

**Content Standards:**

- To describe the properties of the normal distribution.
- To use the normal distribution to calculate probabilities as well as statistics associated with intervals within the normal distribution.

**Process Standards:**

- Students will demonstrate effective communication skills when presenting information in written form.

**Task:**

You have either recently taken the ACT or will in the near future. Imagine, you receive your scores back in the mail and want to determine which section you scored in the highest percentile. Use the Normal Distribution to determine how you placed in relationship to other students on each section of the ACT.

**Science:** You scored a 25. The mean is 24 and the standard deviation is 1.5.

**Math:** You scored a 20. The mean is 23 and the standard deviation is 2.

**Reading Comprehension:** You scored a 27. The mean is 25 and the standard deviation is 1.75.

**Writing:** You scored a 22. The mean is 24 and the standard deviation is 1.25.

**Which section did you score in the highest percentile? Which section did you score in the lowest percentile? How do you know? Support your answer using the Normal Distribution**

**and the formula:**  $z = \frac{x - \mu}{\sigma}$