lunar walker

overview

THE ASTRONAUTS COLLECTED SAMPLES FROM AREAS OF THE MOON, BUT WALKING COULD ONLY TAKE THEM SO FAR. THEY BROUGHT A LUNAR ROVER VEHICLE WITH THEM THAT WAS POWERED BY A BATTERY. IN THIS ACTIVITY, STUDENTS MAKE A LUNAR WALKER MOVE WITH ELASTIC ENERGY WHICH IS A KIND OF POTENTIAL ENERGY. ENERGY IS NEVER USED UP, IT'S JUST CONVERTED FROM ONE FORM TO ANOTHER. IN THIS ACTIVITY, STORED ELASTIC ENERGY IS CONVERTED (CHANGED) INTO KINETIC ENERGY. YOU STORE ENERGY BY TWISTING THE RUBBER BAND. WHEN YOU RELEASE THE RUBBER BAND, ELASTIC ENERGY IS CONVERTED TO KINETIC ENERGY, AND THE WALKER MOVES.

OF COURSE, THE "LUNAR ROVER" USED BY THE APOLLO ASTRONAUTS WASN'T' POWERED BY A RUBBER BAND. ENERGY STORED IN THE VEHICLE'S BATTERIES WAS CONVERTED INTO KINETIC ENERGY WHEN THE VEHICLE MOVED. LIKE THE LUNAR WALKER, WHEN THE ASTRONAUT'S VEHICLE USED UP ALL THE POTENTIAL ENERGY, IT COULDN'T DRIVE ANY FARTHER. ENGINEERS CAREFULLY PLANNED EACH TRIP SO THAT THE BATTERIES WOULDN'T RUN OUT.

materials

- *THREAD SPOOL*
- *RUBBER BAND ABOUT THE SAME LENGTH AS THE SPOOL*
- *THUMBTACK*
- *METAL WASHER*
- *TOOTHPICK OR SIMILAR OBJECT*

procedures

1. SLIP THE RUBBER BAND THROUGH THE HOLE IN THE THREAD SPOOL SO THAT IT PASSES FROM ONE END OF THE SPOOL TO THE OTHER.
2. ATTACH ONE END OF THE RUBBER BAND TO THE SPOOL WITH THE THUMBTACK.
3. SLIP THE OTHER END OF THE RUBBER BAND THROUGH THE HOLE IN THE METAL WASHER TO MAKE A LOOP IN THE END OF THE RUBBER BAND.

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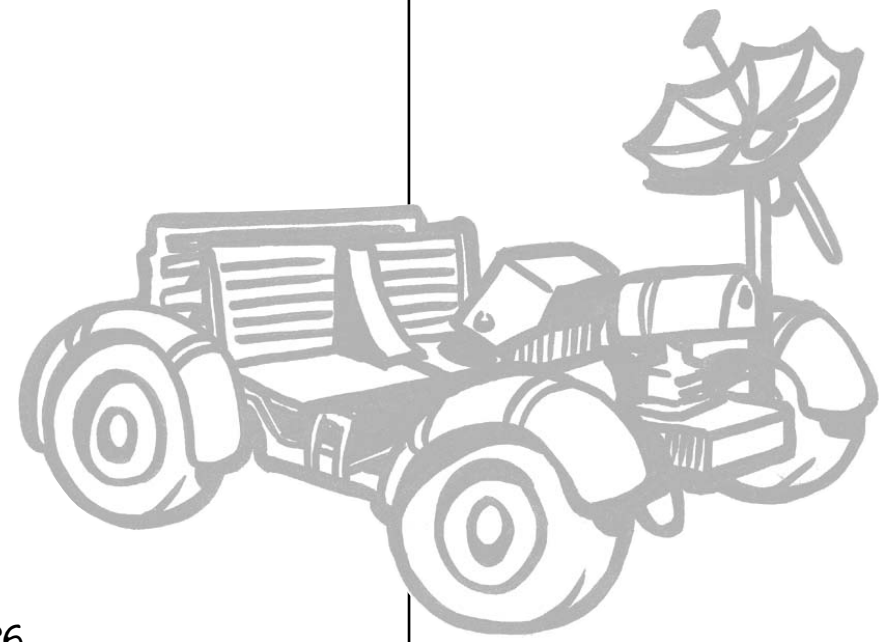
4. PUT THE TOOTHPICK THROUGH THE LOOP IN THE RUBBER BAND.
5. TURN THE TOOTHPICK TO WIND UP THE RUBBER BAND INSIDE THE SPOOL.
6. PLACE THE SPOOL ON THE TABLE OR FLOOR AND LET YOU LUNAR WALKER GO! WHAT HAPPENS?
7. TRY A DIFFERENT-SIZE SPOOL AND RUBBER BAND. DOES IT MAKE THE WALKER GO FASTER OR FARTHER?
8. TRY MAKING YOUR LUNAR WALKER MOVE OVER DIFFERENT SURFACES. WILL IT MOVE OVER CARPETING, GRASS, OR SOIL? CAN IT GO UP AND DOWN HILLS?