Topic: Comparing life stages of butterflies
Goal(s): 6,8,10
Skills: Calculating ratios and percents.
Organizing, analyzing, interpreting and graphing data.

What's the context?
Comparing life stages of butterflies

Which data will students use?
Chicago butterfly facts

What will students learn from this project?

Know how – what will they be able to do better?
Calculate percents and ratios
Plot information on a circle graph

Know what – what idea(s) will they clarify through the project?
Gain an understanding of patterns and trends in a set of numbers by analyzing ratios and percents and by creating visual representations of these patterns and trends with graphs.

What's the challenge?
1). Choose a species of butterfly from the data list and calculate the average number of days it takes for this type of butterfly to go through each of it's four life stages. For example, if a *Cloudless Sulphur* remains a larva for 14 to 30 days, this represents an average of 22 days.
2). Once the averages have been calculated for all four stages, add them up and create four separate ratios comparing the average life span of each stage to the butterfly's total average life span. For example, if the total average lifespan for a *Cloudless Sulphur* is 43.5 days and the larval stage lasts an average of 22 days, this represents a fraction of 22/ 43.5. Converted into a decimal, this equals .505, or 50.5 %. In other words a Cloudless Sulphur spends approximately half of its life as a larva, otherwise known as a caterpillar.
3). Use these percentages to create a circle graph to visually represent the lifespan of your butterfly.

Checkpoint: Students can pair up and share their results and check for accuracy. As pairs, students can report their findings to the class so that the life spans of many butterflies can be compared.