

# Engineering Challenge

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## Build a Nut-Chucker Machine

The problem: In the zoo is an agouti, an animal from Costa Rica, called Trudy.

The agouti eats nuts and berries.

However, Trudy does not like the smell of humans. If the zookeeper touches her food or enters her enclosure to feed her, she will not eat.

He needs a machine (a nut-chucker) to deliver her food without being touched by people.

Trudy's enclosure is surrounded by a box hedge with dark, waxy leaves. The hedge is 12 inches (30 cm) thick and 12 inches (30 cm) tall).

The nut-chucker machine must stay on the ground outside of the hedge (so it is not visible over the hedge) and at least 18 inches (50 cm) from the edge (so Trudy cannot smell the operator). It must be able to lob the nut up and over the hedge.

No one can touch the nuts. Use a spoon or other tool to load the nut-chucker.

If you don't have nuts, you may use a marshmallow, a large piece of cereal, or a ping pong ball for testing instead.

(Especially if using food items, be sure to pick up all of the pieces you used during testing.)

Draw a design, build the nut-chucker and test it out. Did it work?

If not, keep revising your design.

Hint: What is the name of a machine used in ancient times to hurl rocks or other objects over a fortress wall? You can find instructions on-line for several different ways to build a simple version of one of those, and adapt it to fit these requirements.