

Engineering Goes to Parkwood-Upjohn Elementary School

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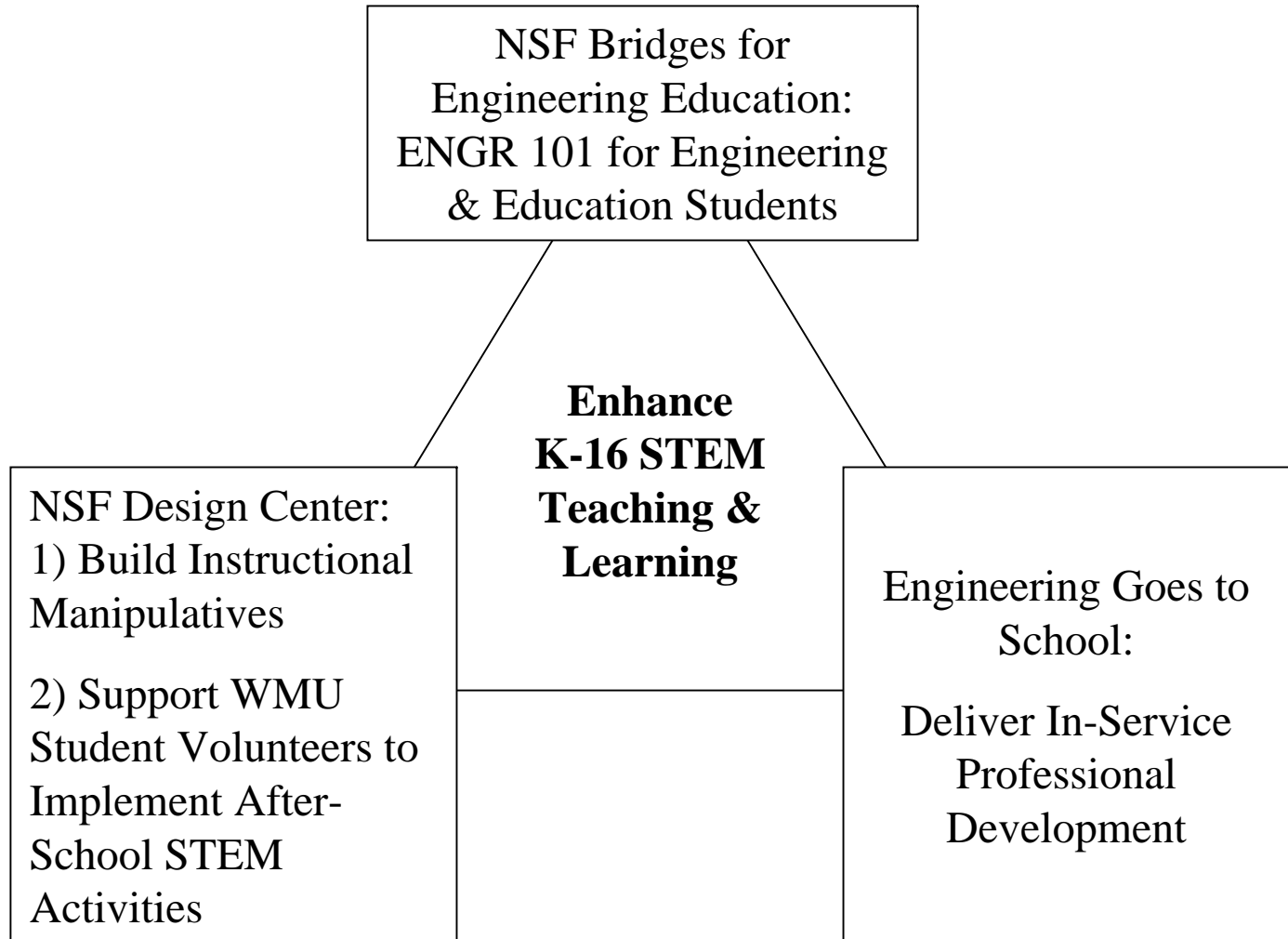
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Overview

- **Big Picture**
- **Project Goal**
- **Project Implementation**
- **Preliminary Evaluation**
- **Conclusion**

Big Picture



Project Goal

Provide In-Service Professional Development

- **Uses examples of engineering to teach mathematics and science**
- **Is useful to teachers**
- **Ties to professional development plan**
- **Is convenient to teachers**

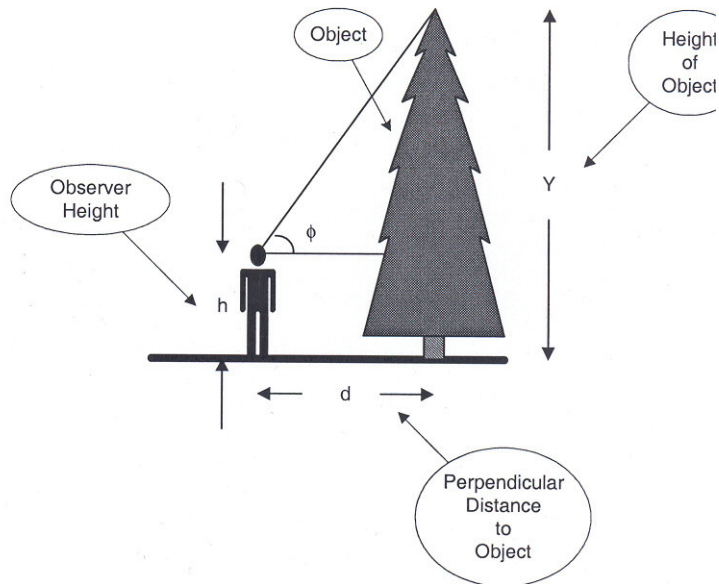
Project Implementation

- **Orientation – Survey 4th-6th Teachers to Identify Needs in Content Enhancement in Math and Science**
- **Discussion with School Principal regarding In-Service Professional Development Days**
- **Four Topics for Content Enhancement**
 - **How Tall Is It? – Implemented Sept. 24**
 - **Electrical Energy – To be implemented Nov. 19**
 - **How Far Away Is Mars? – Spring 2004**
 - **How Small Is It? – Spring 2004**

Project Implementation

“How Tall Is It?”

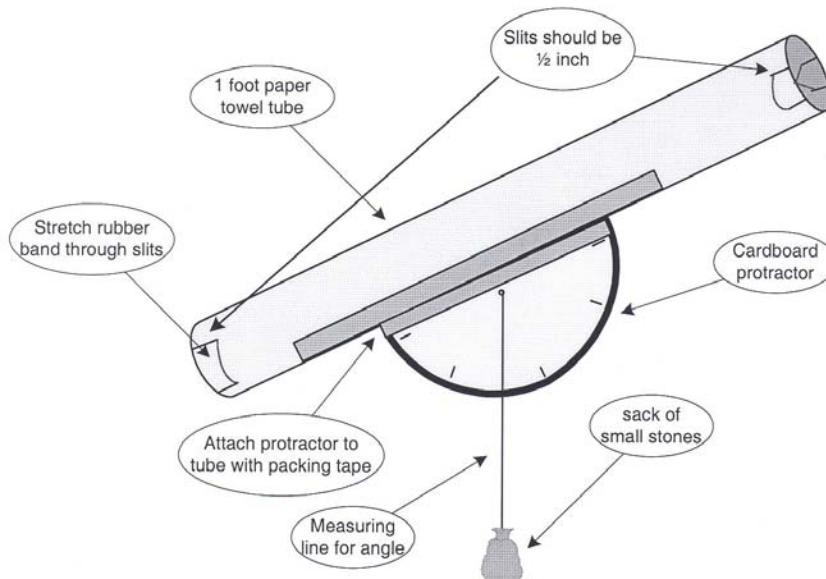
- Use triangulation to determine height of various objects at Parkwood-Upjohn Elementary School



Project Implementation

“How Tall Is It?”

- **Build sighting tube**



- **Measure and calculate: $H = h + d(\tan \phi) = h + d(\text{slope})$**









Preliminary Evaluation

Project Evaluation Form

Part I: General Information

- Number of teachers at grades 4-6 participating in Session I: _____
- Number of contact hours with teachers in Session I: _____
- Integrated science/mathematics curriculum materials created as a result of the grant for Session I: _____

Part II: Teacher Self Evaluation *(to be completed and returned at Session 2)*

- While teaching the activity, “How Tall Is It?”, what went well? Why?
- What would you do differently next time you teach this activity? Why?

Preliminary Evaluation

Results from “How Tall Is It?”- September 24, 2003

Part I:

- Number of teachers at grades 4-6 participating in Session I: 9
- Number of contact hours with teachers in Session I: 1.5

Teacher Comments Immediately Following the Session:

- *“Kids would love doing this.”*
- *“Students will have to think about order of operations.”*
- *“Students will use measuring.”*
- *“They will be using tools (e.g., protractor).”*
- *“Students will be applying the math and that’s fun.”*
- *“Be sure to use protractors when students draw pictures so the angles are to scale.”*
- *“Building the measuring tool with the tube will be a positive learning experience for the students.”*

Conclusion

- **Research the Dynamics of In-Service in One School Building (Parkwood-Upjohn Elementary School) to Identify Best Practices for System-wide Implementation**
- **Preliminary Evaluation Results Indicate Teachers Find “Hall Tall Is It?” Useful**
- **Continue implementation of**
 - “Electrical Energy” – Nov. 19**
 - “How Far Away Is Mars” – Spring 2004**
 - “How Small Is It?” – Spring 2004**

Acknowledgement

- Michigan Space Grant Consortium
- Kalamazoo Community in Schools

Questions & Comments