Afforestation

What Is It?

The large-scale planting of trees, restoration of forest ecosystems, and counteracting loss of trees from natural disasters, agricultural activity, or other deforestation. While **reforestation** reestablishes lost tree cover, **afforestation** creates new coverage.

What Is The Impact?

Planting trees can help sequester atmospheric carbon dioxide, bolster biodiversity, and restore natural ecosystems. The methods of tree planting have varied impacts, including vehicle emissions to facilitate the planting.

What Does It Cost?

Costs can vary widely depending on planting method, remoteness and scale of the region, human or technological labor, and the type and quality of seed, seedling, or sapling. Planting trees by drone can be 20% of the cost of traditional planting by hand.

Space

Reforestation efforts can by hyperlocal ecosystem conservation or broad replanting projects spanning thousands of acres. Because mature trees need space, they are typically planted several feet apart, but this depends as well on species, region, climate, and planting technique.
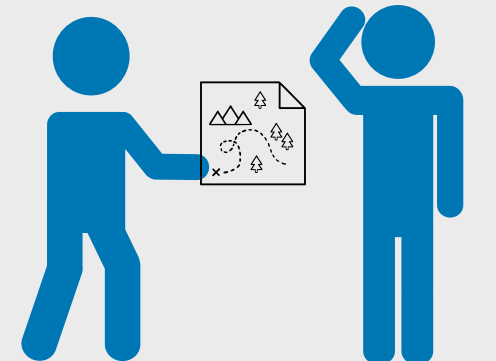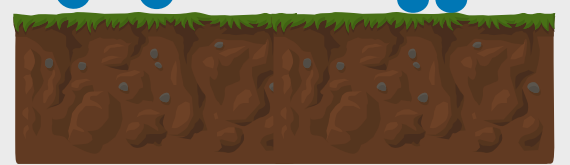
How Does It Work?

1. Individuals or organizations identify a barren area that either recently lost tree cover or would benefit from new trees.

2. People study the environment and ecology.

3. A team makes a strategic plan, mapping the area and deciding on the right species and spacing of trees to plan.
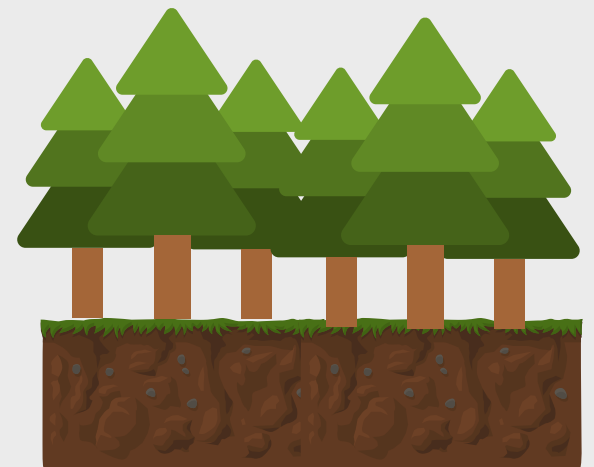
4. The team selects a planting strategy, either planting by hand or using technology.

5. Planting by hand involves up to hundreds of volunteers (usually students) walking with trowels and bags of seeds, seedlings or saplings, planting at intervals.
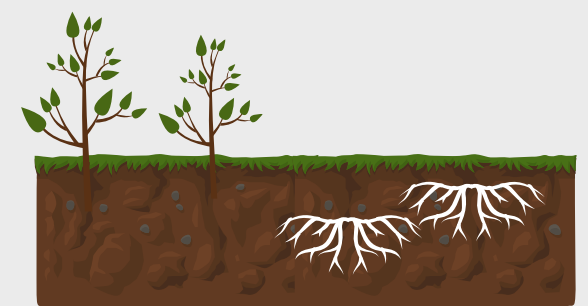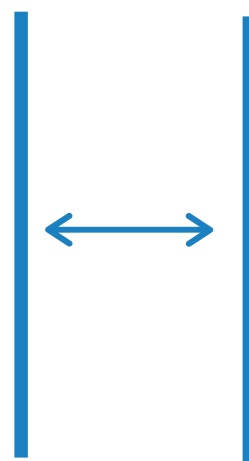
6. Planting by drone or ariel seeding involves dropping or firing seeds or nutrient-packed seed pods over an area.

Point

- Trees are the most effective solution to climate change.

- Planting the most trees possible guarantees more carbon being sequestered.

- Planting by hand gives saplings the best chance to take root.

- Market forces ensure that paper companies and other tree users plant trees to replace what they cut.

- Permanent loss of trees can be good, making way for needed agriculture or housing.

Counterpoint

- Trees take time to mature and sequester carbon, making them only a part of the solution.

- Biodiversity is essential to successful reforestation efforts.

- Dispersing seeds or seed pods from the air can significantly increase planting efficiency.

- Due to maturity times, market forces can act on up to a 20-year delay and do not always replace tree for tree.

- Even when local deforestation is justified or beneficial, it should not result in a net loss. Trees cleared in one area should be balanced with trees planted and conserved elsewhere.

Did You Know?

By incorporating drones, satellite imagery, and other aerial imagery, tree planting can be optimized. One technique may be capable of planting up to 100,000 seedpods in a single day.

What's Next?

With tree-planting efforts and pledges by individuals, groups, and governments on the rise, it is estimated that by 2050 up to 1 trillion new trees will be planted globally. This would be a net increase in tree cover, even with commercial and agricultural deforestation. Use of drones is expected to be a critical element by increasing the speed and efficiency of planting and ensuring biodiversity through strategic planning and regional ecological knowledge.