Lesson plan:
Exploring Light Diffusion Through DIY Projects

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Robotic Toy Store

Objective:
Help children understand how light behaves and how materials affect light diffusion using simple DIY activities.

Projects covered:
- DIY Moon Craft
- Glowing balloons
- DIY Lightsaber

Materials needed:
1. Havi Elements like Power Element & LED Element
2. Power bank with USB Cables
3. LED Cables
4. Craft material like paper, transparent paper tube, balloons, tape, cardboard etc.

Class execution:
- All the students will make DIY Torch light project by using Havi Elements. The circuit will be Power + LED. LED Cables will be connected to LED Element. Power Element will be connected to power bank using USB Cable.
- Teacher will divide the students in multiple groups. Each group will execute one of the three activities.

The activities:
- Paper Moon:
  - Take a printout of moon.
  - Place LEDs behind paper to create soft glow.
  - Adjust distance to see changes.
- Glowing Balloon:
  - Blow 2 or 3 colorful balloons.
  - Place LED behind balloon against a wall to create diffused glow.

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- 3 3. Lightsaber:
  - Use transparent sheet and butter paper to make lightsaber.
  - Pass the LEDs at a certain distance to see the LED diffusion effect within the lightsaber.

Discuss the observation:

- Light usually travels in straight lines. But when it hits certain materials, it scatters in many directions. This scattering of light is called diffusion.
- Paper Moon → soft glow due to mild diffusion
- Balloon Setup → strong scattering creates full glow
- Lightsaber Tube → light spreads along a path (guided diffusion)

Learning outcomes:

- How to control light
- How materials affect outcomes
- How distance changes brightness and softness
- How to experiment and improve

Other challenges:

- Use different colored LED Cables to see the changes.
- Use different colored balloons to observe the changes.
- Use different colored papers to observe the diffusion.

Read more: https://www.havi.co/blogs/diy-light-projects-for-kids

Get teaching related resources.
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