SN EDUCATOR GUIDE

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Computer Chip Milestone Reached

Student Comprehension Worksheet

Directions: After reading "Computer chip milestone reached," answer the following questions.

1. A milestone is a significant point in the progress or development of something. What milestone does the headline refer to and why is that milestone important?

2. What is a transistor and what does it do inside a computer?

3. Computer chips have traditionally been made with silicon transistors. Why are scientists now looking for alternatives to silicon?

4. What does a carbon nanotube look like? What advantages could carbon nanotube transistor technology have over silicon in the future?

5. Identify and explain two problems that the scientists ran into when designing a computer chip with carbon nanotube transistors.

6. How did the scientists solve the problems?

7. Identify and explain an analogy that *Science News* reporter Maria Temming uses in the article. How does the analogy help you understand the scientific concept being discussed? Write your own analogy that incorporates information from the article.

8. How does the performance of carbon nanotube transistors in this chip prototype compare with silicon transistors used in modern electronics? How do the transistors' sizes compare? What is the order of magnitude difference in each case?

9. What can researchers do to improve carbon nanotube transistors?