

LEAF TRAIL LIGHT PATH

UNIT: ELECTRICAL CIRCUITS

OBJECTIVE:

Use a circuit with “leaf-shaped” LEDs to light a path out of the jungle.

MATERIALS:

- ✓ Green LED lights
- ✓ Battery (3V)
- ✓ Green construction paper (cut into “leaves”)
- ✓ Circuit worksheet
- ✓ Conductive tape
- ✓ Binder clip
- ✓ Tape
- ✓ Pencil

STUDENT DIRECTIONS:

Step 1: Plan Your Jungle Trail

- Take a piece of green paper and cut it into leaf shapes.
- Layout your leaves on the circuit worksheet forming your path in the jungle.
- With your pencil, mark where your LED’s need to go. Make sure the metal legs of the LED stick out so you can connect them later.

Step 2: Prepare the Circuit Worksheet

- Cut and place conductive tape to the shaded areas on the circuit worksheet.

Step 3: Place the LED's

- Using clear tape, tape each LED to the paper at your pencil marks. It is important to tape the LED's with the positive leg positioned closet to the positive (+) side of the worksheet. The longer leg of the LED is positive and the shorter leg is negative. Make sure not to put tape on the metal legs of the LED's.

Step 4: Build the Light Circuit

- Place conductive tape from the positive and negative sides of the circuit worksheet to the LED's. Lift the leg of the LED's so the tape is under each leg. Tape down the leg of the LED's on the conductive tape using regular tape or conductive tape. Be sure the conductive tape does not touch from positive to negative. This would cause your circuit not to work.

Step 5: Tape the Leaves

- Tape the leaves on top of the LED's. It is suggested you only tape the leaves at the top of the LED's- this makes it easier to troubleshoot.

Step 6: Test the Path!

- Fold the corner of the circuit worksheet along the dotted line.
- Place your battery positive (+) side up in position and secure with a binder clip.
- Watch as your "leaves" glow!
- Use your finger to "walk" through the jungle and follow the glowing path.

ANSWER THE FOLLOWING:

1. What type of circuit did you build? (circle one) SERIES PARALLEL

2. How many leaves are in your trail?

3. If you add 12 more leaves, how many will you have?

$$\square + 12 = \square$$

4. Take your answer from question 3 and round it to the nearest 10.

5. If there are 60 groups of leaves with 5 leaves in each group, how many leaves are there in total on this trail?

6. If there are 60 groups of leaves with 7 leaves in each group, how many leaves would there be in total on this trail?

7. How many leaves were “glowing?”

8. How many leaves were not “glowing?”

9. Write a fraction showing the whole of all your glowing and not glowing leaves.

$$\frac{\square}{\square}$$

10. Compare the fraction of “glowing” leaves compared to not “glowing” leaves using a numerator and denominator. Next, use a $>$, $<$ or $=$ to compare the fractions by drawing the symbol in the circle.

$$\frac{\square}{\square} \quad \bigcirc \quad \frac{\square}{\square}$$