

# Repurpose It!

## LET'S LOOK AT THE PROBLEM

A young girl decides she wants to make something magnificent. She has an idea of what it should look like and what it would do, but she gets frustrated after trying to make it and failing over and over again. The dog that is her best friend convinces her she needs a break. After a walk, her mind is clear and she is finally able to create her magnificent something.

Have you ever been frustrated when you are unable to make or do what you planned? What did you do?

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## MATERIALS

- Reusable resources such as boxes, string, old CDs and cases, PVC pipes, ice trays, paper plates, plastic cups, wooden skewers, unbreakable mirrors, corks, wooden spools, funnels, clay, balls and marbles, and parts from broken toys
- Connectors such as glue, brads, tape, clothespins, wire, magnets, and Velcro
- Tools such as child-size hammers and screwdrivers, safety goggles, pulleys, scissors, pliers, staples and staplers, and a low-temperature glue gun
- Old toys to take apart such as a cash register, toy car, battery-operated plush toy, or toy robot
- Paper and markers, crayons, or pencils

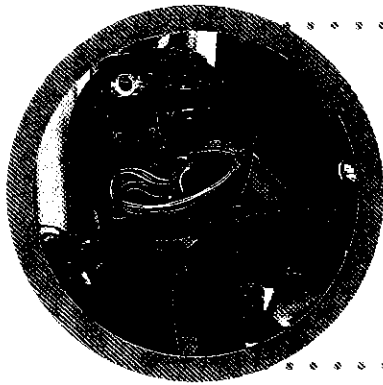
## TINKER WITH THE MATERIALS

Take apart an old toy such as a cash register, a toy car, a battery-operated plush toy, a windup toy, or a toy robot. How is the toy put together? Think about some of the things you can do with the parts and pieces of the toy to create something new.

## STEM CONCEPTS

design engineering / number concepts / physical properties of objects / scientific inquiry

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## THE DESIGN CHALLENGE

**Making** Create anything using four objects.

**Engineering** Use four objects to create something useful to help solve a problem or make a task easier. (HINT: You might make something to keep shoelaces from untying or to help someone carry a heavy backpack, clean up a spill, or feed the class pet.)

## WORKING ON THE DESIGN CHALLENGE

- **Think about it.** Look at all the materials and think about all the different ways they might be used. Select four objects that can be used together to create something new. Draw or sketch your idea. What will you name it?

**Engineering.** What problem will your creation solve, or how will it help make a task easier?

- **Build or create it.** Make sure you use all four objects in your creation. How will you put them together?
- **Try it.** Are you satisfied with your creation? Why or why not?

**Engineering.** Test out your invention. What problem are you trying to solve? Describe what works and what does not.

- **Revise or make it better.** What would you like to change about your invention? Why?

**Engineering.** Does it solve the problem or make a task easier? If not, how can you change it to make it better?

- **Share.** Write or dictate a story about your invention and how you built it.

**Engineering.** Show someone how your invention works and who might use it. Ask them to try it and suggest any ideas about how to improve it. Are they able to make it solve the problem?

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## QUESTIONS AND COMMENTS

I wonder what would happen if \_\_\_\_\_.

Tell me about your invention.

What other ways could you use these things?

## BACK TO THE PROBLEM IN THE BOOK

Would you describe your creation as “magnificent”? Why or why not?

## GOING DEEPER

- Create step-by-step directions that show how you made your creation.
- When you add more materials, such as small hobby motors or buzzers, how does that change what you created?
- Create a contraption that uses all the different types of simple machines (wheels and axles, levers, inclined planes, wedges, pulleys, and screws).

## OTHER BOOKS TO USE

**Awesome Dawson** / Chris Gall

**The Branch** / Mireille Messier, illustrated by Pierre Pratt

**Choose to Reuse** / Lisa Bullard, illustrated by Wes Thomas