

## Lab: Circuitry

### Student Activity

When building a space probe, engineers must make sure all the parts are working properly before it can be launched. The parts all have indicator lights. When the parts are assembled and working properly, the lights will come on, indicating that the a circuit is complete and the part is functioning.

### OBJECTIVE

To identify and build a complete electrical circuit.

### MATERIALS

- (8) 4" x 6" lined index cards
- (1) single hole punch
- (1) sheet 12" x 12" aluminum foil
- (1) roll cellophane tape
- (4) pairs of scissors
- (1) circuit tester
- (1) stapler
- (1) Mars Fact Sheet

### PROCEDURE

1. Create 4 questions and answers from the Mars Fact Sheet. Create 2 wrong answers for each question.
2. On one 4" x 6" index card, write MARS TRIVIA at the top. Starting at the far left first line, write a #1, then punch a single hole next to the number. Then write the first question. Underneath the questions, write the 3 possible answers using A, B, and C with a hole punched next to them. (See diagram.)
3. Repeat step 2 for the other 3 questions.
4. Cut 4 strips of aluminum foil 2 cm x 14 cm or just long enough to reach from the question to the right answer.
5. Tape a small piece of aluminum over the holes (on the back of the card) for each of the incorrect answers, making sure that they are completely covered with tape.
6. Look at question #1. Find the correct answer, then tape to the back of the card a strip of aluminum so that it covers the hole for the question, goes all the way to the correct answer and completely covers the hole for the answer. Since the wrong answers are already covered with tape, the aluminum for the correct answer should not touch them.

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### Student Activity (continued)

- Repeat steps 5 and 6 for the other 3 questions.
- With the questions face up, place a second 4" x 6" card behind the Trivia card, covering the hidden circuits. Tape or staple the cards together.
- Now use your circuit tester to answer the questions. To do this, place one wire by each answer. The correct answer will complete the circuit and the light bulb should light. Now trade with your classmates, and see if they can find the correct answers.

*view of front of card*

MARS TRIVIA		
1.	● A Mars day lasts _____ hours. ● A. 21.7      ● B. 27.4      ● C. 24.7	
2.	● The surface temperature on Mars is _____. ● A. cold      ● B. hot      ● C. moderate	
3.	● The name of the great canyon on Mars is _____. ● A. Ares      ● B. Valles Marineris      ● C. Olympus Mons	
4.	● Mars is _____ (than) the Earth. ● A. smaller      ● B. larger      ● C. the same size as	

*smaller view of back of card*

(answers: 1-C, 2-A, 3-B, 4-A)

