Stream Cleaner Environmental Forum
#4. Water Quality Model
http://www.cacaponinstitute.org/high.htm

1. The Chesapeake Bay Program uses mathematical models to simulate processes in the Bay watershed. Models are used because.... *Circle the correct answer:*
   a. Mathematical models cost less then scale models
   b. Computer graphics have allowed for us to visualize natural objects.
   c. Some large scale processes can't be observed directly
   d. Mathematical models provide a tax benefit ratio

Questions 2-6 relate to the essay by Native Guide Michael Schwartz.

2. What happens on the land plays a part in determining the water quality in a stream.
Circle the correct answer: True   False

3. Which of the following influences a watershed's capacity to assimilate nutrients?
Circle the correct answer:
   a. Climate
   b. Geology
   c. Soils
   d. Vegetation
   e. Topography
   f. All of the above

4. Non Point Pollution nutrient pollution is caused when human land use exceeds the natural capacity of a watershed to assimilate the nutrients imported by people.
Circle the correct answer: True   False

5. The Chesapeake Bay Watershed Model ....
Circle the correct answer:
   a. Should be so complicated it takes months to run.
   b. Is almost completely accurate
   c. Now that it is established, requires little input or updates
   d. Requires quite a few assumptions

6. The Model doesn't need good input data to give good data out.
     Circle the correct answer: True   False

Questions 7-13 relate to the link with graphs of Chesapeake Bay Watershed Model estimates of nutrient and sediment loads.

7. What state has the most land area in the watershed? *Circle the correct answer:*
   a. Delaware
   b. New York
   c. Virginia
   d. D.C.
   e. Maryland
   f. Pennsylvania
   g. West Virginia

8. The pie charts of model estimates for the entire Bay watershed indicate that agriculture is the primary contributor of nutrients (Nitrogen and Phosphorus). The second largest contributor is....
Circle the correct answer:
a. Point Sources
b. Forest lands
c. Cities (urban)
d. Septic systems

9. The pie charts of model estimates for the entire Bay watershed indicate that agriculture is the primary contributor of sediment. The second largest contributor is.... *Circle the correct answer:*
a. Point Sources
b. Forest lands
c. Cities (urban)
d. Septic systems

10. Looking at the both the pie chart of land area and the bar chart labeled "NITROGEN LOADS BY JURISDICTION", the state with the largest land area in the Chesapeake Bay watershed also contributes the most nitrogen.
Circle the correct answer: True   False

11. Looking at the both the pie chart of land area and the bar chart labeled "PHOSPHORUS LOADS BY JURISDICTION", the state with the largest land area in the Chesapeake Bay watershed also contributes the most phosphorus.
Circle the correct answer: True   False

12. Looking at the both the pie chart of land area and the bar chart labeled "SEDIMENT LOADS BY JURISDICTION", the state with the largest land area in the Chesapeake Bay watershed also contributes the most sediment.
Circle the correct answer: True   False

13. Why do you think the "SEDIMENT LOADS BY JURISDICTION" chart shows no sediment inputs from Washington DC? *Circle the correct answer:*
a. Because it is basically all city with little exposed earth
b. Because DC is so close to the Bay that sediment from that area is not relevant.
c. Because the model is unable to account for sediment from urban settings.

14. Models, because they use the best scientific information available, are nearly always the same as reality.
Circle the correct answer: True   False

15. The 2005 Government Accounting Office report praised the Chesapeake Bay Program for accurately modeling progress and significant improvements in water quality.
Circle the correct answer: True   False

16. Despite drawbacks, the Chesapeake Bay Model is the best method available for estimating large scale ecological processes in the watershed.
Circle the correct answer: True   False