



# LifeSmarts

Learn it. Live it.

## Discussion Questions KEY: PORTABLE ELECTRICAL POWER XPLORLABS LESSON

Remote controls, greeting cards tablets, cell phones, and even electric vehicles, lithium ion batteries power the consumer products we use and rely upon. We check the power status and charge our devices without even considering the possible safety concerns these batteries may pose. Safety engineering and safety standards allow consumers to use numerous electronic devices worry free. However, thermal runaway, a battery hazard which happens infrequently, can have serious consequences.

Understanding how safety engineering and safety standards helps reduce the likelihood of thermal runaway is part of being a safety smart consumer.

Provide answers to the questions below

List the devices powered by lithium ion batteries used by you and your family.

Answers will vary.

Possible answers include: watches, remote controls, digital cameras, cell phones, remote car locks, electric cars, tablets, laptop computers, solar panels, MP3 players, calculators, electric wheelchairs, etc.

Share what you learned about the hazard of thermal runaway.

When the separator in a lithium ion battery breaks down, the chemicals in the battery mix. This generates more and more heat, leading to popping, burning, and in some cases, explosions. Incidents of thermal runaway are frequently reported in the news. Examples of devices that have caught fire include computers, children's battery powered vehicles and cell phones.

Why does being an informed consumer include understanding the way lithium ion batteries work?

It is important to understand safety measures one can take to keep and use devices safely. Knowing what could damage a battery and lead to thermal runaway is part of using battery-powered devices safely.

List ways safety engineering and safety standards help make lithium ion batteries safer for the consumer.

Safety engineering identifies risks and hazards and then develops solutions to make products safer for consumers.

Battery designs are tested for safety and risk.

Safety standards are created by safety engineers.

Battery design allows for normal use and failure.