



# WESTSIDE HIGH SCHOOL

Level Up: *RISE* to Your Potential

24-25 Lesson Plan Template

Teacher: **COACH BARROW**

Subject: **ON RAMPS STATISTICS**

Week of: <b>DECEMBER 9</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wed./Thurs.</b>	<b>Friday</b>
<b>TEKS</b>	<p><b>1(G)</b> Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p> <p><b>6(A)</b> Explain how a sample statistic and a confidence level are used in the construction of a confidence interval.</p>	<p><b>1(G)</b> Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p> <p><b>6(A)</b> Explain how a sample statistic and a confidence level are used in the construction of a confidence interval.</p>	<p><b>1(E)</b> Create and use representations to organize, record, and communicate mathematical ideas</p> <p><b>6(G)</b> Construct null and alternative hypothesis statements about a population parameter</p>	<p><b>1(G)</b> Display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p> <p><b>6(A)</b> Explain how a sample statistic and a confidence level are used in the construction of a confidence interval.</p> <p><b>6(G)</b> Construct null and alternative hypothesis statements about a population parameter.</p>
<b>Learning Objective</b>	Students will be able to predict the effect of sample size, confidence level, and standard deviation on the margin of error and calculated confidence interval.	Students will be able to interpret a confidence interval in the context of the data.	Students will be able to use RSTUDIO to write the hypothesis for a one-sample $t$ -test using appropriate notation AND perform a one-sample $t$ -test and use a critical	Students will be able to perform a paired samples $t$ -test and use a critical value and p-value to refute a claim.

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<b>Higher Order Thinking Questions</b>	Discuss how the sample size and variability of the data may impact the precision of the confidence intervals and the conclusions drawn.	If you were tasked with improving the confidence interval's precision, what strategies would you suggest (e.g., sample size, variability, confidence level), and how would those strategies influence the margin of error?	How would you interpret the $p$ -value and the test statistic in the context of this problem?  What assumptions must be met for this test to be valid, and how might violations of these assumptions affect the results?	Describe the relationship between $t$ -critical, test statistic, $p$ -value, and $\alpha$ in determining statistical significance.
<b>Agenda</b>	<ol style="list-style-type: none"> <li>1. WAG</li> <li>2. ADOLESCENTS AND HEALTH</li> <li>3. INTRO TO HYPOTHESIS TESTING</li> <li>4. WEALTH OF PETROLEUM ENGINEERS</li> </ol>	<ol style="list-style-type: none"> <li>1. ADOLESCENTS AND HEALTH</li> <li>2. INTRO TO HYPOTHESIS TESTING</li> <li>3. WEALTH OF PETROLEUM ENGINEERS</li> </ol>	<ol style="list-style-type: none"> <li>1. LAB 4.2</li> <li>2. LAB 4.2 LEVEL 2 PRACTICE</li> </ol>	<ol style="list-style-type: none"> <li>1. NOTES 4.3</li> <li>2. LESSON CHECK 4.3</li> </ol>
<b>Demonstration of Learning</b>	What do you notice about these intervals compared to the intervals you calculated in question 4? <b>EXPLAIN</b>	Based on your answer to the previous question, do you have evidence that your friend is using an unfair die? Or is it plausible that a fair die could have resulted in you winning only 17 times by chance alone?	Based on your examination of salaries, could the given sample of petroleum engineering graduates have been drawn from the same population of engineers as the sample surveyed by NACE? Why or why not? <b>EXPLAIN!</b>	Interpret the results of the hypothesis test, in the context of the situation. Are the assumptions for inference met in this situation? Why or Why not? <b>EXPLAIN!</b>

		<b>EXPLAIN!</b>		
<b>Intervention &amp; Extension</b>	RSTUDIO 4.1	RSTUDIO 4.2	LESSON 4.3 PAIRED T-TEST	
<b>Resources</b>	UT CANVAS/RSTUDIO	UT CANVAS/RSTUDIO	UT CANVAS/RSTUDIO	UT CANVAS/RSTUDIO