Engineering – STEM
Lake Group Project Worksheet

Overview
Your classmates and you have been divided up by the proposals you wrote last semester (for the most part). Your group's job today is to lay out the responsibilities of each group member and make a few simple decisions on how your group will proceed to tackle the lake issue your group has been assigned. This assignment should be completed in every group member's engineering notebook today and one group member's notebook should be turned in today at the end of class to receive credit. Please see the bottom of the instructions for who will turn it in today. There are three phases of this assignment.

2014-15 STEM Engineering Group Projects				
Dissolved Oxygen	**Runoff**	**Pollution**	**Algae**	**Sediment**
Mintesinot	Kaleb	Rijalda	Bereket	Samantha
Penn	Taylor	Root	Omaree	Nicolina
Makeda	LB	Truvelle	Saida	Ben
Sarah	Miriam	Cameron	Jackie	Tyric
Nathan	Nia	Shataya	Coltin	Aaron
Lucy	Mohammad	Maria	Mickayla	Emely

Step 1: Assign Group Roles
Create the following chart in every member's notebook. You may need to include multiple lines in each box to assign all roles and responsibilities. (Include everyone in the group, all 6 members):

Group Member Name	Position in Group	Responsibilities

It is vital that each member of the group be responsible for one or more aspects of the project. The group and project's success will be determined by how each member contributes equally. As a group, you should review each members' abilities and then collaboratively assign roles. Every role must be assigned, some people will have multiple roles depending on their talents. No group member should have more than two positions in the group and a Designer cannot also have the position of Researcher. The Project Manager should be someone who already holds another role as well. Use the following roles to assign to each group member:

- **Project Manager** – This position must be the last role assigned today. This position should be voted on by the entire group and everyone should agree. If you do not agree, do not select a person just yet. This person should be someone who rarely misses any days of school, very organized, can keep others motivated, does not get easily frustrated, and can work under pressure. This person must ensure all group members are positively contributing and not getting off task. The project manager will often report to Mr. Booth when he requires updates. This person will also act as the group's liaison to other groups when asked to share out information or assist others. This position will work in the classroom, lab, and lake.

- **Lead Designer** – This position is for the person who can visualize, draw, and utilize computer modeling software the best. This person will be responsible for providing the initial drawings and designs for whatever solution your group comes up with. This person should allow for everyone's input, but has to be able to produce the solution visually. This person should also be able to work with and handle tools, machines, equipment and materials. This position will work in the classroom, production lab, and at the lake.
- **Secondary Designer –** This person is primarily the support specialist for the Lead Designer. This person is well versed in drafting by hand and in computer modeling as well. They can serve as the substitute designer in emergencies or should support the efforts of the Lead Designer to complete the designs required by the group. This person should also be able to work with and handle tools, machines, equipment and materials. This position will work in the classroom, production lab, and at the lake.
- **Lead Researcher** – This person is responsible for obtaining all necessary research and information the group requires to complete the design solution for their project. This person should be quick and good on computers, able to conduct vast research on the internet, and provide reliable data and facts for the group to use. This position will primarily work in the classroom.
- **Support Researcher** – This person will assist the Lead Researcher in conducting all necessary research. This position will primarily work in the classroom.
- **Data Collector –** This group member should be well versed in data collection as it pertains to the lake and the design solution. This person should generally have the best notebook kept for data from the lake. This person should be able to record data using observation and technology and record it across multiple formats. This position will work in the classroom and at the lake.
- **Data Analyzer –** This group member is responsible for analyzing and interpreting all data from the Data Collector. This person should be able to produce charts and graphs and also be able to apply the information to assist in the design of the solution. This position will work in the classroom.
- **Procurement Manager** – This person is responsible for obtaining all of the materials needed for the project solution. This may include requesting items from Mr. Booth and other teachers. It will also include requiring the group member to contact local companies and stores for donations, discount pricing, etc. to obtain ALL necessary materials to complete the project. This person cannot fail in their duties or else the entire project will not succeed. This position will work in the classroom and the local Tucker community.
- **Secretary –** Primarily responsible for taking all notes during group discussions and meetings. This person should have very good handwriting and be able to share all information with the group. It is also this person's responsibility to make sure each group member records the data they record into their own notebooks on a weekly basis. This position will primarily work in the classroom, lab, and lake.
- **The Disagree-er –** This person has a limited responsibility and should be completed by someone who already has a primary role. This person, when in a group discussion or brainstorming session, present alternatives or object to the primary solution when "groupthink" occurs. This means that there is someone in the group that disagrees on purpose to make sure everyone has looked at all possibilities. This DOES NOT mean this person is always objectionable and creates chaos or stops progress on a task, but is meant to serve positively to encourage critical thinking on all aspects of the project. This position will primarily work in the classroom.

It is important to note that whenever someone's position is not active, they will be required to assist other group members complete their duties. This would mean that if your group was building your solution in the lab, the majority of the group members should be assisting with construction.

Under the “Responsibilities” portion of the chart you should record the primary duties and responsibilities that have already been described under each position. In addition to those already mentioned, brainstorm with your group to identify at least 2 more responsibilities each person should have for their positions.

Step 2: Brainstorming Session

After all the positions have been assigned, your group should have an initial discussion and brainstorming session about how you want to approach the primary lake issue your project is centered around. Your team should come up with a temporary and a permanent solution that can be implemented in the lake. These do not have to be in-depth solutions to start out with, but you should have some concrete ideas ready to go. (Have your secretary take notes and then report it out to the group after the session). This should look like the following in your notebook:

Lake Project Issue:
Ideas: (written)
Designs: (drawings)
Materials: (list)
Barriers to Implementation:

Step 3: Project Timeline

Lastly for this assignment, it is important for your group to create a timeline for your group to complete your project. Most of you already created a simple timeline for your project proposals. In your engineering notebook, have everyone create the same timeline based on each member’s input. This project timeline may have some overlapping dates, but as a general rule, you should complete each phase of the project in order to begin the next phase. An example would be you should complete your research and design phase before construction phase.

The timeline should look like this:

Lake Project Timeline for (insert primary problem here)		
Project Start Date: 1-26-2015		**Project End Date: 5-8-2015**
Project Component:	**Start Date:**	**Finish Date:**
Research		
Design		
Materials Procurement		
Construction		
Testing		
Implementation		

After completing this assignment with your group, the Data Collector from each group should turn in their engineering notebook for everyone to receive credit in the group.