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Standard:

4.4.1.1

 Use tables, bar graphs, timelines and Venn diagrams to

display data sets. The data may include fractions or decimals.

Understand that spreadsheet tables and graphs can be used to

display data.

Objectives:

 Students will be able to organize data using gliphs or pictures to represent data.

Materials

* Doc Cam
* Worksheets
* Markers/Crayons
* Scissors
* Smartboard

**Instructional Procedures**
This activity requires advanced preparation. The day before you make the glyphs with your students, complete the first step of this activity.

1. Using the *Utah Weather Map*, invite the students to select a specific city from across the state. You may choose to assign these locations to assure that a statewide representation is available for analysis. You may also wish to print a transparency of the [*Utah Weather Map*](http://www.uen.org/Lessonplan/downloadFile.cgi?file=15089-2-20948-utah_weather_map.pdf&filename=utah_weather_map.pdf) for use on an overhead projector.
2. Glyphs (symbols used to convey meaning) are easy to create and help students with step-by-step process skills. To introduce glyph-making use an overhead projector and model what you want students to do. Post the selected glyph shape for students to see. Read aloud each survey question, adding your own picture detail to the glyph shape after each question. Seeing the glyph being made will help students understand the construction process. After students have heard all the survey questions and watched you use your answers to create a glyph, they will be ready to begin their own glyphs.
3. Provide each student a copy of the [*Utah Weather Glyph*](http://www.uen.org/Lessonplan/downloadFile.cgi?file=15089-2-20945-utah_weather.pdf&filename=utah_weather.pdf) worksheet and each pair of students the *Utah Weather Map*. Post the [*Weather Glyph Question s*](http://www.uen.org/Lessonplan/downloadFile.cgi?file=15089-2-20946-weather_glyph.pdf&filename=weather_glyph.pdf)transparency on an overhead projector.
4. Review the background information with the students. You may wish to emphasize that this activity will allow them to see the differences in the types of weather throughout the state.
5. Have the students cut out the pattern following the directions on the *Weather Glyph Questions* transparency. Students should check with the teacher before cutting the line for the size of the sun in question one. It is recommended that students use a black marker to add the glyphs for average January temperature.
6. Invite students to add the remaining details to their glyphs to show their answers to the questions. Students can also personalize their glyph if it does not interfere with the interpretation of the data.
7. Once the glyphs are complete, have the students display them in a central location. Ask them to describe how these glyphs could be sorted to collect the data from them. You may choose to write these suggestions on a chalk or white board. As an extension, students can create displays using their own ideas.
8. Display the *Utah Weather Map* on the overhead projector. Have the students organize the glyphs by their locations on the map and tape them to the wall.
9. Review the *Weather Glyph Questions* with students and have them verbally describe what information is available from the glyphs to provide an overview of Utah weather patterns. Ask the students to describe what physical geographic features may be influencing the climate at various locations.
10. Using another wall (or white board), form a basic outline for a bar graph. Ask the students to organize the cities with a 50-60° range in high and low temperature in one bar, those with 61-70° ranges on the second bar, and those locations with 71° or higher degree ranges in high and low temperatures in the third bar.
11. Ask the following questions: What similarities do they notice about the cities that are in the same category? Does the geography of the locations determine the climate? Does the weather define what kinds of jobs are available in that community? Why would someone consider the weather of a particular area when deciding to start a business or move their business to a new area?
12. Ask students to determine if their city’s climate would encourage or discourage them from certain types of agriculture and activities. Why would it be possible to grow apples in some parts of Utah, but not others? What types of risks do farmers face with regard to the weather? What things can farmers do to work with the weather? Can you ski everywhere in Utah? How about hiking in March? How does the weather affect our daily choices about activity? How does it affect wildlife? Record these answers on a chart in a journal.
13. Relate to students the importance of determining the climate before planting a garden or crop, raising livestock, planning outdoor activities, and dressing.
14. Have pairs of students present their glyph information in another graphical form not previously shown, such as a pie chart or line graph or pictograph.

**Extensions:**

* Place the glyphs in a basket. Ask each student to select one glyph from the basket, and using the data from the glyph, list the items s/he would pack if traveling to that city today. What activities would s/he be able to do? For example, if the weather is 50°F (10° C) and rainy, a student might list a jacket, blue jeans, a sweatshirt, and an umbrella. S/he may suggest indoor activities. If it’s 80°F (27°C) and sunny, the list might include shorts, a T-shirt, a tennis racket, and a bathing suit, and going for a swim. Remind students to consider the daytime and evening temperatures when packing for their trips.
* Ask students to gather data about the city they live in for a oneweek period of time. They may use the [*Weather Data Analysis*](http://www.uen.org/Lessonplan/downloadFile.cgi?file=15089-8-20949-weather_data.pdf&filename=weather_data.pdf)and [*Data Charts for Weather Forecasting*](http://www.uen.org/Lessonplan/downloadFile.cgi?file=15089-8-20950-data_charts.pdf&filename=data_charts.pdf)handouts to record their data. Challenge them to create line graphs using their data.
* Invite students to research weather conditions for cities in other parts of the world. Have them create glyphs for these cities, and then list what types of advantages and disadvantages that area may have if they were trying to grow a crop or raise livestock.
* Students can create displays with the glyphs using their own ideas about graphing and charting.