

# Improving Visual Data Literacy Skills of High School Earth and Space Science Students by Weekly Data Analysis Curriculum

## Background

- High school students struggle with interpreting visual data.
- These skills are used in all science classes.
- These skills are tested on the science subtest of the ACT
- Students will need these skills to help in future science classes and to be able to interpret visual data in everyday life.

## Focus Question

Will students increase skill in understanding and using visual data with weekly methodical analysis?

## Secondary Questions

Can students use visual data to:

1. Identify independent and dependent variables?
2. Interpret experimental procedure?
3. Find patterns to make future prediction?

## Method

Treatment classes used the intervention below, and Comparison classes taught by another teacher did the same curriculum topics without the intervention.

- Pretest / Posttest
- Pre-survey / Post-survey
- Weekly classroom discussion
- Methodical visual data analysis of current curriculum data
- Weekly ACT-style visual data analysis assessments

## Teaching Value

Students will benefit from:

- Focus on visual data within each unit
- Practice using methodical visual data analysis
- Continued classroom discussion on data analysis, interpretation, and use
- Continual practice with ACT-type assessments

## Results

The intervention seemed to show a positive impact on student learning.

- 16.7% gain between the Pretest and Posttest
- Increased student confidence in identifying scientific variables and interpreting visual data to find patterns.

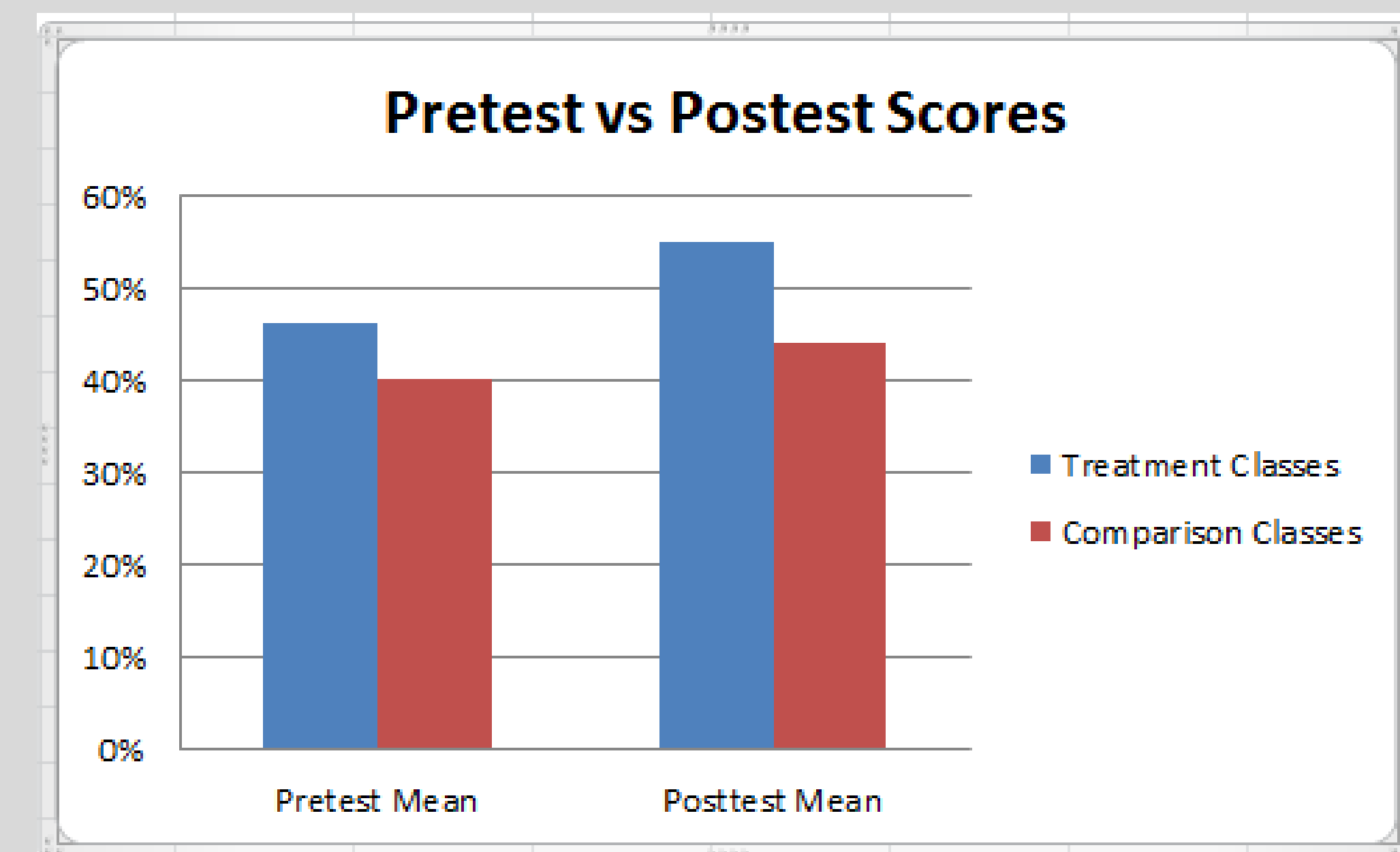


Figure 1. Pretest vs Posttest scores of Treatment classes and Comparison Classes.

## Student Quotes

- “The most helpful part was going over answers and talking about how to find the answers.”
- “I am now confident that I can analyze a graph without help.”
- “It really helped on the ACT.”



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