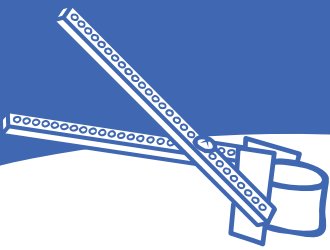


Reacher

Kid's Engineering Challenge



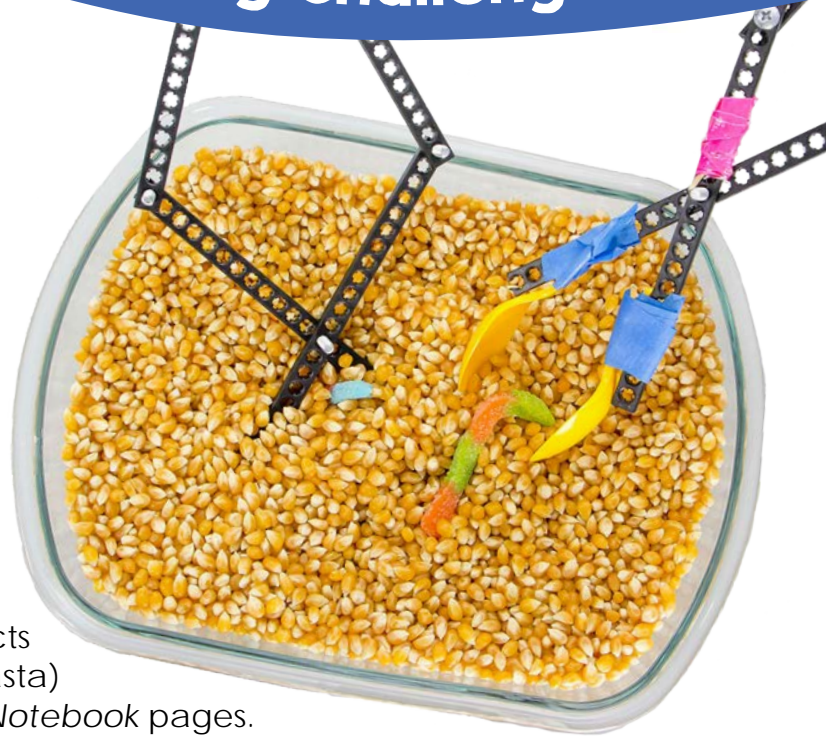
The Challenge

Engineer your **Reacher** to grab, grip, dig and use objects just like animals would.

Before You Start... Make sure you have built a **Reacher** for use on this challenge.

Challenge Supplies:

Reacher, material for the **Reacher End** (cardboard, recycled packaging), dry objects to dig in or for (cereal, gravel, jelly beans, pasta) tape, ruler, Philips screw driver, *Engineering Notebook* pages.



Teacher's Note

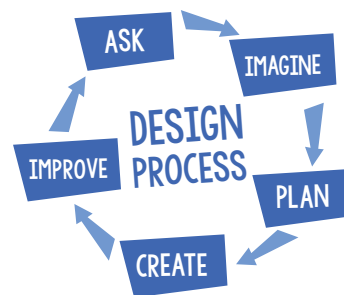
Print each **Challenge Sheet** to hang around the room to make different engineering stations.

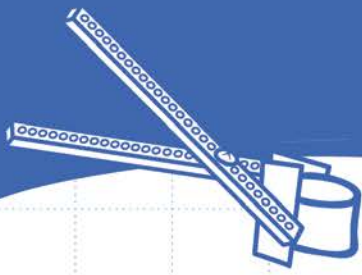
Give students a time limit and a place to record and display the best results. Print extra **Engineering Notebook Pages** to use during the activity.



The Engineering Design Process:

You will be using the **Engineering Design Process**. What does that mean? Your design is never finished - it can always be improved. There is no such thing as a perfect design. Fill out a new *Engineering Notebook* page each time you design/redesign your **End Effector**.





Grab Lab Engineering Notebook

Name: _____



Eagle



Robin



Chameleon



Person



Chipmunk

Grabber Design # _____

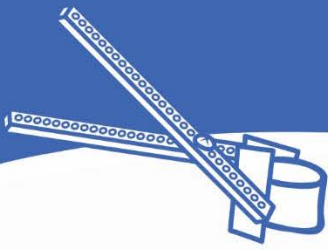
A Draw your design:

B Test it.

C Improve it. Get a new Engineering Notebook page.

Reacher

Kid's Engineering Challenge

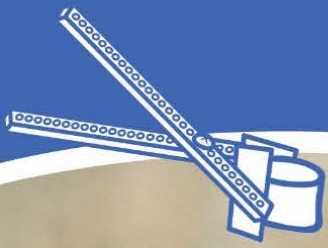


**Design a Reacher to clutch...
a branch as long as you can.**

Materials: stick, branch,
cardboard tube,
wood dowels

Time Limit:

minutes



Reacher

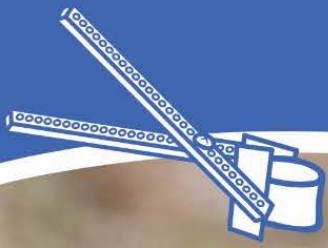
Kid's Engineering Challenge



**Design a Reacher to grab...
as many nuts as a chipmunk.**

Materials: acorns, beads,
dried corn, raisins
bowls or cups

Time Limit: minutes



Reacher

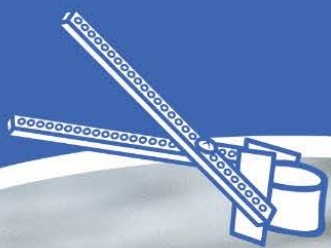
Kid's Engineering Challenge



**Design a Reacher to find...
a worm like a robin's beak.**

Materials: gummy worms
in dirt, or rope
in corn kernels

Time Limit: minutes



Reacher

Kid's Engineering Challenge

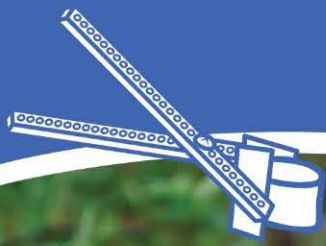


**Design a Reacher to catch...
a slippery fish like an eagle.**

Materials: slippery things:
soap, scarves,
ice, swedish fish

Time Limit:

minutes



Reacher

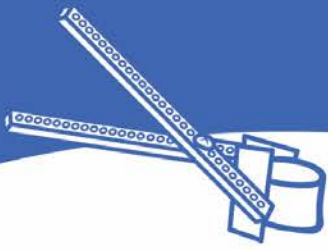
Kid's Engineering Challenge



**Design a Reacher to dig...
and sort like a coyote.**

Materials: rice, beads or
kernels; small
objects to sort

Time Limit: minutes



Reacher

Kid's Engineering Challenge

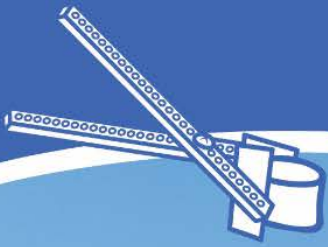


**Design a Reacher to hold...
a pencil like a person.**

Try writing your name with it!

Materials: pencil, crayon
or pen, paper

Time Limit: minutes



Reacher

Kid's Engineering Challenge



**Design a Reacher to lift...
just like an ant.***

*This could be a little hard. Ants can lift 10 to 50 times their weight!

Materials: desk, chair, table

**This challenge isn't
real, it's just for fun!*

Time Limit: minutes