honey comb cells
4. A honey bee frantically fanning
5. Beautiful, full frames of capped honey
6. An extractor
7. A jar with golden, delicious honey

The pictures were shuffled. Seven kids were chosen to be in charge of the seven pictures. The rest of the class had to arrange the seven kids in the correct order, from the beginning to the end. As each step was put in its proper

place, we explained what happens at that point.

This activity can work for any age, even adults. You’d be surprised by how many grown-ups do not understand that honey comes from nectar, not pollen, and that the bees add enzymes and dehydrate it. We explained that the reason bees do this is that they are among the few insects that do not die out in the fall or hibernate over winter, so they must store away food in a manner such that it won’t spoil. (The fact that honey doesn’t spoil is news to most folks too.) Fortunately honey bees store much more food than they can use so humans harvest the surplus.

Demonstration hives

Teachers often request live bees for a presentation. But be warned: in a classroom setting, a demonstration hive can be extremely distracting. If you do take one, keep it covered and out of sight until the very end of the session. Then insist that the children file by in an orderly fashion to view it. Pushing and shoving can quickly become a concern. That’s why I have decided that observation hives work best in one-on-one settings like the Honey Bee Information Booth at the NC State Fair, not chaotic, large-crowd situations like a school classroom.

I have a very nice homemade demonstration hive that I have taken to schools, fairs, Vacation Bible Schools, even the NC Zoo before the permanent exhibit was constructed. A few tips that I’ve learned that make using it easier include:

1. Select the frame(s) that will be in the hive the day before you need it. Frames with the classic bands of honey, pollen and brood of all ages are ideal.
2. Similarly, if you plan to include the queen, find her the day before. Place a queen excluder over the top-most box of her hive. Set an empty box over the excluder. Put in two or three frames, including the frame(s) you intend to use in the demonstration hive, along with the queen. Now if you must be at the school by 8:00 a.m., you can wait until morning to assemble the demonstra-

tion hive since it will only take a few minutes to do so. This reduces stress on everybody involved: the queen, the bees and the beekeeper.

3. Do not pack the demonstration hive full of bees. Too many bees will obscure what is going on underneath them. Viewers won't be able to see larva etc. because bees will be in the way.
4. When not being viewed, cover the hive with shutters, a blanket or anything else that suits the purpose.
5. Make sure that the hive is not sitting in the sun. The bees cannot thermoregulate a demonstration hive as efficiently as they can a full-sized one. Overheating can kill bees.
6. Workers in a stressed hive may begin to cannibalize larva, pulling it out of cells and dragging it around for Tender Timmy and Sweet Suzy to see. Be prepared to answer the question, "What are those bees **doing?**" Remember: tell the truth!

Why not?

Teaching kids is more fun for me than for the kids, and that's the way it should be. If I weren't having fun, I guarantee they wouldn't be either. Even when I had to tell a pack of out-of-control summer campers, "You kids are absolutely rotten!" it didn't ruin my day... or theirs. So there is no downside. Get out there and spread some knowledge!

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