**Blue Waters Petascale Semester Curriculum v1.0**

**Unit 1: Computation Across the Curriculum**

**Lesson 1: Introduction to Parallel Computing**

**Exercise Instructions for Students**

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*Browse and search the full curriculum at*[*http://shodor.org/petascale/materials/semester-curriculum*](http://shodor.org/petascale/materials/semester-curriculum)

*We welcome your improvements! You can submit your proposed changes to this material and the rest of the curriculum in our GitHub repository at*[*https://github.com/shodor-education/petascale-semester-curriculum*](https://github.com/shodor-education/petascale-semester-curriculum)

*We want to hear from you! Please let us know your experiences using this material by sending email to* [*petascale@shodor.org*](mailto:petascale@shodor.org)

1. How is **parallel programming** different from **sequential programming**?
2. How does a **multi-core computer** attempt to improve performance as compared to a **single-core computer**?
3. What is **High Performance Computing (HPC)**?
4. Spend some time browsing around [www.top500.org](http://www.top500.org) . Choose a computer from the list, and write down what you learn about it. How much memory (RAM) does it have? How many compute cores? Where is it located? How much energy does it consume? What other information is given?