Introduction
This assignment is designed to help students learn how to use a spreadsheet, create graphs, and learn how to communicate their ideas and thoughts through the use of electronic pen pals. It is very important that you and your students prepare for this activity by doing some basic tutorial activities on a spreadsheet program like Microsoft Excel. Even if you do not have full Internet access in your classroom, the pen pal letters and the graphs can be done in your word processor, saved to a folder on your server, and then e-mailed by someone else in the school. Have fun!

Technology Usage
- Internet access
- Word processor
- Spreadsheet program
- Outdoor thermometer

Resources
Online
- The Weather Channel  http://www.weather.com/
- AccuWeather  http://www.accuweather.com/

Process
Tips:
To accomplish this assignment, you should have the following completed ahead of time:
- Set up Pen Pals with other schools; the more diverse the locations, the better the data.
- Have at least one computer hooked up to the Internet.
- Have a spreadsheet program.
- Have a thermometer installed outside in a specific location at your school.
- Have a small notebook to use for recording data for each student or group of students.
- Students can be broken into small groups.
- Make sure your students know how to create a spreadsheet and graphs.

Materials:
- Small notebooks (either 1 per student or 1 per group)
- Outdoor thermometer
- Digital photo of self and surrounding area (or web site address to your local area) to send with Pen Pal letter.
- One diskette (in case you cannot save to a server)
Preparation:
- Review the basics of how to create and enter information into a spreadsheet.
- Designate a student who can take pictures of all of the members of his or her group.
- Suggestion: Create a folder on your server where student work can be saved.
- Suggestion: Look up local URL’s for pictures of your local community.

Tasks:
1. Set up a Spreadsheet Template. See the Example.
2. Have students enter the daily temperature readings in their notebooks.
3. Have students transfer daily readings into their spreadsheets.
4. Have students e-mail their results to their Weather Buddies.
5. Have students enter their Buddies' readings into their spreadsheets.
6. Decide how students are to display their graphs with the whole class.

Presentation
Each student or group of students should print out a copy of their graphs and present them to the rest of their class. Final projects may be posted on school bulletin boards and emailed to partner schools with digital photos attached. Also check with your principal to see if you can display your projects at the next School Board meeting.

Credits
If your students use pictures, clipart or copyrighted information in their final presentations, make sure they document their sources.

Assessment
Students will be evaluated based on the following:
- their daily notebooks (journals or science notebooks);
- their completed spreadsheets and graphs;
- the grammar and punctuation of their Pen Pal letters.

Extension
A school weather broadcast could be added. The final video data could be sent between partner schools and a joint weather video could be produced mimicking an actual “Weather Channel” broadcast.
Sample Charts and Graphs

<table>
<thead>
<tr>
<th></th>
<th>My School</th>
<th>Buddy's School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>80</td>
<td>75</td>
</tr>
<tr>
<td>Tuesday</td>
<td>78</td>
<td>72</td>
</tr>
<tr>
<td>Wednesday</td>
<td>68</td>
<td>65</td>
</tr>
<tr>
<td>Thursday</td>
<td>64</td>
<td>69</td>
</tr>
<tr>
<td>Friday</td>
<td>70</td>
<td>72</td>
</tr>
</tbody>
</table>

**Student Outcomes**

Upon completion of this unit, the student should be able to:

- Read and understand basic weather instruments.
- Enter and graph basic information in a spreadsheet.
- Know how to write a friendly letter on a word processor.
- Gather, use and synthesize information.
- Create and communicate knowledge via computer technology.

**Content Area and Grade Levels**

This lesson is developed as a science and Language Arts project and could be adapted for K-8. The student template is written towards 3-6 graders. The Language Arts component is centered around taking notes and writing pen pal letters on the word processor. The Science component is centered on measuring temperature, charting the findings, and then sharing the data via email.

**Content Standards and Benchmarks**

**Science**

(7) Students will understand the physical world through concepts of change, equilibrium, and measurements.

(10) Students will use state-of-the-art computer and other technology to gather, use and synthesize information, and to create and communicate knowledge.
<table>
<thead>
<tr>
<th>RETA Curriculum</th>
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<tbody>
<tr>
<td>Weather Buddies</td>
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Created by
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