

# Students' Views on Engaging Teaching in Science Lessons Scale, Fourth Grade

the same time as the E<sub>1</sub> and E<sub>2</sub> bands in the L<sub>1</sub> and L<sub>2</sub> (E L) bands, and the same time as the C<sub>1</sub> and C<sub>2</sub> bands in the L<sub>1</sub> and L<sub>2</sub> (C L) bands.

## **Items in the TIMSS 2015 Students' Views on Engaging Teaching in Science Lessons Scale, Fourth Grade**

A scatter plot showing the silhouette coefficient versus the number of clusters (k). The x-axis represents k, ranging from 1 to 10. The y-axis represents the silhouette coefficient, ranging from -0.5 to 0.5. The data points, represented by black diamonds, show a general upward trend as k increases. A red dashed horizontal line is drawn at approximately 0.45, and a vertical gray line is drawn at k=5.

k	Silhouette Coefficient
1	0.05
2	0.05
3	0.05
4	0.05
5	0.05
6	0.05
7	0.05
8	0.05
9	0.05
10	0.05

**Item Parameters for the TIMSS 2015 Students' Views on Engaging Teaching in Science Lessons Scale, For 9th Grade**

Item	Intercept	-1	-2	-3	-4
0'	0.70	-0.171	-0.7	1.0	1.0
0'	-0.03771	-0.203	-0.373	1.33	1.0
0'	-0.071	-0.12	-0.370	1.20	1.02
0'	0.227	-0.3	-0.271	1.2732	1.02
0'	-0.2112	-0.700	-0.03	1.377	0.0
0'	-0.70	-0.777	-0.	1.227	0.1
0'	0.771	-1.017	-0.3701	1.117	1.17
0'	-0.31307	-0.72	-0.02	1.2170	1.02
0'	-0.073	-0.7777	-0.2703	1.2077	1.0
0'	-0.0	-0.71	-0.7007	1.170	1.07

**Scale Transformation Constants for the TIMSS 2015 Students' Views on Engaging Teaching in Science Lessons Scale, For 9th Grade**

Constant	Value
7.07772	
1.2007	TransformedScaleScore = 7.07772 + 1.2007 • LogitScaleScore



## **Cronbach's Alpha Reliability Coefficients and Principal Components Analysis of the Items in the TIMSS 2015 Students' Views on Engaging Teaching in Science Lessons Scale, Fourth Grade**

