

**For: Elementary and Middle School Teachers of Mathematics, Science, and Technology**  
**An Introduction to.....**

**SKYMATH:**  
**MAKING MATHEMATICAL CONNECTIONS THROUGH**  
**TEMPERATURE EXPLORATION**

**Hands-On Math And Technology Unit**

**Real World Application Using Real-Time Weather Data**

*“Through SkyMath, students really understand the concepts behind the mechanics.” –Teacher*

**The SkyMath Module is:**

- Motivating — students and teachers enjoy using SkyMath
- Flexible — usable as a stand-alone unit or integrated into the regular curriculum
- Effective — students learn valuable mathematical skills and concepts

SkyMath was developed by a team of mathematicians, educators, curriculum specialists, and scientists, and was tested by teachers in classrooms for three years.

SkyMath is available for free on the World Wide Web at:

*<http://www.unidata.ucar.edu/staff/blynds/Skymath.html>*

**SkyMath is Easy to Use.**

Teaching instructions, background information on the content, student assessments, teacher stories, and other resources are included in the cost-free materials.

**SkyMath is a Series of 16 Learning Activities.**

SkyMath builds on students' prior experience, interests, skills, and knowledge. Students collect and analyze real-time weather data using thermometers, computers, data loggers, the Internet, and other media sources.

**SkyMath's Mathematical Content is Appropriate for 5th Through 8th Grade Students**

- **Matters of Scale:** Mastering concepts needed to establish a scale and convert it to a different base
- **Central Tendency:** Defining various ways to describe a set of measurements taking into account the effects of sample size and variability on measures of central tendency (mean, median, mode)
- **Data Representation and Change:** Developing the skills to express mathematically how a quantity changes

- **Communication:** Developing skills in communicating with and about mathematics

*SkyMath is an effective learning tool for students with a range of mathematical abilities and experiences — from the gifted to special needs students.*

*SkyMath students show growth in these areas:*

- Mathematical concepts and deeper levels of understanding of concepts
- Mathematical skills and application of computational skills
- Higher level thinking, reasoning, and problem solving skills

*SkyMath students learn to:*

- Create, interpret, and value graphical representation of data
- Collect, sample, and interpret real-time data
- Select the best measure of central tendency (mean, median, mode) for data sets
- Work with the concepts of maximum, minimum, range, ratio, and rates of change

*SkyMath Aligns Closely With:*

state, district, and National Council of Teachers of Mathematics (NCTM) standards

*SkyMath Supports:*

school and district mathematics curricula which are based on NCTM standards.

*“When using SkyMath I am covering the curriculum and doing it better.” –Teacher*

**SkyMath is Flexible and Adaptable.**

Teachers can adjust activities to fit grade level, context, and time frame, and pace instruction to match student progress. Designed to run for six weeks of approximately 50 minute class periods, SkyMath can also be integrated into other curricula and spread out over a longer period of time. SkyMath works well as an integrated math and science unit.

*Teachers find SkyMath to be very accessible and preparation for teaching relatively easy.*

*.... read through SkyMath materials .... try out activities .... refer to weather resources*

*SkyMath is a non-threatening way to try new hands-on pedagogy to enrich teaching repertoires.*

**Basic Technology Skills and Equipment Needed**

- Teachers — basics computer skills; use of the Internet, e-mail, and spreadsheets
- Schools — computers, access to e-mail, and connection to the Internet
- Other Equipment — Stowaway data probe and thermometers (approximate cost \$200)

*SkyMath teachers are connected to a support network through the SkyMath homepage.*

**Where to Find SkyMath**

Free materials available at the SkyMath Web Site are: the SkyMath module; the SkyMath End-of Unit Assessment and directions for administration; pamphlets with summary information for copying and distribution; and the SkyMath Final Evaluation Report (August 1997).