CHAPTER 1

Developing the TIMSS 2015 Achievement Items

A a a e e ac e e e e de e e e e Na a Re ea c
C d a (NRC) de a ed b e c e be e b ef e c e a ed
e e TIMSS e c e . T e TIMSS & PIRLS I e a a S d Ce e ed
e NRC a d e e f e c e de e e e e c d e c
de f c c ed e e e . T e NRC a e e ed e e e f e d e
a d e ed e ec e e f e a e e af e e f e d e .

T e TIMSS & PIRLS I e a a S d Ce e e a e a e a a e f a
e TIMSS a e e e E . S b e e , e e a e a a ed b a c a
c e e a a e f c e a f c ea a a a
a dcc4e.a 0 .3( )6.3(e ( )-59.3(e f)9.1( ))12( )-5.8(14.2(e)0 8( )3.1(a)( )9(e)-4.8( )12.2( )

Updating the Mathematics and Science Assessment Frameworks for TIMSS 2015

U da eac TIMSS a e e f 2015 be a e e a d d f ea e e f a e a ec f e c e be a e ed. T e f c a e f e *I 2015 A ,.. , F / . , . , .*, e ec e , de c be e a e a c a d c e ce f a e de a .

T e ba c c e f e TIMSS a e a c a d TIMSS c e ce a e e f a e ba ed d e : c e a d c e. T e c e d a f a e a c a e f ade a e be , e e c a e a d ea e , a d da a d a . T e d f ed c e d a f N e ac a e e be , f ac a d dec a , a d a e a d ea e . A e e ade, e a e a c c e d a a e be , a eb a, e e , a d da a a d c a ce. F c e ce, e c e d a a e f ade a e fe c e ce, ca c e ce, a d ea c e ce; a e e ade, e a e b , c e , c , a d ea c e ce.

Se a a e f e f a d e ade , e TIMSS a e a c a d c e ce f a e ec f e e a c a ea eac c e d a . F e a e, e a eb ac e d a c a ee ca ea : e e a d e a , e a a d e a e , a d e a a d f c . T e c e d a a e e a e f a e a c a d c e ce: ,

Exhibit 1.2: TIMSS 2015 Development Schedule for Achievement Items

Date(s)		Group and Activity
	2012	
	2012	
	2013	
	2013	

Date(s)		Group and Activity
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2014	[illegible]
[illegible]	2015	[illegible]
[illegible]	2015	[illegible]

Writing and Reviewing the TIMSS 2015 Field Test Items and Scoring Guides

f e a ed a a c a a ea (f e a e, e e c ea e e) e *I 2015 A . , . . , F / . , . . , .* , a d e be f c a a ea (, f e a e), a e a

Exhibit 1.4: Overview of the TIMSS 2015 Field Test

	Fourth Grade	Numeracy	Eighth Grade
Items			
	147	151	182
	140		172
		1 1	
	200	200	200
Participants			
	43	7	3
	5	0	4
	54,67	4,522	51, 4
	3,772	2 6	6,0 7
	1,46	164	1,142

Exhibit 1.5:

Exhibit 1.6: **TIMSS 2015 Number of Field Test Items by Cognitive Domain and Item Format – Fourth Grade**

Cognitive Domain	Number of Multiple-Choice Items	Number of Constructed Respw 9.5oF39T0.6(n)4.8s(e)4ETEMCID 649 Items

Exhibit 1.9: Pilot Test Student Responses for Field Test Scoring Training Materials Development

	Fourth Grade	Eighth Grade
Items		
[illegible]	24	24
[illegible]	4	76
[illegible]	[illegible]	**100**
[illegible]	180	160
Participants		
[illegible]	[illegible]	[illegible]
[illegible]	360	320

Add a , e U ed S a e a a ed f c e ab Wa , D.C. a d Ca f a. Eac TIMSS c c ed e e e a e e ed a a e f e de , e e b e ed a d ed a e e ab e c a , d ff c , a d fa a f e e c e a d f a . T e TIMSS & PIRLS I e a a S d Ce e ece ed e c e ab e Feb a 2014. E b 1.10 de e be f e c ded e c e ab a d e be f de e e c ec ed.

Exhibit 1.10: Cognitive Lab Student Responses

	Fourth Grade	Eighth Grade
[illegible]	20	20
[illegible]	20	20

f e c e e eac e a e a e . Af e e c e e e a e c ed e ac ce a e , a c e c e c e e d c ed, a d, a ece a , e f e d e de e e ca f ed a d e e ca e e e e e ed.

Finalizing the TIMSS 2015 Achievement Items

S b e e e f e d e , e TIMSS & PIRLS I e a a S d Ce e a a ed e TIMSS f e d e da a a d e a ed a a ac c a a e a c f eac e- D 971 LLb

Distribution of TIMSS 2015 Items by Content and Cognitive Domains

E b 1.11 1.14 e e e be f e d a d e de e ed e a e a e be f c e e TIMSS 2015 a e a c a d c e ce a e e . T e be f e e e e e be f d c e e a e e , e e be f c e e e e e c e a d e e eac e .

Exhibit 1.14: TIMSS 2015 Achievement Items by Cognitive Domain – Eighth Grade

Cognitive Domain	Number of Trend Items in TIMSS 2015	Percentage of Trend Score Points	Number of New Items in TIMSS 2015	Percentage of New Score Points	Total Items	Achieved Percentage of Score Points	Target Percentage of Score Points
Mathematics Items							
[illegible]	45 (46)	34%	24 (24)	25%	6 (70)	31%	35%
[illegible]	7.4( ) .1( )4.3( )-13.3( )-6.5 0.042 1 -0.002 0.002 -01 7. -7( )-5.2.3( )-13.3( )4.765.2.3( )-13.3( )4.765.2.3( )-13.3( )4. 8						

Exhibit 1.15: **TIMSS 2015 Achievement Items by Content Domain and Item Format – Fourth Grade**

Content Domain						

Exhibit 1.16: TIMSS 2015 Achievement Items by Cognitive Domain and Item Format – Fourth Grade

Cognitive Domain	Multiple-Choice Items		Constructed Response Items		Total Items	Percentage of Score Points
	Four Response Options	Compound	1 Point	2 Points		
[illegible]	35 (35)	2 (2)	26 (26)	1 (2)	64 (65)	36%
[illegible]	36 (36)		28 (28)	8 (16)	72 (80)	44%
[illegible]	16 (16)		13 (13)	4 (8)		

Exhibit 1.19: TIMSS 2015 Scoring Training Participation

Participants	Southern Hemisphere	Northern Hemisphere
[illegible]	8	58
[illegible]	1	5
[illegible]	32	152

The Process Following Instrument Development

I e e a , a f e e a c a c e e c e e d e e a a e f e a e e e , e b e a e c e f a a a d c a a d a a (e a d a a c a a e c a e c e a e e E - e a c e) a d d c f e a e a f . A e a e e , c e a d e f a a a a e e f d a a c e c , c d e f a c e e c e a b a c a c a , e e e a d a , a d c e e e e e e a d e a e (e e f c a e).