

The Twelve Principles of Permaculture

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1. Observe and interact

Permaculture relies on an understanding of your site and local conditions. Ideally, you should observe your site for a year in all seasons, learning the patterns of sun, wind, heavy rains, flooding, hail, snow, animals, noise, views, and the like. Even if this is not possible, do a thorough assessment of the site's intrinsic qualities and determine goals for site

Goals: Quality, High Yields
 Soil Conservation -- keeping topsoil in place
 Soil Health –worms and other organisms
 Long term usage

2. Catch and store energy

There's a nursery rhyme about a squirrel collecting nuts during the summer to tide him over during the barren winter, and the permaculture principle of catching and storing energy echoes this lesson. There are many ways to catch and conserve resources when they are abundant so that you have access to them when they are unavailable. For instance, a greenhouse can catch and store the sun's energy to keep plants warm. With clever placement, a greenhouse can even provide passive solar heat for other buildings. Canning abundant summer produce for lean winter months is a way of storing food energy. Harvesting rainwater or recycling greywater from the house prevents valuable irrigation water from being lost to runoff or the sewage system, and provides water energy during dry months.

Goals: Less Compaction so water can seep in and not run away
 Buffer zones used for more than catches for poisons

3. Obtain a yield

Of course the whole purpose of an permaculture is to yield crops. But there are other less tangible—but no less valuable—yields from a permaculture. A yield may be the exchange of skills or information from one farmer to another. A yield should yield seeds for next years' planting. A yield should be in terms of residents' health.

4. Apply self-regulation and respond to feedback

I always thought the Native American idea "think of seven generations" meant to think ahead seven generations into the future. But I have been shown that it also means thinking back to our own great-grandparents, grandparents, parents, and ourselves, as well as forward to our children, grandchildren, and great-grandchildren. It means behaving as though we are part of a continuum, starting with an appreciation of the harvest of the land stewards of the previous generations, and planting perennials and enriching the soil so that years later our future grandchildren can continue to enjoy and reap the harvest of our labors. Responding to feedback can also mean remediating our own mistakes or those of our predecessors. This may mean replanting unproductive areas, or improving soil that has been impoverished.

5. Use renewable resources

Trees are an example of a renewable multipurpose resource. From them, we get fruit, nuts, seeds, building materials, and fuel. They also provide shade during summer for cooling our homes, blocking the wind, filtering the air, and releasing oxygen. Fruit trees can yield crops for many decades and are a resource that connects us to our community when we practice the ethic of fair share. Even when the trees have finished their productive years, we can chop them down and use the wood to construct new beds, cultivate mushrooms, or chip them to create mulch, knowing that all decomposing wood will eventually be transformed back into soil.

6. Produce no waste

One of the great things about a permaculture is that there isn't any waste. Instead, we find ways to re-use the leftovers from our efforts. Composting is one example, especially red worm composting, where creatures in the garden efficiently convert organic wastes like vegetable scraps into soil amendments that are then put back into the vegetable beds. The worms' digestive tracts convert food scraps into castings that enhance the soil food web

and are the key ingredient for compost tea. This is a complete edible plant life cycle: from harvested crop, to kitchen trimmings, to the worm bin, and finally back to the garden as fertilizer.

7. Design from pattern to details

Permaculture seeks to understand and mimic successful patterns found in nature. For example, the spiral shape is found in everything from galaxies to the structure of DNA and the field snail. It works well as a design template for an herb bed because it creates more surface space in a small area. A spiral-shaped bed also effectively creates microclimates because you can use some plants to shade others. This means you can grow sun-loving herbs like rosemary and thyme near shade-lovers such as mint and violets.

8. Integrate rather than segregate

Placing plants together in the right combinations helps them to grow in cooperation with each other rather than in competition. In this way, the whole ecosystem becomes greater than the sum of its parts. And when you take the time to observe what is happening in an existing landscape, you can then find ways to make changes so that all the elements work to support each other.

9. Use small and slow solutions

In permaculture, we don't aim for the quick fix or the immediate payoff. The objective is to design a system that is composed of many small parts, each of which contributes in time to the overall function. An example is an emphasis on perennial crops. Perennials don't need to be replanted every year, so they save energy, and they don't disturb the soil like most annuals. Although their yields can be slower at first, perennials like chicory, dandelion, rhubarb, and sorrel produce earlier in cold climates because they are the first to come up in the spring. Similarly, permaculture focuses on small-scale, local solutions in preference to more industrial approaches.

10. Use and value diversity

Diversity isn't just interesting, it's also smart. There is less vulnerability to a single disease or pest when different varieties are planted in proximity, whether it's an entire farm or a backyard garden. During the Irish Potato Famine of 1845–1852, approximately one million people died and a similar number emigrated when a single, widely grown variety of potato fell susceptible to a potato blight. In the Andes, where potatoes have been grown and developed for 5000 years, thousands of varieties are cultivated. Each year, permaculture should feature some new varieties along with old favorites. This will build a diverse repertoire of plants and create a balanced system that can tolerate some losses without the entire farm failing. This helps to ensure resiliency in the face of climate change and other ecological challenges.

11. Use the edges

In a permaculture we aim to make use of all possible space. This can mean designing in unusual shapes. For instance, keyhole beds are modeled after an old-fashioned keyhole. Mandalas are circular arrangements of multiple keyhole beds. If you have six keyhole beds in a circle, one path will be the entrance and there will be a round area in the middle to give some room to turn around. This increases the number of edges to maximize plantable space and minimizes path space. Marginal spaces that may not be suitable for traditional garden beds can also be turned into productive areas.

12. Creatively use and respond to change

Change is inevitable. What works well one season may not be successful the following year. Adapting to the shifting patterns of temperature, rainfall, pest populations, and other external forces is an important skill in permaculture. Our goal is to work with nature instead of trying to control it. As you face the challenges that come with growing, keep this principle in mind. You'll soon realize that there are no mistakes, just lessons pointing you toward better solutions.