



# Engineering Activity Guide



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# Overview

Have you ever thought about why bridges stand up, wondered how fresh water gets from the reservoir to your tap, or constructed a gadget to reach something that rolled under your bed? Then you've been thinking like an engineer! Engineers solve problems, and the products they make are everywhere. Buildings, cars, refrigerators, clothing—even some of the foods you eat—are all designed by engineers.

At ClubZOOM Engineering, you and your kids are the engineers. ClubZOOM is built around five different ZOOM activities that are designed to inspire kids ages eight to twelve to invent, build, brainstorm, tinker, design, and work together.



## What is ZOOM?

ZOOM is a daily PBS television show, Web site, and educational outreach campaign that motivates kids ages six to twelve to become actively involved with the world. ZOOM features a diverse cast of seven kids who bring to life activities sent in by viewers from across the country.

To find out when ZOOM is on, check local TV listings or contact your public television station. To visit the ZOOM Web site, go to: [pbskids.org/zoom](http://pbskids.org/zoom).

## Check it out!

ClubZOOM sites may tape any ZOOM episode and use it for educational purposes up to one year after broadcast.

## Activities

- 5 engineering challenges
- 1 to 1 ½ hours per activity  
(Note: One activity requires 2 hours and can be divided into 2 meetings.)

## What Kids Do

- Invent
- Tinker
- Brainstorm
- Build
- Design
- Share Ideas

## What Kids Learn

- Engineering is fun.
- Engineering is about solving problems.
- Engineers define a problem, design solutions, test, redesign, and share results with others.



You might be asking yourself, “Hey, I’m not an engineer, so how can I lead an engineering club?” No problem! All that’s required of a ClubZOOM leader is enthusiasm and an interest in helping kids invent and create. Each activity has many possible solutions. The emphasis at ClubZOOM is not about getting the right answer. Instead, it’s about exploring multiple solutions and working together to solve problems.

This guide contains everything you need to start your own ClubZOOM, from activity handouts to club membership cards, secret codes, and bulletin board postings. Remember, every ClubZOOM is as unique as the organization that hosts it, so feel free to modify these materials and make them your own. Have fun!

### **Pilot Testing Sites**

ClubZOOM Engineering is based on the original ClubZOOM, a popular afterschool science club. We kept the same successful format and gave it a new engineering twist!






The original ClubZOOM was designed with input from 20 afterschool pilot sites from across the country. Throughout this guide, we’ve sprinkled advice from the pilot sites that you may find helpful as you plan your own club. (See the credits page in the Appendix for a list of our pilot sites.)

# What's in This Kit?

The ClubZOOM Kit contains all the basic components you'll need to start a club. Feel free to make adaptations and add your own ideas so that ClubZOOM fits your kids, program goals, and setting. However, please do not delete the ZOOM logos, PBS logos, or the trademark or copyright information contained in the customizable documents. Below are descriptions of the components, along with ideas for how to use each one.

## ClubZOOM Activity Guide

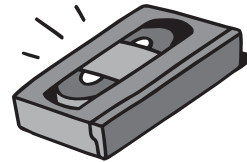
The ClubZOOM Activity Guide has all the information you need to run five ClubZOOM activities. For each meeting, you'll find tips for leading the activity, reproducible handouts for kids, and postings to put on the ClubZOOM Board. These documents may be copied only as is without any modifications and reproduced only for free distribution. (See page 7 for a complete description of how a typical ClubZOOM meeting works.)

Activities at a Glance	
 <p><b>Activity 1 Super Golf Tower</b> Construct a giant newspaper tower that will hold a golf ball.</p>	 <p><b>Activity 4 Marble Ride</b> Design the longest-lasting roller coaster ride for a marble.</p>
 <p><b>Activity 2 Hovercraft</b> Build a vehicle that glides on a cushion of air.</p>	 <p><b>Activity 5 Helium Balloon Flinker</b> Find ways to make a helium balloon “flink”—neither float nor sink.</p>
 <p><b>Activity 3 Glue</b> Make glue and test its “stickiness” strength.</p>	

## ClubZOOM Video

The ClubZOOM Video contains a special welcome from the ZOOM cast, plus segments showing the cast doing each activity. Take a look at the video—it's a great way to become familiar with the activities and get ideas on how to run them with your kids.

If you have a VCR and monitor available where your club meets, show the video to your kids. Kids love watching the ZOOM cast in action. They also may find it easier to follow activity instructions after watching the cast explain and demonstrate the steps. Wait to show how the cast solved the problem until after your kids have come up with their own solutions.



## Members' Materials

Make your kids official members of ClubZOOM with these materials.

### ClubZOOM Membership Cards

In the Appendix, you'll find a reproducible membership card template. Photocopy the template on colorful cardstock paper. (Bright orange or yellow are fun ZOOM colors to use.) Then punch holes and attach pieces of yarn to the cards so kids can wear them at each club meeting.

### ClubZOOM Stickers

Wondering what all those boxes are on the back of the membership card? Kids can use these spaces to place a colorful sticker they collect after completing each ClubZOOM activity. You can buy 3/4-inch round stickers in different colors at a stationery store. Choose a different color for each activity.

Kids love to collect stuff, and our pilot ClubZOOM sites found stickers to be a great way to encourage kids to come to every meeting. (In fact, some kids even asked to make up missed meetings so they could complete their sticker collections!) If you choose not to provide stickers, just photocopy the front of the membership card template and leave the back side blank.



### ClubZOOM Certificate

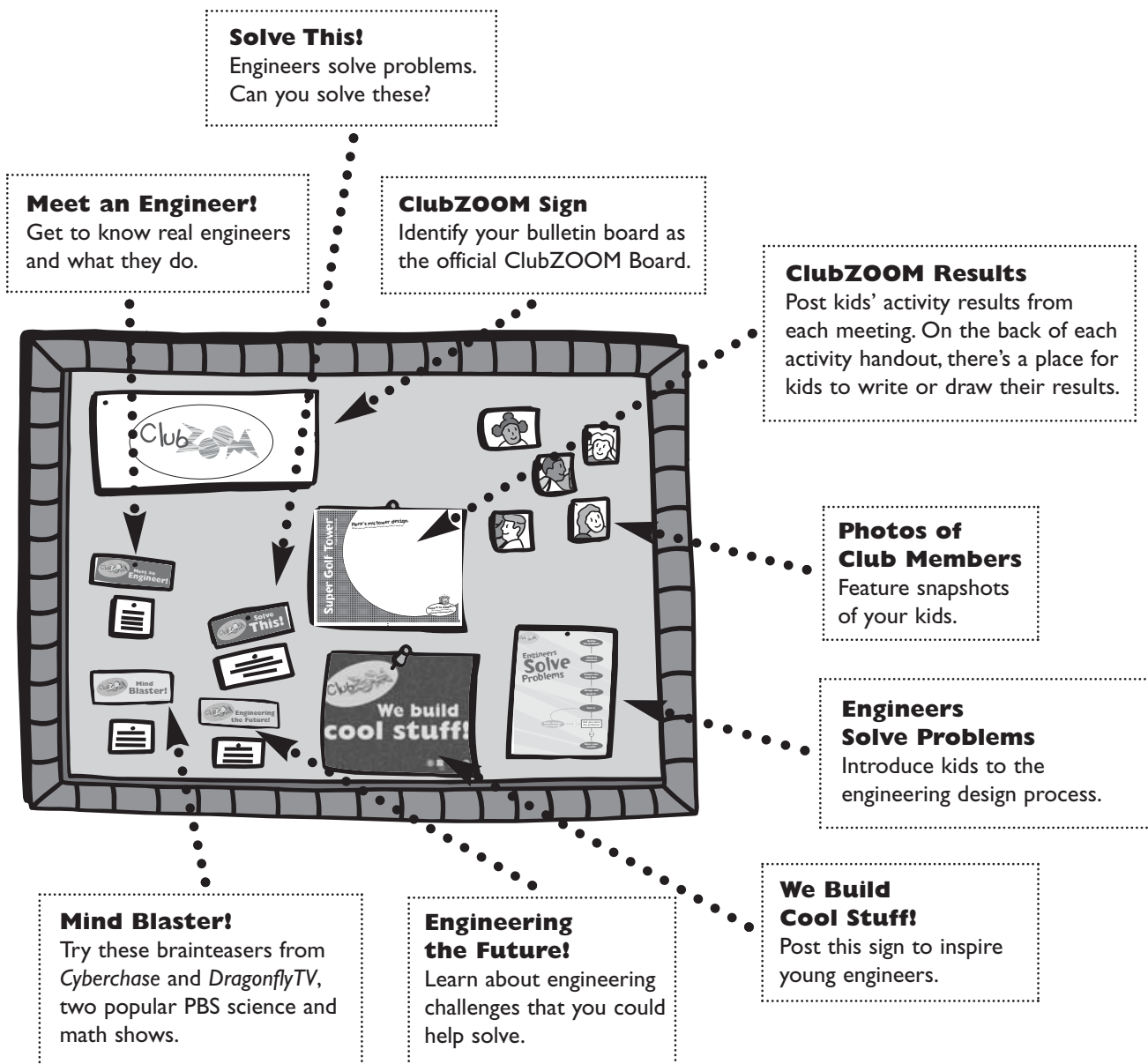
At the ClubZOOM Finale, award each kid a ClubZOOM certificate, complete with cast members' signatures. See the Appendix for a certificate template that you can photocopy.



## ClubZOOM Board

The ClubZOOM Board is the official place to share what's happening at ClubZOOM and to learn more about engineering. We've provided colorful signs and fun postings that change with every activity. You can also post kids' activity results, ideas, and questions.

The ClubZOOM Board can be a bulletin board, some free wall space, or several pieces of poster board taped together. Be creative and make yours unique. For more ideas on how to decorate and use your Board, see page 24.



## **Official ZOOM T-Shirts**

**You and your kids can wear the same T-shirts as the ZOOMcast members wear! Kid sizes (\$12.95) and adult sizes (\$17.95) are available. Receive a 15% discount for orders of 3 or more items and a 25% discount for 10 or more items. To order T-shirts and other fun ZOOM products, call 800-949-8670.**





# How a ClubZOOM Meeting Works

During ClubZOOM meetings, kids get a chance to design and build solutions to engineering challenges. Each meeting follows a similar format, which is outlined below. In addition, the first meeting (ClubZOOM Launch) and last meeting (ClubZOOM Finale) have special components to begin and end the ClubZOOM experience.

## Get Ready

Prepare for each meeting with these steps:

- Read about the activity and watch the accompanying video segment to get a sense of the activity. Then try out the activity to see if you want to modify any materials or instruction.
- Become familiar with the activity's engineering concepts by reading the section called "Engineering Scoop." This will help you be prepared to answer questions as kids explore the activity. Don't worry—you don't need to be an expert and know all of the answers. Instead you can learn along with your kids.
- Collect activity materials, photocopy handouts, and put up the new postings on the ClubZOOM Board. Be sure to give yourself plenty of time to collect materials and test activities. Pilot site leaders found that they spent about an hour getting ready for each meeting.

## Lead the Activity

When engineers set out to solve a problem, it's rare that their first solutions are their best. Instead, they tinker, try different ideas, fail, learn from mistakes, and try again. No matter what problem they try to solve, engineers tend to go through a series of steps as they find solutions. It's called the *design process* and includes these steps:

- **Define the problem**
- **Think of solutions and choose the best one**
- **Design and build**
- **Test**
- **Redesign**
- **Share results**



## 4 Redesign

Encourage teams to make changes to improve their designs. Since there is no single solution, keep the teams focused on improving their first designs rather than competing against other teams. For example, “Now that your tower is 40 inches tall, what could you do to double that height?”

## 5 Share Results

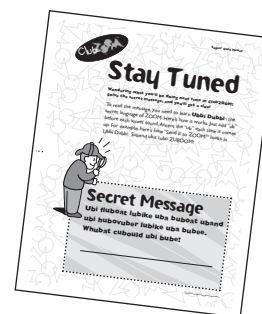
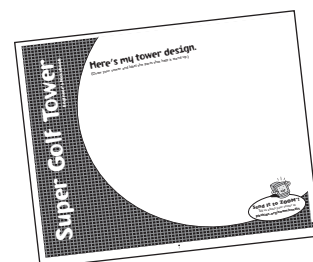
After the teams finish the activity, bring the whole group together to talk about what they discovered. Sharing results is an important part of the engineering design process. Encourage them to write or draw their results on the back of their activity handouts. Each activity includes questions to help you guide the kids as they discuss and record their results. You can also use the “Engineering the Future” bulletin board postings to make connections between the activity and real-world engineering.

After the meeting, post the kids’ results on the ClubZOOM Board. Save their results from each meeting so you can send them to ZOOM at your final meeting. You can also have the kids make ClubZOOM journals, which they can use to collect activity handouts from each meeting.

## 6 Wrap Up

Hand out membership card stickers to celebrate the successful completion of a ClubZOOM activity. Buy different stickers for each activity, and encourage the kids to collect all five!

Stimulate your kids’ curiosity about the next meeting’s activity by handing out copies of the Stay Tuned message. This handout challenges kids to crack a code to find a clue about the next activity. Kids can decode it on their own between meetings, or you can decode it together as a group. (Stay Tuned answers are listed in the “Get Started” section for the related activity.)



## Need to Fill Some Time?

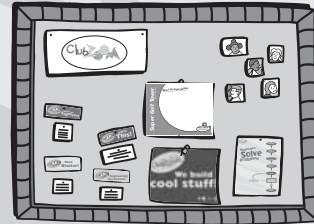
Take advantage of the extra activities on the ClubZOOM Board and the ZOOM Web site when you're waiting for latecomers to join the group or if some kids finish ahead of time.

### ClubZOOM Board

Kids can read about engineers, solve brainteasers, and learn about engineering gadgets of the future. Your kids can also post their own ideas for any of these categories.

### ZOOM Links

If your kids liked the activity they just tried, consider doing other activities that explore similar science and engineering concepts. The ZOOM Links section in each activity lists related ZOOM activities that can be found on the ZOOM Web site ([pbskids.org/zoom](http://pbskids.org/zoom)).



# Setting Up Your ClubZOOM

Planning ahead will help ensure that your ClubZOOM runs smoothly. Here's a checklist of things to set up before your first ClubZOOM meeting. Allow several weeks to complete these steps.

- Recruit ClubZOOMers** (6–8 weeks ahead)
- Schedule Meeting Place and Dates** (3–4 weeks ahead)
- Get to Know the ClubZOOM Activities** (3–4 weeks ahead)
- Recruit and Train Staff** (3–4 weeks ahead)
- Find Volunteer Engineers** (2–3 weeks ahead)
- Involve Families** (2–3 weeks ahead)
- Gather Materials** (2–3 weeks ahead)
- Make the ClubZOOM Board** (1–2 weeks ahead)
- Plan the Finale** (1–2 weeks ahead)

## I Recruit ClubZOOMers

Start recruiting early to enlist a large group of ClubZOOMers.

- Advertise ClubZOOM inside and outside of your organization. Include a description of ClubZOOM in your program mailings, and post sign-up sheets in appropriate areas. The leader of one pilot site placed an announcement in the local newspaper; the club filled immediately since many parents and kids were familiar with ZOOM. Another pilot site made a large banner with the ClubZOOM logo and hung it on the building.
- Make copies of the “ClubZOOM Is Coming Soon!” sign (see Appendix) and post them to build excitement and anticipation. You can also make your own signs using the ClubZOOM logos from the Logo Sheet in the Appendix. If you use the logos, be sure to read and follow the Legal Guidelines in the Appendix.
- Because ClubZOOM activities are interactive and use lots of materials, you'll want to keep the group size manageable. If more than 20 kids sign up, consider dividing the club into two programs.



**A banner outside the Boys & Girls Club of East Providence, Rhode Island, helped recruit ClubZOOMers.**

## 2 Schedule Meeting Place and Dates

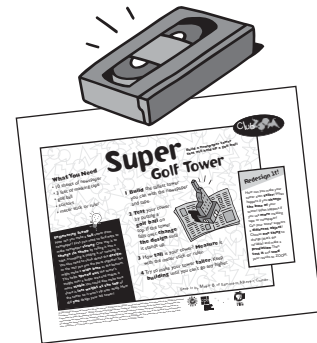
When you select a ClubZOOM meeting place, consider the number of kids participating and the number of times you plan to meet. ClubZOOM pilot sites had an average of 21 members, met once a week for five to seven weeks, and ran meetings that lasted just over an hour.

- Select and reserve a space for ClubZOOM meetings. It helps to have tables for kids to work on, storage space for materials, and access to a sink and trash container. Pilot sites set up clubs in a variety of places—the basement of a church, a cafeteria, a classroom, and a summer camp.
- If it's not possible to meet in the same space each time, you can turn any space into a ClubZOOM room by putting up the ClubZOOM sign and bulletin board. (You can make a portable bulletin board from poster board.)

## 3 Get to Know the ClubZOOM Activities

Spend some time getting familiar with the ClubZOOM activities. The time you spend now will pay off later—you'll feel more comfortable and have more fun running the activities.

- View the ClubZOOM video segments. This is a great way to see what the activity looks like as kids do it.
- Try the activities yourself. That way you'll be familiar with the process and can anticipate where kids will need help.



## 4 Recruit and Train Staff

Because ClubZOOM activities are hands-on and use lots of materials, it's a good idea to have adult and/or youth assistants to help distribute materials, assist the kids, and answer questions.

- The number of assistants you need will depend on the size and make-up of your group. One adult for every five to ten kids is a good ratio.
- If possible, find one or more volunteers with training in engineering or science to take part in your meetings. College or graduate school students who are majoring in engineering or science are great candidates. Before they visit, help them to become familiar with the ClubZOOM activities.



**Youth assistants at the Regents of the University of California ClubZOOM in Merced, California, help distribute materials.**

- Once you've selected your staff, run a ClubZOOM Training. (See page 27 for training tips and handouts.) Pilot site leaders found these training sessions were not only fun for staff, but also helped staff to appreciate what the kids were going to do. Training takes about 1½ hours.

## **5 Find Volunteer Engineers**

Invite an engineer to visit your club. Many engineers are eager to visit afterschool programs and talk with kids about their work. An engineer can help explain many of the science and engineering principles behind the activities. They can also act as role models and introduce your kids to interesting career options.

- Think of your relationship as a partnership. The engineer has a special knowledge of science and the engineering profession. You are an expert in working with kids and engaging them in activities. Undoubtedly, you'll both gain a great deal!
- There are many branches of engineering, each focused on solving different problems. (See page 128 for descriptions of some of the major branches.) It's okay if your volunteer engineer's specialty does not match the activity. The engineer can talk about his or her work and engineering in general.
- Identify a meeting during which you would like to have an engineer visit. Define the role you would like the engineer to play. For example, they might explain what engineers do, show examples of products they've designed or tools they use, share "bloopers" from the workplace, or help kids work on activities.
- Make calls to find an engineer. The following page lists organizations you can contact.
- Send the engineer a letter confirming the visit and providing any additional information he or she might need to prepare for the visit. See page 15 for a sample confirmation letter.



**An engineer talks with kids about building.**

Photo credit: Carol C. Mansolf

# Finding Volunteer Engineers

Here are some places you can contact to find engineers.

**EWEEK.** National Engineers Week (EWEEK) offers a searchable database of volunteer engineers from around the country. For more information, go to the Engineering Contacts Directory at [www.eweeek.org/site/discover/eweeksrch.shtml](http://www.eweeek.org/site/discover/eweeksrch.shtml).

**RE-SEED** (Retirees Enhancing Science Education through Experiments and Demonstrations). This organization works with retired engineers who are dedicated to volunteering with children. For information about a volunteer engineer in your area, e-mail Deirdre Weedon at [D.Weedon@neu.edu](mailto:D.Weedon@neu.edu) or call their toll-free number at 888-742-2424.

## Colleges or universities with engineering programs.

Engineering students make enthusiastic volunteers who appeal to kids because they are close in age. Call the institution's main line and ask to speak to the dean of the engineering program or a professor. Ask if they can recommend student volunteers. You can also visit a university's Web site and search faculty bios to identify people who have an interest in or experience working with kids.

**Science or children's museums.** Many museums have partnerships with local scientific and engineering societies and may be able to connect you to engineers. In addition, many exhibit developers have engineering backgrounds and may be interested in sharing their career with children. Contact your local museum's education department for more information.

**Parents.** Find out if any of your kids' parents work in the engineering field or know people who do.

## Making the Call

Here are some talking points you might want to cover when you call an engineer.

- **Introduce yourself** and explain that you are planning an engineering club for kids and would like your kids to meet a professional engineer.
- **Describe the club**, including when it meets and what activities you'll be doing. Emphasize that the program is about problem solving, not about knowing the answers.
- **Describe your kids**, including ages, interests, and abilities. Find out if the engineer has experience working with kids.
- **Define the engineer's role.** For example, they might explain what engineers do, show examples of products they've designed or tools they use, share "bloopers" from the workplace, or help kids work on activities.
- **Schedule the visit(s)** and mark your calendar.
- **Obtain a mailing or e-mail address** and let the engineer know you'll be sending a confirmation letter with more information.



The logo features the word "Club" in a white, rounded font and "ZOOM" in a stylized, striped font, all contained within a black oval. The background of the page is a grey pattern of white geometric shapes like triangles and circles.

Dear Engineer,

Thank you for agreeing to visit our program. We look forward to your visit on **<date and time>**.

I've enclosed a handout called "ZOOM™ 101" that gives an overview of our engineering club and ZOOM, the PBS kids show from which the club's activities are taken. I've also enclosed a copy of the activity that the kids will be doing during your visit.

The kids are excited to meet you and hear about the work you do. They'll enjoy hearing anecdotes about your experiences (bloopers and frustrations—the human side of engineering), as well as how you became interested in an engineering career. Keep in mind that simple, kid-friendly language works best with this age group.

At the start of the ClubZOOM meeting, I'll introduce you. If you'd like to give a one- to two-minute description of your work at this time, that would be great. Feel free to bring "show and tell" tools or products from your work. After the introduction, we'll start the activity. You can walk around and talk with teams as they work. The kids will enjoy the opportunity to explore and create alongside you—a real engineer! At the end of the activity, we'll talk with the kids about what they've learned. You can help explain some of the engineering principles behind the activity and make connections to "real-world" engineering.

If you have any questions, please contact me at **<phone and/or e-mail information>**. We look forward to your visit!

Sincerely,

ClubZOOM Leader



[pbskids.org/zoom](http://pbskids.org/zoom)

TM/©2003 WGBH Educational Foundation

A few weeks before the engineer's visit, send a confirmation letter. Be sure to include a copy of the activity sheet, the ZOOM 101 handout (see page 29), and any other information about your program that might help the engineer prepare for the visit.

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## 6 Involve Families

- Send home a letter that introduces families to ClubZOOM (see the following page for a sample letter).
- Hold a parent orientation session. Pilot sites found that by introducing parents to the value of the program, kids were more likely to attend each session.
- Encourage ClubZOOMers to take their activity sheets home and to try the activities with family members. Most materials needed for the activities are easy to find at home.
- Do any of your members' families work in the field of engineering? If so, invite these people to join a meeting.
- If parents come early to a meeting to pick up a child, invite them to stay and try an activity or to look at the ClubZOOM Board. You might also offer them copies of the activity sheet. Pilot sites found that many parents used these sheets with younger children at home and with other after-school groups in which they were involved.
- Invite families to take part in the ClubZOOM Finale. (See page 107 for more ideas about how families can participate in this event.) One pilot site's finale included an activity fair, which was run by the kids and their families. Each family chose an activity from the ZOOM Web site, collected the necessary materials, and set it up for other families to try.
- At the conclusion of ClubZOOM, send home a second letter that summarizes what the kids learned in the program and thanks the kids and parents for their participation.



**A parent at the New Castle County 4-H in Newark, Delaware, takes part in activities.**

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Dear Parent,

During the next several weeks your child will be taking part in ClubZOOM Engineering, a club that's based on activities seen on the PBS television show ZOOM™.

ClubZOOM is a program where kids try out different engineering activities. They'll invent, build, design, tinker, test, draw, brainstorm, and share ideas together. These activities are fun, and they help kids practice many of the science and math skills they are learning in school, such as asking questions, making predictions, measuring, testing, and sharing results.

You and your child can continue ZOOMing at home. Watch ZOOM on your PBS station to see fun activities that you can try together. You can also visit ZOOM's Web site ([pbskids.org/zoom](http://pbskids.org/zoom)), where you'll find directions for hundreds of science and engineering activities. There's also a section just for parents called ZOOMtoo. (If you don't have Web access at home, you can probably find it at a school, library, or community center.) When you're done, share your child's results with ZOOM! Send an e-mail to ZOOM's Web site or send a letter to ZOOM, Box 350, Boston, MA 02134.

We're looking forward to having your child be part of ClubZOOM.

Sincerely,

ClubZOOM Leader

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## 7 Gather Materials

ZOOM activities use low-cost, easy-to-find materials like newspaper and tape. You'll need quantities large enough for the whole group, so gather materials ahead of time. See the next page for a complete materials list for all of the activities.

- Start collecting materials several weeks in advance.
- Make a ClubZOOM Materials Box. Many pilot sites found it easy to store activity materials in a sturdy cardboard box. You can ZOOMify your box by covering it with brightly colored paper and decorating it with your kids' names, ZOOM logos (see the Logo Sheet on page 129 in the Appendix), words that describe what ClubZOOM is all about (such as *engineering, fun, ideas, teamwork*), and ZOOM patterns that can be printed from the ZOOM Web site ([pbskids.org/zoom/party](http://pbskids.org/zoom/party)).
- Pilot site leaders spent about an hour per activity gathering materials and organizing them into sets for each team of kids so that they were easy to distribute.
- Ask ClubZOOMers to take responsibility for bringing in some of the materials, such as newspapers or film canisters. This will help them take ownership of their club, and it will increase their curiosity about the activities.
- If your program already has arts and crafts materials, see what you can use from that supply.



**Leaders at the Regents of the University of California ClubZOOM in Merced, California, gather materials in advance to avoid last minute stress.**

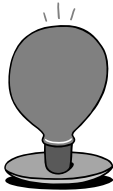
## Materials List

Following is a list of materials for each ClubZOOM activity. Quantities are listed per team of two to four kids. It's a good idea to have extra quantities available so kids can feel free to experiment as they build. Note that some materials can be shared among teams.



### Super Golf Tower

Item	# Per Team
golf ball	1 (can be shared)
masking tape	3 feet
newspaper	10 sheets
meter stick or ruler	shared
scissors	shared



### Hovercraft

Item	# Per Team
balloon (12" round)	1
ballpoint pen	1
film canister	1
large plastic plate	1
poster putty (sold in office supply stores)	1 package
materials for redesigning (balloons of different sizes, plates of different sizes and materials, paper clips, wooden thread spools, yarn, used CDs, 12" rulers, round magnets)	shared
scissors	shared



### ZOOM Glue

Item	# Per Team
baking soda	1 teaspoon
large paper cups (about 16 oz.)	3
small paper cups (about 3 oz.)	3
paper towels	5
plastic spoon	1
rubber band	1
skim milk	½ cup
vinegar	2 tablespoons
water	3 tablespoons
newspaper	shared

### Test ZOOM Glue

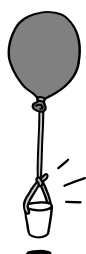
Item	# Per Team
cardboard strip (5" x 1")	4
large paper clip	1
large paper cup (about 16 oz.)	1
small paper plates	4
pennies	about 250
yarn (8-inch piece)	1
glue stick	shared
peanut butter (Note: If kids have peanut allergies, use honey instead.)	shared
white glue	shared





**Marble Ride**

Item	# Per Team
cardboard or foam core (20" x 30")	1
marble	1
masking tape	1 roll (can be shared)
materials to build ramps (construction paper, oak tag, toilet paper tubes, paper towel tubes, sandpaper, yarn, cloth, cotton balls, sponge, corrugated liners from cookie packages, etc.)	shared
ruler	shared



**Balloon Flinger**

Item	# Per Team
helium balloon with ribbon attached	1
small paper cup (about 9 oz.)	1
pencil or hole punch	1
scissors	1
materials for redesigning (large paper cups, napkins, paper bowls, yarn, etc.)	shared
popped popcorn (2 large bags)	shared



**Make a Materials Box**

Many materials are used across activities. To make it easier to prepare for each activity, collect a box of these general materials. That way you need only to collect the materials that are specific to an activity. Here is a list of general materials.

- ballpoint pens
- general building materials (construction paper, oak tag, sandpaper, yarn, cloth, cotton balls, sponges, corrugated cardboard, toilet paper tubes, paper towel tubes, etc.)
- masking tape
- newspaper
- paper clips (large and small)
- paper cups (large and small)
- paper plates (large and small)
- pencils
- plastic plates (large and small)
- rulers, meter sticks, or measuring tapes
- scissors
- yarn

## **8 Make the ClubZOOM Board**

The ClubZOOM Board is a space where the kids can post their ideas and activity results, and learn more about engineering.

- Location, location, location! Pilot site leaders found that the ClubZOOM Board was used most when it was located in the same area where the club met.
- Position the Board at kid height so your kids can easily read everything that's posted.
- Use an existing bulletin board, or tape together poster boards to make a portable bulletin board.
- Decorate your Board with ClubZOOM signs (see Appendix) and brightly colored paper to give it the look and feel of ZOOM.
- Copy the weekly postings (at the end of each meeting section) on colored paper to grab the kids' attention. Encourage kids to check out the postings if they finish early during a regular ClubZOOM meeting or between meetings.
- Make ClubZOOM members the focus. Pilot site leaders reported that the most successful bulletin boards featured photographs of ClubZOOMers and their activity results.
- Post a weekly contest (such as the first person to get the answer to Solve This!) to encourage your kids to visit the Board.
- Pilot sites also used their Boards to
  - solicit donations for activity materials.
  - advertise the program and post dates of meetings.
  - serve as a backdrop, message board, picture board, and "hall of fame" display.
  - offer parents an opportunity to read about club projects when they came to pick up their kids. This encouraged parents to ask their kids questions and to attend the Finale.
- We want to know what yours looks like! At your ClubZOOM Finale, take a picture of your Board and send it to ZOOM.



**The colorful ClubZOOM Board is packed with ideas and activities to inspire young engineers.**

## 9 Plan the Finale

ClubZOOM wraps up with a party. At the Finale, the kids can show off their activities and receive certificates to celebrate their participation. Start planning early to make this a special event. Create a preliminary plan and then fine-tune it after you get a feel for the group.

- Reserve a room that can accommodate a large group and an area for snacks.
- Invite parents to attend. You can use the printable ZOOM invitations ([pbskids.org/zoom/party](http://pbskids.org/zoom/party)). Be sensitive, however, to the fact that some members' parents will not be able to attend.
- Plan to have snack foods like popcorn or pizza. Popcorn is a must—see the Finale activity Balloon Flinker to find out why! Check the CafeZOOM section of our Web site ([pbskids.org/zoom/cafe](http://pbskids.org/zoom/cafe)) for more quick and easy snack ideas.
- Decorate to create a festive atmosphere. Check out the ZOOM Party section of our Web site ([pbskids.org/zoom/party](http://pbskids.org/zoom/party)) for printable ZOOM name tags and for other decorating ideas.
- Invite each club member to participate—assign the kids roles such as explaining or demonstrating an activity or sharing the results.
- See page 107 for more Finale ideas.



**ClubZOOMers at the Boys & Girls Club in Watertown, South Dakota, decorated their room for a festive ClubZOOM finale.**

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