

My LabQuest2 screen flashes white then goes blank when I turn it on

The likely cause is that the battery is very low so the unit cannot turn on. You will need the AC adapter that shipped with the LabQuest. You cannot use a charging station.

Recovery Procedure

1. Remove the battery and disconnect the AC power adapter
2. Wait 5 minutes
3. Connect the AC power adapter
4. Press the power button to power on the device and wait for the device to boot
5. Replace the battery while it is still turned on
6. Let the battery charge for 12 hours while it is still turned on

Best practice is turn off a LabQuest when it is charging. These troubleshooting steps instruct you to leave the unit on because this helps recalibrate the battery fuel gauge when a new battery is installed.

Prevention

The best way to prevent this problem is to do a full shut down (Home / System / Shut Down) to turn the unit all the way off before holiday break. Leaving the LabQuest connected to a charger also works as long as nobody turns off the electricity to that outlet.

Technical details

- If you just let the LabQuest sit for 5 minutes the screen will go dark and you may think it is off, but the unit is still on and will run until it shuts off from low battery. On a regular day you'd come back in the morning and charge it up again. However, lithium batteries also self discharge, so during holiday break, after the unit has shut itself down from low battery the battery will experience self discharge and then be even lower than under typical low battery voltages.
- When the LabQuest is turned on there are a lot of power surges generated as components turn on, in particular the screen backlight draws a lot of current when it starts. With the battery voltage so low these surges pull the internal voltages too low to operate and the system crashes and then restarts.
- Note that one of the components that is crashing when this happens is the battery monitoring chip and as such the battery can't really charge and the LabQuest can't get out of this state by itself.
- To get the LabQuest started again it is necessary to clear the memory of the battery monitor chip by removing all power from it for a full 5 minutes.
- Once that has been cleared you can boot the LabQuest. Once the LabQuest is stable and running, it can proceed to charge the battery.