



Environment Newsletter

District 410E - February/March 2023

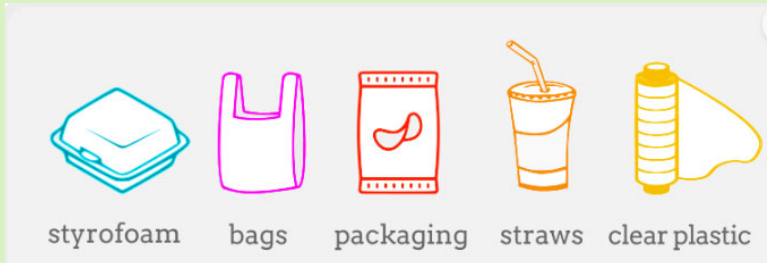


Ecobricks

One simple way of taking plastic out of the environment, is by making use of the main component of so many cleanup areas, plastic. Everyone can make use of this simple but effective method at home

The Problem is the Solution

Ecobricks form used plastic into reusable building blocks. Ecobrick applications range from home furniture to food gardens to structures. By transforming the problem, we can build solutions



Ecobricks are made with clean and dry plastic. Start by segregating your plastic from all other materials. Some ecobrickers bring a bottle with them everywhere they go.

If there is any food, oil or dirt on your plastic, be sure to wash it off. Dirty plastic inside an ecobrick will lead to microbiological growth and methane forming inside your ecobrick (for a solution for dirty plastic see the [Ocean Ecobrick](#)). Since ecobricks are often used to make home furniture you also want to avoid unsightly ecobricks, bloated bottles and in rare cases, caps popping off.

Its likewise important that the plastic is dry! Wet and moist plastic will also encourage mircobial growth. Ecobrickers around the world use different methods for drying their washed plastic- from laundry machines to clothes lines.

Choose your Bottle



Before you start ecobricking, choose one specific bottle and stick with it. When it comes time to building, having perfectly identical ecobrick sizes is important for making solid and steady modules. It also helps having at least the same general size of bottle when it comes to building with earth and ecobricks. Talk with ecobrickers in your community and make the choice together of what bottle to use.

When selecting the bottle that you will use, consider three factors: the bottle's **availability**, the **volume**, and the **project** you will use the ecobrick for.

1. Availability

The last thing you want to have to do is buy drinks to have a bottle for your ecobricking! Soon many people will be ecobricking in your community and it is ideal to have everyone using the same brand and bottle. Be sure to choose a bottle that everyone can easily come by.

2. Volume

Choose the bottle volume you want to go with. Depending on the amount of plastic to be recycled, bottles of 500ml are recommended. Large 1,5 or 2L bottles will take a lot of plastic, but also take a long time to make! Small volume bottles allow first-time ecobrickers to finish their first ecobrick and quickly learn from their mistakes. Large bottles are best for advanced ecobrickers.



3. Your Project

For building modules with Ecobricks, you need bottles that are *exactly* the same size and shape. For outdoor building projects, exact sameness is not so important, so long as the volume is consistent (i.e. all 500ml bottles). Depending on the size of construction, you will need different size bottles. For example, small bottles make good walls, and large bottles make good benches. See the Ecobrick [Construction Guide](#) for more information on the different ways ecobricks are applied.

Choose your Bottle



Ecobrickers like to call their packing stick, their magic wand. It makes the plastic disappear! Having the right stick will make a big difference to your ecobricking. Bamboo and wood make the best sticks. The size of the stick depends on the type of bottle you go with. You want a stick with a diameter roughly one third the width of a standard bottle opening- so about 6mm. You want your stick to be about twice the height of your bottle, with a slightly rounded tip. Avoid sharp cornered sticks as they can rupture your bottle- and yes, this means you have to start your ecobrick all over again!

Once you've got a stick with a good size and shape, you're set! You can then give it to others to copy and replicate. You can arrange a demo at schools or youth groups or do workshops with them - more magic! One stick turns in to many!

Start by Adding a Bottom Colour

It is important to start your ecobrick by adding a bottom color. This is part of the circular design principle of ecobricking: we're thinking about the next use of the ecobrick. When your ecobrick is put to use in a module or an earth construction the bottom color will help make patterns and designs.

To create your ecobrick's bottom color, choose a soft plastic with a solid color, then push it down to the bottom of your ecobrick. You'll want to fill the bottle loosely about half way with soft plastic of your chosen color. Then, pack it in with your stick. If your bottle has "legs" or dimples at the bottom be sure to pack these solid and full. Once all your soft plastic is compressed you want it to fill the first 1-2cms of the bottle.



Often schools or companies will ask their ecobrickers to make ecobricks with their community colors. By giving your ecobrick bottom a color, you open up colorful design possibilities for making modules or earth and ecobrick walls.

Pack the Bottle tight, mixing plastics as you go



Now it's time to pack away! Cut or rip up large plastics into smaller pieces. The smaller the pieces, the denser you'll get! Fill the bottle up half way with loose plastic, then use your stick to push down around the sides of the bottle. Keep pushing down as you move around the circumference of the bottle. Once compressed, add more loose plastics. To maximize the density, it's good to mix soft, then hard plastic. If it's your first ecobrick, weigh occasionally to make sure you are on track for your target minimum weight.

Did you push too hard? In rare cases, when using a sharp stick, a thin bottle or too much lateral force, an ecobrick will rupture. If so, start again. Ruptured bottles will not last and can leak plastics. Cut the bottle open, remove the plastic and start again. Cut or damaged PET plastic is readily recycled.

Weigh your Ecobrick, to ensure Quality

The weight vs volume of your ecobrick is a good indicator of the quality of your ecobrick. Ecobricks that are solid and strong are densely packed. The full volume is used for plastics and there is no air or spaces inside. The GEA has determined that an ecobrick's density must be higher than **0.33 g/ml**. This means that a 600ml bottle must be above 200 grams and a 1500ml bottle must be above a weight of 500 grams. Experienced ecobrickers tend to regard 0.37 g/ml and above as the range of a good ecobricks.

We've discovered that obligating minimum density in your communities ecobricking is essential to ensure quality ecobricks. Quality ecobricks ensure solid and safe constructions and make the maximize the bottle's volume for securing plastic out of the environment.

Ecobricks that are below 0.33 g/ml are too squishy to be used for modules and are not ideal for earth building. Soft ecobricks can compromise structural constructions and will dent easily, which reduces their lifespan. Low density ecobricks are also fire hazards because of the air pockets remaining inside them,

GEA Standard Minimum Density = 0.33 g/ml

An Ecobrick's Min Weight =
it's bottle volume x 0.33

GEA Recommended Max density 0.7 g/ml

For Example...
1500ml = min weight 500g
600ml = min weight 200g

An ecobrick's heft and quality set an inspiring example for others and energize the social spread of ecobricks. When others see and hold your ecobrick, they will understand immediately that something important has happened: "waste" has been transformed into something fundamentally useful.

Store your Ecobricks



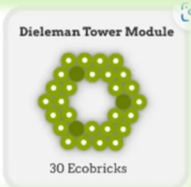
Once complete, you will need to store your ecobricks until you have enough for you project. Store ecobricks indoors, out of the sun. If possible protect with a cloth or tarp from accumulating dust and dirt (PET attracts dust and chemicals and is hard to remove). Stack horizontally, with the ends pointed outward. This enables you to organize your ecobricks by colour and brand- which later facilitates project planning and making. It's good to have the ecobricks raised slightly above the floor — rats have been known to chew away at bottles!

Ideally, ecobricks are stored off of the ground (on a floor or raised on wood) and fully protected from the sun and the elements. Ecobricks are best stacked horizontally with their bottom pointed outwards



And Build!

Once you have enough Ecobricks you're ready to build. There are five main techniques for building with bottles and ecobricks. The easiest, fastest, and perhaps the most fun Ecobrick application, is to make Milstein modules for horizontal building and Dieleman Lego modules for vertical building.



With modules you can create benches, table, chairs, structures and more. Perhaps the best use for Ecobricks is building community green spaces. Using local earth and ecobricks you and your community can build beautiful spaces that enrich the local environment.