

SCOOP THE POOP!

CLASSROOM ACTIVITY GUIDE



Rube Goldberg machines are complicated chains of **simple machines** (levers, pulleys, inclined planes, wedges, screws, wheels and axles) designed to do simple tasks in silly ways.

Rube Goldberg was a cartoonist who made these types of devices famous in his many twentieth-century drawings and cartoons. Between January 18 and September 7, 2025, you can see examples of Rube Goldberg's work, and the devices it inspired, in *Rube Goldberg: The World of Hilarious Invention! Exhibit* at ECHO.

In this packet, **Rube the dog** has learned that his poop can be a major pollutant for Lake Champlain. According to the EPA, pet waste is a leading pollutant in urban waterways, leading to human illness and algae growth.

Rube has decided to clean up his act and, having recently returned from a trip to ECHO, is inspired to design a Rube Goldberg device to help him accomplish this!

There are three levels of activities for students to engage in: a **basic coloring sheet** to introduce students to what a Rube Goldberg machine might look like, an **intermediate sheet** that adds in spaces for labeling simple machines used in the device, and an **advanced sheet** that encourages students to design the most outlandish Rube Goldberg machines that they can think of. We have also included some background information about simple machines to help you discuss them with your students.

Here are some possible uses for these sheets:

- Use the simpler sheets before your visit to introduce the topics of simple machines and Rube Goldberg devices, then use the more complex sheets to follow up after your visit.
- Use age-appropriate sheets for independent work and/or the more advanced sheets for guided station work or whole-group discussion.
- Ask younger students to color the simple machines different colors (for example, color all the levers green and all the pulleys red).
- Use the ideas in these sheets to design and build a classroom Rube Goldberg machine!

Simple Machines

Wheels and Axles

Wheels and axles help move weight around. They make it easy to keep heavy stuff rolling by reducing rubbing (friction), which slows things down.

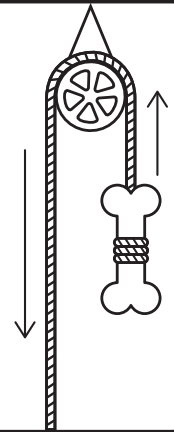
Examples: bicycle, wheelchair



Pulleys

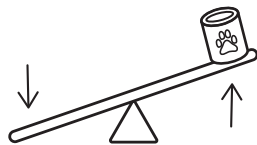
Pulleys help lift heavy loads. When you pull down on a rope that loops through a pulley system, the attached load is easier to lift.

Examples: elevator, crane



Levers

Levers lift and pry.



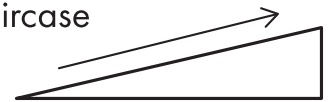
When you push down on one end of a lever, it seesaws on a support point (fulcrum) helping you lift a heavy load or pry something open.

Examples: crow bar, bottle opener

Inclined Planes

Inclined planes help move heavy objects higher. When you push things up a slope, you need less force than if you lift the object straight up.

Examples: ramp, staircase



Screws

Screws hold things together. When you screw something together, the screw grips the material tight.

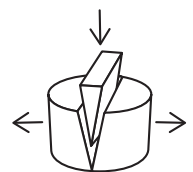
Examples: bolt, jar lid



Wedges

Wedges force objects apart. When you push the pointy end of a wedge into an object, the force splits the object in two. Many wedges have handles to make them easier to use.

Examples: axe, scissors

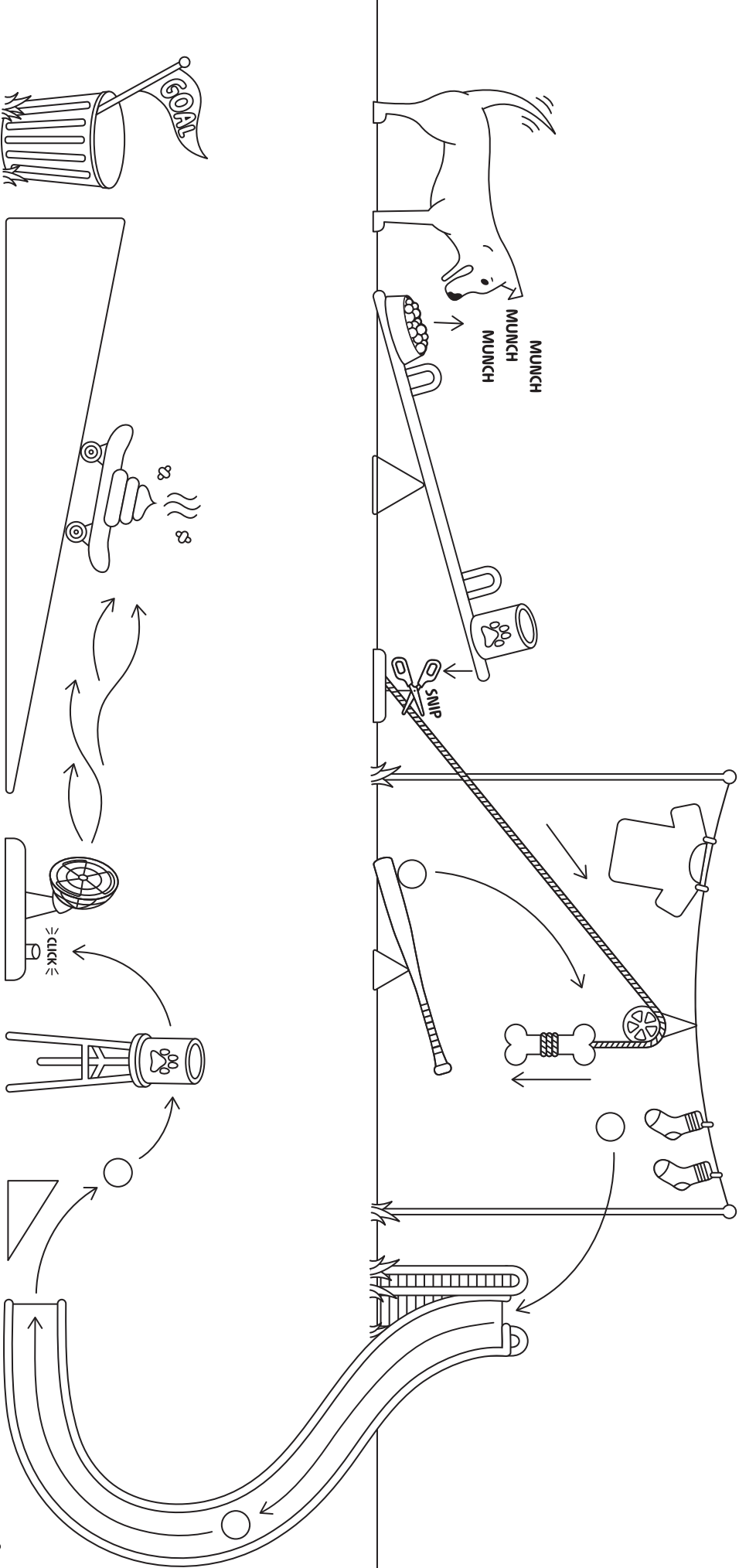


SCOOP THE POOP!

COLORING ACTIVITY SHEET

Can you help Rube the dog responsibly dispose of his poop by coloring in the **Rube Goldberg machine** he made?

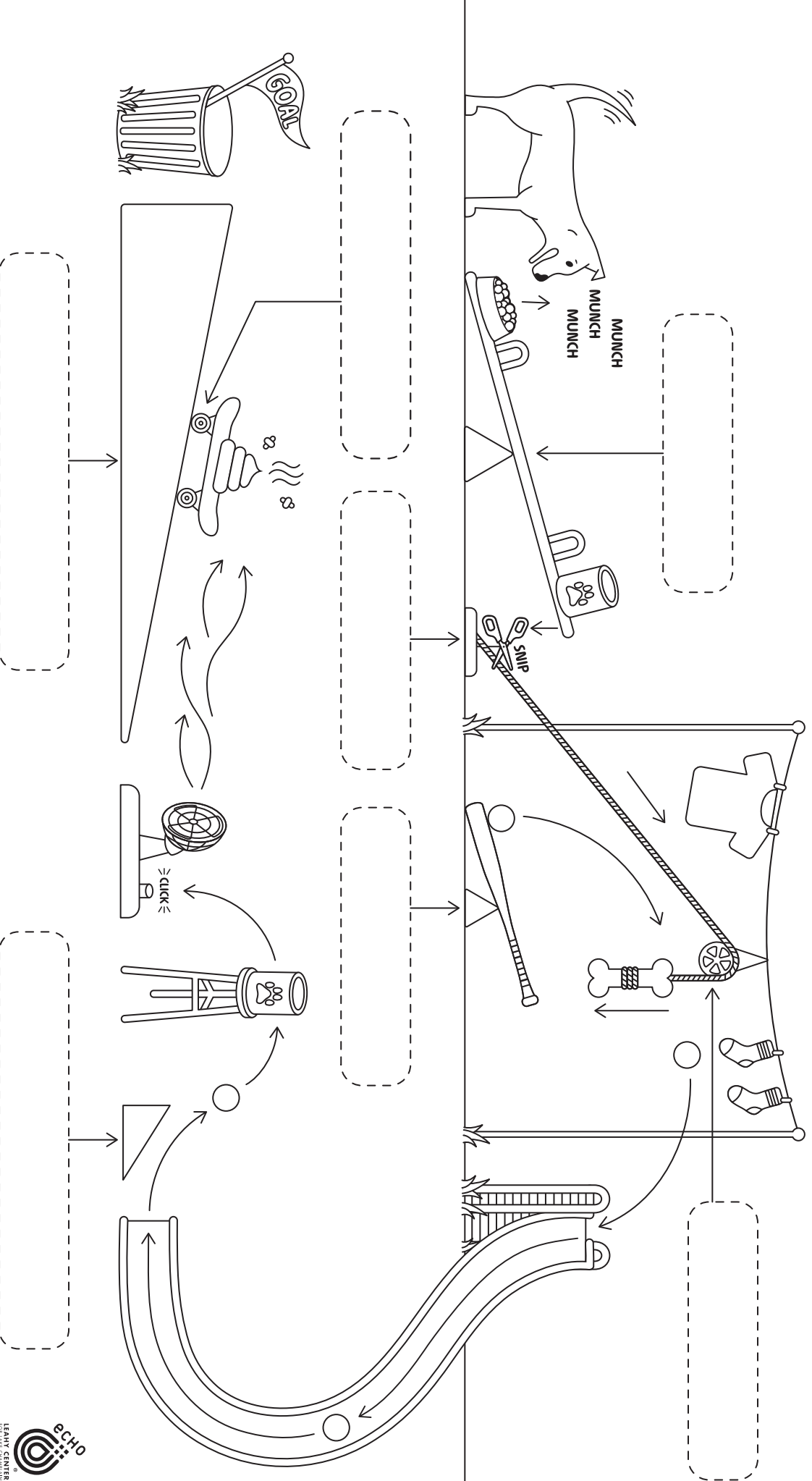
A Rube Goldberg machine is a silly, overly complicated way to do a simple job!



SCOOP THE POOP!

COLORING ACTIVITY SHEET

A **Rube Goldberg machine** is a silly, overly complicated way to do a simple job!
 Rube the dog made a Rube Goldberg machine to responsibly dispose of his poop, but he needs help to label the **simple machines** he used. Can you help?
 Don't forget to color his machine, too!



SCOOP THE POOP!

COLORING ACTIVITY SHEET

Rube the dog needs your help to design a **Rube Goldberg machine** to responsibly dispose of his poop. Can you put together some tools in a way that gets the poop into the can? Try to use as many **simple machines** as you can! Remember, Rube Goldberg machines are supposed to be a complex and silly way to do something simple!

