

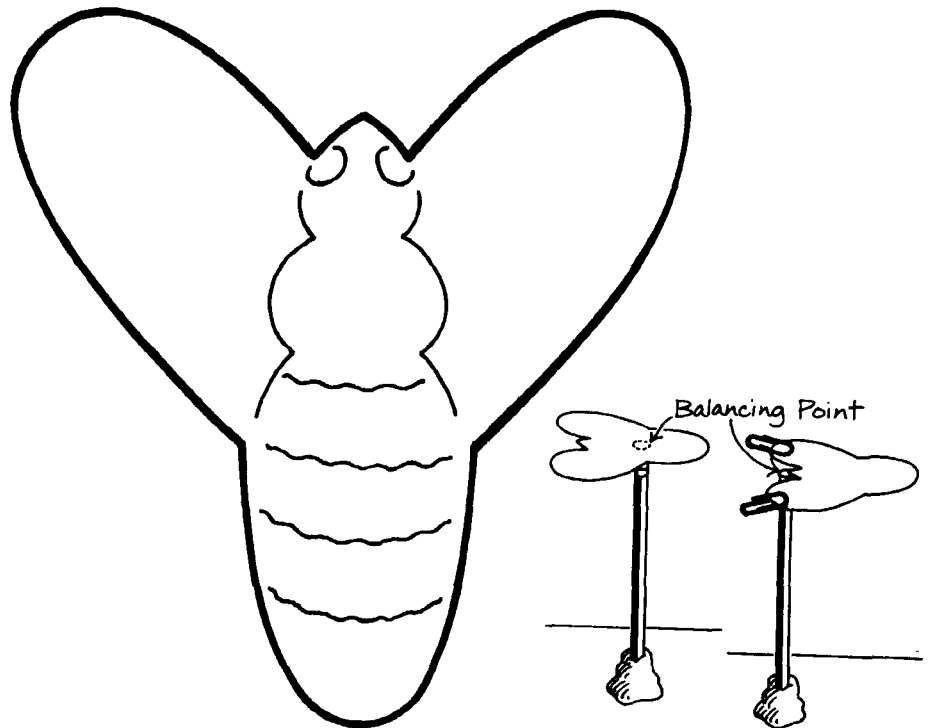
Get Off the Hot Seat by Getting Out of the Spotlight

I was a new author but even with years of teaching experience, I was a rookie at public speaking. I felt safe and confident in my own classroom with children whose behavior I could predict—most of the time. But being invited to a book fair where noted authors would be giving speeches was just too thrilling to let a little stage fright keep me away. I would be giving a presentation, guiding a few children at a time in hands-on science activities. Nothing fearful about that...in fact, it was perfect. I packed my supplies of balloons, string, rubber bands, paper clips, and all the other around-the-house stuff needed for the experiments I had chosen to use from my book.

I arrived early, anxious to organize my materials and start my afternoon session. "What do you mean I am to perform on stage? An audience of how many?" OOPS! I was not prepared to be on stage "in the spotlight." Maybe it was a mistake.... No such luck. An audience of over 100 people would be expecting what I had promised—Fun! Exciting! Workable! Hands-On Science Experiments. How could I accomplish this on stage? Of course...bring children on stage to perform the experiments!

It would be risky asking children I did not know to come on stage. What if I chose the child who spends most school hours in the principal's office? I had to take my chances. I cannot say that it was the most polished presentation, but it worked. I asked adults in the audience to pick different groups of children by handing out paper clips before the "show" began. After a brief introduction of how much fun the children would have during the next hour and after children in the audience had been selected to assist me with different experiments, I got started.

For my first act, I defined "center of gravity" as the balancing point of material, and I balanced a paper bee on my finger. That didn't bring any smiles to the faces of my audience, but interest picked up when I instructed the children holding the paper clips to come on to the stage. My helpers were each given a paper bee, a pile of paper clips, and the challenge of using the paper clips to change the bee's center of gravity so that it balanced on the tip of its nose on the ends of their fingers. Audience interest definitely increased. The "spotlight" was now off me and on the children. I was able to talk more casu-



Pattern (actual size) for the paper bee Janice VanCleave designed to demonstrate the center of gravity. Without paper clips the bee balances on a point near the center of its body. The bee balances on the tip of its head when paper clips are added to the tips of the wings. The bee can be made of construction paper and balanced on your finger or a pencil. Illustrations from Janice VanCleave's Gravity, by Janice VanCleave. Copyright© 1993 by John Wiley & Sons Inc. Reprinted with permission.

ally with the audience, referring to the group's progress and even giving the group clues to speed things along. The children on stage were intensely involved in what they were doing, and it was evident that the children in the audience wanted to be involved.

Teachers also wanted to get involved, many wanting a pattern of the bee. Caught up in the moment, I promised bees to anyone that later came by the

autograph table. I had a large crowd around my table and a sore hand that evening from cutting paper bees.

I now use audience participation when giving presentations to large and small groups, although I do pre-cut the bees instead of trying to do it on the spot. The paper bee is part of a project in *Janice VanCleave's Gravity*, one of seven books in the *Spectacular Science Projects* series.

For my presentations, I also bring a wooden bee with wings 8 inches (20 cm) wide and 24 inches (30 cm) long. Instead of using paper clips, I cut holes and place a paper cup in the ends of each wing. Two children from the audience add washers to the cups, five at a time. An excited audience watches as the wooden bee first balances horizontally and then slowly rises with each addition of washers until it finally stands on its nose.

Do all the children behave the same way? Does an experiment always turn out exactly the way you expect it to? Does it really matter? The answer to all these questions is emphatically NO! I have had helpers get so excited that they drop the washers or knock the bee to the floor.

The Education Exchange highlights the experiences of scientists and engineers with local schools, along with helpful hints and resources. If you would like to share your own involvement in science education, contact: Finley Shapiro, Department of Electrical and Computer Engineering, Drexel University, Philadelphia, PA 19104, U.S.A. Phone (215) 895-6749; fax (215) 895-1695; e-mail: shapiro@ece.drexel.edu

While a group of quickly selected members from the audience help retrieve all the rolling washers, I solicit answers about why touching the bee on one side made it fall. The script is often changed, but I never stop the show.

Handing out paper bees and paper clips to large audiences became difficult, so I designed a simple paper folder for the bee. Since I do not want the folder opened until I give the O.K., I have the audience help me pass them out.

The folder now contains a bee and a paper helicopter. I was definitely out of the spotlight when my audience of 500 elementary students discovered what would happen if more paper clips were added to the tail of the helicopter before they dropped it. They were allowed to stand and hold the paper as high as their arms could reach, but the rule was that both feet had to be on the floor at all times. This rule did curb the desire of some to jump, but did not dampen the excitement as the children borrowed paper clips from each other to lengthen

the chain clipped to the craft's tail.

The folders and wooden bee start my program. They get the kids excited and eager to see what is next. Making the glob from *Janice VanCleave's 200 Goopy, Slippery, Slimy, Weird and Fun Experiments* ends the program, but it is only the beginning for many children who have started thinking about science and how much fun it is.

Janice VanCleave, who lives in Riesel, Texas, taught science for 26 years in the public schools, and has also taught science method courses in college and science service courses for numerous districts and organizations. She has written 25 books, and also works directly with children and adults through her "Fun With Science" workshops.

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Chapter 6



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