**Lagoon Hut design challenge**

Instructions: Do your drawings on separate paper in dark, legible pencil (or with CAD). When you are done, turn in your work as an email attachment. Graph paper is available at [www.printfreegraphpaper.com](http://www.printfreegraphpaper.com)

***“Design a mechanism to transport water from a Lagoon to your Hut”***

Your airplane runs out of gas over the ocean on your way home from delivering emergency food and medical supplies to a remote hurricane disaster site. You parachute out and are washed up on a deserted island. You build a hut on a 50-foot-high hill for safety. The only source of fresh-water is a lagoon located 300 feet (and 50 feet down the hill) from your hut.

Using the “six simple machines”, design a mechanism which will transport 200 gallons per day from the lagoon to a stone-storage tank next to your hut. You must use “local materials”. The only man-made objects you have are a complete set of tools, typical trash washed up on the beach, and things you can salvage from your airplane wreck.

Instructions: (100 points possible). Carefully sketch-out your proposed design, label everything, and describe how the system works. Use as many sheets as necessary.

Hints:

1. Your system can use levers, pulleys, wheels & axles, bamboo pipe, vine rope, carts on tracks, gears, propellers, rails, steam, cans & bottles, various kinds of pumps (show details!), suction power, and anything else you can make from local materials, cans/bottles, and other trash. (notice I didn’t place limits on ‘local materials’ – use your imagination, but don’t stretch it too much).
2. Lots of things can be used as the energy-source to transport the water (wind power, wave/tidal power, trees bending to and fro in the wind, steam power, rocks being lowered from a tree or rolling down a chute, bent branches, solar thermal power, fire, and on and on….).
3. You can’t just say, “From my hut I will direct my Drone to scoop up water from the lagoon…”. You need to use local materials.
4. You can’t move your hut or the lagoon.
5. Your system needs to be ‘hands-free’ once you set it in motion.

Good luck! Let me know if any questions!