Exploring the Hubbard Brook Experimental Forest

Student Handout #4: Virtual Tour & Introduction Questions.

Student Name(s) _____   Date _____

Use the back of the page if you need more room to answer questions.

1) Why do you think streamflow is much lower in the summer at the HBEF? Explain this pattern using the streamflow & precipitation graph on Page 4A, and then look at the answer (there is a link to the answer on the bottom of Page 4A). How did you do? Did you have other ideas?

2) As you have seen, we know that on average rainfall is about the same every month of the year at the HBEF, and streamflow levels are highest in March, April and May. And we also know if a year is drier or wetter than average. According to the graph on Page 11A, what are the three wettest years? The two driest? Was the year you were born wetter or drier than normal? What does this graph indicate about the annual variability of precipitation at the HBEF? Describe reasons why it might be important to know the Valley has received more (or less) precipitation in one year than it does in an "average" year?

3) The Scientific Advisory Committee (SAC) works to keep scientific standards high, helps prevent research duplication, and keeps forest resources intact (i.e., the SAC insures that any destructive experiments, such as forest cutting, are only conducted for very good reasons). Can you think of more reasons it might be important to have a group of concerned scientists overseeing research at Hubbard Brook?

4) What was the purpose of the "Weeks Act?"

5) What are ecosystem budgets?

6) As you might imagine, there can be problems with sampling precipitation: leaves and other contaminants fall into the funnels, and it's often raining on sampling days. Can you think of other problems with sampling precipitation? How would you solve some of these problems?

7) Explain the "Small Watershed Concept."

8) What questions would you be interested in studying if you worked at the HBEF?

9) What did you learn by taking the virtual Tour? Explain.

10) Consider nitrate (NO_3^-), a form of nitrogen available to plants, and at high levels is a water pollutant. If, over the course of an entire year, scientists measured 500 units of nitrate entering a watershed in precipitation, and 650 units of nitrate leaving a watershed in streamflow, they might be able to conclude that the watershed was losing nitrate and was a source of pollution to the stream. Why could it be important to know if watersheds are losing or accumulating nitrate over long periods of time?