MIND TREKKERS
7-Segment Display: Exploring Circuits Lesson Plan

Amount of time Demo takes: 5 min
Materials:
1. Black case of circuits
2. Pieces pictured in Figure 1.

Set up instructions:
1. Remove the pieces shown below from the black case. Also remove a varied selection of blue connector pieces.
2. Arrange them in the fashion pictured.
3. Yes, one cable should remain free for use later on.

Figure 1.

SAFETY!
1. Keep small pieces away from children, choking hazard.

Lesson’s big idea:
● Show students the way that an LED screen works. Example, a scoreboard.
**Instructional Procedure:**

1. The object for students is to use their own logic to figure out how a 7-segment display works.
2. Choose a 7-segment card from the ones provided. Show it to the students and tell them they have to get the screen to light up the same way.
3. Give them one try, if it works, congratulate them. If it doesn’t ask them why. After they can figure out a decent reason why and improvements - let them try again. Did it work?
4. Once they figure out the way it is done, you may let them do another one if they want.
5. Discuss with the students that the circuit has to be closed in order for the screen to light up.

**Clean Up**

1. In between demos, remove all pieces from the board except for the original set up. Disconnect all blue pieces from each other so as not to give hints to the next group.

Clean up between demonstrations if needed. When completely finished gather all materials listed for this demonstration and make sure everything is accounted for. If something was used up, broken or damaged. Let someone know so it can get replaced or fixed.

**References:**

**National Standards:**

K-4 Content Standard B: Physical Science, Light, heat, electricity and magnetism
K-4 Content Standard E: Abilities of technological design
5-8 Content Standard B: Physical Science, Transfer of energy, Motions and forces
5-8 Content Standard E: Abilities of technological design
9-12 Content Standard B: Physical Science, Motions and forces, Interactions of energy and matter
9-12 Content Standard E: Abilities of technological design