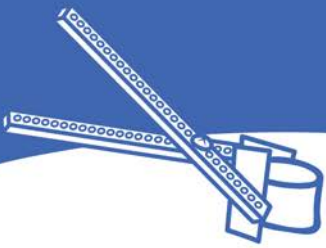


# Reacher Tools & Traits Worksheet



Name(s): \_\_\_\_\_

## Animal Adaptations

Have you ever seen a bird catch a worm or a chipmunk stuff their cheeks? How do they do it? Animals have **evolved** some amazing grippers and grabbers over time.



A heron's beak grips delicately and precisely – like chopsticks!

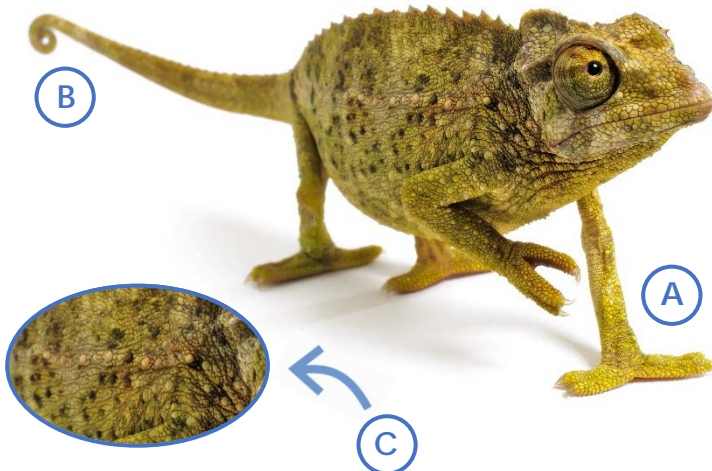


Heron beaks grip and poke

Sharp, flexible talons

## Tools & Traits

A **tool** is an object that helps us complete a task. A hammer tap-taps nails into place, while a toothbrush freshens our mouths. Animals are born with their own tools, physical **traits** that help to hunt, fly and survive. These traits are passed on from parent to child and are unique to each **species**, or type, of critter.



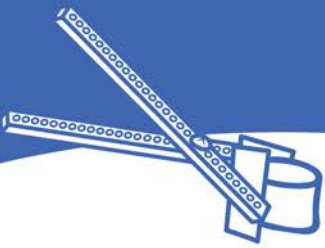
### 1 Match the Chameleon's Unique Physical Traits:

Camouflaged Skin

Gripping Feet

Flexible Tail

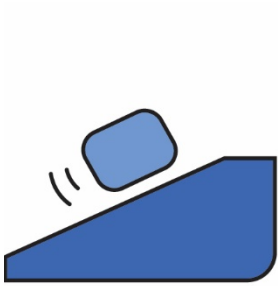
# Reacher Tools & Traits Worksheet



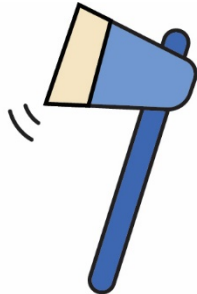
## Simple Machines

**Simple Machines:** a device that provides a **force**.

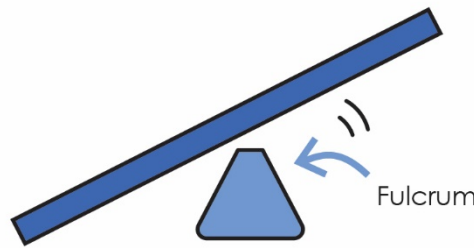
A force is a push or a pull that moves an object.



Inclined Plane



Wedge

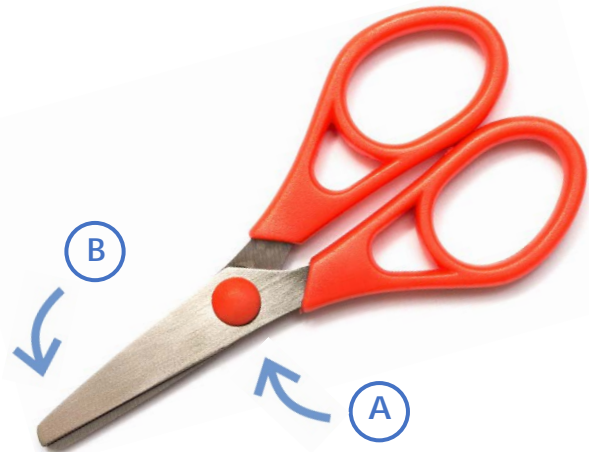
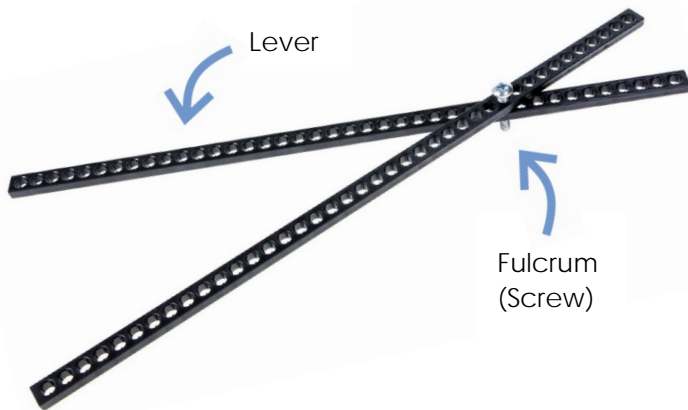


Lever



Screw

**Compound Machines:** a device consisting of two or more simple machines. Scissors, wheelbarrows and your Reacher are types of **compound machines**.



**2** Match the Scissors to the Simple Machine Labels

Lever

Fulcrum

# Reacher Tools & Traits Worksheet



## Force & Distance



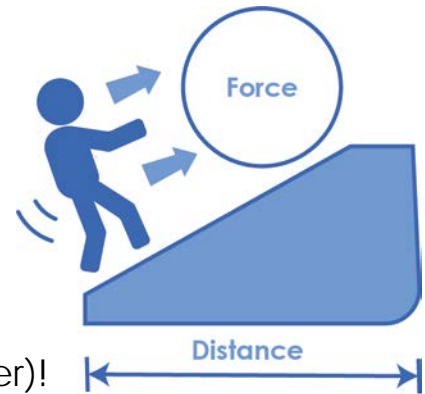
What work have you done today? We don't mean homework.

**Work** occurs when a **force** applied to an object causes the object to move.

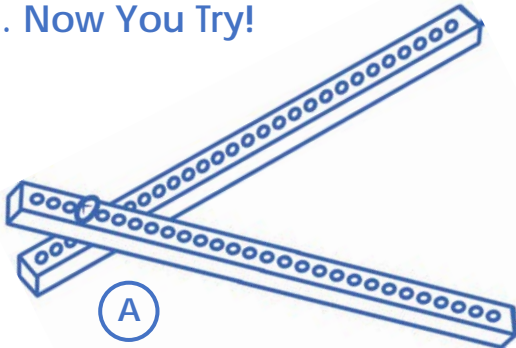
$$\text{Work} = \text{Force} \times \text{Distance}$$

How can you work, better?

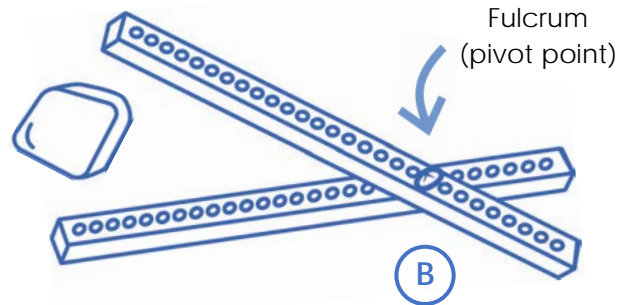
Using **simple machines** to trade a smaller amount of **force** over a greater **distance** creates a **mechanical advantage**, and makes your work more **efficient** (faster and easier)!



... Now You Try!



Change the **fulcrum** (pivot point) on your Reacher to make a long handle.



Change the **fulcrum** (pivot point) on your Reacher to make a short handle.

Use your **Reacher** to pick up an object (e.g. marshmallow) in each position.

*Which one made your work easier? Why?*

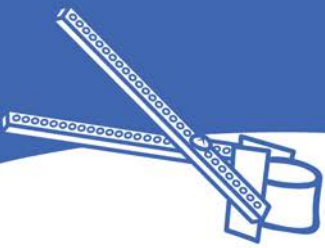
3

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# Reacher Tools & Traits Worksheet

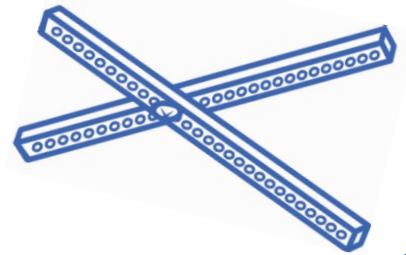


## Grips & Grabs

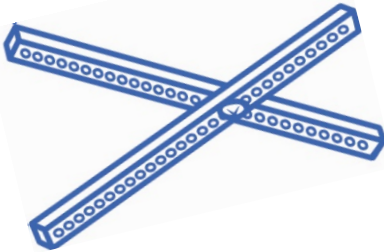
Think of **tools** and **traits** in life and nature.  
*How would you design your Reacher to:*



4 ... grab or clutch?



5 ... scrunch?



6 ... grip and lift?

