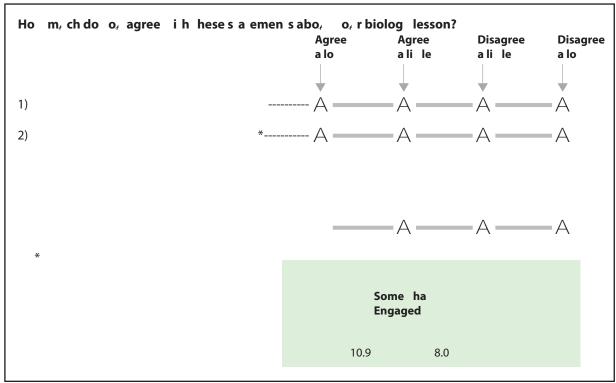
TIMSS 2011 The TIMSS 2011 Students Engaged in Biology Lessons Scale, Eighth Grade

The Students Engaged in Biology Lessons (ESB) scale was created based on students' degree of agreement to the five statements described below. This scale was administered in countries where the sciences are taught as separate subjects. See **Creating and Interpreting TIMSS and PIRLS 2011 Context Questionnaire Scales** for more information on how the scales were formed.

E hibi 1:1 ems in he TIMSS 2011 S , den s Engaged in Biolog Lessons Scale, Eigh h Grade



E hibi 2: I em Parame ers for he TIMSS 2011 S., den s Engaged in Biolog Lessons Scale, Eigh h Grade

Item	delta	tau_1	tau_2	tau_3
19A	1.29906	0.89116	0.49732	1.38848
19 *	0.50921	1.17236	0.14181	1.03055
19	1.43175	0.70363	0.39170	1.09533
19	1.49158	0.77313	0.32496	1.09809
19	1.05671	0.85360	0.19968	1.05328

E hibi 3: Scale Transforma ion Cons an s

Scale Transformation Constants	
A = 10.02843	= 10.02843 + 1.53529
= 1.53529	= 10.02045 + 1.55529

E hibi 4: Eq. i alence Table of he Ra Score and he Transformed Scale Score

- ······ ·· - - · · ······ · · · · · · · · · · · · ·						
Ra Score	Transformed Scott State 15 15 15 15 15 15 15 15 15 15 15 15 15	gang 🔐 phone purpus purpus purpus pagasangarana pur				

bi 5: Cronbach's Alpha Reliabili Coe cien and Principal Componen s Anal sis of he I ems in he TIMSS 2011 S , den s Engaged in Biolog Lessons Scale, Eigh h Grade (Con in, ed)					