

### Student Comprehension Worksheet

**Directions:** Read the online *Science News* article "[Sea otters stay warm thanks to leaky mitochondria in their muscles](#)," which explores scientists' efforts to figure out how the ocean's smallest mammal maintains an extreme metabolism. A version of the story, "How muscles keep otters warm," appears in the August 14, 2021 issue of *Science News*.

- 1. What are sea otters? Describe the animals.**
- 2. What is metabolism? What surprised scientists about sea otters' metabolism while at rest?**
- 3. How do sea otters keep their metabolism at such high levels?**
- 4. What is sea otters' average body temperature? How does metabolism relate to body temperature?**
- 5. What are mitochondria? How do mitochondria help sea otters' muscle cells generate heat?**
- 6. How do leaky mitochondria contribute to sea otters' extreme metabolism?**
- 7. Is this heating method the main way that sea otters stay warm? When is the method probably used?**
- 8. Why does ecophysiologicalist Terrie Williams say the finding could be a "game changer" for scientists' understanding of marine mammal evolution?**

**9. What implications does the finding have for scientists' understanding of sea otter evolution?**