CURIOSITY AT HOME
DESIGN A SOLUTION

Engineering is the field where people invent, design, and build things to solve problems, helping to make our communities better. In this activity, design new inventions that can solve problems, using natural and renewable resources.

MATERIALS

· Paper or index cards
· Paper or science notebook
· Pencil
· Recycled and craft materials
  (paper, tape, cardboard, plastic bottles, string, etc)

PROCEDURE

· Cut a piece of paper into 12 pieces, each the same size.
  (Or you could use index cards)
· Copy each of the following lines onto one of the small pieces of paper.

1. User: a squirrel	5. Resource: the sun	9. Need: litter clean-up
2. User: your family	6. Resources: wind	10. Need: growing food
3. User: a school	7. Resource: gravity	11. Need: communication device
4. User: a doctor	8. Resource: water	12. Need: control an invasive species

· **Choose 3 cards at random**, so you have 1 "User" card, 1 "Resource" card, and 1 "Need" card. These will determine who your invention is for, what resource you need to use, and what it will do. For example, you might use water to move a heavy object for a doctor.
· **Design your invention:** in your science notebook, draw a sketch of an idea for your invention. Label the parts, and describe how it will work.
· **Create a prototype:** Using any supplies you have on hand, create a prototype of your invention! Tape, rubber bands, cardboard, sticks... anything you have can be used to build a model.

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6 – 8 GRADE EXPLORATION

· Create new cards for other users and for other needs. Add them to your cards to make more random combinations.

· Without showing your design to them, challenge someone else to design an invention for the same user, resource and need as you did. Did they create the same design as you?

· Pick one of the resource cards: can you find inventions in your neighborhood that use that resource? What problem is being solved?

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