Foundations of Math 11 LG 11&12
Statistical Reasoning

INTRODUCTION:

World-wide financial markets, endangered species and politics are only some areas that use statistics to guide decisions. Check out chapter 5 on page 207.

LEARNING GUIDE EXPECTATIONS:

On the completion of this learning guide you will be able to develop your statistical reasoning ability by:
1) calculating and interpreting standard deviation for given sets of data.
2) understanding the properties of normally distributed data.
3) determining and using the properties of the normal curve to compare sets of data that approximate normal distributions.
4) solving problems that involve normal distributions using z-scores.
5) interpreting data using confidence intervals, confidence levels and margin of error.

EVALUATION:

You are ready to progress to the next learning guide when you can demonstrate your understanding of the above expectations. Please refer to your Foundations of Mathematics 11 Marks Record Sheet to determine the assessment.

RESOURCES NEEDED:

Foundations of Mathematics 11 Text and possible Internet access.

LEARNING ACTIVITIES:

Expectation #1: Calculating and interpreting standard deviation for given sets of data.

1. Watch and take notes on instructional video on Standard Deviation.

2. Work through INVESTIGATE the Math on pages 226-228. Complete **Reflecting** on page 228 (N-P).

3. Work through Example 1 on pages 228-229. Complete **Your Turn** (A&B) on page 229.

4. Work through Example 2 on pages 229-232. Complete **Your Turn** on page 232.

5. Complete #1, 2, 3, 4, 5, 6, 7, 12 on pages 233-236.

6. In your math journal, complete the journal entry for LG11&12 Expectation 1 after you read the **In Summary** box on p. 232.

Expectation #2 & 3: Understanding the properties of normally distributed data and using these properties to compare sets of data that approximate normal distributions.

1. [Watch and take notes on instructional video on Normal Distribution.](#)

2. Work through INVESTIGATE the Math on pages 241. Complete **Reflecting** on page 242 (J-M).

3. Read pages 242-244 and work through Example 1. Complete **Your Turn** on page 244.
4. Read pages 245-246 and work through Example 2. Complete **Your Turn** on page 246.
5. Read pages 247-248 and work through Example 3. Complete **Your Turn** on page 248.
6. Read pages 248-249 and work through Example 4. Complete **Your Turn** on page 249.

7. In your math journal, complete the journal entry for LG11&12 Expectation 2&3 after you read the **In Summary** box on p.250.

8. Complete #1, 2, 3, 6, 7, 10, 11 on pages 251-253.

Expectation #4: Solving problems that involve normal distributions using z-scores.

1. [Watch and take notes on instructional video on Z-Scores.](#)

2. Work through Example 1 on pages 255-256. Complete **Reflecting** (A-C) on page 229.
3. Work through Example 2 on pages 257-258. Complete **Your Turn** on page 258.
4. Work through Example 3 on pages 259-260. Complete **Your Turn** page 260.
5. Work through Example 4 on pages 260-262. Complete **Your Turn** page 263.

6. In your math journal, complete the journal entry for LG11&12 Expectation 4 after you read the **In Summary** box on p.263.

7. Complete #1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13 on pages 264-265.

Expectation #5: Interpreting data using confidence intervals, confidence levels and margin of error.

1. [Watch and take notes on instructional video on Confidence Interval.](#)

2. Work through Example 1 on pages 267-268. Complete **Reflecting** (A-B) on page 268.
3. Work through Example 2 on pages 268-270. Complete **Your Turn** on page 270.
4. Work through Example 3 on pages 270-271. Complete **Your Turn** page 271.
5. Work through Example 4 on page 272. Complete **Your Turn** page 272.

6. In your math journal, complete the journal entry for LG11&12 Expectation 5 after you read the **In Summary** box on p.273.
7. Complete #3, 4, 6 on pages 274-275.

✔ REVIEW AND CHALLENGE

Important Terms For This Learning Guide

- ☐ Range
- ☐ Mean, median and mode
- ☐ Deviation
- ☐ Standard Deviation
- ☐ Normal Curve
- ☐ Normal Distribution
- ☐ Standard Normal Distribution
- ☐ Z-score
- ☐ Z-score table
- ☐ Margin of error
- ☐ Confidence interval
- ☐ Confidence level

1. Complete #1-4 Chapter Self-Test on page 277.

3. Read page 278-279 and complete #1, 2, 3, 4, 6, 7, 8, 9 & 11 Chapter 5 Review on pages 280-282.

PRACTICE QUIZZES

Practice quiz #1
Practice quiz #2
Practice quiz #3
Practice quiz #4
Practice quiz #5