



The Playground

B U I L D E R ' S

Handbook



Everything you need to build a playground wherever you are, using local tools, materials, and skills.

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Introduction

Welcome! This handbook is written to help anyone, anywhere build a beautiful space for children to play.

In 2007, Playground Ideas founder, Marcus Veerman was working in Thailand when a local community group asked if he would help them build a playground. He put together a basic design and a crew of volunteers and they set to work. Before they had finished the build, a neighboring school asked if they could help them build a playground as well. And that's how it all began. Soon word spread and requests for playground builds were pouring in from all over Thailand. Over the course of 2 years, a group of volunteers, builders, and dozens of community groups built 40 playgrounds along the Thai-Burma border. All built from local, low-cost materials.

When Marcus and his team started posting photos of their work online they began receiving emails from people all over the world, looking for advice and assistance to build playgrounds from local materials. The first version of this manual was published in 2010 as a response to that outpouring. It was a summary of the best practices the Playground Ideas team had learned through building playgrounds in Thailand.

Since then, Playground Ideas has grown into an international organization and online hub of playground building resources. Over 1,400 communities have used Playground Ideas designs and manuals to build playgrounds in 85 countries, impacting over 700,000 children.

The 2017 version of the "Playground Builder's Handbook" is an updated field guide to community playground building. We've written this handbook based on our successes, failures, and the time tested strategies we've developed with hundreds of playground builders around the world.

No matter who you are or where you are, we believe you can build an amazing space for play. We can't wait to see you do it!

Step 1 - Listen

As you begin your playground journey, it is important to remember that playgrounds do not bring play to children or communities. In every corner of the globe and across all cultures, children are at play. Children are born with an unstoppable drive to foster their own growth and development: to explore, discover, create, and delight. In every community there are also adults nurturing and encouraging these children, equipping the next generation with the tools to address the challenges tomorrow will bring. Playgrounds are simply spaces and structures built to validate and enrich this work already in motion. In the "Listen" phase of the playground process, your job is to listen carefully to how the community is already supporting their children. This information will inform both the direction and the content of the design. In this chapter you'll find:

- + An introduction to Asset Based Community Development
- + How to lead "Community Consultations"
- + Guidance on working with a community to determine whether or not a play space is a community priority
- + "Community Consultation" activities aimed at gathering ideas for design from children, teachers, parents, and community members.



Asset Based Community Development

This community consultation manual follows an Assets Based Community Development (ABCD) approach, which is founded on the principle of building on community strengths instead of starting from an agenda of fixing problems. To follow this model, it is essential to assume an appropriate attitude towards the community you are working with: patience, a willingness to set aside your own negativity and assumptions of the issues, a high degree of respect for the community, and most importantly, the belief that they have the tools to improve their own lives.

Starting from the vantage point of strength as opposed to weakness is a paradigm-shifting way of changing the conversation from seeing all the problems to instead seeing the strengths and existing solutions. Furthermore, engaging the community in this way will foster strong ownership and maintenance of the play space in the future. A playground build does not finish after the opening day. Over time, the playground will need care, maintenance, and upkeep. It is essential to plan for the long-term sustainability of the project throughout the planning and build process.

It is important to engage the community in the playground design and planning. We call these meetings "Community Consultations." As you arrange your "Community Consultations," consider different groups of people whose input will be important such as: Children who will use the playground, teachers, childcare workers, and/or school staff, parents, community members and local leadership

In these discussion groups, be sure to include a diversity of members with respect to gender, age, ability, and economic standing. Pay particular attention to including and encouraging participation from those whose may not typically carry weight in community decisions (such as women, children, people with disabilities and the elderly). Be sensitive to community dynamics. Consider holding meetings in community spaces where everyone feels comfortable contributing to the conversation. In some contexts, this means organizing a few meetings for different groups of people in different places with different formats.

Defining priorities

Before you start planning your playground, we recommend you stop and temporarily set aside whatever "playground agenda" you might have and focus on the community and the children with an open mind. Building a playground is a big project - it requires time, resources, funding and hard work. It's also not a one-off event. A playground will require regular care, maintenance, and upkeep. It is important that a playground is only built if the project is truly a priority for the community at that time.

Before you introduce the idea of a playground (and particularly if you are not local to the community) first find out what the community is already doing. Below you'll find a list of questions to help guide your discussion. Remember, these questions are not a script for your meeting - you'll need to adapt them to your own context. These questions are provided to get you thinking about how you can learn about community priorities, assets, and what is already being done to care for children's needs. Using the Asset Based Community Development Approach, always start conversations by focusing on strengths as opposed to needs.

What is working in this community right now?

- + What are the good things in it?
- + What do you love about this place?
- + What in your community makes you proud?
- + Where were you at 5 years ago, and what has changed since then, for the better?

What is worth cherishing and preserving?

- + What common culture or identity do the children in this place share? (could be people group/tribe/country/region/ shared experience, etc.)
- + What are the positive characteristics of this culture/identity?
- + What parts of the community's past do you hope the children will carry on and preserve?

What do you see looking forward?

- + Envision your community in 5 years. What do you hope to see?
- + What are community members doing to make this place better for themselves, their families and their neighbors?
- + What are your key priorities for your community?

What is the community doing to care for the children?

- + What are the children in your community experiencing and learning in their childhood?
- + What do you want the children in your community to experience and learn?
- + Imagine your children at your age now. What do you see?
- + What are your key priorities for your children?

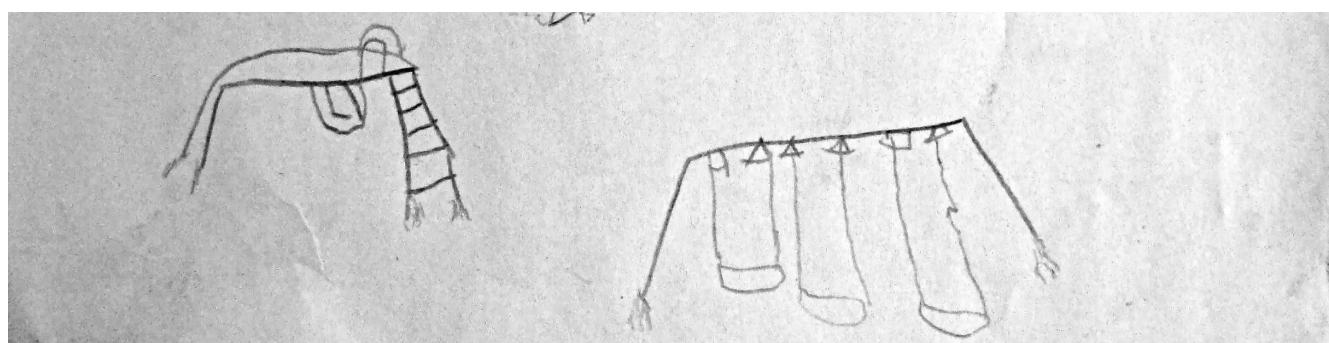
Who is working to improve the community and where?

- + Who is involved in bringing about good things in your community? Who are the key people who drive improvement in the community?
- + In which places are these good things happening?
- + What are the places of potential in the community? Where are the under-utilized spaces?

After discussing community priorities, you should have a good idea of whether or not a space for play is a priority for the community at this time. If it is not and there are more pressing concerns for the needs of the children, you may want to think about how you could support the community in utilizing their assets to address these priorities first, and revisiting the idea of a play space at a later date. If a play space is identified as a priority, take some time to introduce the idea of working with the community to design and build a unique space for play. You can then move ahead with the next activities: "Learning About Local Play," "Learning About Children's Lives," and "Mapping Resources and Materials."

Engaging children in design

Learn from our mistakes....Early in our playground building experience, we were working on a preschool playground design in Uganda. We told one of the teachers we wanted to get ideas for the design from the kids and we asked her to have the kids draw pictures of what they wanted their playground to look like. When we came back to collect the drawings, the teacher handed us a stack of 30 drawings. And every drawing looked almost exactly the same: a slide, swingset, and a seesaw.





We realized that probably the only playgrounds the teacher (and the kids) had ever seen included these three elements. The teacher may have only ever seen one playground design and may have assumed that a playground could only look one way. So when she asked the kids to draw playground, she drew a slide, swing-set and a seesaw on the blackboard and asked the kids to copy it. While she had the best of intentions, this stack of drawings didn't give us any inspiration for the design of their playground.

Even in situations where we've asked kids to draw what they want their playground to include without giving them examples, their ideas are often limited to what they've seen before. Although directly asking children what they want their playground to include seems like the most obvious thing to do, it isn't usually the best approach to engaging kids in design, for a few reasons:

- + Young children haven't developed great self-analysis thinking skills yet. If you ask them how they like to play, they might say they like playing on swings. But if you watch them at play, they might actually spend their entire recess building little houses from twigs.
- + They'll want to give you the "right" answer. Children are pretty intuitive. If you ask them what they want their playground to include they might just tell you what they think you want to hear.
- + Their knowledge of playgrounds is limited (this goes for adults too.) What a playground can include is often restricted to the playgrounds they have seen. And most playgrounds around the world follow the same old patterns and look strikingly similar.

Asking adults directly about design can be problematic as well. Adults have trouble "getting in the shoes" of children and actually remembering what it was like to be their age and how they liked to play. Both adults and children may associate play simply with organized games or built structures (i.e. football or swing sets), rather than open ended activities and materials, (i.e. "playing house" or collecting fallen leaves.)

Despite these challenges, we still believe it is important to engage children and adults in design process for a few reasons:

- + While there are universal ways in which children around the world play, every community has unique local games and play traditions. Tapping into these in the design phase celebrates and validates these traditions and may give you great ideas of ways you can incorporate these games in your design to make it really amazing.

- + Engaging children in the design process gives them a chance to participate in what will happen to their space. Play spaces are special, sacred places to children. When adults come in and change their play space, they might feel frustrated or fearful that they will lose their favorite places to play.
- + Capturing children's views on the design can be a way for adults in the community to learn more about how children play. Sometimes at the onset of the design process, adults have very firm ideas of what they want in the space ("It's not a playground if it doesn't have a slide!" or "We MUST have a football pitch!"). Redirecting adults to actually listen to children and consider how they like to play keeps things in perspective.

Instead of asking specifically about the design, focus on learning about children's play and the unique games and play traditions of the local community and use those ideas to help shape your design. As much as you engage children in the design process, be careful not to place the burden of designing on children. That is the job of the designer. You must balance children's insights with your own research on best practices in design and children's play. As the designer, one of the best thing you can do to design a playground for children is learn about children's play yourself. Having a comprehensive understanding of the depth and richness of children's play is essential. In the Design chapter of this handbook, you'll find more research on best practices in playground design. To further broaden your understanding of children's play we would also encourage you to explore the following resources:

Our "Evidence" page

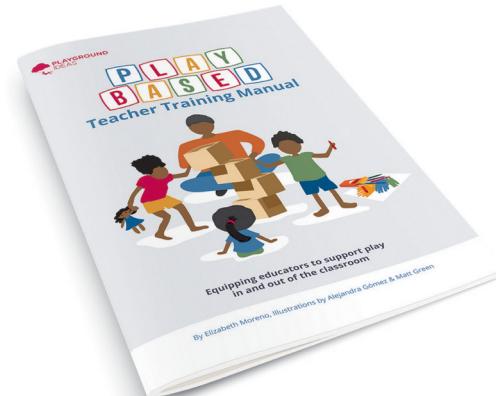
(playgroundideas.org/explore-the-evidence) If we were to write a syllabus for a course on the importance of play, this would be it. Explore articles, videos, and podcasts on play, spanning the fields of economics, psychology, child development, education and neuroscience.

"Teacher Training Manual"

(playgroundideas.org/handbooks) A basic primer on children's play aimed at adults working with children. You'll learn about why play is important to child development and broaden your understanding of what play looks like.

"Case for Play"

(playgroundideas.org/caseforplay) This research report highlights the most significant research findings on the impact of early play interventions, particularly for children living in poverty.



Community consultations

In the following pages, we've provided several activities that will help you tap into learning about children's lives and local play. Pick and choose which activities to use in your "Community Consultations":

Mapping Play Activities and Spaces

Do this activity with separate groups of adults and children or as a mixed group. Keep in mind children may be intimidated sharing in a large group with other adults.

For children:

- + Ask the children to draw a map of their community.
- + Ask them to mark all the places they play on their map and illustrate/label these places.
- + Share as a group - ask kids to share their favorite places to play and why they like playing there. What was special about these places? What kinds of games do they play there? Get kids to demonstrate their games and have fun with it!

For adults:

- + Ask each person to draw a map of the community they grew up in.
- + Ask them to mark all the places in which they played on their map and illustrate/label these places.
- + Share as a group - ask people to share their favorite places to play and why they liked playing there. What was special about these places and what kinds of games did they play there? Get people to demonstrate games they played and have fun with it!

Adults "light up" remembering all their favorite play spaces as children. It can also get them thinking about what kinds of play from their childhood they want to preserve for their children.



Identifying Play “Ingredients”:

Ask both children and adults to identify from their maps the key “ingredients” that should be included in their “Play Recipe” (e.g. trees, rocks, cars, grandfather’s shed, cooking etc.) Write each ingredient down on a small piece of paper. Bring all the papers together and lay them out where everyone can see them. Get the community to organize them into groups or areas. The community may have their own categories or you could organize them into different play types like: sports play, physical movement play, nature play, imaginative, pretend play, social play and place/ cultural play/games. From this list, get the community to identify the priorities of what is needed in this playground as opposed to things that already exist in the community. Carefully document this list.



Drawing and Modeling:

Ask children and adults to draw a picture of what they would like their playground to include. Encourage imaginative ideas like elephants, airplanes, dinosaurs, and birthday cakes. Alternatively, provide loose materials (sticks, clay, fabric, etc.) and participants can model designs. Only do this activity if you have first engaged the group in some of the other “Community Consultation” activities.

Playing Local Games:

Ask children to teach you some of the games unique to their country, culture, or community. Ask adults what local games they remember playing as children. It can be helpful to start by teaching them a game you played as a child that was unique to your own culture (hopscotch, skipping rope, singing games, etc).

Walking Tour:

Ask a small group of 3 or 4 children of different ages to walk you around their community and point out all the places they play and tell you what they do there. You'll get to know which places are really special and why, and you can incorporate what you learn from the children into the community map. It will also tell you what's missing.

You can talk and ask questions as you walk along, and the answers will tell you a lot about play in the community. Make sure you include both boys and girls, children from different backgrounds and children with a disability as each will have different ways of using the same space. If possible, visit schools or existing play spaces and observe their activities and ask them what is happening. (Do not do this alone or in places out of view of the general public.)



"Playground Reporter Exercise"

(See page 67): This exercise gives older children (12-14 yrs.) responsibility in gathering information from their younger peers about how and where they like to play. Children of this age can be a great resource because they walk the line between child and adult. They have spent many years playing in the spaces of their communities throughout different developmental stages and are young enough to have clear memories of play throughout their childhood. They are also mature enough to be able to accurately reflect on and describe these memories. Unlike adults, younger children do not yet see them as authority figures and are more likely to share honestly with them.

Learning about Children's Lives

A good playground will connect to children's lived experiences and provide them with opportunities to explore and understand the world around them through play. Below are a few sample questions for adults, aimed at getting a good snapshot of children's lived experiences in their community:

- + What are some important parts of the history of this community?
- + What is the main occupation of the parents of the children in this community?
- + What is special and unique to this community? What sets it apart from surrounding communities?
- + How do your children spend their free time? At school? At home?
- + Do they have time and space to play outdoors? Does anything prevent this?
- + Complete this sentence: "My child is happiest when..."
- + Complete this sentence: "What my child fears most is..."

Trauma and play

No child experiences a purely positive childhood and play is a powerful tool for children to understand and deal with emotions, trauma, and confusing situations. If children identify playing games associated with negative experiences (war, violence, sickness, etc.), do not ignore these things. List them down and work with the community to brainstorm places for play that could encourage them to positively work through their questions through play. Examples:

- + For children who experience illness and fear of doctors, injections, or medications, their playground could include a mini hospital shop front with patient bed and pharmacy where they get to be the doctor and patients.
- + For children who live in chaotic or violent home environments, their playground could include peaceful spaces or enclosed nooks to feel safe and protected.
- + For young children in a daycare who struggle with separating from their parents, their playground could include adult seating or interactive elements that would encourage parents to play with their children on site before they leave.

Once you've gathered input, ideas, inspiration, and feedback through the "Community Consultations," it's time to move on to planning and designing!

Step 2 - Plan

If the community has decided to move ahead with building a playground, it's time to get organized! In this chapter, we'll cover how to create a plan for the logistics of your build. Consider organizing a team of parents, teachers, and community volunteers to spearhead the planning process together. Not only will it divide the workload, but involving multiple stakeholders throughout the playground process will create more ownership of the project in the long run.

As you think about how to make your project happen, your mind is probably swimming with questions! In the next several pages, we'll work through the following topics and provide some tips and tricks for successful playground planning:

- + What is a "Project Page" and how do I set it up?
- + What materials will we need?
- + What tools will we need?
- + Who will build the playground?
- + How do we create a budget for our playground?
- + How will we raise the money for our playground?
- + How long does it take to build a playground?
- + What do we need to do to prepare for the build?

Ready to dive in? Let's get started!

Your playground “Project Page”

Your first step in the planning process is setting up your Playground Ideas “Project Page.” Your “Project Page” is like your very own website for your playground project where you can save your favorite designs, fundraise and receive donations (100% fee-free), update donors, connect with other playground builders in your region, and share your work with the world. You can explore other playground projects around the world on our “Community Built Projects” page: www.playgroundideas.org/all-projects.

Setting up your page:

1. If you have not already done so, create an account at playgroundideas.org.
2. Once you’re logged into your account dashboard click “Start a Project Page”
3. Enter in your project details and you’re ready to go!

Fundraising on your project page:

During the sign-up process, you’ll be asked “Do you want to receive crowdfunded donations for this project?” If you check “Yes” this will allow people to donate to your project directly on your page. In the “Fundraising” section of this chapter we’ll go into further detail about how to successfully run a crowdfunding campaign.

After you submit your project page, you’ll be asked to enter your PayPal details in order to receive donations. Rest assured that we won’t charge anything to your PayPal account. Ever. (We mean it when we say all our resources are free!) You need to add your PayPal account info so that PayPal knows where to send the money when someone makes a donation. Playground Ideas does not have access to your secure PayPal account. All online transactions require the use of a credit card processor. We use PayPal to ensure any online donations are protected. PayPal charges a processing cost of 30 cents + 1.9% to 2.9% fee, depending on your country. This cost is added on top of a donation so that you receive the entire amount donated to you. So if your Aunt Dorothy donates \$10 to your project, she’ll be charged about \$10.49 (depending on what country she lives in) and you will receive the full \$10.

Finding volunteers on your project page:

During the sign-up process you’ll also be asked, “Do you need volunteers for this project?” If you check “Yes” this will allow your project and contact information to appear when visitors to the site search for volunteer opportunities. Please note that Playground Ideas does not vet volunteers and we advise you to do your own careful screening of potential volunteers. Remember, if you have any problems or questions along the way we’re happy to help! Send us an email at info@playgroundideas.org.

Materials

Playground Ideas strongly advocates that communities build playgrounds with materials they can easily find locally. Why?

- + Sustainability - Playgrounds get a daily beating from the children who play on them, so even the strongest, most expensive playground requires maintenance over time. Playgrounds should be built robustly, but should be thought of as a living structure - one that needs care and upkeep. When playgrounds are built from common local materials, when something breaks it can be easily and quickly repaired. This is essential to keeping the playground safe and fun for years to come!
- + Cost - Buying locally is typically cheaper than importing materials or playground equipment. Playgrounds are bulky and heavy and the costs of shipping playgrounds (new or second hand) can be many times the cost of a locally built playground. Why not save the money and repair and improve the playground over time? Also, finding replacement parts from overseas can be a real hassle.
- + Ethics - Buying and building local supports the local economy!

You won't know exactly what materials you'll need until you select your designs and create a site plan, but getting a good idea of what resources you have available will help to guide your design process. In each playground element "Design Plan" (playgroundideas.org/designs) you'll find a list of necessary materials. The materials you can use to build a playground are nearly unlimited. Some of the materials that have been used on community built playgrounds include:

- | | |
|---------------------------------------------------------|----------------------------|
| + Used car, truck, tractor, and motorbike tires | + Soil |
| + Timber – cut planks, whole trunks and strong branches | + Sand |
| + Steel | + Plants / trees / flowers |
| + Used 44 gallon drums | + Ceramic tiles |
| + Paint | + Bamboo |
| + Cement | + Thatch |
| + Large stones, boulders, small pebbles | + Chain |
| + Bricks | + Rope |
| + Corrugated iron | + Earthbags |

In Chapter 4: Build, we'll go into more detail on specific materials and what to look for when sourcing them. As you're starting your plan, walk through local markets and shops to get an idea of what you can purchase locally. Ask local builders about what's available. Ask around for what kind of recycled or leftover materials you can use. Think about natural, recycled, and industrial waste resources. Put all this together into a list of possible materials.

Creative recycling

When we begin a playground build, one of the first questions we ask is, "What kind of interesting junk do you have?" We love using recycled materials on our playgrounds - they're free and often result in some of the most creative designs. Mobilize your team to be on the look-out for anything you could use on your playground build! These are just a few of the ways we've seen recycled materials creatively used in playground builds:



This cracked water tank in Uganda was transformed into a play hut by cutting a door and windows and adding a thatched roof.



Old steering wheels make this play bus come to life in Papua New Guinea.



A local medical clinic in Kenya donated their broken equipment to be used in this play clinic.

Choosing materials

Appropriate materials will vary from location to location and should only be selected with the advice of local builders. Ask about what materials are strong, long-lasting, safe, and available locally. Find out the local names of specific materials, like the names for the strongest rot and termite resistant hardwood. Inquire about potential hazards such as termites, weather, and flooding and what affect they may have on materials. Look around the community at structures which are falling apart and ask, why? Was the wood eaten by termites? Did the metal rust from the weather? Pay attention to what is and is not commonly used and ask critical questions.

Building with tires

One of the most common materials used on community-built playgrounds is used car tires. Why?

- + Availability - Tires are found in nearly every community in the world. We've been hard pressed to find a location that isn't able to scrounge up at least a couple dozen used tires. (And we've been to some really, really remote places.)
- + Easy to build with - Building with car tires doesn't take any special skills. If you've got a few tires, an electric drill, a knife, a handful of bolts, and a shovel, there are a nearly unlimited number possibilities of designs you can build.
- + Safety - The majority of playgrounds around the world are built from steel, which can pose safety hazards. Steel elements in direct sunlight can get extremely hot and even burn children. Steel is also very hard and can hurt kids if they slip and fall. Tires, on the other hand, do not get nearly as hot in sunlight and are forgiving if you fall down and bonk your head on them.
- + Durability - Tires are made to hurl thousands of pounds of machinery down bumpy roads. They're made to last. And they do. They're also not susceptible to common risks - like termites eating wood or weather rusting metal.
- + Affordability - Most communities can source tires for free or very cheap. We've worked in some places where used tires are such a waste problem that they are often burned to dispose of them, releasing toxic fumes. In these areas, people are happy for you to take their used tires off their hands! In other areas of the world, old tires are used to make sandals, or other products, so they have a "value" in the local economy. In areas like this, we've sometimes had to pay a small price for tires and have factored this into the budget.

Finding tires

Finding enough tires for a project can be tricky, so start early. Over the years, we've collected thousands of tires for playgrounds, so we've learned a thing or two along the way! The most effective thing you can do? Get comfortable asking.

You'll need to ask a lot of people for their tires - some will say yes and some will say no, but you'll never know until you ask!

Prepare your "tire donation pitch" beforehand. Put together a pack of photos of tire playgrounds, information about your project, and your contact details. You can even include a link to your playground "Project Page." Ask to set up an appointment with the owner, manager, or someone in the office. Be friendly, confident, and clearly explain what you need the tires for. Most people feel nervous speaking to someone in charge and asking for help. In reality, people are often very happy to contribute to a project that benefits children in their community! If the person you speak to needs to get approval from someone higher up, remember to get their phone number and follow up.

There are many places you can look for used tires:

- + Try visiting local mechanics, petrol stations, and garages. We've had luck arranging a schedule with some shops (like agreeing to come every few weeks to pick up tires).
- + Ask parents, teachers, and community members if they know any owners of garages-often a personal connection helps.
- + Get a truck and drive around the industrial areas of your community. Stop and ask anywhere you see a pile of tires!
- + In larger cities, ask around for where the "tire yards" are. There are often industrial yards in cities where tires are stockpiled to be retread, recycled or sold.
- + Post on community facebook groups or online forums.
- + Put up flyers at cafes, guest houses, and public spaces.
- + Get your story on the local radio or in the newspaper.
- + Make a list of any large organizations, government offices, or companies near you that may have a fleet of cars, trucks, or machinery. Particularly in countries where roads are commonly unpaved, these types of groups go through many, many tires. Make an appointment to speak to someone in the office and make your pitch! We've had luck with: military bases, internet companies, infrastructure/road paving companies, government ministries, and NGOs.

Selecting tires

When you're collecting tires, be sure to get a variety of car, truck, tractor, and a few motorbike tires. The type of tires necessary will vary depending on the designs you choose, but as a general rule, truck tires are preferable because of their durability and strength so collect these whenever possible. When collecting tires, check to ensure that they don't have steel wires exposed. Tires with a puncture or small patch of exposed wires can be used if they are half buried in the ground.

However, if the tire has exposed wires on half or more of its surface, it will not be safe to use. You'll find more advice on tire safety, building with tires, and how to tell the difference between types of tires in Chapter 4: Build.

Sourcing materials

Most community-built playgrounds include a mixture of purchased, donated, and recycled materials. Rely on local builders who have experience purchasing particular materials to advise you on who to buy from and what to look for (it also never hurts to get a second quote from someone else to compare from time to time) We've also included tips on selecting and building with specific materials in Chapter 4: Build. As you are getting ready to purchase materials, refer to this information as well as local advice.

Create a list of materials you are looking for and distribute it to parents and community members. Many people may be able to donate by offering old tires, plants from their garden, or leftover bricks, concrete, or paint from a recent construction project. Doing this early in the planning process will give people time to organize what they can offer. If you are able, consider setting aside a secure space at your school or community center to begin stockpiling supplies.

Tools

The tools you need for your playground will depend on the designs you build. In each element "Design Plan" (playgroundideas.org/designs), you'll see an overview of the tools required.

As you're putting together your playground plan, make a list of all the tools and transport (trucks, earth moving machinery, etc). you can access through community networks. Local businesses, vocational schools, factories, workshops, and artisans will all have tools you may be able to borrow or rent for the project.

Tools to consider:

Hand tools

- + Utility knives and plenty of new blades. (Utility knives are a necessary tool if you're building with tires!)
- + Wrench / ratchet spanner set
- + Hammers
- + Chisels
- + Machete
- + Screwdrivers

- + Bolt cutters
- + Hand saw
- + Pliers
- + Shovel / hoe / pick-axe

Power tools

- + Electric grinder / metal cutter
- + Electric drill
- + Electric circular saw
- + Welding equipment
- + Chainsaw

Note: if your access to power tools is limited, the most important electric tools to find are an electric grinder and an electric drill. If you have access to these two tools, you can build nearly any used tire element.

Other

- + Gloves
- + Measuring tools
- + Paintbrushes
- + Trucks and other transport
- + Earth moving equipment
- + Generators (if power is unreliable)
- + Extension cords

Skills & labor

You may be wondering, "How will I build the playground? I've never built anything before!" You do not need to worry about having the technical skills to build a playground yourself. Why? Because in every community on earth you'll find people who build things - homes, buildings, roads, furniture. The world is filled with tremendously talented and skilled people.

No matter where in the world you live, local craftsmen and women will have the necessary technical skills to build a space for children to play. Playground Ideas' designs (playgroundideas.org/designs) are made to be built using skills that are commonly found in communities around the world.

For the sustainability and maintenance of the project, it is vitally important that local builders are engaged in the project. If you are building at an existing school or community center ask the principal or director about who they trust to do routine repairs on the buildings or grounds. Engaging builders who are already connected with the school or organization will make maintenance easier in the long-run as staff will know who to call to make repairs when something breaks. Being that they already have a relationship with the school or organization, they're also more likely not to overcharge and to be accountable to doing good work. For most designs (particularly used tire designs), anyone who is comfortable working with their hands, using basic tools, following directions, and lifting heavy materials should suffice, even if they are not technically trained.

Skilled labor

- + For more complex designs, you may need to find people with specialized skills. Consider:
 - + Carpenters - for building wood cubby houses, platforms, or structures.
 - + Welders - for constructing any metal playground equipment.
 - + Masons/tile layers - if you are building any of the cement and tile slides (a popular element!) find someone who is precise at laying tile and has experience working with cement.
 - + Artists - for painting murals and playground elements.

Volunteers

In addition to skilled craftsmen and women, you'll also need to find lots of general laborers. You'll need people to dig holes, wash tires, paint, shovel sand, etc. This is a great area to utilize volunteers! There are lots of ways you can find volunteers:

- + Indicate that you want volunteers on your "Project Page." When setting up your page, you'll be asked "Do you need volunteers for this project?" If you check yes, this will allow interested volunteers who visit our site to find your page.
- + Join our private facebook group for playground builders (<https://www.facebook.com/groups/playgroundideascommunitybuilders/>) and let the group know your location, dates, and that you're looking for volunteers. This group is made up of playground builders around the world who may be interested in joining you!

- + Talk to local schools and volunteer groups (Rotary clubs, High School classes, youth groups).
- + Ask local companies to contribute by letting their employees volunteer on your project for a day.
- + Ask parents to lend a hand.
- + Post on community facebook groups or online forums.
- + Put up flyers at cafes, guest houses, and public spaces.
- + Get your story on the local radio or in the newspaper.

Project Leader

In addition to skilled craftsmen/women and general laborers, it's a good idea to have a "Project Leader" as a part of the build who is familiar with playgrounds and the design of the site. This is especially important if you are building in an area of the world where playgrounds are not common. While local builders may have the technical skills to execute a design, many adults around the world didn't grow up playing on a playground and may be unfamiliar with the elements they are asked to build. If no one on the build really understands the aim of the design and the use of each element, this can lead to misunderstandings. Qualities of a good "Project Leader" include:

- + They should be familiar with playgrounds, children's play and how the space will likely be used.
- + They need to have a good understanding of the overall design of the playground as well as the purpose of each element.
- + They must have patience, good communication skills, and have the ability to encourage, lead, and motivate a team.



- + They must have good listening skills (this is vitally important!) It is not the “Project Leader’s” job to know everything. They will need to rely on the advice of the local builders and skilled craftsmen/women in regards to building styles and material selection. Therefore, they must be able to listen well and adapt the plan according to the advice and best judgement of those they are working with.
- + Building skills are helpful, but not necessarily. More important is their understanding of the design and their communication and listening skills.

Learning from our mistakes:

Once on a playground build in East Africa, we asked a local builder we were working with to construct a “play house.” We specified that the house just needed be 4ft x 4ft, and asked that he pick the style and materials based on his best judgement of what would be appropriate and cost-effective. Over his career, this builder had constructed many houses in his community so this was a very simple job that he was more than qualified to do. We went away for the day and came back to realize we had forgotten to communicate a very important piece of information: while we had told the builder how wide and long the house should be, we had forgotten to tell him how high it should be. Because the builder had never seen a playground “play house” before, he constructed a house that was 4ft long and 4ft wide, but as tall as a normal house. What resulted was strong and solidly built, but it looked and felt more like an adult’s tool shed than a child’s playhouse. It lacked that cozy child-size design that inspires pretend play and makes the child feel a grown-up in their own-sized world. Playgrounds are strange constructions, so these kinds of misunderstandings happen all the time on playground builds. Often builders need extra support in understanding why an element is designed the way it is or how children will use it. Having a “Project Leader” on-site will help to ensure that the design is implemented appropriately.

Budgeting

How much will your playground cost? It’s up to you! We’ve seen community playgrounds built for \$100 to \$20,000+! How much your playground costs will greatly depend on the designs you select, materials you choose, the size of your site, and the cost of materials and labor in your location. The most common goal for playgrounds on our website is between \$US5,000 - \$10,000 but many have been built for much less than this. Once you’ve selected your designs and laid out your site plan, use the “Design Plans” (playgroundideas.org/designs) to create a list of the materials you need. You can then work with local builders to price out your materials and labor and create a budget for your project.

To give you a good idea of potential costs, we’ve provided a couple example budgets and price lists for real playgrounds in the Appendix, pg. 71. Use these samples as templates to do your own research into prices in your location.

Fundraising

Getting funding for a project can seem like a daunting task if you have no experience in fundraising. Don't let that stop you! Thousands of people before you have had success raising the funds they needed for their playground and with a good fundraising strategy you can too!

Crowdfunding

Crowd...what? "Crowdfunding" is a term that refers to the practice of funding a project by raising contributions from a large number of people online. Sites like Kickstarter, GoFundMe, and Indiegogo have popularized this idea. Crowdfunding is a great way to utilize your online social networks to help fund your project. Playground Ideas offers users a free platform where anyone can set up a page for their playground project, receive donations, and update donors along the way. On page 17 of this chapter we covered how to set up your page. Crowdfunding is a great tool, but you'll have to put in some work to make your crowdfunding campaign a success! Here's a few tips:

- + Remember, donors are not looking for you. Don't expect to just start a page, sit back, and let the donations roll in. YOU have got to get the word out about your project, so make a communication strategy before you start.
- + Add a video. Crowdfunding projects that include videos are proven to be more effective! Your video can be as simple as you sitting in front of your computer telling potential donors about your project and showing a few photos of the site.
- + Optimize your project page. Make a good first impression with your page. Add project details, plenty of photos, and make sure your writing is clear, concise, and compelling.
- + Communicate your timeline and plan for the project - What have you done so far? When do you plan to build?
- + Build trust. Consider adding a breakdown of your budget to let donors know exactly how you'll be using their money.
- + Tell a good story. Good stories drive action. What is your playground story? What has motivated you to do this project? What would a playground mean for this community? Engage people's hearts and emotions in your project.
- + Add rewards. Consider incentivizing donations by offering prizes for different contribution levels. For example, "if you donate \$50 we'll mail you a picture of the playground drawn by one of the kids at the school" or "if you donate \$100 your name will be painted on the playground sign."
- + Utilize social media. The people most likely to donate to your project are your friends and family. After that, friends of friends. Utilizing your social media networks is a great way to reach these people. Post regularly about your project and ask them to share as well!

- + Share your victories and thank your donors along the way. Keep the momentum going with social media posts like:

"Wow, we've reached over 50% of our fundraising goal in just one week! Let's keep going and give these kids the playground of their dreams!"

"We're only \$100 away from reaching our fundraising goal! Will you share our page to help us get there?"

- + Email family and friends. Send out a few emails throughout your campaign updating your networks about your project and asking them to get involved by donating and sharing on social media.
- + Update your donors. Don't forget your donors when you reach your goal! Show your gratitude for their contribution by continuing to update your page and sharing photos of what their money made possible.

Let us know if you are running a crowdfunding campaign for your playground. Send us an email at info@playgroundideas.org. We'd love to give you feedback, cheer you on along the way, and share your page to help you drum up donations!

More fundraising ideas

Crowdfunding certainly isn't the only way to fundraise. There are more ways to fundraise than we can count. Here's just a handful of the creative ideas we've seen in our community:

- + On Donna's playground in Azerbaijan, she got local businesses to sponsor different playground elements and then painted the business name on each element as a thank you.
- + On Julie's playground in Thailand, the parents of different classes each got together to raise the funds for a different element on the playground.
- + Tom and Carla host university student volunteers on their playground builds in Uganda. Before their trip, each volunteer is required to fundraise a portion of the costs of the playground build.
- + Josh and Jane, two Peace Corps Volunteers, got a grant for their playground in Morocco from World Connect (www.worldconnect-us.org).
- + Rabi got funding for her playground from the federal government of Nigeria by writing a detailed proposal on the advantages of early childhood play.
- + In Timor-Leste, we worked on a playground project that was sponsored by a Rotary Club (www.rotary.org). There are Rotary clubs all over the world - consider reaching out to your local chapter!

- + Patrick raised funds for his playground project in India by getting a brewery in his town to brew a special Indian pale ale beer which he sold at local bars.
- + When Bret and Kristin got married, they asked their guests to donate to their playground project in Mexico instead of giving gifts.

Preventing dependency

If you are not local to the community in which you are planning to build a playground, it is important to think critically about how you fundraise. Even though you may be capable of raising all the necessary funds from your outside networks, this isn't necessarily a good idea. By providing 100% of the resources needed, you risk creating an attitude of dependency on outside sources instead of relying on local resources. Furthermore, if the local community has not contributed to the playground they may not feel ownership over the project and may be less likely to support the build or maintain the playground into the future. We've seen many donated playgrounds around the world fall to ruins simply because no one felt any real ownership over protecting and maintaining it. This is just human nature - we're all more likely to take care of something we've worked hard for than something that we've gotten for free.

There are different approaches you can take to try and prevent this:

- + Fully engage the local community in every step of the process - planning, fundraising, designing, building and creating a strategy for maintenance.
- + Divide fundraising goals between yourself and the local community. Perhaps decide together on an amount they can reasonably fundraise and agree that if they can come up with this amount you'll fundraise the rest.
- + In return for your fundraising efforts, request that the local community organize the donation of certain materials or labor for the build (like tires).
- + Ask that the local community provide meals or housing for volunteers and builders during the build.

We often think of fundraising as a burden, but it is an opportunity for community building as well. Paul Hogan, a playground builder who has built playgrounds around the world, had a "chicken dinner" policy. If the community couldn't organize a chicken dinner fundraiser (or bake sale, benefit concert, etc.), then the community didn't have enough enthusiasm to get the project done.

Children & playground building

If you are building at a site where children will be present, like a school, it is important that you create a good plan with the teachers and staff for how children will interact with the space during the build. It can be very dangerous for children to be playing on and around an unfinished playground. Children will naturally be very excited and curious about what is happening to their space, so if you do not set clear rules and expectations from the start you are likely to get very frustrated with little hands touching paint before it dries or stomping on concrete before it sets! We've seen many school uniforms ruined with paint when these expectations weren't clearly communicated. Keep in mind that the build in a small school may take over an entire school yard which means that children may have no place to play during the build. This can be stressful for children and teachers. For this reason, it is best to schedule your build for when children are on school holidays if possible or to seek another place for children to play nearby.

If this is not possible and children will be present at the site during the build, work with the staff and teachers to create a strategy for managing children in the space. Engage children in the playground plan from the beginning. Get them involved in creating the design using the activities in the "Listen" section. This is their space, so work to make sure they can have as much ownership over it as possible. Make a "play plan" for the build. Children's play drive is unstoppable. If there are spaces children can't play during the build, figure out where they can! Consider whether there is a local park or field children can temporarily use during the time of the build or set up stations for indoor play. Communicate the plans for the playground build directly with the children. Show them photos and drawings of what their playground will look like to get them excited and let them ask questions about what will happen to their space. Let them know what they are and are not allowed to do during the build, and emphasize that we all need to work together to follow these rules so that we'll be able to build a great playground to play on. Consider using colors or signs during the build to communicate boundaries - "If you see red tape around an area that means you can't enter it or touch it! It is not yet ready to play on." Get older children involved in helping to remind younger children of boundaries and rules. Have staff, parents, or volunteers serve as extra monitors during breaks to make sure they stay off the building site. Get the kids involved in the build. Children will love helping to build their playground. Work with teachers and volunteers to allocate tasks appropriate for them like painting, planting, shoveling sand, or sorting and washing tires. Older children may be able to be involved in more complex tasks. Teachers may even be able to be integrate the project into the curriculum. Playground building is a great way to learn math concepts hands-on.

With a good plan in place, not only will your dream playground be possible, but you'll ensure the playground build will be a productive, rewarding experience for everyone involved.

Remember, if you have any questions at all along the way, the Playground Ideas team is here to help! Drop us an email at info@playgroundideas.org - we'd love to hear from you!

Step 3 - Design

You have listened and planned, and now you are finally ready to design your playground! Designing a playground is so much more than just throwing elements into a space. The design phase is about gathering what you learned in the “Community Consultations” and using best practices of playground design to translate the input of children, parents, teachers, and community members into a playground design that can be built from appropriate local materials and fit within your budget. Ready to get started?

In this chapter we'll cover:

- + Specific resources useful in the design process
- + Examples of how to translate the information and inspiration gathered in the “Community Consultation” process into a playground design
- + 10 principles of playground design
- + How to choose materials
- + How to ensure your design is safe (but still has a healthy amount of risk)
- + How to create a design scheme
- + How to present your design and gather community feedback

Let's design a playground!

Design resources

There are a few Playground Ideas resources that will be helpful in the design process:



Playground Ideas Design Library - playgroundideas.org/designs

Our Design Library has over 150 DIY playground element designs that have been tried, tested, and loved. All elements have been designed to be built from common local materials, tools, and skills and each design has a downloadable PDF with step-by-step pictorial instructions.

Playground Safety Handbook - playgroundideas.org/handbooks

Based on the highest standard of European Union playground safety guidelines, our safety manual breaks down the most common playground hazards into an easy-to-understand, pictorial format. Learn how to differentiate good risks from dangerous hazards and gain the skills to be able to design your own playground elements and ensure that they meet safety standards.

Inclusive Design Manual - playgroundideas.org/handbooks

Designing inclusive playgrounds for children of all abilities requires more than simply adding in handicap-accessible elements. A truly inclusive playground facilitates meaningful interactions between children of different abilities and provides opportunities for challenge, healthy risk and mastery for all children. This resource will deepen your understanding of inclusive design philosophy, and share strategies for designing playgrounds that welcome and celebrate the unique abilities of all children.

Loose Parts Manual - playgroundideas.org/handbooks

"Loose parts" is a term that refers to any material that can be moved, carried, stacked, or altered. Sticks, stones, cardboard boxes, ropes, milk crates – the possibilities are endless! Not only are loose parts cheap and easy to find, but they're endlessly interesting to kids. Unlike fixed equipment, loose parts allow children to recreate their playground every day from the materials provided. Full of beautiful illustrations and helpful tips and tricks, the Loose Parts Manual will guide you through gathering materials, setting up a storage and maintenance system, thinking through safety concerns, and training teachers. Whether you're creating a loose parts playground from scratch or adding materials to your existing site, you'll find everything you need to get started.

Drag & Drop Designer - playgroundideas.org/build-playground

Our online Drag & Drop Designer tool allows user to create a full 3D, professional looking playground site plan. You can add any of our 150 playground element designs as well as school buildings, trees and other features to match your space, and upload images of your own design sketches and background photos to truly customise your design. Once you're finished, save, print, share to Facebook or add your design to your playground project page. Create a free account at playgroundideas.org and access the Drag & Drop Designer from your user dashboard.

Cut & Paste - playgroundideas.org/handbooks

If you're looking for a lower-tech way to design your playground, we've got you covered too! Download our Cut & Paste manual and you'll find all our playground elements scaled to size. With paper, scissors and glue, you can map out your site, cut out the playground elements you want, and start designing!



A case study of playground design

At this stage in your playground planning, you should have:

- + Design input from children, parents, teachers, and community members
- + A good idea of what materials and skills are available to you
- + A budget

Your job in designing the playground is to figure out how to translate this information into a physical space. Doing this isn't an exact science - it requires imagination and creativity. Our design process is typically guided by four steps:

1. Distilling "themes" that arose from the "Community Consultations"
2. Using these themes to create goals that the design will accomplish
3. Identifying available resources (materials and skills)
4. Creating a design that serves the goals, is inspired by the themes, and capitalizes on available resources.

This may sound a little tricky if you are new to this so to give you a better understanding of how a "Community Consultation" might be transformed into a design, take a look at this example from our own work in Kenya.

Reuben Centre, Nairobi Kenya

Context: Ruben Centre, a primary school for 2,000 kids in the Mukuru slum of Nairobi, Kenya. With a population of over 600,000, the Mukuru community of Nairobi is one of Kenya's largest slums. Ruben Centre is a resource hub for the community, offering education, health, financial and social programs to children and families in Mukuru.

Community Consultation: In the consultation phase of the project, we met with teachers, parents, and members of the administration to discuss their vision for the playground and to learn more about their school and surrounding community. Students showed us their unique local games, took us on tours of their special spaces within the grounds, observed and discussed their peers at play, and drew pictures of how they like to play. Several themes arose from these discussions and activities:

- + Lack of spaces for play in Mukuru. One teacher who grew up in the community recalled a few empty spaces he played in as a child, but lamented that today the congestion of Mukuru has ballooned beyond capacity. The only open spaces left are unsafe, leaving many parents to confine their children's free time indoors. Most families live in extremely close one room quarters, so even playtime indoors is limited. Teachers described how the play yard at Ruben is the only open, safe space for children in the surrounding area.
- + Whole child education. Many of the parents of students are engaged in the centre's on-site services – a microfinance program, vocational training classes, a health clinic, and various micro-enterprises – modeling responsible practices for their children. Staff expressed their belief in the importance of Ruben students learning and practicing a wide variety of life skills to confidently navigate their futures.
- + Building a playful school. The staff were enthusiastic about using every available empty nook and cranny throughout the school grounds for play elements. The school director's orders to us were, "I don't want a playground, I want this school to be an entirely playable space."
- + Importance of imaginative play. Children described, modeled, and drew pretend play as families, shopkeepers, drivers, carpenters, musicians, "police & thieves," soldiers, and animals. Imaginative play also included violent themes – police shooting thieves, playing with pretend guns, knives, bombs, etc. – likely, in some part, reflections of their processing of scenes they had witnessed themselves or heard about in their surrounding community.

Available Resources:

- + Ruben Centre was located near to the industrial centre of Nairobi, so access to typical building materials was no problem.
- + The Centre had a full time Artist on staff who painted murals at the school and taught art classes to kids.
- + The Centre was rapidly expanding new buildings, so they had a team of builders, carpenters and masons already working at the school.
- + The construction of a new classroom block had resulted in an enormous pile of dirt that was currently unused.

Goals for Design:

- + Inspired by the themes that arose in the Community Consultations, we wanted to build a playground that would:
- + Give children full ownership over a space. In a context where there was very little space for children, we wanted the playground to truly feel like it was “theirs.”
- + Provide space and inspiration for imaginary play. It was clear pretend play was a vital tool children were using to understand and process their experiences.
- + Was extremely durable to withstand the raw energy of 2,000 children daily.
- + Have plenty of opportunities for active play since for most children playtime on the playground was the only opportunity in their day for active, free play in a safe space.

Design Scheme: A concept plan was developed for a series of seven “pocket playgrounds” tucked throughout the school grounds that would allow for a variety of types of play and would create a movement flow throughout the school that could accommodate heavy use. The play spaces included:

A “kids town” set up to look like shops and spaces within the outside community. The town included a bus, several cars, and a petrol station, as well as a mechanic’s shop, grocery, restaurant, a bank with ATMs painted as murals, a radio station with talking pipes, an internet cafe with chalkboard “computers,” and health clinic. The real health clinic onsite donated some of their old equipment to be used in the play clinic. The vision of the “kids town” was to give Ruben students a whole little world in which they were in control.



Next to the “kids town,” a mud molding station was built, where kids could model items to “sell” or use in the shops.



The design scheme also included a giant see-saw balance hybrid airplane. Planes from the Nairobi airport were often taking off above the school, but few of the students had ever seen a plane close-up. On the playground airplane, kids could take a turn as the pilot, or ride up and down on the see-sawing “wings.”



A giant, nearly indestructible concrete and tile slide was built that could accommodate several children across at once.



A big, open football pitch already existed and was kept as a free space for active play or a gathering space for school assemblies or activities. Moveable goalposts were created to allow the space to adapt to one large game for older children or up to 3 smaller games for younger children.





The football pitch was rimmed with moulded earth hills made from the dirt leftover from construction projects. The hillsides created a track around the space and also allowed lookouts for kids to see what was happening in other parts of the play space.



Large swingsets and an adventure course with a climbing net, bridges, monkey-bars, and a climbing dome. The elements were arranged to encourage flow and movement throughout the space and prevent “traffic jams.”



Next to the block of preschool classrooms, a giant sandpit with tire animals and a cubby space with a small wall around the area provided a quieter, less trafficked space for the younger kids that was protected from the bustle of the rest of the playground.

Throughout the space, the school's resident artist painted murals, adding character to the shop signs and a skyline backdrop to the airplane. These little details brought the space to life.

10 principles of playground design

How you will translate the information and inspiration from kids, parents, teachers, and community members into a design will depend on your context. Here's a few principles of playground design to help guide you:

1. Design for different types of play.

Children use different types of play to understand the world around them and to master life skills. Unfortunately, most playgrounds only focus on active, physical types of play. A good playground challenges and promotes children's growth by providing opportunities for children to engage in multiple different types of play. As you're creating your playground design, consider how you can accommodate different types of play and ways for children to use their bodies and minds and interact with the environment and others:

- + Active play- Running, jumping, climbing, kicking, and punching. Twirling, swinging, spinning, and rolling around. Moving your body up, down, and around.
- + Sensory play - Touching different interesting textures, smelling flowers and plants, hearing music and sounds, tasting edible plants and fruits, seeing different perspectives and angles as well as beautiful shapes and colors.
- + Creative play - Drawing, crafting, painting, coloring, writing, singing, drumming, and dancing. Creative expression allows children to communicate and connect.
- + Imaginative Play - Dressing up, make-believe, and pretend play. Play houses, pretend ships, dolls, costumes, and props let children act out imaginary scenes and adopt roles.
- + Manipulative play - Building, molding, manipulating, sifting, pouring, scooping, stacking, combining, and altering.
- + Social play - Talking, sharing, cooperating, taking turns, following "rules," and playing sports.
- + Reflective play - Watching, resting, reflecting, thinking, daydreaming, and just staring into space.

Of course these aren't the only ways children play, but these categories help us to broaden our understanding of play. Use these play types to guide your design and see how many you can include space for on your playground.

2. Create a sense of place.

Incorporating a “sense of place” into designs took practice for us to learn. This is a quote from a volunteer on one of Playground Ideas’ earliest playground builds in Thailand:

“We built a playground once based around the theme of a castle, when it was nearly finished one of the builders came to me and said ‘What is a castle?’ The playground looked great and the kids loved it, but deep down I knew we had missed something important.”

A playground without a sense of place looks generic, like it could be anywhere in the world. A playground with a strong sense of place speaks to the culture, location, and “spirit” of community. Feeling rooted in the place and culture you live in is key to many positive outcomes not only for children, but also for the whole community. It fosters a sense of civic pride and belonging. The stories we tell, the yearly celebrations, the landscape, the architecture, the people, the weather, the jokes, and traditions all make us feel connected.

Infuse a sense of place into the details of any pretend play areas - like play houses or shops. Really focus on the cultural specifics here to create an authentic experience. How are houses built in this community? What do the kitchens look like? What are the names/logos of local businesses?

The aim is for a playground to become a special place, a unique symbol of the community. Spaces for children to play are expressions of local imagination and spirit. What will make your playground different from any other playground build anywhere else in the world?

3. Trust children’s creativity.

Adults have a tendency to design play elements with a singular purpose: slides are for sliding down, swings are for swinging on, and monkey bars are for traversing. But children are boundlessly creative and they will always find ways to use elements for purposes they weren’t originally designed for. A good playground should encourage and trust children’s creativity to take the lead. As much as possible, include playground elements that can be used in many different ways. Take a cue from renowned playground architect, Günter Beltzig, “Of course, us adults, we like a beautifully hand carved, wooden motorbike. But what if the child prefers a pony or a unicorn? The more room there is for interpretation the better.”

One of the best ways you can leave room for interpretation in your design is by adding “loose parts” to your playground. “Loose parts” is a term that refers to any material that can be moved, carried, stacked, or altered. Loose parts are endlessly interesting to kids because unlike fixed equipment, loose parts allow children to recreate their playground every day from the materials provided. They can transform everyday materials like sticks, cloth, and milk crates into anything they dream up. You can access our “Loose Parts Manual” at playgroundideas.org/handbooks.

4. Make room for secrets and surprises.

Spend an afternoon taking a walk through a city with a young child and you'll look at the world through different eyes. They'll be hypnotized tracing where the crack in the sidewalk/footpath leads, fascinated by the movements of falling leaves floating through the air, and absolutely delighted by the way the rubbish bin lid swings.

Children are finely attuned to the small wonders of the world. For them, the magic of a playground sometimes lies more in the little details than it does in the structures and big elements. Throughout your design, add in little surprises that can be discovered whilst playing. Little painted pictures in corners and nooks, secret hiding places, interesting textures, handles and levers, peep holes, unexpected sounds, and talking tubes all make and keep a playground interesting. While busily building, these details can easily be missed or forgotten so prioritize them in your design.

5. Consider the “flow” of the space.

Children in a natural state of play do not move in straight lines. Having a playground that “flows” well involves having all the components of the playground well-connected. For example, say there is a path leading from the playground entrance to the rope bridge, cargo net, and monkey bars, but in between these you can divert off to the hopscotch, slide, or tree house. Good “flow” will give the child different directions to explore each time they step into the play space and will help avoid traffic jams on the playground.

6. Create zones for different energy levels

Consider what atmosphere or feeling you want to foster in different parts of the playground depending on what activities will likely take place there. For instance, a corner with a slide and rope swing might be active and loud, while a corner with a garden and bench might inspire more quiet reflection. Many playgrounds try to utilize space by putting extra elements like seats or chalkboards underneath platforms and climbing structures. This can work if the activities are similar, but imagine trying to chat and have a conversation with your friend or draw a picture while people stomped and shouted above you. You'd rather be somewhere quiet, wouldn't you? Separating spaces by energy levels creates space for different kinds of activities. Create room on your site for children to scream and shout, talk and laugh with their friends, or quietly daydream.

7. Don't get too preoccupied with looks.

All children deserve a beautiful place to play - one full of interesting colors, shapes, and textures. But as you're designing the space, don't get too caught up in how the space will look. Children's play can often look messy and chaotic - and that's ok! Remember the point of a playground is to provide a space where play can happen, not just a pretty yard. Playability is more important than aesthetics.

8. Design for intersections.

When designing your site, consider the needs of children of different abilities. This can include mental and physical disabilities, but it also extends to children of different ages, abilities and strengths. Trying to design a playground in which every inch is accessible to every child who might play on it will result in a pretty boring play space. It can also have the unintended consequence of segregating children of different abilities. Instead, focus on designing for “intersections,” or opportunities for children of all abilities to interact and play together. In designing spaces of “intersection”, it’s helpful to think about ability on a scale, instead of categorizing children as “disabled” and “able-bodied.” When you think about the strengths of children on a scale, you can design spaces where features have a range of difficulty instead of a distinction like a handicap slide. A rock climbing wall is a good example of a feature with a scale of difficulty. A rock climbing wall has several levels of difficulty all on the same wall, so a beginner and a pro can be climbing next to each-other and challenging themselves in ways that are appropriate to their abilities.

Within your design, look for opportunities where children of different abilities end up interacting and playing together. This could look like a cubby-house with a sandpit and bucket/pulley at the bottom so children playing below can interact with children up in the cubby-house, or talking tubes that connect children in different parts of the playground space.

To learn more about designing for children of all abilities, check out our “Inclusive Design Manual” (playgroundideas.org/handbooks.)

9. Work with, not against nature.

The best playground is the one nature provided. Tree limbs are perfect for climbing and swinging on and river rocks make the best stepping stones. The ultimate sandbox is a big stretch of beach and a handful of shells. Incorporate nature into your design as much as possible by adding gardens, trees, flowers, boulders, stumps, and logs.

In addition, look at how you can work with the natural features that already exist in your space. Are there any hills? Build your slide into the slope instead of building a ladder or ramp. Are there any trees in your space? Position the sandbox underneath so kids can tinker and shovel away in the cool shade. Where is the best natural line of sight in your space? Consider positioning benches for the teachers here.

Sometimes removing a dead tree may be necessary, but before you clear-cut or remove any natural features, consider how they can be incorporated into your design.

10. Don't forget the basics!

Be sure to include basic practical necessities in your space like:

- + Shade
- + Drinking water
- + Seating for adults
- + Trash cans
- + Storage for any loose parts or play equipment
- + Any necessary playground rules or signage

Mapping your space

Prior to the playground design, you will need to map your playground space. Having an accurate map of your space will help you design a playground that fits into your space well. There are a few ways you can do this. If you are building at a school or organization, ask the director if the architect of the building made any blueprints of the space. The space may have already been accurately mapped and you just didn't know it yet! If you don't have a blueprint of the space, try locating your space on Google Maps (www.google.com/maps). This will give you a good idea of the aerial shape of your space, which will assist you as you map out the features. You can calculate distances on Google Maps by following the directions on this webpage: goo.gl/5kp3oi.

It is also possible to map your space by hand. Here's how:

1. Draw a rough map. On a large notepad, sketch out your space. Indicate any features like buildings, large trees and shrubs, property lines, existing playground equipment, roads, paths, and fences. Don't worry about accuracy yet, just focus on noting everything in your space.
2. Measure features. Using a measuring tape, measure the dimensions of any features you indicated on your map like buildings, fence lengths, and the spread of shrubs or trees. Add these measurements to your map.
3. Plot the locations of features. Using stakes and string, create a straight line along one edge of your space. Measure the distance from the string to each object on your map, being careful to keep the tape measure at a 90° angle from the string. Confirm accuracy by measuring from other boundaries as well.

4. Map your space with graph paper. Using a ruler and pencil, transfer your measurements accurately to graph paper. If you are working with a small space, use 1 inch to represent 4 feet. If you are working with a large space, use 1 inch to represent 20 ft. Alternatively, you can use 1cm to represent 1 meter. If you are working with a large space, use 1 cm to represent 5 meters.

5. Mark important elements on your map. Now that you have a good map to work with, revisit your space and mark any important elements that may impact the design. Measure these features where possible and add these to your map. Look for:

- + Elevation changes, slopes, and hills. Indicate direction on your map.
- + Shade. Visit your space at times when you anticipate your playground will be heavily used, like recess or after school. Indicate any patches of shade that are present.
- + Mark any access to water or electricity.
- + Mark doorways, entrances, and traffic patterns (i.e. if a classroom of children were entering the playground for recess, where would they come from?)
- + Does the space experience any flooding or environmental changes throughout the year? Does it have any trees that shed their leaves during different seasons? Mark these spaces on your map.

Playground safety & risk

No playground will ever be injury free, EVER. In fact, it is guaranteed that children will be injured during childhood play. Bumps and scratches are a natural part of the learning process as children grow up and most people would agree that if we created a world where a child could never fall over that this would create other, worse consequences for the child. Children need challenges to grow and develop and they will experience some consequences along the way.

So, it is really important to differentiate between 'bad hazards' and 'good risks'. 'Bad hazards' i.e. are those risks that offer no value to children and could cause serious harm. All the most common hazards are covered in our Playground Safety Handbook (playgroundideas.org/handbooks) and they can and should be eliminated without loss of play value to children. Please also refer to your local Safety Standards (if you have them). Use common sense and seek expert advice (if it is available) to assess and remove these hazards in your playspace.

'Good risks' on the other hand are challenging activities that provide value to children's learning and development and are unlikely to NOT cause serious harm. These risks should be included. These activities often involve tricky movement, agility and balance. Eliminating them can be counterproductive and therefore common sense must be introduced when evaluating these activities to manage and support them effectively.

A good playground reduces “bad hazards” as much as possible while still incorporating a healthy amount of “good risk.”

Please see our “Playground Safety Handbook” which deals with the concept of hazards and creating challenging risks in detail here : playgroundideas.org/handbooks. During the design and build phases, it is essential that you review this handbook as it will guide you through how to watch out for each of the hazards listed above and how to prevent common playground accidents by:

- + Adding soft fall material
- + Calculating adequate space for soft fall zones
- + Building platform and guardrails at appropriate heights

Please do not build a playground without referencing this resource and any playground building standards that apply to your location. For a list of global playground building standards, please visit: playgroundideas.org/global-safety-standards.

Creating a design scheme

Once you have an idea of what your playground design will include, you need to sketch your elements into your site plan to scale. There are three ways you can do this:



Drag & Drop Designer - playgroundideas.org/build-playground

Our online Drag & Drop Designer tool allows user to create a full 3D professional looking playground site plan. You can add any of our 150 playground element designs as well as school buildings, trees and other features to match your space, and upload images of your own design sketches and background photos to truly customise your design. Once you’re finished, save, print, share to friends on Facebook add your design to your playground project page. Create a free account at playgroundideas.org and access the Drag & Drop Designer from your user dashboard.

Cut & Paste - playgroundideas.org/handbooks

If you're looking for a lower-tech way to design your playground, we've got you covered too! Download our Cut & Paste manual and you'll find all our playground elements scaled to size. With paper, scissors and glue, you can map out your site, cut out the playground elements you want, and start designing!

Google SketchUp - www.sketchup.com

If you want to get more technical, try using SketchUp, a free 3D modeling software created by Google. If you have never used 3D modeling software before, it will take some time to learn. Sketchup offers free video tutorials to get you started: www.sketchup.com/learn/videos/826.

Gathering community feedback

Once your design scheme is complete there is one very important step left. It's time to take the design back to the community to get their feedback. When you present the design, make sure you thoroughly explain each area and element and use lots of photos to show what the playground will look like.

If possible, it's a good idea to walk through the design on the space together. Seeing where elements will be laid out in the space may help people to think through any challenges you may not have anticipated like, "we can't put the slide in that corner, because there needs to be space on this side of the site for a car to be able to drive through." Getting any of these issues sorted early on will avoid unforeseen challenges during the build.

Be sure to create an atmosphere where the community feels free to share honestly when you present your design and encourage people to ask questions and share their thoughts and any concerns with the design. Once you have gathered feedback on the design, incorporate any necessary changes into the design scheme before you proceed to the "Build" stage.

Remember, if you have any questions at all along the way, the Playground Ideas team is here to help! Drop us an email at info@playgroundideas.org - we'd love to hear from you!

Step 4 - Build

You're finally ready to build your playground! All the hard work you put into planning and fundraising is about to take shape. Playground building is dynamic, challenging but super satisfying work. Unlike a house, playgrounds can come together very quickly and big changes happen everyday. Be prepared to constantly be problem solving. And no matter how much planning you've done, don't expect everything to go according to plan. Arm yourself with patience, a flexible attitude, a good sense of humor, and plenty of food, water, and rest.

In this chapter you'll find:

- + Checklists to help the "Project Leader" keep the build on track and avoid any unforeseen challenges
- + Guidance on building with tires
- + Tips on specific materials

Let's build a playground!

Set-up

As you're getting ready for the build, make sure you've selected a "Project Leader" to manage each step of the build. Learn more about the qualities of a good project leader on pg. 25.

Materials/Tools

Get your materials ready for the build by collecting materials and tools well in advance to ensure everything is ready to go on the first build day. Decide how and where you will securely store your materials and tools at the end of each day so they are not stolen. Even if you have already purchased all your materials, it's a good idea to keep a stash of petty cash on hand for unforeseen expenses. Set up a system for recording purchases and storing receipts so you can make sure you stay within your budget.

People

Specify the number of volunteers you will need. Clearly communicate with them the days and times they will be needed and anything they will need to bring with them (gloves, clothes they don't mind getting dirty, water, etc.) Communicate with any workers you have hired. Let them know what days and times you will need them and any tools or other supplies they will be expected to bring. Make lunch plan. Will builders and volunteers be fed on site or will they be expected to bring or buy their own lunch? Also make sure you have plenty of drinking water on-site. Get a clear idea of how much you will pay any hired workers and when you will pay them. In many low-income communities, workers expect to be paid daily so you'll need to have someone in charge of making sure everyone's payment needs are met in a timely manner and usually in cash. If children will be present at the site, make a "play plan" with the staff (pg. 30.)

Site

Prepare your site by clearing any trash or rubble, cutting down overgrown brush, and removing any existing playground equipment that is broken, dangerous, or will not be used in the new design. Figure out where and how you will get electricity for power tools and water for mixing cement, washing tires, etc.

Design

Print out copies of the design plans for each element so you can hand these out to build teams. Print this handbook as well as the "Playground Safety Handbook" for reference. Review all the design plans to ensure you understand the steps. As you review the steps for each of your designs, think through all the tasks and when they will need to be done. Plan out your goals for what your team will accomplish on day 1. Separate tasks that can be done by volunteers and ones that will need to be done by trained craftsmen/women. Keep a running to-do list so that as soon as one job is finished you can direct workers to the next task. Keep lots of paper and pencils on hand during the build for sketching out explanations and making calculations and gather plenty of stakes and string to mark boundaries and elements on the first day.

First steps

On the first day of the build, Get everyone together to run through the design and answer any questions. Referencing your site design and map, use stakes and string to mark out where each element will go. Make sure everything lines up and is the correct distance apart. Get others to help you double and triple check your measurements and remember to measure out and mark appropriate safe fall zones (see "Playground Safety Handbook") and the back of each of the design plans. Relocating elements later is wasted time and energy!

Assign different elements to different teams of people. Using pictures and plans, review the steps and explain thoroughly what they should do, where, and in what order. Be sure to also explain the purpose of the element they are building and how children will play on it - use any photos or videos of the element in use to illustrate this. Understanding the end goal will help them understand the construction of the design better. Encourage people to ask questions and clarify anything they don't understand.

Managing the build

During the build, the "Project Leader" should constantly rotate between teams to make sure they're on track and understand the next steps. Keeping an eye on the design as it's built will be much easier than fixing mistakes later on. Getting bogged down on one element is the main reason mistakes are made on other pieces. Always keep moving with your head up! At the end of each day, re-evaluate your to-do list. Look through the next steps for each of your designs and think through all the tasks and when they will need to be done. Plan out your goals for what your team will accomplish the next day. As elements are constructed, check each element for common hazards described in the "Playground Safety Handbook." Make sure you are following appropriate guidelines for safe fall zones, head entrapments, and spacing of elements. Prevent water collection in tires by drilling or cutting drainage holes in the lowest point of any tires that could collect water. See pg. 55 for further details.

Stick to your design, but also allow a little room for improvisation. Look for small details you can add in along the way. Little things like unexpected peepholes, tiny murals, or buckets on a rope to a platform are details that add magic to a play space. Re-evaluate the number of builders and volunteers needed as you go and make sure you communicate with all your builders and volunteers about when they're needed. Keep a running to-do list of tasks and volunteer jobs so you don't leave people waiting to be told what to do next. When possible, involve children in the build. They'll love helping to build their playground! Work with teachers and volunteers to allocate tasks appropriate for them like painting, planting, shoveling sand, or sorting tires.

The build will no doubt be challenging at times, but focus on keeping a positive attitude! Correct any problems as soon as you can, but stay positive, encouraging, and upbeat. An enthusiastic, motivated team will get more done than a frustrated, demoralized one.

Final checks

Before the children can play, go around and inspect all the welding, bolts, screws, nails, and other connections. Review the "Playground Safety Handbook" and double check the site. Check each tire on every element to make sure drainage holes have been drilled or cut. See pg. 55 for further details. Test any load-bearing parts or structures with sacks of heavy grains or sand and check how much movement and warping happens. Add extra bracing or other strengthening elements if necessary. Keep in mind children will play on the equipment in unexpected ways and will regularly overload the elements (for example, three children on a one-person swing) so make sure you test accordingly.

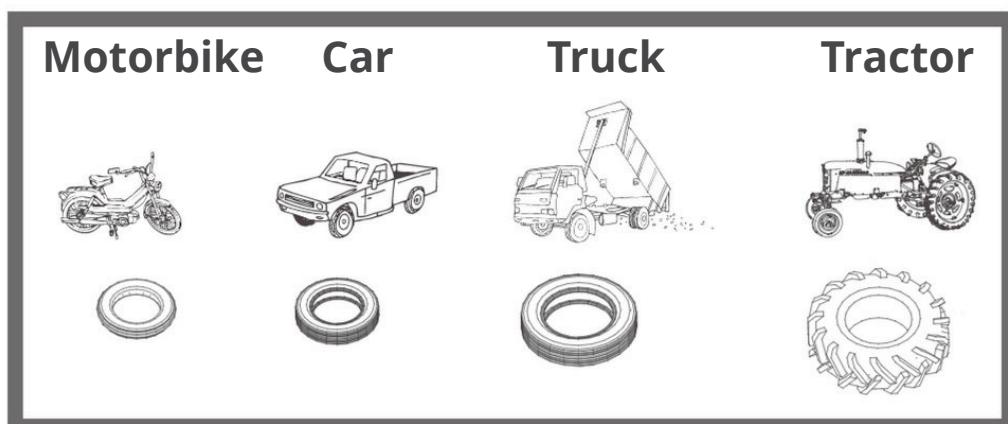
Make sure paint has adequate time to dry before children play on painted elements. Allow minimum 3 days for oil paint to dry. Even though it may look dry before then, it can often still be easily smudged and scuffed and the playground will end up looking dingy if played on too soon. Make sure any concrete footings have adequate time to set before children play on any elements with footings. Allow minimum 5 days for concrete to dry. Even though it may look set before then, it will get stronger the longer it sits.

Building with tires

Used tire playground elements are our specialty so over the years we've developed some specific strategies for building with tires. Here are a few of our tips and tricks.

Types of tires

Playground Ideas design plans call for four different types of tires:



Motorbike and tractor tires are easy to spot, but it can be a little harder to tell the difference between car and truck tires. A standard car tire has an inner rim (the hard rubber ring that seals onto the metal rim) that is between 14 to 17 inches across (35.5 cm to 43.2 cm). A truck tire has an inner rim of around 20 to 24 inches (50.8 cm - 61 cm) across. These dimensions are usually written on the tire with the letter "R" in front of it.

When you go out looking for tires, collect anything you can get your hands on. You'll probably end up with different numbers of car and truck tires and will then have to figure out how to fit them into your design. Knowing the differences between car and truck will help you discern when you can substitute one for the other in a design.

Both car and truck tires are useful in designs for their different properties. Try sitting on the top of a car tire and then try sitting on a truck tire and observe the differences. You'll notice that the car tire will likely slowly start to buckle and sink down under your weight - especially if it is a small or old car tire. The truck tire, however, will stay firm and support the weight of an adult (even several adults!) Due to their pliable nature, car tire treads makes great seats, swings, bridges, etc. They can also be used whole as planters, sandpit barriers, and stacked up as steps. Truck tires are much tougher than car tires. They work great in climbing structures and other load bearing elements. Due to these differences, you could substitute a truck tire for a car tire in building a sandpit barrier, but you cannot use a car tire to build a climbing pyramid. Got it?

There are also different kinds of truck tires: some have steel belts, and others have nylon belts. This will also be written on the sidewall of the tire. Steel belted tires are much more common. Most truck tire designs can be built with either steel or nylon belted tires, with one exception: the "Truck Tire Hammock." This element must be built with nylon belted truck tires only. It's one of our very favorite designs, so if you get your hands on 100% nylon radial truck tires, build a few hammocks! They're incredibly cheap and easy to build and little kids love rocking and swaying in them.

See where it says "R16"? That means this one is a car tire!





Tire quality

Prior to using any tires, carefully examine the entire surface of the tire to ensure there are no steel wires sticking out. If there is a small patch of exposed wires, you can still use this tire if it is half buried in the ground with the exposed section in the ground. However, if the rubber has worn thin and there are exposed wires on half or more of the tire you cannot use it. Do not try to clip down or grind down these exposed wires - it just won't work and can pose a serious hazard to children.

How to cut car tire tread

Many tire design plans will require cutting car tire tread. Over the years, we've found this method to work the best:

1. Use a utility knife / box cutter to remove both the sidewalls. be careful not to cut too close to the tread because you can expose the steel belt which is very sharp and must stay well encased in the rubber.



2. Clean up the edges so they are nice and smooth. Be sure to make sure your hands are safely positioned so you do not slip and cut yourself.



3. Flatten the tire tread loop. You can put it in a vice or clamp at this stage if you have one.



4. Mark the angle you want to cut the tire on. Some designs need an angled cut and it's best to cut only once.



5. Cut through the tread with a very sharp knife all the way until you feel the steel wires. You will need to sharpen the tip of your blade after this. (There are usually a couple of layers of nylon tread over the steel wires that you will need to get through.)



6. Using the thinnest metal grinder blade, gently and neatly cut the 2-3 layers of steel wires in the tire and stop once you have gotten through the steel because you can cut through the remaining rubber with a knife much neater and with less smoke. This is best done with the tire in a vice. Add water to the tire as you go and it will not smoke. Don't breath in the fumes from a smoking tire.



7. Finish the cut with the utility knife / box cutter instead of the grinder as you will get a smoother finish.



8. The edge will have some sharp edges and is not yet suitable for play equipment.

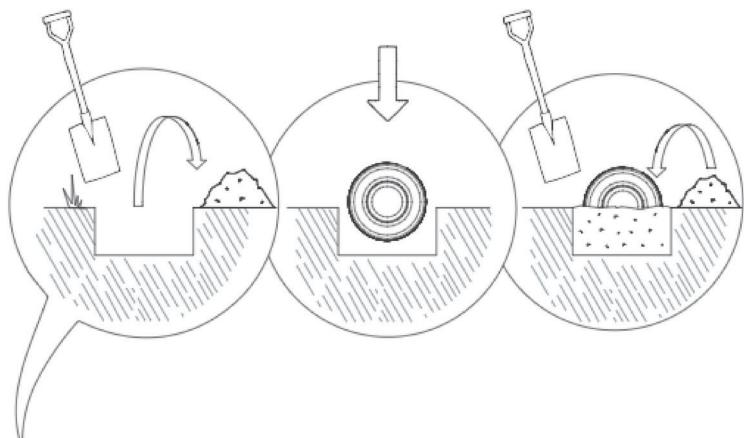


9. Using the side of a thicker metal grinding blade smooth the metal wires into the tire until you can run your fingers over the edge and feel NO sharpness or steel at all.



10. You will be left with a neat smooth edge ready for use.





Burying tires

Many design plans will require you to half bury the bottom tires into the ground to fix them in the site. It is critical to do this step well so that your element stays in place over time and is safe for children to play on. Be sure that the bottom tire is at least half way in the ground. Any less and it will likely move and shift over time.

When you fill the hole back in with soil, take time and lots of force to pack the soil into the bottom of the tire. Use a short log or the back end of a hoe to ram the earth down. Adding water will help pack the soil down. Once it is set, try tugging at the tire to make sure it is securely fixed in the ground. If it moves at all, pack the soil in harder.

Drainage

One of the potential safety hazards in building tire playgrounds is that if you do not take precautions, tires can collect water which can be a breeding ground for mosquitoes. In areas of malaria prevalence, this can be a dangerous problem.

Luckily, it's also an easy problem to avoid! Here's how: on each element, cut or drill a hole at the lowest point of each tire. This will allow any rainwater to freely drain. After you complete the playground, double check each element to ensure that there is a drainage hole for every tire that could collect water.

Painting

To ensure that paint sticks to tires well, use high quality oil based paint. See page 59 for more info on selecting paint. Used tires generally have a lot of oil and dirt on them which can prevent paint from sticking. You also don't want kids getting leftover motor oil on their hands, so scrub down any tires you'll use on the playground with soap and water and allow them to dry before painting and before children play on them.

Generally it is easiest to do this all at once at the beginning of the build instead of trying to wash elements that have already been built. Prior to painting, you may need to do another quick wipe down to remove any dirt from constructed elements.



Tips on specific materials

These tips on using specific materials are designed to assist you as you select and work with materials on your playground build. However, they cannot replace expert local advice and local knowledge. In all cases it is best to consult local building experts about the appropriate materials to use.

Timber

There are literally thousands of different varieties of timber used throughout the world, and all timbers have different properties such as flexibility, rigidity, warping, potential to cause splinters, and so on. However they generally fall into two types: hardwood and softwood. Both timber types have their uses, but generally hardwood will last longer and be less susceptible to rot and termites. Hardwood is particularly important for use in areas of high stress, such as the top pole of a swing set, seesaw poles, bridges, and any other places where there are long spans and high loads.

One important factor to consider in building with timber is termites. In some areas of the world where termites are prevalent, they can absolutely decimate a playground. Get a clear understanding of whether termites are a problem in your area before you build with timber. Many communities have developed strategies of treating timber to prevent termite infestation. Be careful to ensure that any treated timber is safe for children to be exposed to. Remember that children are highly tactile - they're constantly touching, feeling, and putting things in their mouths. So just because something is generally safe for adults to be around does not mean it is safe for children to play with.

Bamboo

Again, there are thousands of varieties of bamboo, with all sorts of different structures, densities, diameters, and rot and insect resistance. In some areas of the world, particular giant bamboo species are used to build huge span bridges and multi-level buildings.

It's often assumed that bamboo can be used in the same way as timber, but this is not the case. It's highly susceptible to powder beetles and rot, and certain thin-walled varieties can lose a good deal of their strength if the tubes are cracked or split. The varieties of bamboo near you may look perfect for your needs, but local knowledge is always the best judge.

Steel (chain, bolts, screws, nails, cable)

Most steel looks the same but it is important to know what you are using. There is an enormous difference in the strength, durability, and flexibility of steel depending on whether it is plain, hardened, spring, galvanized, or stainless steel. In hollow steel, wall thickness can be an important factor. One steel 2" pipe may look much like another, but the wall thickness will be the difference between a great set of monkey bars and one that bends and breaks in a matter of months. For any load bearing elements, Playground Ideas recommends a minimum wall thickness of 3mm. Hardened and coated (galvanized, powder-coated or painted) steel parts are important for elements with high loads such as swing chains, swing hangers and fittings, hanging bridges, and merry-go-rounds and other spinners. (See Paint/Coatings for more details about this.)

Beware of substandard items such as:

- + Hand-bent and welded chain
- + Chain, bolts, or screws made from unhardened steel and cable
- + Steel cables with a non-steel core

The best approach when selecting steel is to work with a local welder whose work you trust. They will be able to easily differentiate between quality and substandard steel.

Cement/Concrete

It's important to always follow the directions given on the packaging when using cement or concrete. Cement takes up to a month to fully set, and should not be overstressed during this time especially the first few days. We recommend allowing a minimum of 5 days for concrete to set before children play on it. Concrete becomes hardest if it is kept moist during its setting time so make sure your elements and footings are kept moist as long as possible as this will dramatically increase their longevity.

Generally speaking the footings of elements need to be around 40cm deep or more, particularly for elements with high loads such as swings, cubbies, elements connected to bridges, and seesaw frames. In certain soils and conditions you may need other footing types or ways to fix your elements to the ground. As always, local builders will be able to support you here but again, the loads on some play elements are much higher than those of a house for instance so this need to be taken into account.

Sand

Sandpits are wonderful playground elements but all sand is not created equal. Finding the right sand for your sandpit or safe fall zone can be tricky in some areas of the world. We've put together a few tips to assist you in selecting "good" sandpit sand.

A good sandpit:

- + Feels delightful to run through your hands and sink your feet into.
- + Can be mixed with water and be moulded into all sorts of shapes and forms.
- + Remains soft and malleable over time.
- + Does not produce any dust when kicked up or moved and doesn't make your hands dirty when it's wet.

A bad sandpit:

- + Will pack down and clump over time or after rain and become a hard mass that is unuseable.
- + Is sharp and abrasive to touch or sticks to your skin.
- + Produces dust when kicked or moved. The dust produced by some types of sand can be dangerous for children to inhale.
- + Has either very coarse, gritty particles or highly sifted uniform particles and therefore is not moldable. (Note: This kind of highly sifted sand can be great to use as soft fall material, it's just not as fun to mold and play with in a sandpit. For more details on soft fall materials, please refer to our "Playground Safety Handbook")



How to find “good” sandpit sand:

Generally speaking the best sand is found next to the ocean. Clean beach sand has naturally washed silt and dirt away and the waves have tumbled the sand into soft, round particles. Ask for “beach sand” or even “river sand,” (although this can be very silty sometimes) as opposed to sand made from crushed rock. Crushed rock sand can be sharp, abrasive, and can contain dust that is dangerous to inhale. If you cannot find beach or river sand, try asking for “washed sand.” This is sand that has been surface mined, sifted and washed to remove silt and clay, then allowed to dry. This kind of sand is often used to make quality concrete. Look for sand that is low in clay and soil as this will cause the sand to set hard after the rain. Touch, feel, and mould different types of sand you find to make sure it fits the qualities of “good” sandpit sand listed above.

Research the sand in your area well before purchasing. If you’re having trouble, look for any high quality construction projects happening in your community, try asking where these contractors get their quality sand. If you are building in a community that is near to large rivers or the ocean, finding good sand may be easy. If not, you may need to transport your sand from another part of the country. Typically, we recommend trying to source materials as locally as possible, but as quality of sand is very important to its safety and play-ability, this is a material that is worth spending a bit more money to transport if it means the quality will be higher.

Rope

Generally rope is not a great material for playgrounds especially in high wear areas. Rope rubbing on elements such as wood or steel can cause it to weaken rapidly. If not UV treated, plastic ropes can breakdown in the sun, and hemp/ natural ropes can rot in the rain. Heavy-duty plastic/ nylon rope, has in some cases, shown to be a practical material given its low cost and ability to be easily replaced regularly, as needed. For swings, try using two lengths of rope per connection so that if one breaks no one is hurt and the broken length can simply be replaced. UV treated, high quality rope, like the kind used in the marine industry is typically much harder to find but can last a long time.

Paint/Coating

Paint can make a simple playground look amazing, but it can also serve a very important function by preventing moisture (rain), sun, and insects from degrading the material they are covering. Choosing high quality, UV-protected paints or coated or galvanized steel will significantly reduce maintenance and prolong the life of your playground. Poor quality paint will quickly fade and peel which can end up making your playground look pretty shabby, so don’t skimp on this purchase! Stick with well recognized, brand name companies and choose oil based paint as it is more durable than other options. Most paint companies will sell different qualities of paint, with the higher qualities being more expensive. Try to purchase the highest quality you can find. Paint elements with primer first to help the paint last longer. If you are painting tires, be sure to wash them with soap and water and allow them to dry before painting.

If you cannot find or afford high quality paint, stick to just painting the details that matter:

- + Paint any timber or ungalvanized steel to protect it from degradation
- + Don't paint any high traffic areas like the runway surface of a slide, the very tops of tires that will be jumped on, or swing seats.
- + Add color to the playground that will last longer by painting details on lower impact areas like structure of a swing set and the sidewalls of tires.

A playground with simple, sparsely painted details in a couple colors that will last for years is much better than a playground drenched in a palette of colors that will fade and peel away in a few months.

Paint or other coatings with insecticides in them may be harmful to children and should be carefully considered when using in a playground. Read the label to ensure that you use paints that are suitable for use around humans.



IMPORTANT NOTE: It is essential to ensure the paint you use is lead-free. Lead is a common additive in cheap paints and can cause severe health issues for children. Try contacting the supplier if you are unsure if your paint contains lead. For more info on the dangers of lead see: www.mayoclinic.org/diseases-conditions/lead-poisoning/symptoms-causes/dxc-20275054

Paint can take a deceptively long time to dry. We recommend allowing a minimum of 3 days for paint to dry before children play on any painted elements. Even though it may look dry and feel dry to the touch before then, it can often still be easily smudged and scuffed and the playground will end up looking dingy if played on too soon.

Grease/Lubrication

Grease and other lubricants will significantly prolong the life of swing hangers, seesaw brackets, merry-go-rounds, and similar playground elements where materials rub against each other. Grease and lubricants can be messy and should not be placed excessively in places where a child could touch or consume them.

Congratulations! You've finished your playground build! It's time to get everyone together to celebrate. You can even organize an official "ribbon cutting" ceremony to mark the occasion. Now sit back and watch how much FUN the kids have on their new playground all because of the hard work of your team.

Step 5 - Maintain

Every day playgrounds get stomped on, swung around, drummed on, and kicked. Playgrounds take a daily beating. And that means that even the toughest, strongest, most expensive playground will require maintenance sooner than you think. It's helpful to think of a playground like a garden. Planting a garden is not a one-off event - keeping a garden requires regular care and attention. So do playgrounds. Any playground that is unmaintained will eventually become unsafe. In this chapter we'll cover:

- + How to plan for the long term maintenance of the project throughout the playground process.
- + Sample maintenance checklists.
- + Advice on developing playground rosters to avoid over-stressing playground equipment.
- + Tips on creating playground rules.
- + Playground resources for teachers.



Planning for maintenance

Before you even begin your playground build, it is essential to know who will maintain it and how repairs will be funded. The cost to maintain locally built playgrounds is usually a very minimal amount each year, but when time and funds are not allocated the site can quickly fall to disrepair. It is important to consider the long-term sustainability of the project throughout the process by:

- + Involving the local community in the planning, design, and build to ensure high ownership of the project.
- + Building from low-cost, local materials so that when something breaks it is easy and affordable for the local community to repair.
- + Relying on local builders. In particular, make sure whoever will be tasked with regular maintenance checks and repairs is involved in the build. This way, they will have intimate knowledge of the project and how it was built.

Once your playground is complete, create a “repair kit” to make regular maintenance easy. Include things like a tin of grease/lubrication, extra rope, chain, extra bolts, nuts and washers, and a ratchet/spanner. Customize what you include depending on your site and keep it easily accessible.

Maintenance checklists

Basic daily visual checks of the playground should be done when teachers are supervising children. A comprehensive check of the playground should be carried out every three months. At the “Three Month Checkup” there will likely be small repairs needed. Doing this upkeep regularly will be much easier, cheaper, and safer than allowing elements to break before they are tended to. If any elements are damaged, children must not play on them until they are fixed.

Pay close attention for signs of wear on any timber or steel that horizontally spans more than 2m/6ft, such as bridges or the top pole on swing sets. The failure of these parts could cause injury, and they must be inspected regularly. Increased wear in these areas can be caused by having too many children use the swing or bridge at the same time. Rules should be in place to prevent overloading these elements, but as children are not always good at strictly following rules regular inspection is the best course of action. Below is a maintenance checklist that can be used as an example of a “Three Month Checkup.” Customize this chart depending on the elements on your playground.

Sample Playground Maintenance Checklist

Area	Results Yes, No, or n/a	Reason If "No," what is the reason?	Action Action to be taken, and when.	Scheduled Date	Completed Date and by whom
Are the swing hinges greased?					
Are all bolts/nuts on tire elements tightened?					
Are all rails on the cubby-house secured and are all surfaces free of splinters and protruding nails?					
Is the gate(s) in sound condition? Check hinges and closing devices.					
Is the perimeter fence free from any damage?					
Is the playground free of any sharp objects, including broken branches, pieces of metal, syringes, or glass?					
Is the playground free of rubbish and animal droppings?					
Is the sand/soft fall material at least 200mm deep?					

Playground rosters

In large schools, it can be problematic for all classes to play on the playground at the same time. Not only can it be unsafe, lead to accidents, and over-stress elements, but if it's too busy the younger or quieter kids will get crowded out or trampled. A playground roster can be helpful in managing the playground activity so that it operates smoothly, and within its intended capacity. The size of the school, schedule of the school day, number of students and classes will all have an effect on what the roster might look like. Here is an example of a simple student roster, which gives everyone equal time on the playground. Use this template to create one to suit your own needs.

Week 1	Recess	Lunch
Monday	Grade 1+2+3	Grade 4+5+6
Tuesday	Grade 4+5+6	Grade 1+2+3
Wednesday	Grade 1+2+3	Grade 4+5+6
Thursday	Grade 4+5+6	Grade 1+2+3
Friday	Grade 1+2+3	Grade 4+5+6

Week 2	Recess	Lunch
Monday	Grade 4+5+6	Grade 1+2+3
Tuesday	Grade 1+2+3	Grade 4+5+6
Wednesday	Grade 4+5+6	Grade 1+2+3
Thursday	Grade 1+2+3	Grade 4+5+6
Friday	Grade 4+5+6	Grade 1+2+3

Playground rules

Any rules for the playground should be developed by the adults and children at the site depending on what is appropriate for their context. Rules may need to change over time as issues arise. It can be helpful to include children in the creation of the rules to give them buy-in and ensure that their needs and concerns are met. Below is a list of sample rules that some schools have created. Use this as a template to write your own. Display the rules in a prominent place so they can easily be referred to.

Sample playground rules:

- + Only do what you feel confident to do.
- + Don't hurt anybody.
- + Be a good friend and let others join your games.
- + Listen to others and teachers.
- + Play safe and tell a teacher if someone is hurt.
- + Take care of the playground and don't damage equipment.
- + Look after the plants and trees in the playground.
- + No throwing sand.
- + If something is broken, tell a teacher.
- + Put your rubbish in the bin.

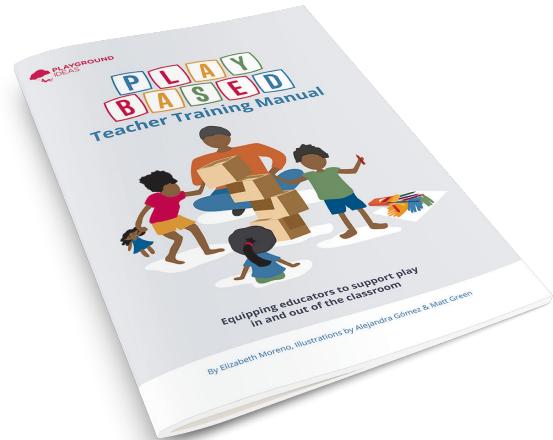


Teacher resources

Adding a playground to a school can be a big change! It's important to help teachers and staff utilize the site well and empower them to support children's play. These two Playground Ideas manuals are great resources for teachers and child care workers at a new playground site:

Play-Based Teacher Training Manual: Equipping educators to support play in & out of the classroom

Our "Teacher Training Manual" (playgroundideas.org/handbooks) covers a basic introduction to the importance of play for healthy child development. The manual provides encouragement for teachers and childcare workers to use the resources and play traditions within their own culture to support play both inside and outside the classroom. With beautiful illustrations on each page, teachers will be empowered with knowledge about the importance of creating time and space for play for the children in their care.



Loose Parts Manual: The DIY guide to creating a playground in a box

"Loose parts" is a term that refers to any material that can be moved, carried, stacked, or altered. Sticks, stones, cardboard boxes, ropes, milk crates - the possibilities are endless! Not only are loose parts cheap and easy to find, but they're endlessly interesting to kids. Unlike fixed equipment, loose parts allow children to recreate their playground every day from the materials provided. Chock-full of beautiful illustrations and helpful tips and tricks, the Loose Parts Manual will guide you through gathering materials, setting up a storage and maintenance system, thinking through safety concerns, and training teachers. Adding loose parts to your playground is a fantastic way to improve and adapt the space over time.



Remember, if you have any maintenance questions, don't hesitate to contact us. Drop us an email at info@playgroundideas.org - we'd love to hear from you!

Appendices

Playground Reporter Exercise

(Facilitator Guide)

Objective: This exercise uses Primary 7 students to gather information about how and where their younger classmates play. Children have intimate knowledge about their physical space that adults do not. In designing a playground, it is important to utilize this knowledge. However, young children have not yet developed skills for self-reflection and struggle with accurately reporting how and where they play.

As the oldest students at the primary school, Primary 7 children walk the line between child and adult. They have spent many years using the play space of their school during different developmental stages and are young enough to have clear memories of play throughout their childhood. They are also mature enough to be able to accurately reflect on and describe these memories. Unlike adults, younger children do not yet see them as authority figures and are more likely to share honestly with them. The Playground Reporter Exercise gives older students responsibility in assisting in the design of a playground for their younger classmates.

Participants: P.7Class (12-14 yrs.)

Time: Half-FullDay

Materials:

- + Chalkboard
- + Paper
- + Printout of "Playground Reporter Notes" for each student
- + Sign for each class at school (P.1, P.2, P.3, etc.)

Introduction

Good morning! My name is _____ and I am visiting you today from _____ . Our group builds playgrounds at schools just like yours. Who can tell me what a playground is?

A playground is a space to play in, a playground has swings and slides, a playground is a place for children, etc.

Very soon, some workers will be coming to your school to build a new playground. Before we begin, the playground designers, parents, and teachers need the help of the P.7 class in designing a good playground for this school. As the oldest students in the school, we know that the P.7 class has been playing at this school for a long time and has important knowledge about how and where kids like to play. Can you help us?

Playground Reporter Training

Today you have a special assignment. You have all been appointed as "Playground Reporters." Who can tell me what a reporter is?

A reporter works for a news station, a newspaper. A reporter tells the news, etc.

How does the reporter get their information?

From watching, from asking sources, from reading, etc.

A reporter gathers information from many sources and describes on what they've learned. That's what we'll be doing today. This is your reporter assignment:

Write on blackboard "*How and where do the children at _____ like to play?*"

To report on this question, we need to divide into groups for each class at the school.

Divide students into small groups for each grade at the school. Let students pick if they desire. Give each group a sign with their assigned grade.

The class you have been assigned to is the group of children you will be reporting on. Do you remember when you were in P.__? The way we play changes as we grow up. Can you remember how you liked to play when you were in P.__?

Let class tell a few stories about how they used to play.

Today at break-time, we'll be taking notes about how and where the kids in your grade like to play. You can watch them play and ask them questions.

Hand out "Playground Reporter Worksheet." Read through questions.

On the back of your sheet, you can draw a map of your school compound. When you are watching the children in your class play during break-time, mark on your map where the children like to play best.

Another way we will get information is by letting the children tell us how and where they like to play. The children in each class will do this by drawing pictures of how they like to play.

Once you have gathered all your information, you will be presenting what you've learned to the teachers. Then together you will get to pick some playground elements you think the children at your school will like best. Are you ready?

Take one group at a time to each school classroom. Explain that we will be building a playground soon and we want to know how they like to play. Distribute paper and ask kids to draw a picture of how they like to play best. The other playground reporter groups can remain in their class to draw their compound maps. Have the P.7 teacher help you take student groups to each class to save on time.

When all classrooms have been visited, reporter groups can review the drawings and pick 2 they would like to present to the teachers.

Remind reporters of their break-time assignment before leaving. During break-time, let the reporters do their work! Check in with groups to make sure they are on task. After break-time, meet with class briefly to help them prepare their reports.

Now, it is time to prepare your report for the teachers. From the information you gathered, each group must make a report.

Have groups copy these lines and write brief answers:

Children in P.__ like to play by...

The spaces on the compound children in P.__ play on most are...

A good playground for the P.__ children would include...

Each group picks one representative who will give their class "report" (read their summary and describe two drawings.) In the afternoon, the P.7 class joins with the teachers to give reports and pick out their elements on behalf of the class they reported on.

Every Reporter gets a sweet at the end to thank them for their hard work!

Playground Reporter

Name:

School:

Assigned Class:

What do you see the kids you are observing doing during break-time?



What kinds of materials or elements do they play with?

Do you see them pretending or creating stories? What are they pretending?

Are the boys and girls playing different games or in different places?

Where on the compound do the kids spend time during break-time?

On the map of the compound you have drawn on the back, mark some of the places you saw the kids playing most.

Sample Budgets

Sample of a construction budget from a playground project in Central Thailand completed by Peace Corps Volunteer Cameron

Miller. Exchange rate: 32 Baht / US\$1

Item/Description	Unit	Unit Price	Total Cost		FoT Funding		Community Contribution	
			Thai Baht	Thai Baht	\$USD	Baht	\$USD	Thai Baht
Labour*	100	100	10,000	\$312.50	0	\$0.00	6,000	4,000
Food*	300	30	9,000	\$281.25	0	\$0.00	4,500	4,500
Used Tires	100	50	5,000	\$156.25	2,500	\$78.13	0	2,500
Steel	1	8,200	8,200	\$256.25	6,080	\$190.00	0	2,120
Gas (transportation)	1	1,000	1,000	\$31.25	0	\$0.00	0	1,000
Saw	1	1,000	1,000	\$31.25	0	\$0.00	1,000	0
Roof Materials	1	3,000	3,000	\$93.75	2,000	\$62.50	500	500
Nails, Hammer, Brushes, Bolts, & Other Construction Materials	1	6,000	6,000	\$187.50	2,000	\$62.50	1,000	3,000
Paint (buckets)	12	365	4,380	\$136.88	3,000	\$93.75	0	1,380
Sand	2	2,000	4,000	\$125.00	0	\$0.00	3,000	1,000
Playground Slide	2	2,000	4,000	\$125.00	2,000	\$62.50	2,000	0
Rope and chain	5	200	1,000	\$31.25	1000	\$31.25	0	0
Total Budget			56,580		18,580	\$580.63	18,000	20,000
Percentages				100%	33%		32%	35%
Total used from FoT					18,580	\$580.63		

* 10 community workers worked on the playground for an estimated 10 days, 3 meals per day.

Below is an example of a material price list gathered in Peru to work out what could be built with the NGO's budget.								
Name	Description	Dimensions		Amount needed		Unit Prices	Total S/. (local prices by amount)	Total US\$ (local prices by amount)
					Metric			
Wood Logs	Eucalyptus Wood	4m long x 4" diameter	4m long x 6" diameter	18	18	40.00	180.00	\$64.00
Wood Logs	Eucalyptus Wood	4m long x 4" diameter	2m long x 5" diameter	20	20	40.00	200.00	\$72.00
Wood Logs	Eucalyptus Wood	4m long x 4" diameter	2m long x 4" diameter	40	40	40.00	400.00	\$143.00
Wood Logs	Eucalyptus Wood	4m long x 4" diameter	2m long x 3" diameter	30	30	40.00	300.00	\$107.00
Bamboo	Poles	4m long x 4" diameter	2" diameter	35	35	40.00	350.00	\$125.00
Roofing Materials	Leaf for roof; corrugated panels; something waterproof	Calamina ondulada 1.83x.85		20	20	11.00	220.00	\$79.00
Paint	Oil based enamel paint	Esmalte Tekno sintetico/galon		30 litres	8 gallons	61.50	492.00	\$176.00
Metal Primer	Needed for all metal parts (usually in red colour)	Esmalte Tekno epoxica negra/galon		4 litres	1 gallon	137.00	137.00	\$49.00
Paint Thinner	Also called Mineral Spirits	Thinner TKD Tekno/galon		4 litres	1 gallon	32.50	32.50	\$12.00
Turpentine		Teknodur Parafinico/galon		4 litres	1 gallon	124.00	124.00	\$44.00
Nails 5"		clavos de 3"/kg	5" long	22 pounds	10kg	6.03	60.30	\$22.00
Nails 4"		clavos de 4"/kg	4" long	22 pounds	10kg	6.03	60.30	\$22.00
Nails 3"		clavos de 3"/kg	3" long	11 pounds	5kg	5.21	26.05	\$9.00
Screws				4.5 pounds	2kg	15.00	30.00	\$11.00
Cement	Cemento Portland tipo I / bolsa			5 bags	5 bags	13.55	67.75	\$24.00
Sand		Arena gruesa/m ³		10 bags	4 cube	34.50	138.00	\$49.00