

3. In the table below, write a description of each data structure that you labeled in the diagram. Based on the description, give it a short, but descriptive name. Replace any spaces in the name with underscores (_). If the data structure is a constant, give its name in ALL CAPS, otherwise give it in all lowercase.

| <u>Data Structures</u> | | |
|-------------------------|----------------------------|-------------|
| <u>Label in picture</u> | <u>Written Description</u> | <u>Name</u> |
| | | |

4. Develop new names for the data structures based on their scope. If the data structure is public to all processes, don't change its name. If the data structure is public to all threads but private to each process, prepend the word "our" to the front. If the data structure is private to each thread, prepend the word "my" to the front. Add any data structures that are private copies of other, public data structures. Indicate these with asterisks (*) for their old names.

| <u>Data Structures</u> | |
|-------------------------------|------------------------|
| <u>Old Name</u> | <u>New Name</u> |

5. Write out written representations of the interactions between the data structures and provide equations for each.

| <u>Interactions of Data Structures</u> | |
|---|---------------------------------------|
| <u>Written Representation</u> | <u>Equation Representation</u> |

6. Write out the interactions from above in the order in which they are to occur. Indicate the step of the algorithm, the interaction, the condition under which to execute the interaction, the number of times to execute the interaction, and which processes and threads should execute the interaction.

| <u>Steps of the algorithm (order of interactions)</u> | | | | | |
|--|---------------------------|-------------------------|-------------------------------|------------------------------|-----------------------------|
| <u>Step</u> | <u>Interaction</u> | <u>Condition</u> | <u>Number of times</u> | <u>Which process?</u> | <u>Which thread?</u> |
| | | | | | |

7. Open the code in the “area” directory, in the directory of the language of your choice (C or Fortran 90). Use the steps of the algorithm from the table above to help you understand how the code works.