CHAPTER 1 (2:00–4:12)

1. Give some examples that explain why “the world changes” when you go up 1,000 feet in altitude.
   
   *As a rule of thumb, every 1,000 feet in elevation above sea level is equivalent to a climate change of 300 miles north. The trees and animals of Mount Mitchell (and neighboring peaks in the Black Mountains) are therefore those of northern climates, not ones typically seen elsewhere in North Carolina.*

2. What are some species found on Mount Mitchell that are more typical of ones found in northern climates? Red spruce and Fraser firs are both abundant, as is the cedar waxwing bird.

CHAPTER 2 (4:12–7:36)

3. How did Elijah Mitchell’s training as a chemist and his interest in meteorology help him in measuring the heights of peaks?
   
   *Chemists are interested in the behavior of gases. Barometric pressure is connected to changes in gases. Mitchell was able to measure mountain peaks using barometric pressure.*

4. Why do great scientists need to be not only capable in their fields, but also know how to communicate, how to work with people and how their research applies to the greater world?
   
   *Opinion question; accept any plausible answer.*

   *Scientists do not work in a vacuum. They endeavor to explain things that others question. To complete much of their research, they must build upon the lessons learned by previous scientists and often collaborate with scientists in other fields of study. For their research to be “worthwhile,” it must have relevancy to today’s world; it must help us understand more about the world around us. Research costs money, and without purpose, it would fail to gain support—both financially and intellectually.*

CHAPTER 3 (7:36–11:00)

5. Why is there a huge difference in air pressure between the Piedmont and mountain regions of North Carolina?
   
   *Air pressure is literally the weight of air above you. The difference in air pressure is a result of the differences in altitude of these two regions. When you climb in altitude, as in the mountains, there is less air above you, and air pressure drops. As you descend to lower altitudes, there is more air above you, and air pressure rises.*
6. How does measuring barometric pressure on a mountain help determine the elevation of that mountain?
   If you have a mountain of known altitude, you can check the barometric pressure at its peak. You can then take a barometric pressure reading on top of the mountain of unknown elevation, and using the data from the “known” peak, calculate the second mountain’s elevation.

**CHAPTER 4 (11:00-16:10)**

7. Who were the first Europeans to visit the Black Mountains?
   Hernando de Soto and Spanish explorers were probably the first Europeans to visit the Black Mountains in 1540.

8. Why do you think it was so important to Elijah Mitchell to be the first to measure the highest peak of the Black Mountains?
   Opinion question; accept any plausible answer.
   Most scientists are as interested in gaining recognition for their work as in making money from it. Notoriety gives them prestige, which in turn can lead to invaluable connections to other people who may be able to help them expand their research.

**CHAPTER 5 (16:10-19:20)**

9. Why do you think people called upon Big Tom Wilson to try to find the missing Elijah Mitchell?
   Tom Wilson was from the area and was well acquainted with the surrounding woods and mountains. He was a legendary hunter and tracker who would have been able to find Mitchell and guide would-be rescuers to him as none other could.

10. Why do you think the death of Elijah Mitchell brought tourists to the Black Mountains?
    Opinion question; accept any plausible answer.
    By the time of his death in June 1857, Elijah Mitchell had gained notoriety. Those unable to meet him in person could connect with him in another way by visiting the mountains. Mitchell was made famous by his ability to measure the highest peak east of the Mississippi River. Such an accomplishment (and visiting this peak) could have seemed even more important after his death.

**CHAPTER 6 (19:20-25:00)**

11. What are some species that have disappeared from the Black Mountains since the days of Elijah Mitchell?
    Below elevations of 4,000 feet, American chestnut trees once dominated the region, but they have since been decimated by disease. Though spruce and fir trees are still found there, virgin stands of them no longer grace the mountains’ slopes. The deer and black bears that once lived in the forests are still there, but the cougars and gray wolves are long gone.

12. Why are there some dead forests at higher elevations?
    In the past few decades, an introduced species of insect, the balsam woolly adelgid, has ravaged the Fraser firs of the mountains. Acid precipitation, mostly in the form of rain and clouds, has also killed off firs and red spruce trees. The combined effect of these attacks has killed some high-elevation forests.