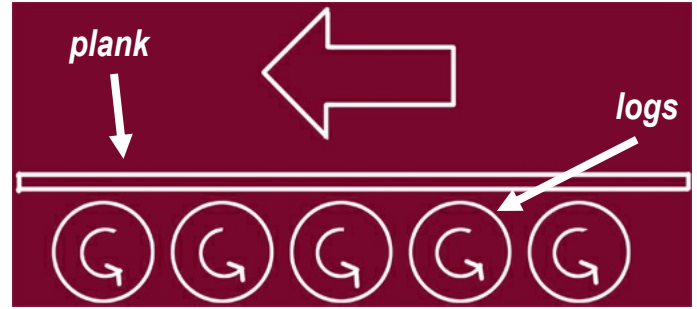


WATER THE PLANT

Before wheels were commonplace, some ancient civilizations used logs to move heavy objects in a similar way that wheels might have done. Here's how. Several logs were placed parallel to one another. Then, the load was placed on the logs. When a force was applied to the load, the logs rolled. As with a wheel and axle, the rolling logs reduced the friction. They also reduced the amount of force needed to move the object. Even today, you can see this concept in action in rollers that are part of a conveyor belt system. Time to experiment with this primitive wheel and see how rolling logs can help move something.



The Challenge Identified: Start with the idea of using rolling logs to move something heavy. In this case, have your heavy object tilt a cup of water to water a plant.

Brainstorm ideas and supplies: You probably don't have a stack of logs on hand, brainstorm the alternate things you could use for logs and a plank.

<i>Other things that could be used to replace logs</i>	<i>Other things that could be used to replace a plank</i>

Draw a plan: This is a pretty simple challenge, but ideally it will show you how ancient people used logs to move things along. It will also give you another element to add to your larger, more complex contraptions later on. Sketch a quick idea of your delivery system.

Build: Build your design to tilt the cup of water to water the plant.

Test: Send that heavy object rolling across the logs!

Evaluate:

Not as easy as it sounded, was it? What effected your outcome?

Did the cup tip over the way you wanted it to or did the cup itself land in the plant? And, did the water end up on the plant? Or everywhere else?

Redesign: If you try it again, you may want to create a frame around your “logs” to keep them moving in the right direction. You might try using different material for the logs. Tipping the cup a little when you set things up could help, too. And you may need to adjust the position of the plant so the water actually goes where you want it to! Sketch a revise design below.