

Dynamic Planet: Rivers and Lakes
Michigan State University
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- I. Description
 - A. Annual rotation to permit coverage of Earth Science topics that do not warrant a separate event of their own.
 - B. Rivers are much more dynamic than lakes, so rivers will receive the greater coverage
 - C. Students may bring any type of calculator and a two-inch notebook filled with reference material

- II. Process skills: not an all-inclusive list
 - A. Predictions. Example: problems with housing developments in flood plains
 - B. Inferences. Example: possible effects of dam construction
 - C. Analyzing and interpreting data. Graphs, tables, diagrams
 - D. Problem solving: Straightening channels for more rapid flow of water during flooding
 - E. Math skills: Calculating gradient, stream discharge rate
 - F. Map interpretation: Determining the boundaries of watersheds
 - G. Observation: Relating rock types with erosion

- III. Exam
 - A. Intent is station activities as opposed to a short answer exam
 - B. Sample station activities
 - 1. Identifying the boundaries of a watershed
 - 2. Distinguishing between deltas and alluvial fans
 - 3. Erosion vs. deposition, effects of flow rates
 - C. Chances of in-depth, hands-on activities are minimal, i.e. practicality of stream table studies due to set-up and difficulty of ranking participants

- IV. Reference materials
 - A. Web sites provided in your notebook. These were chosen by topic and difficulty level. Most available sites are much too technical.
 - B. Textbook recommendations.
 - 1. Physical Geology: Earth Revealed. ISBN 0-697-37649-4; www.mhhe.com; McGraw-Hill
 - 2. Rivers Curriculum: Earth Science. Dale Seymour Publications. ISBN 0-201-49370-5; www.otherworlds-edu.com
 - C. Most standard textbooks have limited coverage of rivers and lakes

- V. Student reference notebook.
 - A. Two inch binder, tabbed by topic
 - B. Suggested divisions: not an all-inclusive list
 - 1. Web pages. Those suggested in the notebook are a good starting point

2. Diagrams. Meandering streams showing erosional and depositional features; hydrological cycle; etc.
3. Mathematical formulas: stream gradient; stream discharge
4. Graphs and charts: flood recurrence intervals; etc.
5. Glossary.
6. Geographical information: major rivers and the continents on which they are located; maps displaying drainage basins of major rivers; etc.
7. Topographic map symbols: possibly a USGS Symbol Sheet

VI. Presenter's contact information

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