

"I live in a very small house, but my windows look out on a very large world."

– Confucius

I don't make a big deal about it, but my granddaughter is incredibly smart, charming and pretty, much more so than ordinary children. When her mother (my daughter) said that the theme for her 3rd birthday party was going to be "My little honey bee is turning three!" I had to come up with an appropriate contribution. So amid all of the bee-motif pastries and decorations, the party-goers got to see a demonstration hive with live bees.

I've had my demonstration hive for quite a few years and have gotten good use out of it. Mine has been to Vacation Bible School, the NC Zoo (before the permanent exhibit was constructed), summer camp, school classrooms, craft fairs, farmers markets and elsewhere. It allows me to share a literal window into the fascinating world of honey bees with people whose only previous exposure to the inside of a hive was watching "Bee Movie".

I think that every worthwhile beekeeper should have, or have access to, a demonstration hive. Putting on a great show with one isn't particularly difficult but, as with everything else in life, there are easy ways and hard ways of doing things. The following suggestions are based on my personal experiences; I hope they may prove helpful.

Mind the Gap

Aristotle (the old Greek guy) had an observation hive with which he attempted to uncover the secrets of the bee world. The hive had velum windows so he could watch what was going on inside. However, Aristotle didn't have a copy of Huber's 1814 book, [New Observations Upon Bees](#), so he didn't know about Bee Space. Consequently, the bees quickly gummed up the inside of the windows, thwarting his view.

Fortunately for us as informed beekeepers, we all know about Bee Space. A gap smaller than a single bee can pass (roughly 3/16th inch)



My demonstration hive was a unique treat at the bee-themed birthday party! The cake, candies and even the birthday girl's limited-edition smocked dress (available spring 2020 at [Sugar Plum Smocks](#)) had a honey bee motif.

will be filled in by bees. Likewise, a space greater than that needed for two bees to pass side-by-side (about 3/8th inch) is "usable real estate" and will be filled with comb. If the distance from the glass to the comb isn't in that 3/16th inch to 3/8th inch sweet spot, the bees will fill the difference directly on the glass.

The Full Monty

The classic description of the arrangement of a honey bee nest is that capped brood is in the center, surrounded by open brood. All of that is surrounded by a pollen band, which in turn is surrounded by capped honey and open nectar. A perfect demonstration hive will feature a frame that shows all of these elements.

The Full Monty also includes a queen. Many beekeepers have a dreadful fear of exposing the queen to any potential risk and so leave Her Majesty safe at home when they go on show-and-tell trips. But for the audience, that's like going to Disneyland only to find that, sorry kids, Mickey Mouse is at home taking a Personal Leave Day. What's the point? The first question everyone asks when they approach a demonstration hive is, "Where's the queen?" Don't be a Grinch. Put her in there. (If you can't find your own queens, see June 2017's ["Where's Waldo? A Dozen Tips for Finding the Queen"](#).)



My demonstration hive has double-screened air vents and padlocked clasps to convey a sense of safety.

Too Much of a Good Thing

Our first inclination may be to include lots of bees in our demonstration hive. However if we have an overabundance of workers, viewers will not be able to see the brood, pollen etc. on the comb -- the bees will be in the way. So we should have “enough” bees but not too many. “Enough” bees will be able to show off bee society while caring for the brood and queen, curing nectar and so on. A frame that is “mostly” but not “completely” covered by bees should be sufficient.

Reduce Stress

When honey bees in a demonstration hive get overly stressed, they do things like drag larvae out of cells. That leads to conversations like this:

Little Timmy: What’s that bee doing?

Beekeeper: She is dragging a baby bee out of the cell and will likely end up eating it.

Little Timmy: I want my Mommy!!!

Avoid that altogether by covering the glass windows with panels, a large towel or any other effective means when it is not being viewed. Keep the hive out of sunlight. Don’t lock up the bees for an inordinate amount of time. Ideally, provide a source of syrup or at least water so the bees don’t dehydrate. Don’t let people tap on the glass; this also keeps greasy fingerprints from obscuring the view. (I provide a pointer,

such as the eraser end of a pencil, so that people can say, “What’s that?” without touching the window.)

Safety First

It would be a nightmare worthy of the front page of *The News and Observer* if, in her rambunctious enthusiasm to look at the bees, Little Janie manages to knock your demonstration hive to the floor. That’s why I use plexiglass windows even though genuine glass is far less likely to scratch and will stay clear much longer. Glass shatters; plexiglass doesn’t!

Air vents are a must along the sides of a demonstration hive. They must have screen or small louvers to keep the bees inside while allowing ample air flow. I insist on having screens on both ends of the vents’ openings so that there is a gap in-between. Otherwise it is possible for someone to be stung through the screen. A bee cannot sting through screen, a $\frac{3}{4}$ inch gap and another screen. This is particularly important because the edge of the screen or metal of the louver may gently prick someone’s finger and they may panic, assuming they have been stung. With double screens, we can assure the person that it is absolutely impossible to be stung through the screen.

Another calming assurance I provide is luggage locks on the two clasps where my demonstration hive opens. I cannot recount the number of times I’ve had the following conversation:

Normal Person: AYYYYY!!!! I don’t want bees in here!!!!

Beekeeper: It’s okay! Look, the bees are locked inside with these locks and they can’t get the key. I have it right here in my pocket. (Show key.)

Normal Person: (Sigh.) Okay then.

This sounds ridiculous to you and me as beekeepers, but I promise you that the person is always visibly relieved to see that the bees cannot open the hive, get out and sting everyone to death because the key is safely in my pocket.

Plan Ahead

Why is it that schools, children's birthday parties and other events start so early in the morning? I don't have the answer to that question; suffice it to say, I don't like it. When everything goes as planned it may take me thirty minutes to light my smoker, open a good hive, find a nice show-and-tell worthy frame, find the queen and put everything together in the demonstration hive. But when was the last time that everything went well? Worst case, the first hive I pick doesn't have what I need so I need to choose another one... and another. The queen decides to play hide-and-seek with me, and she's very good at it, especially before I've had my morning caffeine. Do I need to get up at 3:00 in the morning in order to prepare the hive and still be able to make it to the event on time? Do you know what mood the bees are in when they're disturbed at 3:00 in the morning?

The solution is simple: prepare everything the evening before you need it. Mix up some thin syrup (if your demonstration hive is equipped for feeding) and get the hive ready for occupancy. Find the show-and-tell frame and the queen but do not put them in the demonstration hive yet. Instead, put a queen excluder on the top box of the donor hive and put the frame and queen in an empty box over the excluder. You may want to put another frame on one or both sides of the demonstration frame so there will be plenty of bees to warm the brood overnight, but don't overdo it.

The next morning, you know exactly where the good frame and the queen are. It should be a simple matter to put them in the demonstration hive and take off for the event. Both you and the queen have had a stress-free night's sleep in your own home so are ready to deal with hordes of slobbering children.

Resist the temptation to fully assemble the demonstration hive the night before, bees and all. If you do, the queen and her entourage will be stressed overnight plus during the event instead of just during the event. (See "Reduce Stress" above.)



To reduce beekeeper stress, find the queen and a good show-and-tell frame the evening before an event and place them on the donor hive over a queen excluder. Then it is a simple matter to install them into a demonstration hive the next morning.

In the Classroom

A demonstration hive is an attention-magnet. If you are giving a presentation on honey bees, save the demonstration hive until the end. Keep it covered or out of sight until it is time for it to be shown; otherwise all eyes will be on it instead of on you.

If there are more than a half-dozen kids in the audience, place the hive so that the kids can file past in an orderly fashion (think "buffet line" instead of "football huddle"). Even better, break the audience up into small groups that can view the hive in turns. This avoids pushing and shoving, and ensures that Little Lennie gets to see just as well as Giant George does.

Be prepared for Frequently Asked Questions. These include:

- Have you ever been stung?
- How did all those bees get in there?
- Where is the queen bee?

- Which one is the king bee?
- Can they get out?
- What's THAT?
- "My friend Tommy got stung by a bee and blah blah blah blah...."

Regardless of the question, always tell kids the truth. The very best answer may be, "That's a great question! I don't know the answer to that!"

Types of Hives

There are many types of demonstration hives. Mine is homemade, loosely based on a design that I've seen called a "travelling hive", "mobile nucleus hive" or a "Belfast hive". It is basically a nuc box with a single deep-frame observation window on the top. A causeway covered by a strip of queen excluder separates the viewing area from the nuc box below. This allows bees to enter the bottom area and take syrup from a division-board/frame feeder. A frame or two below gives bees a place to hang out if the top area is too stressful or too warm. The nuc box is hinged for access inside. The viewing area above is hinged at the top. The window panes slide out for easy installation of the show-and-tell frame and the queen.

Your county bee association should have a demonstration hive that you can borrow ("try before you buy!") You can also purchase them at your local beekeeping supply store.

For more ideas on uses for demonstration hives, especially for teaching children, see August 2017's "[Teaching Kids About Honey Bees](#)".

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This classic style, single-frame, cedar demonstration hive can be purchased for either deep or medium frames.