

The Impact of Peer Review Strategies on Student Constructed Scientific

Arguments

Introduction and Background

- Evergreen Park Community High School is located in a diverse community just outside the southern border of Chicago.
- Peer Review strategies were incorporated into each day of a ten day treatment unit on a block schedule.
- Students provided feedback on student designed experiments and student evaluations of premade experiments.

Analysis:

A greater number of students were able to identify problematic aspects of a fictional experiment after engaging in peer and self review strategies.

Student Assessment Items

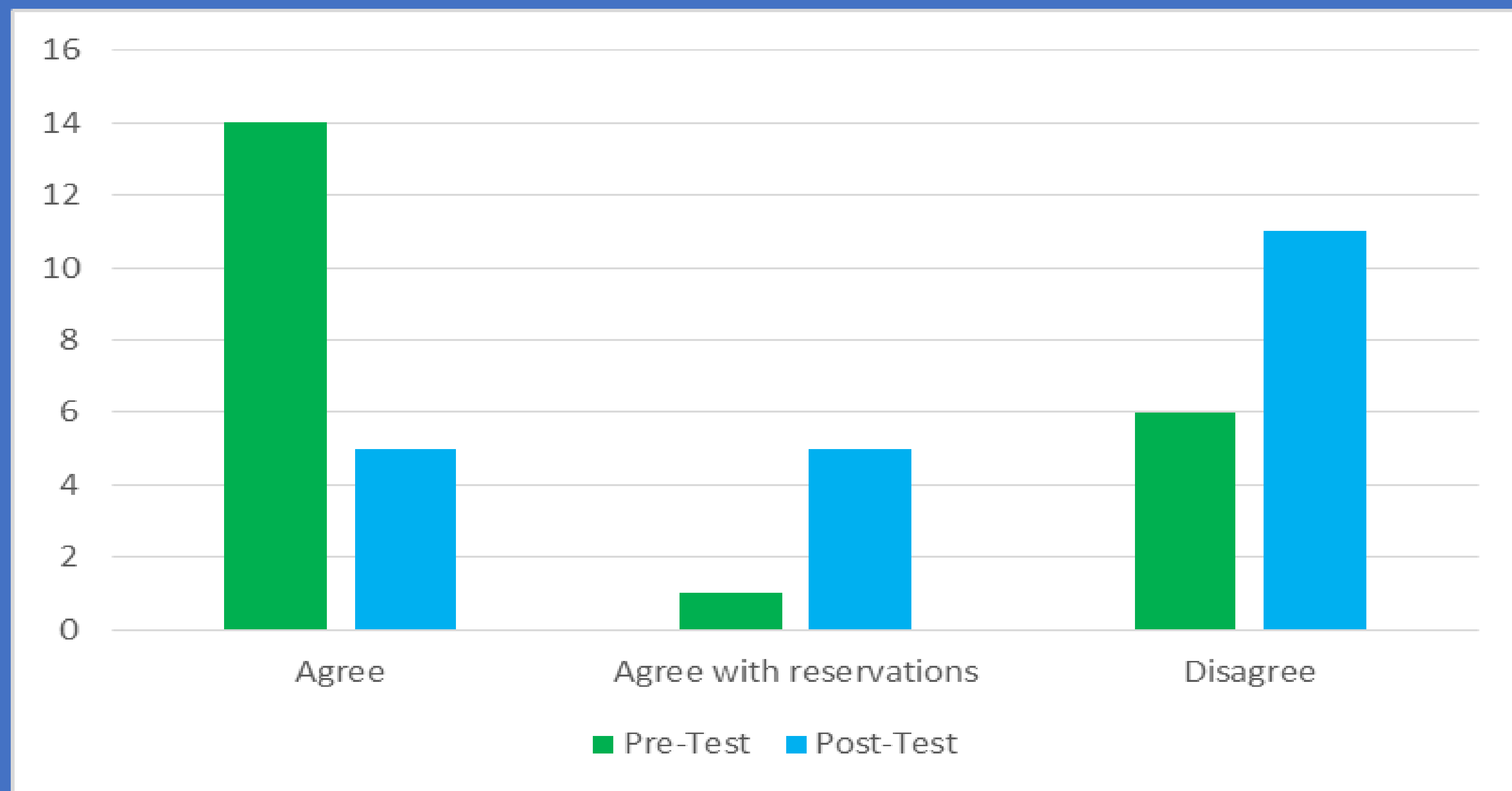


Figure 1: Student responses to Experimental Design Evaluation Exit Slip

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Research Focus Questions

1. What impact do peer review strategies have on students' abilities to construct arguments based on the claim evidence reasoning framework?
2. What impact does integration of peer review strategies have on student perceptions of the value of peer review?
3. What impact does integration of peer review strategies have on selecting precise dependent variables?
4. What impact does integration of peer review strategies have on student perception of their own ability to provide meaningful feedback?

Student Work

A local entomologist just discovered a new tick species. This tick species appears to seek out mammalian hosts, where they get a blood meal to sustain them as they continue their life cycle. The entomologist sets up an experiment to determine how the new tick species locates its host. The experimental setup contains a tube with a clear boxes at each end. In order to determine whether the ticks use heat to detect their host, the scientist shines a heat lamp on one of the boxes and puts 10 ticks (5 females and 5 males) directly in the center of the tube. After allowing the ticks to move around for two minutes, the scientist records the distance the ticks traveled from their starting position in the center of the tube. The data is recorded in the following table.

Tick #	Distance from starting position (cm)	Direction
1	0	N/A
2	5	Toward heat lamp
3	18	Away from heat lamp
4	7	Toward heat lamp
5	0	N/A
6	3	Toward heat lamp
7	8	Toward heat lamp
8	7	Toward heat lamp
9	2	Away from heat lamp
10	10	Toward heat lamp

The scientist concluded that ticks use heat to detect their hosts based on the data she collected.

Do you agree with the conclusion that the scientist made? Defend your response.

Figure 2: Experimental Design Evaluation Exit Slip

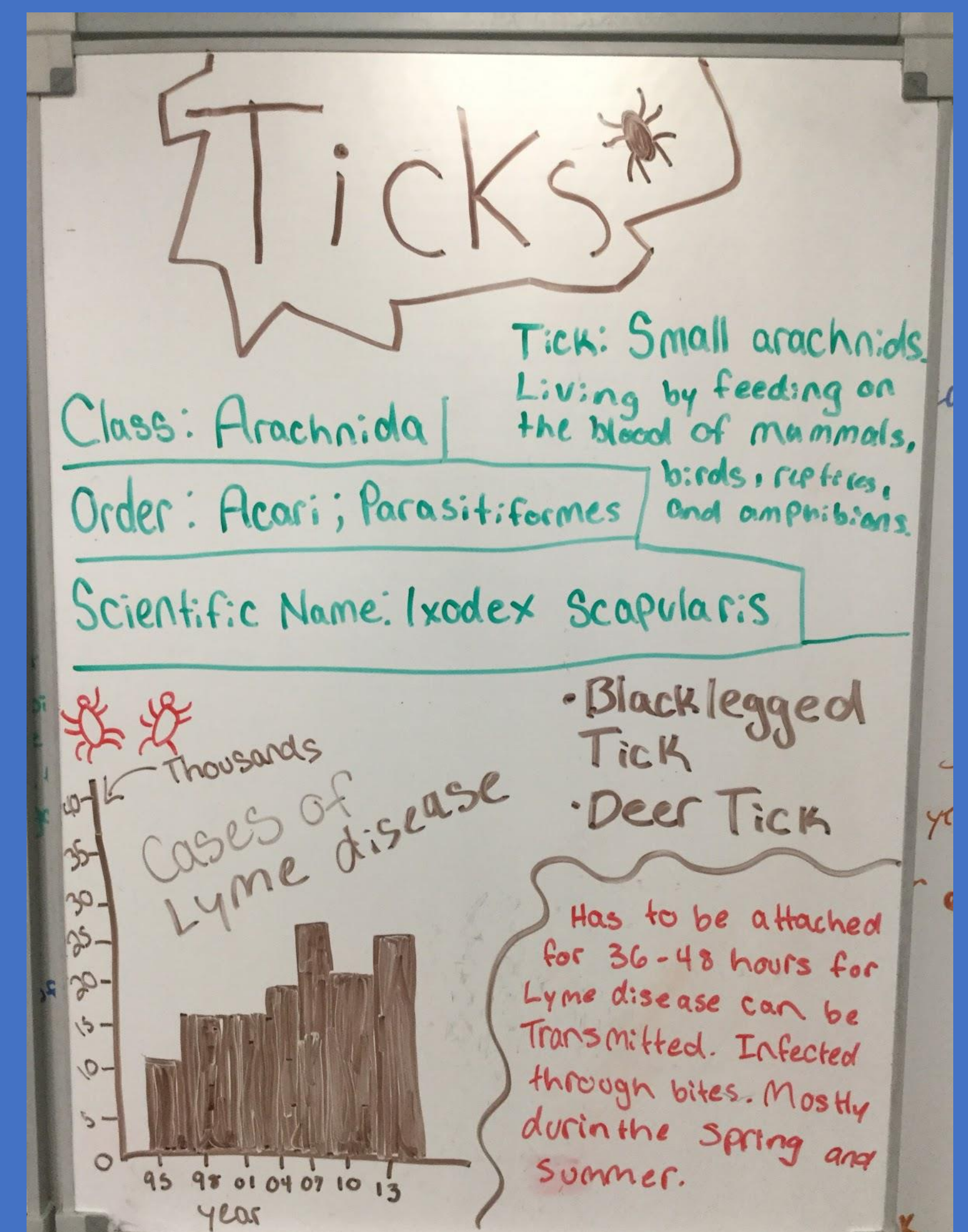


Figure 3: Student group response to question. What makes a tick a tick?