STAFF DEVELOPMENT COMPONENT INFORMATION

COMPONENT TITLE:	Engineering is Elementary (EiE) Level I
IDENTIFIER NUMBER:	1015020
MAXIMUM POINTS:	60

GENERAL OBJECTIVE:

This professional development program will provide teachers with the foundational information and materials necessary to successfully introduce elementary level students to basic engineering topics and concepts, thereby fostering student achievement through non-competitive, hands-on classroom activities.

SPECIFIC PROCEDURES:

To complete the unit objectives and receive in-service points, and within the duration of the component, students of the participating teacher must:

- 1. demonstrate knowledge of and conduct a controlled experiment.
- 2. demonstrate an understanding of environmental engineering.
- 3. demonstrate an understanding of water filtration and purification.
- 4. demonstrate an understanding of comparisons among various water filtration materials.
- 5. demonstrate an understanding of mechanical engineering.
- 6. evaluate various materials used to make sails and how they affect the sail's ability to catch wind.
- 7. demonstrate the use of integrated instruction to teach engineering concepts.
- 8. demonstrate an understanding of the concept of air pressure and movement.
- 9. demonstrate an understanding of materials engineering.
- 10. demonstrate an understanding of civil engineering concepts.
- 11. demonstrate an understanding of how weight affects an arch bridge, a beam bridge, and a deep-beam bridge.
- 12. evaluate the use of recyclable materials for bridge building.
- 13. demonstrate an understanding of industrial engineering.
- 14. demonstrate an understanding of the use of various simple machines.
- 15. demonstrate an understanding of agricultural engineering.
- 16. demonstrate an understanding of related literary materials, multimedia, etc. that could be used to present a multicultural view of the field of engineering.

DELIVERY PROCEDURES:

Participants will engage in directed and collaborative activities related to:

- 1. collaborative discussions that are focused on specific types of engineering.
- 2. utilization of lesson plans and kit materials to engage students in hands-on lessons.
- 3. conduction of experiments and data acquisition related to a various engineers and engineering fields of study.
- 4. evaluation of the level of student knowledge throughout each unit.
- 5. participation and evaluation of the EiE program and specific unit lessons.
- 6. compliance of district component procedures.

PARTICIPANTS' EVALUATION:

Participants will demonstrate mastery of the targeted objectives as evidenced through product samples, classroom observations, dialogue notes and/or assessment.

FOLLOW-UP PROCEDURES:

- 1. Collect and provide feedback and student samples affirming that implementation of the lessons have impacted instruction and increased student achievement.
- 2. Provide details of inconsistencies found in each unit.
- 3. Provide written or oral reflection.
- 4. Participate in study groups.
- 5. Conduct post-surveys with each student who participated in the unit.

EVALUATION PROCEDURES:

Professional developer will assess the degree to which the information/activities presented address the specific objectives of the staff development session(s) and make recommendations for revisions on the Component Evaluation Form.