Trends in International Mathematics and Science Study (TIMSS) (continued)

Appendix D

TIMSS 2015 and TIMSS Advanced 2015 Questionnaires (continued)

TIMSS 2015

Place Label Here

School ID: ____ ____ ____ ____

Class ID: ____ ____ ____ ____ ____ ____

Teacher ID: ____ ____ ____ ____ ____ ____

Link #: ____ ____ Subject: ____ ____

Checksum: ____ ____ ____ ____ ____

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire Science

Grade 8

National Center for Education Statistics
U.S. Department of Education
1990 K St. NW
Washington, DC 20006-5650

TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

U.S. participation in this study is sponsored by the National Center for Education Statistics (NCES), U.S. Department of Education, and authorized by the Education Sciences Reform Act of 2002 (20 U.S.C., § 9543). Your responses are protected by federal statute (20 U.S.C., § 9573) and may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law.

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869863 Printed in the USA by Pearson ISD10749

Teacher *Questionnaire*

Your school has agreed to participate in TIMSS 2015 (Trends in International Mathematics and Science Study), an educational research project sponsored by the International Association for the Evaluation of Educational Achievement (IEA). TIMSS measures trends in student achievement in mathematics and science and studies differences in national education systems in almost 60 countries in order to help improve teaching and learning worldwide.

This questionnaire is addressed to teachers of eighth-grade students and seeks information about teachers' academic and professional backgrounds, classroom resources, instructional practices, and attitudes toward teaching. Since your class has been selected as part of a nationwide sample, your responses are very important in helping to describe eighth-grade education in the United States.

Some of the questions in the questionnaire refer to the **"TIMSS class"** or **"this class."** This is the class that is identified on the front of this booklet and that will be tested as part of TIMSS in your school. If you teach some but not all of the students in the TIMSS class, please think only of the students that you teach when answering these class-specific questions. It is important that you answer each question carefully so that the information that you provide reflects your situation as accurately as possible.

Since TIMSS is an international study and all countries are using the same questionnaire, you may find that some of the questions seem unusual or are not entirely relevant to you or schools in the United States. Nevertheless, it is important that you do your best to answer all of the questions so comparisons can be made across countries in the studies.

It is estimated that you will need approximately 30 minutes to complete this questionnaire. We appreciate the time and effort that this takes and thank you for your cooperation and contribution.

When you have completed the questionnaire, please return it to the TIMSS school coordinator.

NCES is authorized to collect information from the questionnaire under the Education Science Reform Act of 2002 (ESRA 2002), 20 U.S. Code, § 9543. You do not have to provide the information requested. However, the information you provide will help the U.S. Department of Education's ongoing efforts to understand better how the educational system in the United States compares to that in other countries. There are no penalties should you choose not to participate in this study. Your answers may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S. Code, § 9573). Your response will be combined with those from other participants to produce summary statistics and reports.

This survey is estimated to take an average of 30 minutes, including time for reviewing instructions, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing burden, to: Stephen Provasnik, National Center for Education Statistics, U.S. Department of Education, 1990 K Street NW, Room 8123, Washington, DC 20006-5650. Do not return the completed form to this address.

Thank you.

TIMSS 2015

About You

1

What year did you start teaching?

_____
Please write in a year.

2

At the end of this school year, how many years will you have taught altogether?

_____ years
*Please **round** to the nearest whole number.*

3

Are you female or male?

*Fill in **one** circle only.*

Female -- ①
Male -- ②

4

How old are you?

*Fill in **one** circle only.*

Under 25 -- ①
25–29 -- ②
30–39 -- ③
40–49 -- ④
50–59 -- ⑤
60 or more -- ⑥

5

What is the highest level of formal education you have completed?

*Fill in **one** circle only.*

Did not complete high school --- ①
High school graduate --- ②

(If you have not completed more than high school, go to question 7)

Associate's degree (2-year college program) --- ③
Bachelor's degree (4-year college program) --- ④
Master's degree or professional degree (MD, DDS, lawyer, minister) --- ⑤
Doctorate (Ph.D., or Ed.D.) --- ⑥

6

During your college or university education, what was your major or main area(s) of study?

*Fill in only **one** circle for each row.*

	Yes	No
a) Mathematics	①	②
b) Biology	①	②
c) Physics	①	②
d) Chemistry	①	②
e) Earth Science	①	②
f) Education–Mathematics	①	②
g) Education–Science	①	②
h) Education–General	①	②
i) Other	①	②

School Emphasis on Academic Success

7

How would you characterize each of the following within your school?

*Fill in only **one** circle for each row.*

	Very high	High	Medium	Low	Very low
a) Teachers' understanding of the school's curricular goals	①	②	③	④	⑤
b) Teachers' degree of success in implementing the school's curriculum	①	②	③	④	⑤
c) Teachers' expectations for student achievement	①	②	③	④	⑤
d) Teachers working together to improve student achievement	①	②	③	④	⑤
e) Teachers' ability to inspire students	①	②	③	④	⑤
f) Parental involvement in school activities	①	②	③	④	⑤
g) Parental commitment to ensure that students are ready to learn	①	②	③	④	⑤
h) Parental expectations for student achievement	①	②	③	④	⑤
i) Parental support for student achievement	①	②	③	④	⑤
j) Parental pressure for the school to maintain high academic standards	①	②	③	④	⑤

*Fill in only **one** circle for each row.*

	Very high	High	Medium	Low	Very low
k) Students' desire to do well in school	①	②	③	④	⑤
l) Students' ability to reach school's academic goals	①	②	③	④	⑤
m) Students' respect for classmates who excel in school	①	②	③	④	⑤
n) Clarity of the school's educational objectives	①	②	③	④	⑤
o) Collaboration between school leadership and teachers to plan instruction	①	②	③	④	⑤
p) Amount of instructional support provided to teachers by school leadership	①	②	③	④	⑤
q) School leadership's support for teachers' professional development	①	②	③	④	⑤

School Environment

8

Thinking about your current school, indicate the extent to which you agree or disagree with each of the following statements.

*Fill in only **one** circle for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) This school is located in a safe neighborhood	1	2	3	4
b) I feel safe at this school	1	2	3	4
c) This school's security policies and practices are sufficient	1	2	3	4
d) The students behave in an orderly manner	1	2	3	4
e) The students are respectful of the teachers	1	2	3	4
f) The students respect school property	1	2	3	4
g) This school has clear rules about student conduct	1	2	3	4
h) This school's rules are enforced in a fair and consistent manner	1	2	3	4

9

In your current school, how severe is each problem?

*Fill in only **one** circle for each row.*

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair	1	2	3	4
b) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students)	1	2	3	4
c) Teachers do not have adequate instructional materials and supplies	1	2	3	4
d) The school classrooms are not cleaned often enough	1	2	3	4
e) The school classrooms need maintenance work	1	2	3	4
f) Teachers do not have adequate technological resources	1	2	3	4
g) Teachers do not have adequate support for using technology	1	2	3	4

About Being a Teacher

10

How often do you have the following types of interactions with other teachers?

*Fill in only **one** circle for each row.*

	Very often	Often	Sometimes	Never or almost never
a) Discuss how to teach a particular topic	①	②	③	④
b) Collaborate in planning and preparing instructional materials	①	②	③	④
c) Share what I have learned about my teaching experiences	①	②	③	④
d) Visit another classroom to learn more about teaching	①	②	③	④
e) Work together to try out new ideas	①	②	③	④
f) Work as a group on implementing the curriculum	①	②	③	④
g) Work with teachers from other grades to ensure continuity in learning	①	②	③	④

11

How often do you feel the following way about being a teacher?

*Fill in only **one** circle for each row.*

	Very often	Often	Sometimes	Never or almost never
a) I am content with my profession as a teacher	①	②	③	④
b) I am satisfied with being a teacher at this school	①	②	③	④
c) I find my work full of meaning and purpose	①	②	③	④
d) I am enthusiastic about my job	①	②	③	④
e) My work inspires me	①	②	③	④
f) I am proud of the work I do	①	②	③	④
g) I am going to continue teaching for as long as I can	①	②	③	④

About Teaching the TIMSS Class

12

Indicate the extent to which you agree or disagree with each of the following statements.

*Fill in only **one** circle for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) There are too many students in the classes	1	2	3	4
b) I have too much material to cover in class	1	2	3	4
c) I have too many teaching hours	1	2	3	4
d) I need more time to prepare for class	1	2	3	4
e) I need more time to assist individual students	1	2	3	4
f) I feel too much pressure from parents	1	2	3	4
g) I have difficulty keeping up with all of the changes to the curriculum	1	2	3	4
h) I have too many administrative tasks	1	2	3	4

Questions 13 - 16 ask about instruction for the <u>eighth-grade</u> students in the TIMSS class.

13

How many students are in this class?

_____ students

Write in the number.

14

How many eighth-grade students experience difficulties understanding <u>spoken</u> English?

_____ students in this class

Write in the number.

15

How often do you do the following in teaching this class?

*Fill in only **one** circle for each row.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Relate the lesson to students' daily lives	1	2	3	4
b) Ask students to explain their answers	1	2	3	4
c) Ask students to complete challenging exercises that require them to go beyond the instruction	1	2	3	4
d) Encourage classroom discussions among students	1	2	3	4
e) Link new content to students' prior knowledge	1	2	3	4
f) Ask students to decide their own problem solving procedures	1	2	3	4
g) Encourage students to express their ideas in class	1	2	3	4

Teaching Science to the TIMSS Class

16

In your view, to what extent do the following limit how you teach this class?

*Fill in only **one** circle for each row.*

	Not at all	Some	A lot
a) Students lacking prerequisite knowledge or skills	1	2	3
b) Students suffering from lack of basic nutrition	1	2	3
c) Students suffering from not enough sleep	1	2	3
d) Disruptive students	1	2	3
e) Uninterested students	1	2	3
f) Students with physical disabilities	1	2	3
g) Students with mental, emotional, or psychological disabilities	1	2	3

Questions 17 - 20 ask about science instruction for the <u>eighth-grade</u> students in the TIMSS class.

17

In a typical week, how much time do you spend teaching science to the students in this class?

_____ minutes per week

Write in the number of minutes per week.
Please convert the number of hours into minutes.

18

In teaching science to this class, how would you characterize your confidence in doing the following?

*Fill in only **one** circle for each row.*

	Very high	High	Medium	Low
a) Inspiring students to learn science	1	2	3	4
b) Explaining science concepts or principles by doing science experiments	1	2	3	4
c) Providing challenging tasks for the highest achieving students	1	2	3	4
d) Adapting my teaching to engage students' interest	1	2	3	4
e) Helping students appreciate the value of learning science	1	2	3	4
f) Assessing student comprehension of science	1	2	3	4
g) Improving the understanding of struggling students	1	2	3	4
h) Making science relevant to students	1	2	3	4
i) Developing students' higher-order thinking skills	1	2	3	4
j) Teaching science using inquiry methods	1	2	3	4

19

In teaching science to the students in this class, how often do you ask them to do the following?

*Fill in only **one** circle for each row.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Listen to me explain new science content	①	②	③	④
b) Observe natural phenomena and describe what they see	①	②	③	④
c) Watch me demonstrate an experiment or investigation	①	②	③	④
d) Design or plan experiments or investigations	①	②	③	④
e) Conduct experiments or investigations	①	②	③	④
f) Present data from experiments or investigations	①	②	③	④
g) Interpret data from experiments or investigations	①	②	③	④
h) Use evidence from experiments or investigations to support conclusions	①	②	③	④
i) Read their textbooks or other resource materials	①	②	③	④
j) Have students memorize facts and principles	①	②	③	④
k) Use scientific formulas and laws to solve routine problems	①	②	③	④
l) Do field work outside of class	①	②	③	④
m) Take a written test or quiz	①	②	③	④
n) Work in mixed ability groups	①	②	③	④
o) Work in same ability groups	①	②	③	④

20

Which best describes the science course you are teaching to the class with the TIMSS students?

*Fill in **one** circle only.*

a) General science (several content areas of science taught separately) ①

b) Integrated science (several content areas of science combined and taught together throughout the year) ②

c) Life science (e.g., biology, ecosystems, human health) ③

d) Physical science (e.g., physics or chemistry) ④

e) Earth science (e.g., geology, Earth and the solar system, fossils) ⑤

Using Computers for Teaching Science to the TIMSS Class

Question 21 asks about resources for teaching science to the <u>eighth-grade</u> students in the TIMSS class.

21

A. Do the students in this class have computers (including tablets) available to use during their science lessons?

*Fill in **one** circle only.*

Yes -- ①

No -- ② → **(If No, go to question 22)**

If Yes,

B. What access do the students have to computers?

*Fill in only **one** circle for each row.*

	Yes	No
a) Each student has a computer	①	②
b) The class has computers that students can share	①	②
c) The school has computers that the class can use sometimes	①	②

C. How often do you have the students do the following activities on computers during science lessons?

*Fill in only **one** circle for each row.*

	Every or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) Practice skills and procedures	①	②	③	④
b) Look up ideas and information	①	②	③	④
c) Do scientific procedures or experiments	①	②	③	④
d) Study natural phenomena through simulations	①	②	③	④
e) Process and analyze data	①	②	③	④

Science Topics Taught to the TIMSS Class

Question 22 asks about the topics taught and the content covered in teaching science to the eighth-grade students in the TIMSS class.

22

The following list includes the main topics addressed by the TIMSS science test. Choose the response that best describes when the students in this class have been taught each topic. If a topic was in the curriculum before the eighth grade, please choose "Mostly taught before this year." If a topic was taught half this year but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

*Fill in only **one** circle for each row.*

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
A. Biology			
a) Differences among major taxonomic groups of organisms (plants, animals, fungi, mammals, birds, reptiles, fish, amphibians)	①	②	③
b) Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions)	①	②	③
c) Cells, their structure and functions, including respiration and photosynthesis as cellular processes	①	②	③
d) Life cycles, sexual reproduction, and heredity (passing on of traits, inherited versus acquired/learned characteristics)	①	②	③
e) Role of variation and adaptation in survival/extinction of species in a changing environment (including fossil evidence for changes in life on Earth over time)	①	②	③
f) Interdependence of populations of organisms in an ecosystem (e.g., energy flow, food webs, competition, predation) and factors affecting population size in an ecosystem	①	②	③
g) Human health (causes of infectious diseases, methods of infection, prevention, immunity) and the importance of diet and exercise in maintaining health	①	②	③
B. Chemistry			
a) Classification, composition, and particulate structure of matter (elements, compounds, mixtures, molecules, atoms, protons, neutrons, electrons)	①	②	③
b) Physical and chemical properties of matter	①	②	③
c) Mixtures and solutions (solvent, solute, concentration/dilution, effect of temperature on solubility)	①	②	③
d) Properties and uses of common acids and bases	①	②	③
e) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions – combustion, rusting, tarnishing)	①	②	③
f) The role of electrons in chemical bonds	①	②	③

22 **(continued)**

Choose the response that best describes when the students in this class have been taught each topic. If a topic was in the curriculum before the eighth grade, please choose "Mostly taught before this year." If a topic was taught half this year but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

*Fill in only **one** circle for each row.*

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
C. Physics			
a) Physical states and changes in matter (explanations of properties in terms of movement and distance between particles; phase change, thermal expansion, and changes in volume and/or pressure)	①	②	③
b) Energy forms, transformations, heat, and temperature	①	②	③
c) Basic properties/behaviors of light (reflection, refraction, light and color, simple ray diagrams) and sound (transmission through media, loudness, pitch, amplitude, frequency)	①	②	③
d) Electric circuits (flow of current; types of circuits – parallel/series) and properties and uses of permanent magnets and electromagnets	①	②	③
e) Forces and motion (types of forces, basic description of motion, effects of density and pressure)	①	②	③
D. Earth Science			
a) Earth's structure and physical features (Earth's crust, mantle, and core; composition and relative distribution of water, and composition of air)	①	②	③
b) Earth's processes, cycles, and history (rock cycle; water cycle; weather versus climate; major geological events; formation of fossils and fossil fuels)	①	②	③
c) Earth's resources, their use and conservation (e.g., renewable/nonrenewable resources, human use of land/soil, water resources)	①	②	③
d) Earth in the solar system and the universe (phenomena on Earth – day/night, tides, phases of moon, eclipses, seasons; physical features of Earth compared to other bodies)	①	②	③

Science Homework for the TIMSS Class

Question 23 asks about science homework for the eighth-grade students in the TIMSS class.

23

A. How often do you usually assign science homework to the students in this class?

*Fill in **one** circle only.*

- I do not assign science homework --- ① **(Go to question 24)**
- Less than once a week --- ②
- 1 or 2 times a week --- ③
- 3 or 4 times a week --- ④
- Every day --- ⑤

B. When you assign science homework to the students in this class, about how many minutes do you usually assign? (Consider the time it would take an average student in your class.)

*Fill in **one** circle only.*

- 15 minutes or less --- ①
- 16–30 minutes --- ②
- 31–60 minutes --- ③
- 61–90 minutes --- ④
- More than 90 minutes --- ⑤

C. How often do you do the following with the science homework assignments for this class?

*Fill in only **one** circle for each row.*

	Always or almost always	Sometimes	Never or almost never
a) Correct assignments and give feedback to students	①	②	③
b) Have students correct their own homework	①	②	③
c) Discuss the homework in class	①	②	③
d) Monitor whether or not the homework was completed	①	②	③
e) Use the homework to contribute towards students' grades or marks	①	②	③

Science Assessment of the TIMSS Class

Question 24 asks about science assessment for the eighth-grade students in the TIMSS class.

24

How much emphasis do you place on the following sources to monitor students' progress in science?

*Fill in only **one** circle for each row.*

	Major emphasis	Some emphasis	Little or no emphasis
a) Assessment of students' ongoing work	①	②	③
b) Classroom tests (for example, teacher-made or textbook tests)	①	②	③
c) State or district achievement tests	①	②	③

Preparation to Teach Science

25

In the past two years, have you participated in professional development in any of the following?

*Fill in only **one** circle for each row.*

	Yes	No
a) Science content	①	②
b) Science pedagogy/instruction	①	②
c) Science curriculum	①	②
d) Integrating information technology into science	①	②
e) Improving students' critical thinking or inquiry skills	①	②
f) Science assessment	①	②
g) Addressing individual students' needs	①	②

26

In the past two years, how many hours in total have you spent in formal in-service/professional development (e.g., workshops, seminars) for science?

*Fill in **one** circle only.*

- None --- ①
- Less than 6 hours --- ②
- 6–15 hours --- ③
- 16–35 hours --- ④
- More than 35 hours --- ⑤

27

How well prepared do you feel you are to teach the following science topics?
If a topic is not in the eighth-grade curriculum or you are not responsible for teaching this topic, please choose "Not applicable."

*Fill in only **one** circle for each row.*

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
A. Biology				
a) Differences among major taxonomic groups of organisms (plants, animals, fungi, mammals, birds, reptiles, fish, amphibians)	①	②	③	④
b) Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions)	①	②	③	④
c) Cells, their structure and functions, including respiration and photosynthesis as cellular processes	①	②	③	④
d) Life cycles, sexual reproduction, and heredity (passing on of traits, inherited versus acquired/learned characteristics)	①	②	③	④
e) Role of variation and adaptation in survival/extinction of species in a changing environment (including fossil evidence for changes in life on Earth over time)	①	②	③	④
f) Interdependence of populations of organisms in an ecosystem (e.g., energy flow, food webs, competition, predation) and factors affecting population size in an ecosystem	①	②	③	④
g) Human health (causes of infectious diseases, methods of infection, prevention, immunity) and the importance of diet and exercise in maintaining health	①	②	③	④
B. Chemistry				
a) Classification, composition, and particulate structure of matter (elements, compounds, mixtures, molecules, atoms, protons, neutrons, electrons)	①	②	③	④
b) Physical and chemical properties of matter	①	②	③	④
c) Mixtures and solutions (solvent, solute, concentration/dilution, effect of temperature on solubility)	①	②	③	④
d) Properties and uses of common acids and bases	①	②	③	④
e) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions – combustion, rusting, tarnishing)	①	②	③	④
f) The role of electrons in chemical bonds	①	②	③	④

27 **(continued)**

How well prepared do you feel you are to teach the following science topics?
If a topic is not in the eighth grade curriculum or you are not responsible for teaching this topic, please choose "Not applicable."

*Fill in only **one** circle for each row.*

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
C. Physics				
a) Physical states and changes in matter (explanations of properties in terms of movement and distance between particles; phase change, thermal expansion, and changes in volume and/or pressure)	1	2	3	4
b) Energy forms, transformations, heat, and temperature	1	2	3	4
c) Basic properties/behaviors of light (reflection, refraction, light and color, simple ray diagrams) and sound (transmission through media, loudness, pitch, amplitude, frequency)	1	2	3	4
d) Electric circuits (flow of current; types of circuits – parallel/series) and properties and uses of permanent magnets and electromagnets	1	2	3	4
e) Forces and motion (types of forces, basic description of motion, effects of density and pressure)	1	2	3	4
D. Earth Science				
a) Earth's structure and physical features (Earth's crust, mantle, and core; composition and relative distribution of water, and composition of air)	1	2	3	4
b) Earth's processes, cycles, and history (rock cycle; water cycle; weather versus climate; major geological events; formation of fossils and fossil fuels)	1	2	3	4
c) Earth's resources, their use and conservation (e.g., renewable/nonrenewable resources, human use of land/soil, water resources)	1	2	3	4
d) Earth in the solar system and the universe (phenomena on Earth – day/night, tides, phases of moon, eclipses, seasons; physical features of Earth compared to other bodies)	1	2	3	4

Thank You

Thank you for the thought, time, and effort you have put into completing this questionnaire.

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BOSTON COLLEGE

TIMSS 2015

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire Science

Grade 8

International Association for the Evaluation of Educational Achievement

timss.bc.edu

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TIMSS 2015

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Student Questionnaire

Grade 8

National Center for Education Statistics
U.S. Department of Education
1990 K St. NW
Washington, DC 20006-5650

TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

Directions

In this booklet, you will find questions about yourself. Some questions ask for facts while other questions ask for your opinion.

Each question is followed by a number of answers. Fill in the oval next to or under the answer of your choice as shown in Examples 1, 2, and 3.

Example 1

Do you go to school?

*Fill in **one** oval only.*

Yes -- ●

No -- ②

Example 2

How often do you do these things?

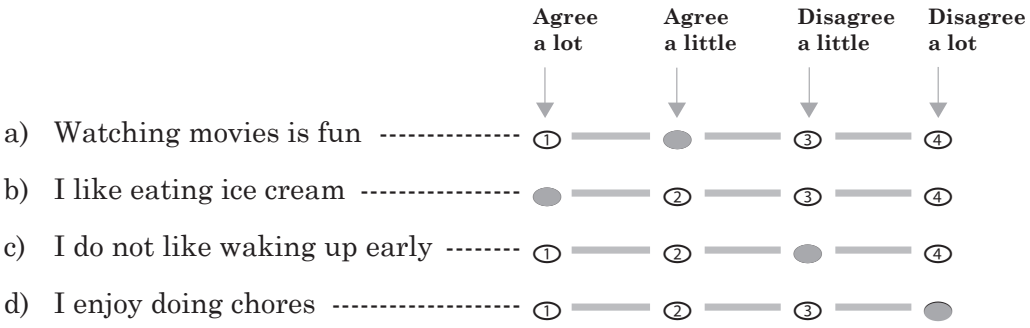
*Fill in only **one** oval for each row.*

	Every day or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) I talk with my friends	●	②	③	④
b) I play sports	①	●	③	④
c) I ride a skateboard	①	②	●	④

Example 3

What do you think? Tell how much you agree with these statements.

*Fill in only **one** oval for each row.*



- Read each question carefully, and pick the answer you think is best.
- Fill in the oval next to or under your answer.
- If you decide to change your answer, completely erase your first choice. Then, fill in the oval next to or under your new answer.
- Ask for help if you do not understand something or are not sure how to answer.

About You

1

A. Are you a girl or a boy?

*Fill in **one** oval only.*

Girl -- ①

Boy -- ②

B. Are you Hispanic or Latino?

*Fill in **one** oval only.*

Yes, I am Hispanic or Latino -- ①

No, I am not Hispanic or Latino -- ②

C. Which of the following best describes you?

*Fill in ovals for **all** that apply.*

White -- ①

Black or African American -- ①

Asian -- ①

American Indian or Alaska Native -- ①

Native Hawaiian or other Pacific Islander -- ①

2

When were you born?

Fill in the ovals next to the month and year you were born.

a) Month	b) Year
January --- Ⓐ	1997 --- ①
February --- Ⓑ	1998 --- ②
March --- Ⓒ	1999 --- ③
April --- Ⓓ	2000 --- ④
May --- Ⓔ	2001 --- ⑤
June --- Ⓕ	2002 --- ⑥
July --- Ⓖ	2003 --- ⑦
August --- Ⓗ	2004 --- ⑧
September --- Ⓘ	2005 --- ⑨
October --- Ⓙ	Other --- ⓪
November --- Ⓚ	
December --- Ⓛ	

3

A. How often do you speak English at home?

*Fill in **one** oval only.*

Always -- ① *If **Always**, please go to question 4* →

Almost always -- ②

Sometimes -- ③

Never -- ④

*If **Almost always, Sometimes, Never,** please go to question 3B*

B. What language do you speak at home (other than English)?

*Fill in **one** oval only.*

Spanish -- ①

Other -- ② Please specify _____

4

The following questions ask about activities you do outside of school.

*Fill in only **one** oval for each row.*

	Yes	No
a) Do you play on a sports team outside of school?	①	②
b) Do you often play a musical instrument outside of school?	①	②
c) Are you studying something in a class outside of school?	①	②
d) Do you belong to a club outside of school (like Boy/Girl Scouts, 4-H, or Boys and Girls Club)?	①	②

5

In this school year, are you preparing for or have you participated in any of the following activities?

*Fill in only **one** oval for each row.*

	Yes	No
a) Science fair	①	②
b) Science club	①	②
c) Science competition	①	②

6

About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)

*Fill in **one** oval only.*

None or very few (0–10 books) -- ①

Enough to fill one shelf (11–25 books) -- ②

Enough to fill one bookcase (26–100 books) -- ③

Enough to fill two bookcases (101–200 books) -- ④

Enough to fill three or more bookcases (more than 200) -- ⑤

7

How many digital information devices are there in your home? Count computers, tablets, smartphones, smart TVs, and e-readers. (Do not count other devices.)

*Fill in **one** oval only.*

None -- ①

1-3 devices -- ②

4-6 devices -- ③

7-10 devices -- ④

More than 10 devices -- ⑤

8

Do you have any of these things at your home?

*Fill in only **one** oval for each row.*

		Yes	No
a)	A computer or tablet of your own	①	②
b)	A computer or tablet that is shared with other people at home	①	②
c)	Study desk/table for your use	①	②
d)	Your own room	①	②
e)	Internet connection	①	②
f)	Your own cell phone	①	②
g)	A gaming system (e.g., PlayStation, Wii, Xbox)	①	②
h)	VCR, DVD, or Blu-ray player	①	②

9

A. What is the highest level of education completed by your mother (or stepmother or female legal guardian)?

*Fill in **one** oval only.*

Less than high school -- ①

Some high school -- ②

High school graduate -- ③

Associate's degree (2-year college program) -- ④

Bachelor's degree (4-year college program) -- ⑤

Master's degree or professional degree (MD, DDS, lawyer, minister) -- ⑥

Doctorate (Ph.D., or Ed.D.) -- ⑦

I don't know -- ⑧

B. What is the highest level of education completed by your father (or stepfather or male legal guardian)?

*Fill in **one** oval only.*

Less than high school -- ①

Some high school -- ②

High school graduate -- ③

Associate's degree (2-year college program) -- ④

Bachelor's degree (4-year college program) -- ⑤

Master's degree or professional degree (MD, DDS, lawyer, minister) -- ⑥

Doctorate (Ph.D., or Ed.D.) -- ⑦

I don't know -- ⑧

10

How far in your education do you expect to go?

*Fill in **one** oval only.*

Finish middle school -- ①

Finish high school -- ②

Finish Associate's degree (2-year college program) -- ③

Finish Bachelor's degree (4-year college program) -- ④

Finish Master's degree or professional degree (MD, DDS, lawyer, minister) -- ⑤

Finish Doctorate (Ph.D., Ed.D.) -- ⑥

11

A. Was your mother (or stepmother or female legal guardian) born in the United States? ("United States" includes the 50 states, its territories, the District of Columbia, and U.S. military bases abroad.)

*Fill in **one** oval only.*

Yes -- ①

No -- ②

I don't know -- ③

B. Was your father (or stepfather or male legal guardian) born in the United States?

*Fill in **one** oval only.*

Yes -- ①

No -- ②

I don't know -- ③

12

A. Were you born in the United States?

*Fill in **one** oval only.*

Yes -- ①

(If Yes, go to question 13)

No -- ②

If No,

B. If you were not born in the United States, how old were you when you came to the United States?

*Fill in **one** oval only.*

Older than 10 years old -- ①

5 to 10 years old -- ②

Younger than 5 years old -- ③

13

A. About how often are you absent from school?

*Fill in **one** oval only.*

Once a week or more -- ①

Once every two weeks -- ②

Once a month -- ③

Never or almost never -- ④

B. How many days were you absent from school in the last month?

*Fill in **one** oval only.*

None -- ①

1 or 2 days -- ②

3 or 4 days -- ③

5 to 10 days -- ④

More than 10 days -- ⑤

14

Have you ever repeated a grade?

*Fill in only **one** oval for each row.*

	Yes	No
a) In elementary school	①	②
b) In middle or junior high school	①	②

15

How often do you eat breakfast on school days?

*Fill in **one** oval only.*

Every day -- ①

Most days -- ②

Sometimes -- ③

Never or almost never -- ④

16

How often do you use a computer or tablet in each of these places for schoolwork (including classroom tasks, homework, studying outside of class)?

*Fill in only **one** oval for each row.*

	Every day or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) At home	①	②	③	④
b) At school	①	②	③	④
c) Some other place	①	②	③	④

17

Do you use the Internet to do any of the following tasks for schoolwork (including classroom tasks, homework, studying outside of class)?

*Fill in only **one** oval for each row.*

	Yes	No
a) Access the textbook or other course materials	①	②
b) Access assignments posted online by my teacher	①	②
c) Collaborate with classmates on assignments or projects	①	②
d) Communicate with the teacher	①	②
e) Find information, articles, or tutorials to aid in understanding mathematics	①	②
f) Find information, articles, or tutorials to aid in understanding science	①	②

Your School

18

What do you think about your school? Tell how much you agree with these statements.

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I like being in school	①	②	③	④
b) I feel safe when I am at school	①	②	③	④
c) I feel like I belong at this school	①	②	③	④
d) I like to see my classmates at school	①	②	③	④
e) Teachers at my school are fair to me	①	②	③	④
f) I am proud to go to this school	①	②	③	④
g) I learn a lot in school	①	②	③	④

19

During this school year, how often have other students from your school done any of the following things to you (including through texting or the Internet)?

*Fill in only **one** oval for each row.*

	At least once a week	Once or twice a month	A few times a year	Never
a) Made fun of me or called me names	①	②	③	④
b) Left me out of their games or activities	①	②	③	④
c) Spread lies about me	①	②	③	④
d) Stole something from me	①	②	③	④
e) Hit or hurt me *(e.g., shoving, hitting, kicking)*	①	②	③	④
f) Made me do things I didn't want to do	①	②	③	④
g) Shared embarrassing information about me	①	②	③	④
h) Posted embarrassing things about me online	①	②	③	④
i) Threatened me	①	②	③	④

Mathematics in School

20

How much do you agree with these statements about learning mathematics?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I enjoy learning mathematics	①	②	③	④
b) I wish I did not have to study mathematics	①	②	③	④
c) Mathematics is boring	①	②	③	④
d) I learn many interesting things in mathematics	①	②	③	④
e) I like mathematics	①	②	③	④
f) I like any schoolwork that involves numbers	①	②	③	④
g) I like to solve mathematics problems	①	②	③	④
h) I look forward to mathematics class	①	②	③	④
i) Mathematics is one of my favorite subjects	①	②	③	④

21

How much do you agree with these statements about your <u>mathematics lessons</u>?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I know what my teacher expects me to do	①	②	③	④
b) My teacher is easy to understand	①	②	③	④
c) I am interested in what my teacher says	①	②	③	④
d) My teacher gives me interesting things to do	①	②	③	④
e) My teacher has clear answers to my questions	①	②	③	④
f) My teacher is good at explaining mathematics	①	②	③	④
g) My teacher lets me show what I have learned	①	②	③	④
h) My teacher does a variety of things to help us learn	①	②	③	④
i) My teacher tells me how to do better when I make a mistake	①	②	③	④
j) My teacher listens to what I have to say	①	②	③	④

22

How much do you agree with these statements about mathematics?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I usually do well in mathematics	①	②	③	④
b) Mathematics is more difficult for me than for many of my classmates	①	②	③	④
c) Mathematics is not one of my strengths	①	②	③	④
d) I learn things quickly in mathematics	①	②	③	④
e) Mathematics makes me nervous	①	②	③	④
f) I am good at working out difficult mathematics problems	①	②	③	④
g) My teacher tells me I am good at mathematics	①	②	③	④
h) Mathematics is harder for me than any other subject	①	②	③	④
i) Mathematics makes me confused	①	②	③	④

23

How much do you agree with these statements about mathematics?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I think learning mathematics will help me in my daily life	①	②	③	④
b) I need mathematics to learn other school subjects	①	②	③	④
c) I need to do well in mathematics to get into the college or university of my choice	①	②	③	④
d) I need to do well in mathematics to get the job I want	①	②	③	④
e) I would like a job that involves using mathematics	①	②	③	④
f) It is important to learn about mathematics to get ahead in the world	①	②	③	④
g) Learning mathematics will give me more job opportunities when I am an adult	①	②	③	④
h) My parents think that it is important that I do well in mathematics	①	②	③	④
i) It is important to do well in mathematics	①	②	③	④

Science in School

24

How much do you agree with these statements about learning science?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I enjoy learning science	①	②	③	④
b) I wish I did not have to study science	①	②	③	④
c) Science is boring	①	②	③	④
d) I learn many interesting things in science	①	②	③	④
e) I like science	①	②	③	④
f) I look forward to learning science in school	①	②	③	④
g) Science teaches me how things in the world work	①	②	③	④
h) I like to conduct science experiments	①	②	③	④
i) Science is one of my favorite subjects	①	②	③	④

25

How much do you agree with these statements about your <u>science lessons</u>?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I know what my teacher expects me to do	①	②	③	④
b) My teacher is easy to understand	①	②	③	④
c) I am interested in what my teacher says	①	②	③	④
d) My teacher gives me interesting things to do	①	②	③	④
e) My teacher has clear answers to my questions	①	②	③	④
f) My teacher is good at explaining science	①	②	③	④
g) My teacher lets me show what I have learned	①	②	③	④
h) My teacher does a variety of things to help us learn	①	②	③	④
i) My teacher tells me how to do better when I make a mistake	①	②	③	④
j) My teacher listens to what I have to say	①	②	③	④

26

How much do you agree with these statements about science?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I usually do well in science	①	②	③	④
b) Science is more difficult for me than for many of my classmates	①	②	③	④
c) Science is not one of my strengths	①	②	③	④
d) I learn things quickly in science	①	②	③	④
e) I am good at working out difficult science problems	①	②	③	④
f) My teacher tells me I am good at science	①	②	③	④
g) Science is harder for me than any other subject	①	②	③	④
h) Science makes me confused	①	②	③	④

27

How much do you agree with these statements about science?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I think learning science will help me in my daily life	①	②	③	④
b) I need science to learn other school subjects	①	②	③	④
c) I need to do well in science to get into the college or university of my choice	①	②	③	④
d) I need to do well in science to get the job I want	①	②	③	④
e) I would like a job that involves using science	①	②	③	④
f) It is important to learn about science to get ahead in the world	①	②	③	④
g) Learning science will give me more job opportunities when I am an adult	①	②	③	④
h) My parents think that it is important that I do well in science	①	②	③	④
i) It is important to do well in science	①	②	③	④

Homework

28

A. How often does your teacher give you homework in the following subjects?

*Fill in only **one** oval for each row.*

	Every day	3 or 4 times a week	1 or 2 times a week	Less than once a week	Never
a) Mathematics	①	②	③	④	⑤
b) Science	①	②	③	④	⑤

B. When your teacher gives you homework in the following subjects, about how many minutes do you usually spend on your homework?

*Fill in only **one** oval for each row.*

	My teacher never gives me homework in...	1-15 minutes	16-30 minutes	31-60 minutes	61-90 minutes	More than 90 minutes
a) Mathematics	①	②	③	④	⑤	⑥
b) Science	①	②	③	④	⑤	⑥

29

A. During the last 12 months, have you attended extra lessons or tutoring not provided by the school in the following subjects?

*Fill in only **one** oval for each row.*

	Yes, to excel in class	Yes, to keep up in class	No
a) Mathematics	①	②	③
b) Science	①	②	③

B. For how many of the last 12 months have you attended extra lessons or tutoring?

*Fill in only **one** oval for each row.*

	Did not attend	Less than 4 months	4-8 months	More than 8 months
a) Mathematics	①	②	③	④
b) Science	①	②	③	④

30

How hard was this test compared to most other tests you have taken this year in school?

*Fill in **one** oval only.*

Easier than other tests -- ①

About as hard as other tests -- ②

Harder than other tests -- ③

Much harder than other tests -- ④

31

How hard did you try on this test compared to how hard you tried on most other tests you have taken this year in school?

*Fill in **one** oval only.*

Not as hard as on other tests -- ①

About as hard as on other tests -- ②

Harder than on other tests -- ③

Much harder than on other tests -- ④

32

How important was it to you to do well on this test?

*Fill in **one** oval only.*

Not very important -- ①

Somewhat important -- ②

Important -- ③

Very important -- ④


Thank You!
Thank you for filling out the questionnaire!

TIMSS 2015

TIMSS 2015 Curriculum Questionnaire—Eighth Grade

Grade 8

TIMSS & PIRLS International Study Center
Lynch School of Education, Boston College

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

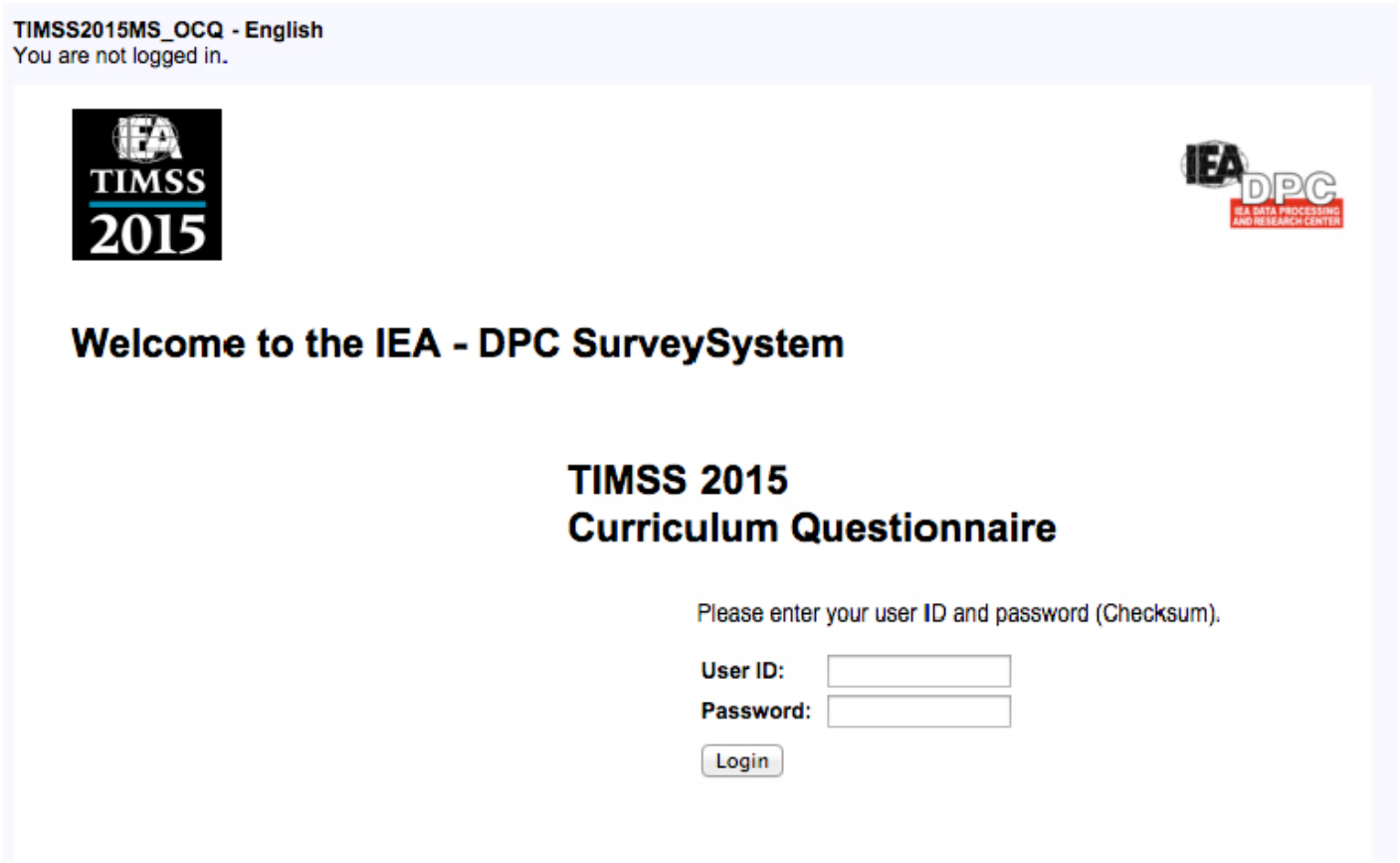
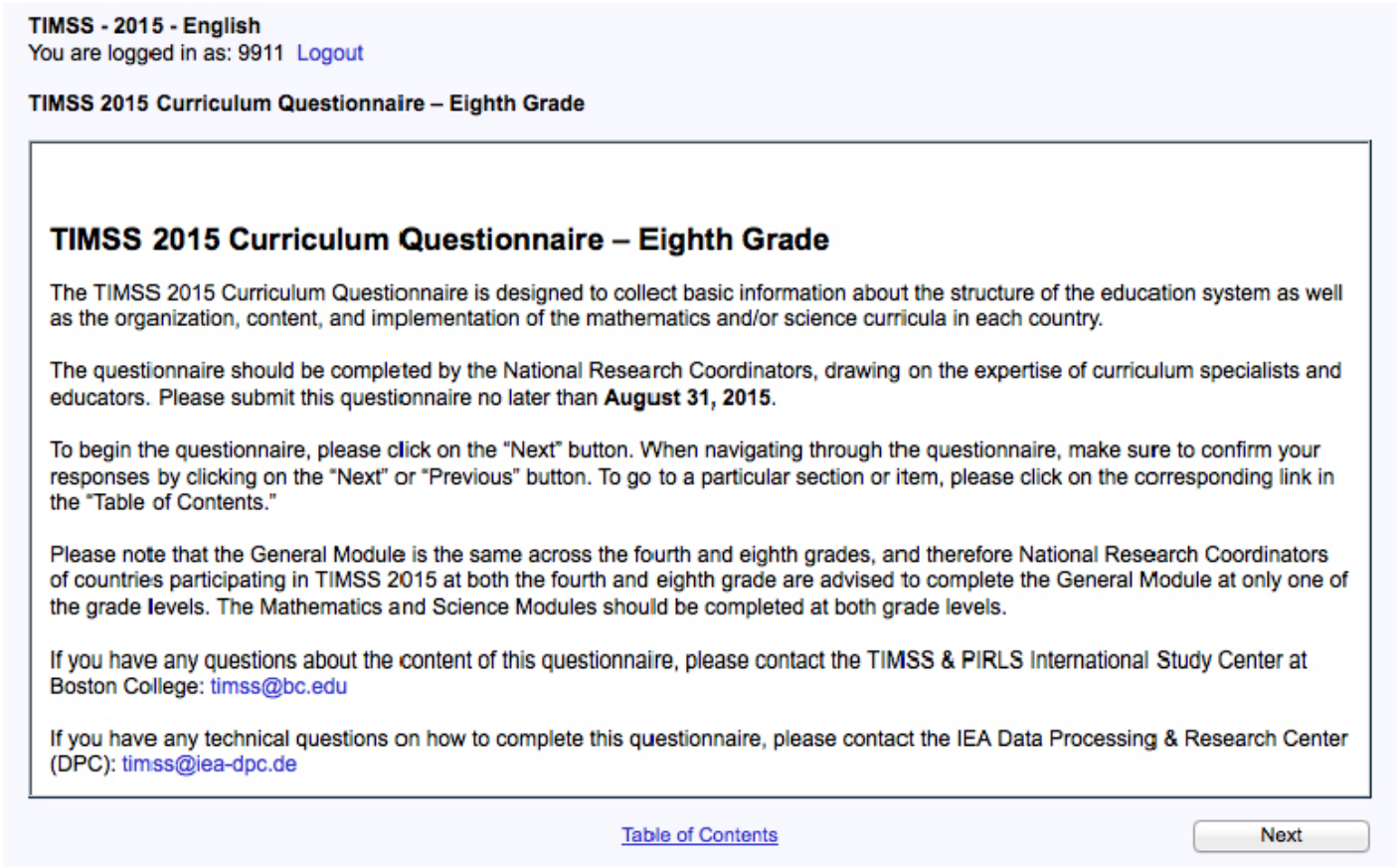


Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued



TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade

TIMSS 2015 Curriculum Questionnaire – Eighth Grade

The TIMSS 2015 Curriculum Questionnaire is designed to collect basic information about the structure of the education system as well as the organization, content, and implementation of the mathematics and/or science curricula in each country.

The questionnaire should be completed by the National Research Coordinators, drawing on the expertise of curriculum specialists and educators. Please submit this questionnaire no later than **August 31, 2015**.

To begin the questionnaire, please click on the "Next" button. When navigating through the questionnaire, make sure to confirm your responses by clicking on the "Next" or "Previous" button. To go to a particular section or item, please click on the corresponding link in the "Table of Contents."

Please note that the General Module is the same across the fourth and eighth grades, and therefore National Research Coordinators of countries participating in TIMSS 2015 at both the fourth and eighth grade are advised to complete the General Module at only one of the grade levels. The Mathematics and Science Modules should be completed at both grade levels.

If you have any questions about the content of this questionnaire, please contact the TIMSS & PIRLS International Study Center at Boston College: timss@bc.edu

If you have any technical questions on how to complete this questionnaire, please contact the IEA Data Processing & Research Center (DPC): timss@iea-dpc.de

Table of Contents Next

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

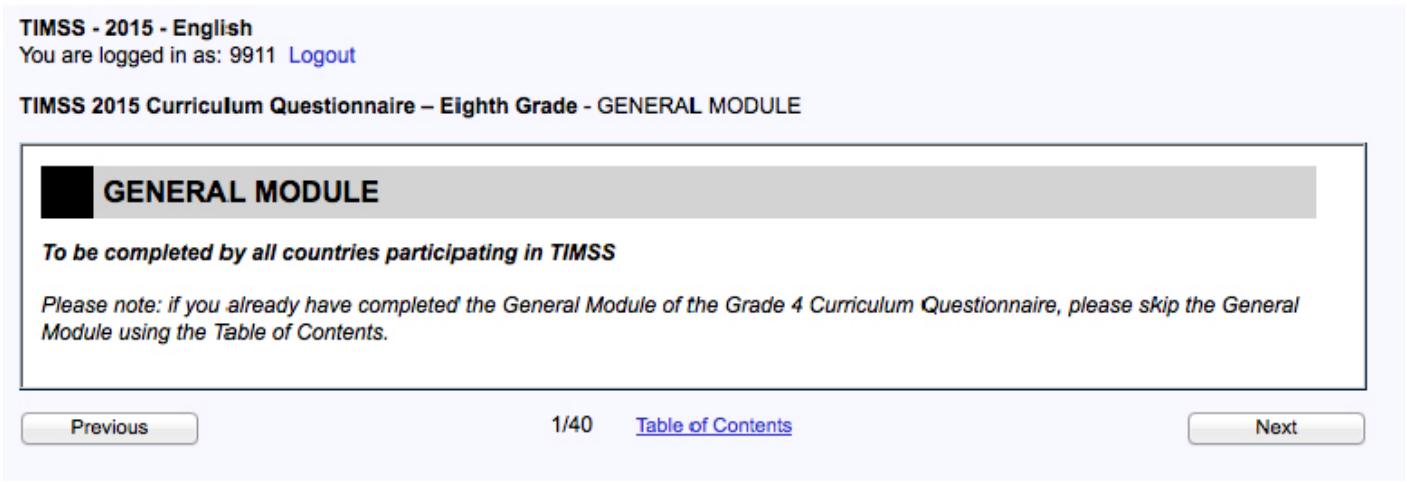


Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

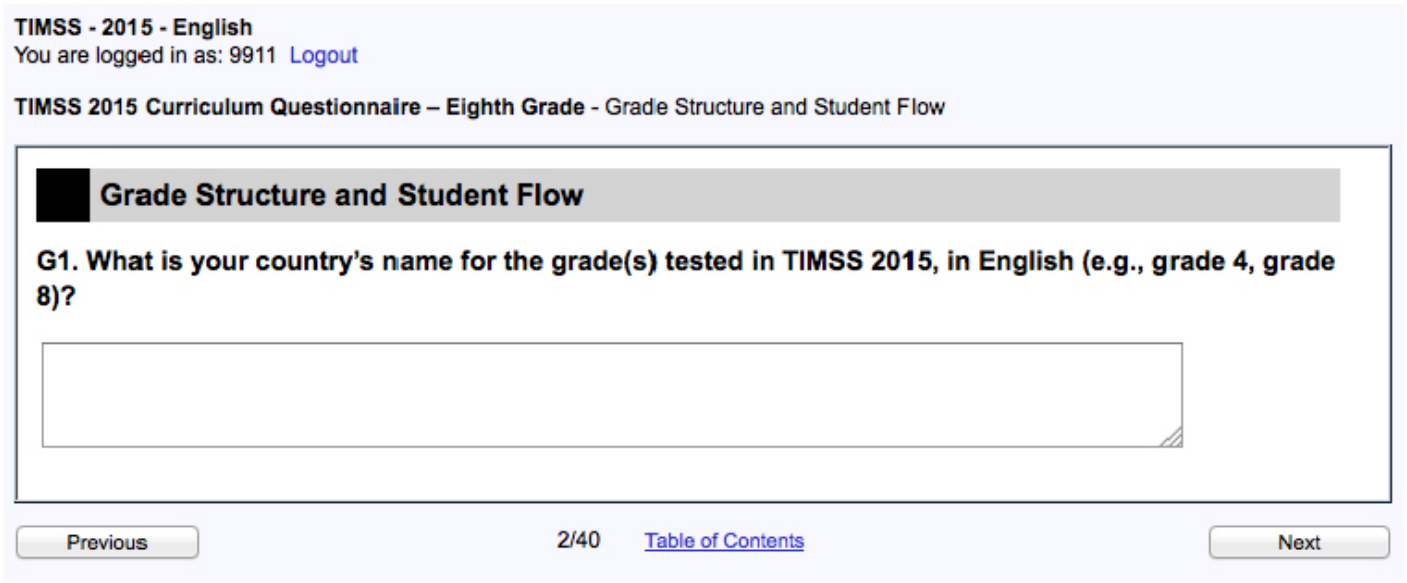
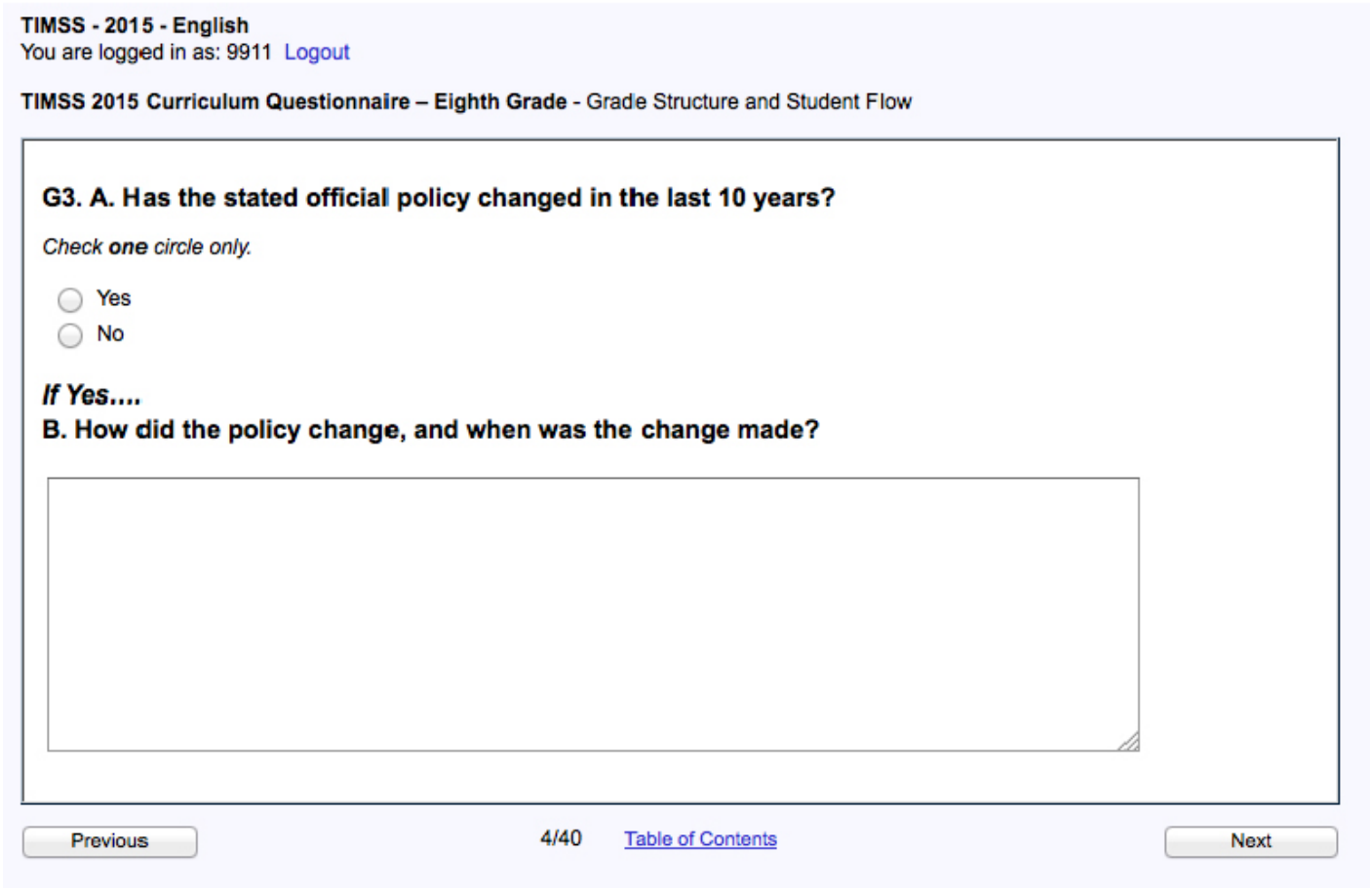


Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued



TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Grade Structure and Student Flow

G3. A. Has the stated official policy changed in the last 10 years?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes....

B. How did the policy change, and when was the change made?

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

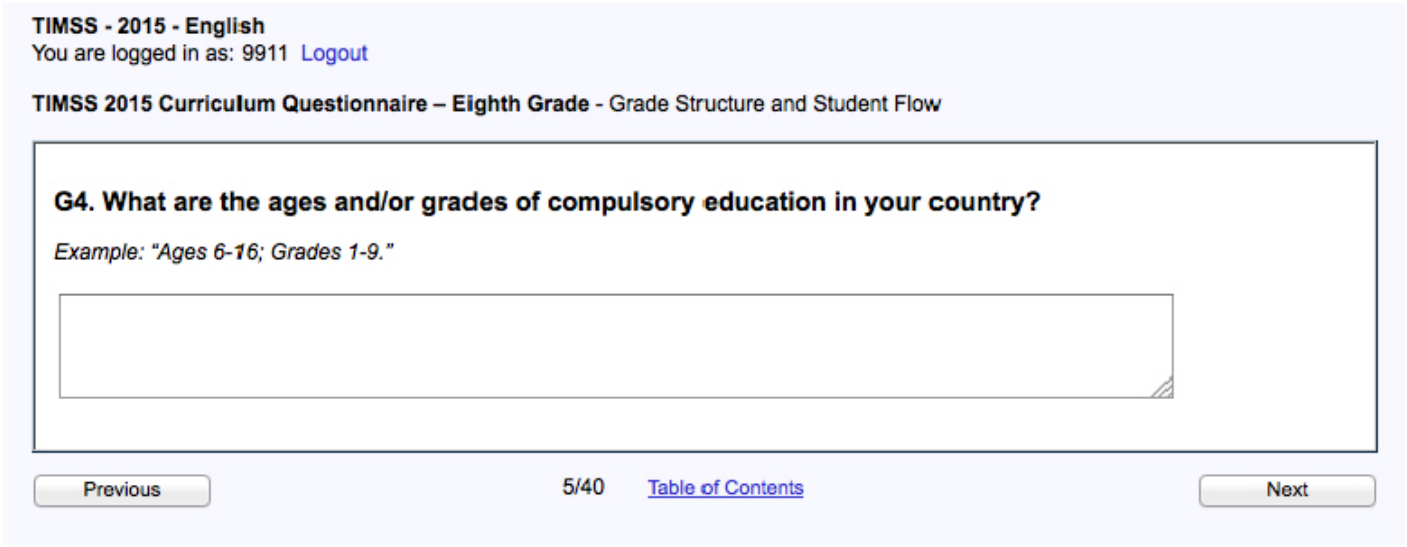


Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

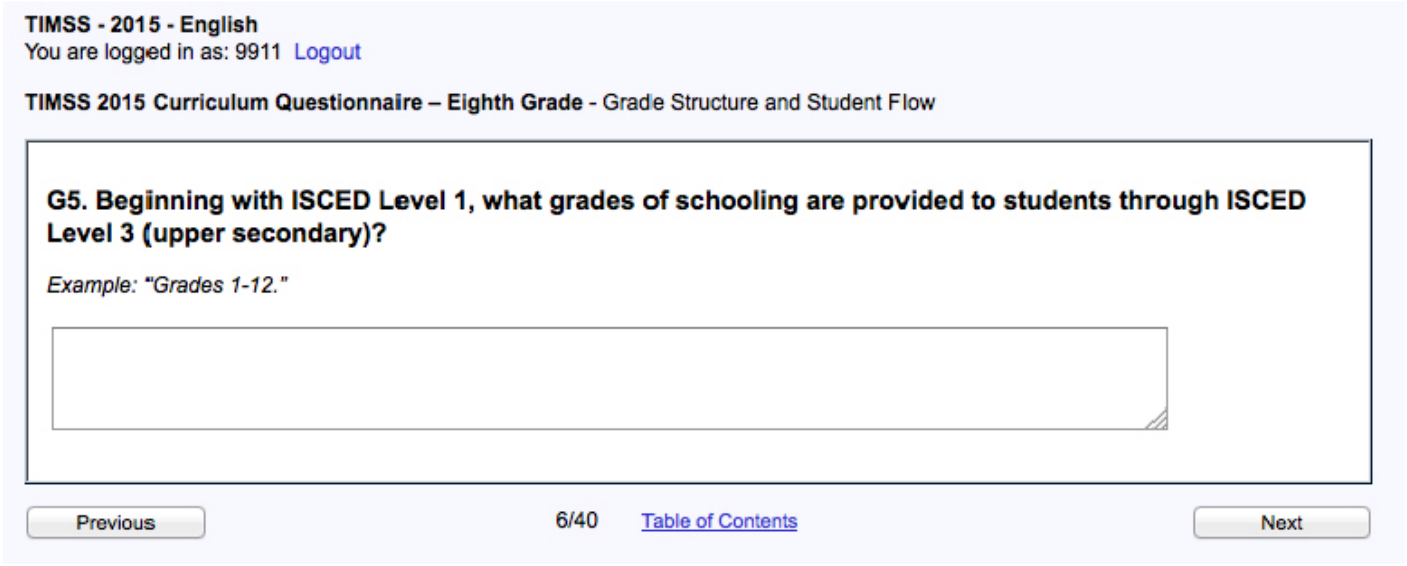
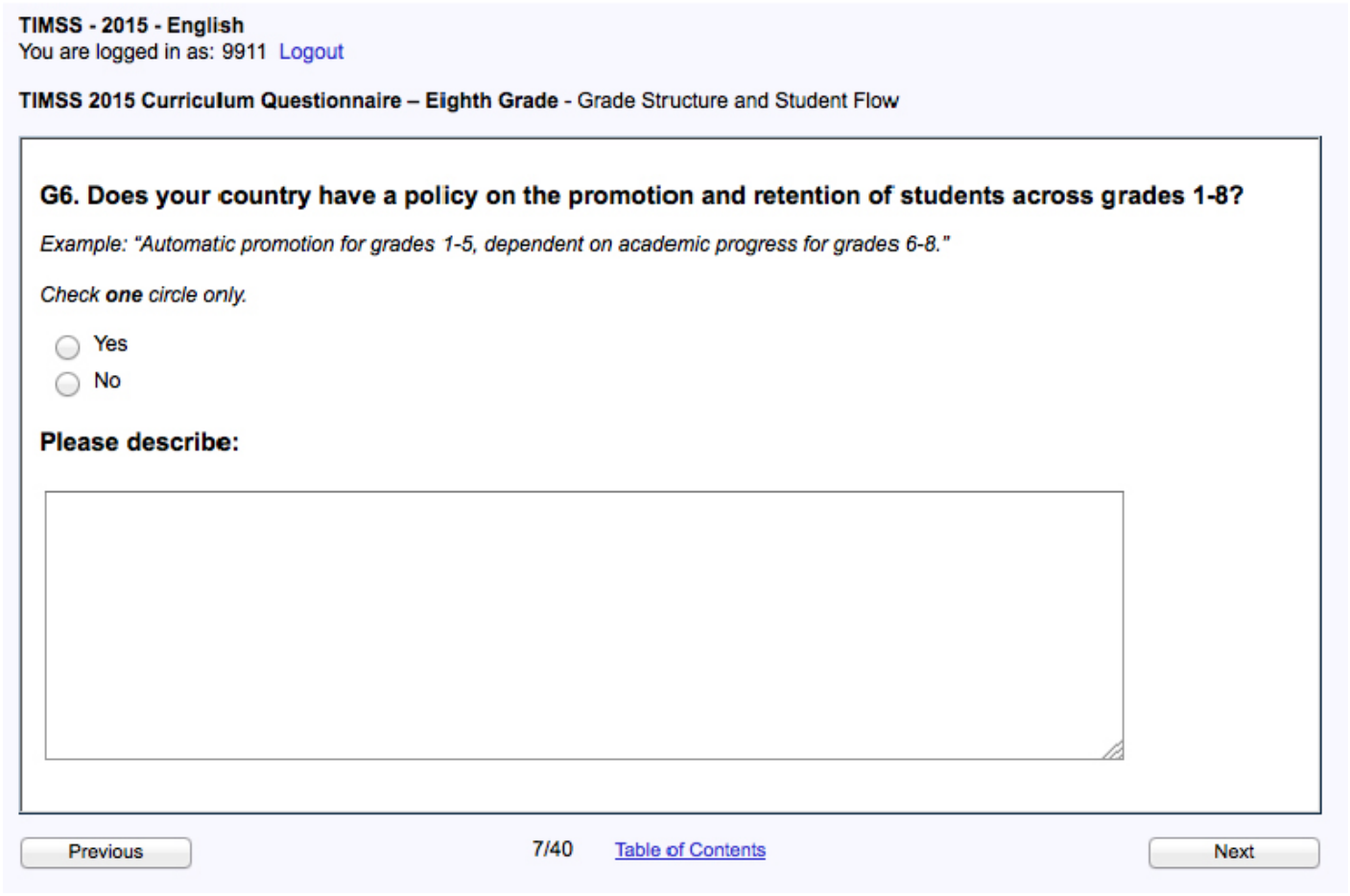


Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued



TIMSS - 2015 - English
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TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Grade Structure and Student Flow

G6. Does your country have a policy on the promotion and retention of students across grades 1-8?

Example: "Automatic promotion for grades 1-5, dependent on academic progress for grades 6-8."

*Check **one** circle only.*

- ○ Yes
- ○ No

Please describe:

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

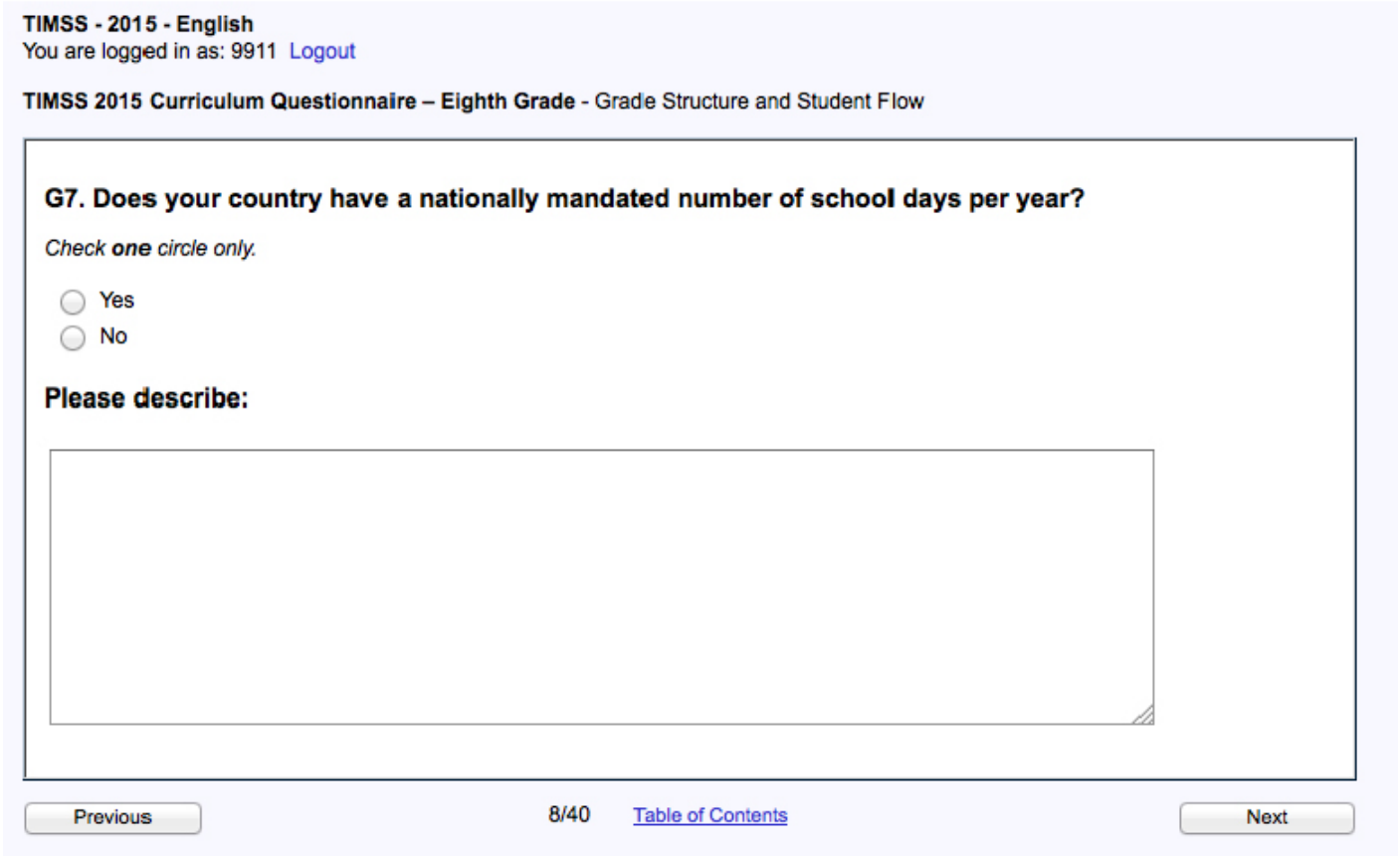

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
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TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Early Childhood Education

Early Childhood Education

Early childhood education (ISCED Level 0) is subdivided into:
- ***Early childhood educational development (ECED)** programs for children under 3; and*
- ***Pre-primary education (PPE)** programs including Kindergarten for children age 3 or older.*

G8. A. Does your country provide universal ECED or PPE coverage?

*Programs with **universal** coverage are accessible and available to all children, although in some cases parents may choose not to enroll their children.*

*Check **one** circle for each line.*

	Yes	No
a) ECED programs for children under 3	○	○
b) PPE programs for children age 3 or older	○	○

B. How many years can children attend these programs altogether?

*Check **one** circle only.*

- ○ 1 year
- ○ 2 years
- ○ 3 years
- ○ 4 or more years

Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

C. Does your country provide targeted ECED or PPE coverage?

*Programs with **targeted** coverage are only available for certain subgroups (e.g., for children from low-income families, for children where the language spoken at home is different from the national language).*

*Check **one** circle only.*

- ○ Yes
- ○ No

Please describe:

Comments:

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Early Childhood Education

G9. A. Does your country have national curriculum guidance documents for early childhood education?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes....

B. Do the curriculum guidance documents cover any of the following topic areas?

*Check **one** circle for **ECED** programs, AND **one** circle for **PPE** programs.*

	ECED programs		PPE programs	
	Yes	No	Yes	No
a) Socio-emotional development	○	○	○	○
b) Physical development and health education	○	○	○	○
c) Oral language development and communication skills	○	○	○	○
d) Reading and literacy skills	○	○	○	○
e) Mathematics and numeracy skills	○	○	○	○
f) Science including understanding the natural world (e.g., weather)	○	○	○	○
g) Other Please specify below:	○	○	○	○

Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Examinations

Examinations

G10. A. Does an educational authority in your country (e.g., National Ministry of Education) administer examinations that have consequences for individual students, such as entry to a higher school system, entry to a university, and/or exiting or graduating from secondary school?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes….
B. Please describe the grades at which the exams are given, the subjects that are assessed, and the purpose of each exam.

Example: "There is an exam including language and mathematics given at the end of grade 8 to determine placement for entry to secondary school."

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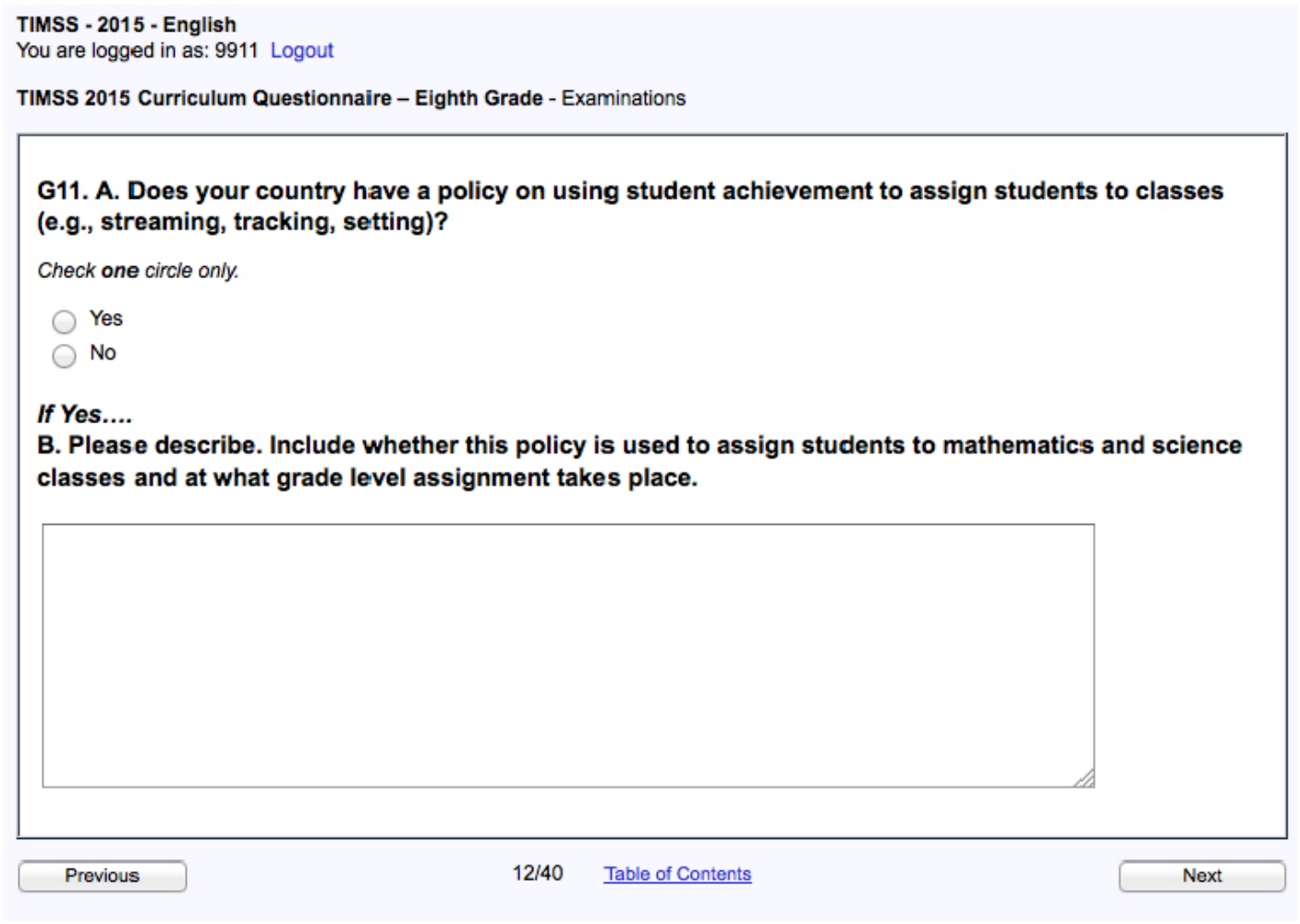
Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued



TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Examinations

G11. A. Does your country have a policy on using student achievement to assign students to classes (e.g., streaming, tracking, setting)?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes….

B. Please describe. Include whether this policy is used to assign students to mathematics and science classes and at what grade level assignment takes place.

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Teacher Preparation

Teacher Preparation

G12. A. What is the main preparation route(s) for teachers of students in the fourth grade?

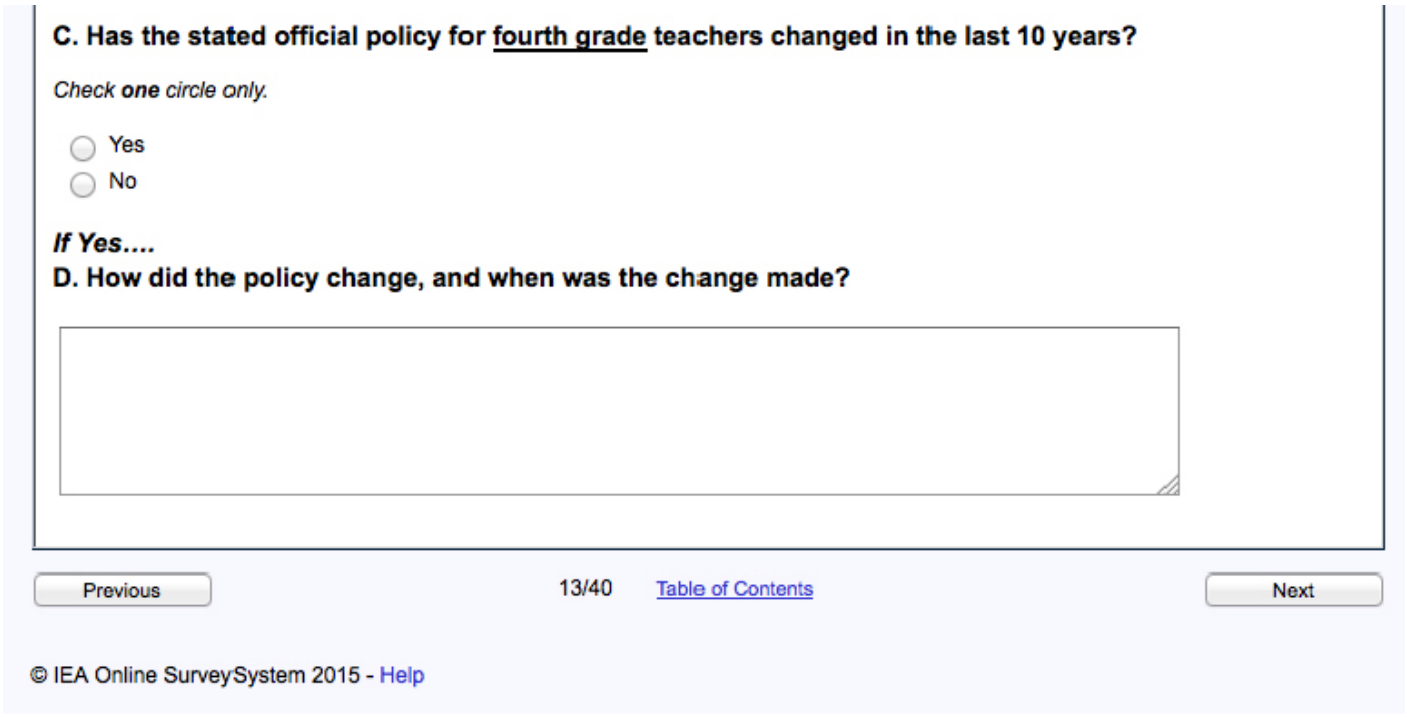
Example: "Most teachers receive their education through a university degree program. Some have attended a teacher college program, but that is becoming less common."

B. According to the main teacher preparation route, what are the current requirements for being a teacher of students in the fourth grade?

*Check **one** circle for each line.*

	Yes	No
a) Supervised practicum during the teacher education program.	○	○
If Yes… How long is this period?		
b) Passing a qualifying examination (e.g., licensing, certification).	○	○
c) Completion of a probationary teaching period.	○	○
If Yes… How long is this period?		
d) Completion of a mentoring or induction program (e.g., experienced teachers work with novice teachers to provide instructional guidance).	○	○
e) Other Please specify below:	○	○

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued



C. Has the stated official policy for fourth grade teachers changed in the last 10 years?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes....

D. How did the policy change, and when was the change made?

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
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TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Teacher Preparation

G13. A. Is the main preparation route(s) for teachers of students in the eighth grade different from the main preparation route(s) at the fourth grade?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes….
B. If the main preparation route(s) for teachers of students in the eighth grade is different, what is their main preparation route?

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

C. If the requirements are different than the fourth grade, what are the current requirements for being a teacher of students in the eighth grade?

	Yes	No
	*Check **one** circle for each line.*	
a) Supervised practicum during the teacher education program.	○	○
If Yes… How long is this period?		
b) Passing a qualifying examination (e.g., licensing, certification).	○	○
c) Completion of a probationary teaching period.	○	○
If Yes… How long is this period?		
d) Completion of a mentoring or induction program (e.g., experienced teachers work with novice teachers to provide instructional guidance).	○	○
e) Other Please specify below:	○	○

D. Has the stated official policy changed for eighth grade teachers in the last 10 years?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes….

E. How did the policy change, and when was the change made?

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Principal Preparation

Principal Preparation

G14. A. What is the main preparation route(s) for principals of schools with fourth grade students?

Example: "In addition to receiving their teaching qualifications, most principals have a degree in educational leadership."

B. According to the main principal preparation route, what are the current requirements for being a principal of a school with fourth grade students?

*Check **one** circle for each line.*

	Yes	No
a) Teaching experience	○	○
b) Completion of a specialized school leadership training program (including a school leadership degree program)	○	○
c) Other Please specify below:	○	○

C. Has the stated official policy changed in the last 10 years for principals of schools with fourth grade students?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes....

D. How did the policy change, and when was the change made?

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Principal Preparation

G15. A. Is the main preparation route(s) for principals of schools with eighth grade students different from the main preparation route(s) for principals of schools with fourth grade students?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes….

B. If the main preparation route(s) for principals of schools with eighth grade students is different, what is their main preparation route?

Example: "In addition to receiving their teaching qualifications, most principals have a degree in educational leadership."

C. According to the main principal preparation route, what are the current requirements for being a principal of a school with eighth grade students?

*Check **one** circle for each line.*

	Yes	No
a) Teaching experience	○	○
b) Completion of a specialized school leadership training program (including a school leadership degree program)	○	○
c) Other Please specify below:	○	○

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

D. Has the stated official policy changed in the last 10 years for principals of schools with eighth grade students?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes....

E. How did the policy change, and when was the change made?

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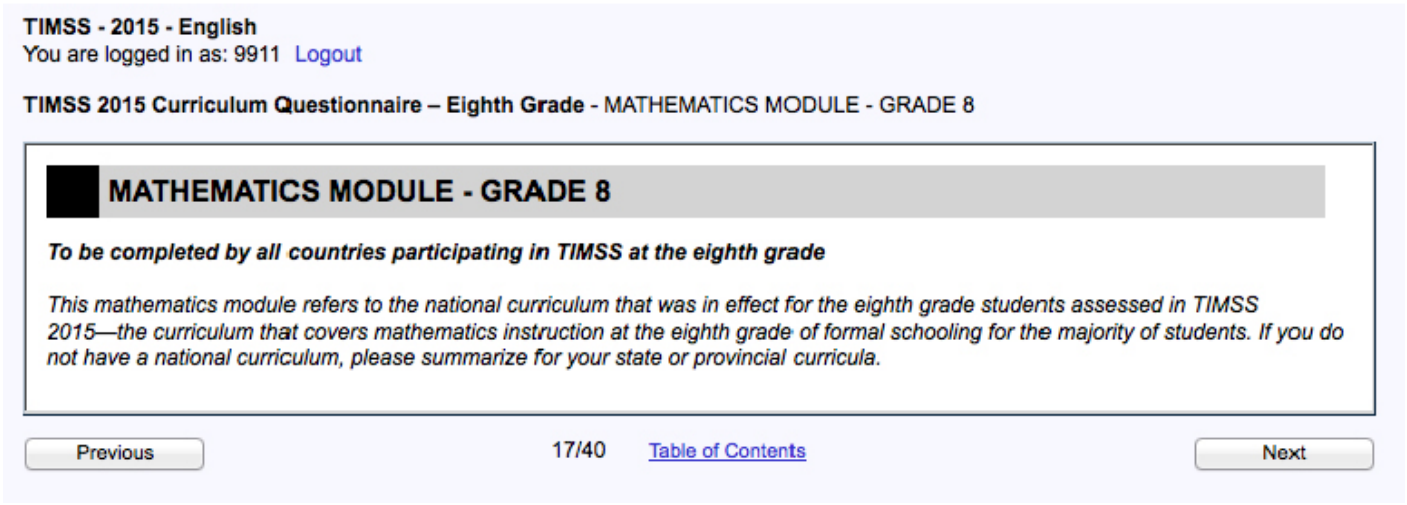
Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued



TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - MATHEMATICS MODULE - GRADE 8

MATHEMATICS MODULE - GRADE 8

To be completed by all countries participating in TIMSS at the eighth grade

This mathematics module refers to the national curriculum that was in effect for the eighth grade students assessed in TIMSS 2015—the curriculum that covers mathematics instruction at the eighth grade of formal schooling for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - About the Eighth Grade Mathematics Curriculum

About the Eighth Grade Mathematics Curriculum

This mathematics module refers to the national curriculum that was in effect for the eighth grade students assessed in TIMSS 2015—the curriculum that covers mathematics instruction at the eighth grade of formal schooling for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

M1. Does your country have a national curriculum that covers mathematics instruction at the eighth grade of formal schooling?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes…
Comments:

If No…
What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers mathematics instruction at the eighth grade of formal schooling?

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - About the Eighth Grade Mathematics Curriculum

M2. A. In what year was the 2014/2015 mathematics curriculum introduced?

Comments:

B. Is the mathematics curriculum currently being revised?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes…
Please explain:

If No…
Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - About the Eighth Grade Mathematics Curriculum

M3. For the middle/lower secondary school mathematics curriculum, what is the grade structure?

Examples: "Grades 1-8"; "Grades 4-8"; "Grades 6-8"; "Grades 7-9."

Comments:

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Curriculum Specifications

Curriculum Specifications

This mathematics module refers to the national curriculum that was in effect for the eighth grade students assessed in TIMSS 2015—the curriculum that covers mathematics instruction at the eighth grade of formal schooling for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

M4. What does the mathematics curriculum prescribe?

*Check **one** circle for each line.*

	Yes	No
a) Goals and objectives	○	○
b) Instructional processes or methods	○	○
c) Materials (e.g., textbooks, instructional materials)	○	○
d) Assessment methods/activities	○	○
e) Other Please specify below:	○	○

Comments:

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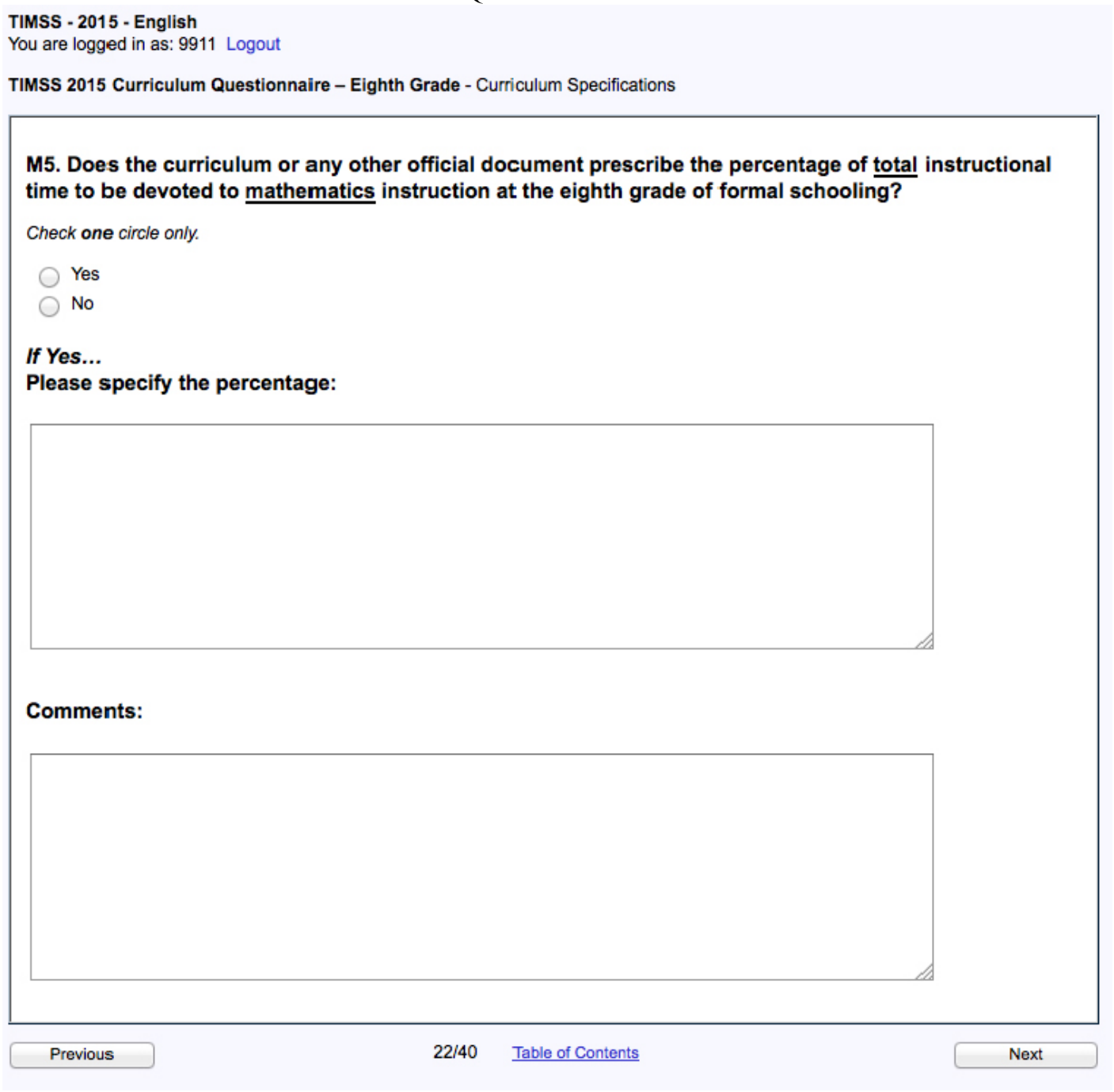
Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued



TIMSS - 2015 - English
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TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Curriculum Specifications

M5. Does the curriculum or any other official document prescribe the percentage of total instructional time to be devoted to mathematics instruction at the eighth grade of formal schooling?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes…
Please specify the percentage:

Comments:

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Curriculum Specifications

M6. How is the mathematics curriculum implementation evaluated?

*Check **one** circle for each line.*

	Yes	No
a) Visits by inspectors	○	○
b) Research programs	○	○
c) School self-evaluation	○	○
d) National or regional examinations	○	○
e) Other Please specify below:	○	○

Comments:

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Instructional Materials and Use of Technology

Instructional Materials and Use of Technology

This mathematics module refers to the national curriculum that was in effect for the eighth grade students assessed in TIMSS 2015—the curriculum that covers mathematics instruction at the eighth grade of formal schooling for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

M7. A. Is there a process for approving the mathematics instructional materials?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes…
Please describe the process, and what materials (e.g., textbooks, workbooks, online materials) must be approved through this process:

B. Does the national curriculum contain statements/policies about the use of technology (e.g., computers, tablets, calculators) in grade 8 mathematics instruction?

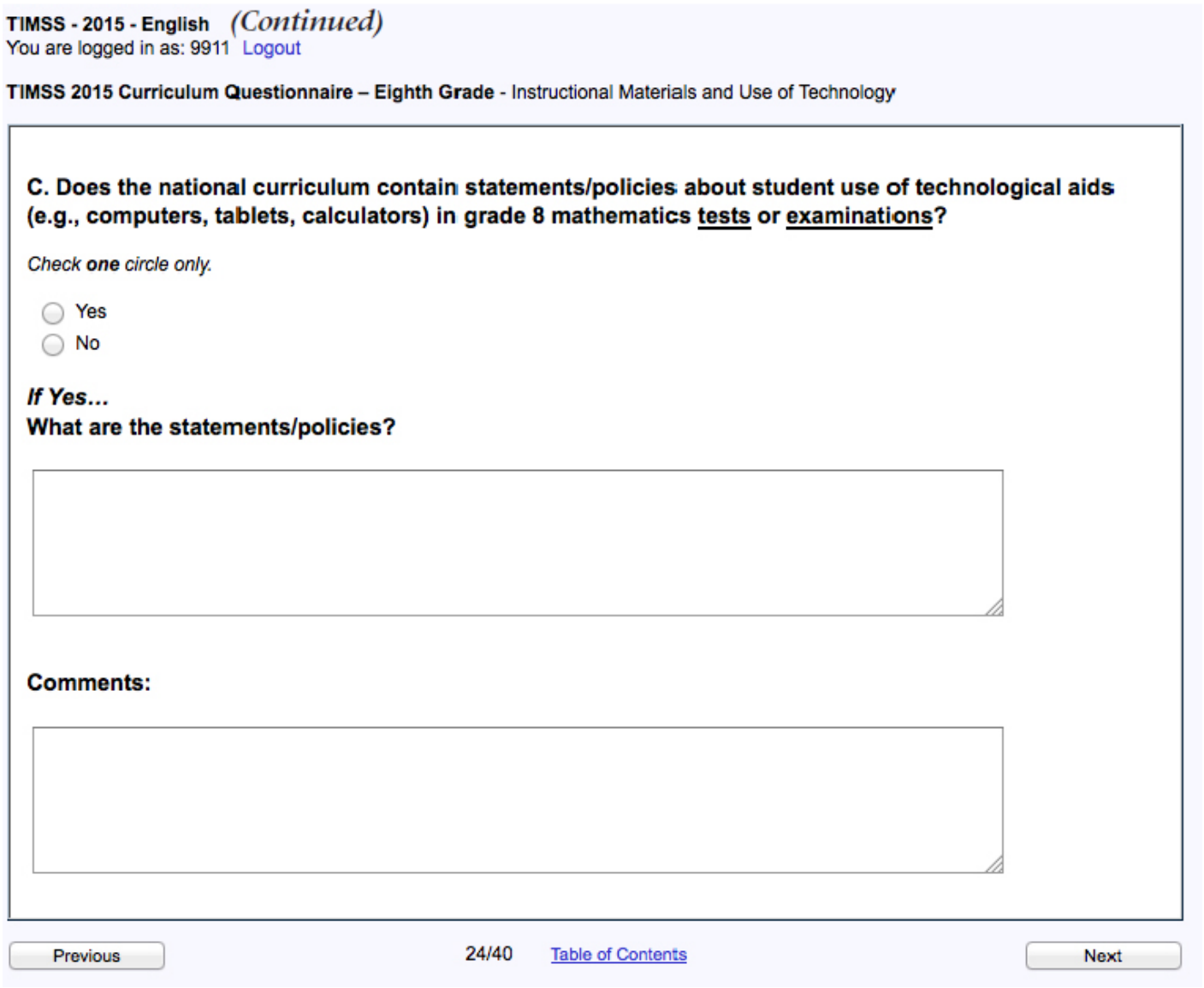
*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes…
What are the statements/policies?

(Continued on Next Page)

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued



TIMSS - 2015 - English *(Continued)*
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Instructional Materials and Use of Technology

C. Does the national curriculum contain statements/policies about student use of technological aids (e.g., computers, tablets, calculators) in grade 8 mathematics tests or examinations?

*Check **one** circle only.*

- Yes
- No

If Yes…
What are the statements/policies?

Comments:

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Eighth Grade Mathematics Topics Covered

Eighth Grade Mathematics Topics Covered

This mathematics module refers to the national curriculum that was in effect for the eighth grade students assessed in TIMSS 2015—the curriculum that covers mathematics instruction at the eighth grade of formal schooling for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

M8. (i) According to the national mathematics curriculum, what proportion of grade 8 students should have been taught each of the following topics or skills by the end of grade 8?

Be sure to include curriculum expectations for all grades up to and including grade 8. Grades represent years of formal schooling. For example, if "Year 9" in your country corresponds to the eighth year of formal schooling, please choose grade 8.

(ii) Across grades from preprimary through upper secondary education, at what grade(s) are the topics primarily intended to be taught?

If there are not any specifications to this detail, please indicate national expectations to the best of your ability. If part of a topic does not apply [e.g., fractions in part A topic (c)], please explain in the comment field.

	(i) Proportion of grade 8 students expected to be taught topic *Check **one** circle for each line.*			(ii) Grade(s) topic is expected to be taught preprimary (PP) through the end of upper secondary (G12) *Check the corresponding grade(s) for each topic.*											
A. Number	**All or almost all students**	**Only the more able students**	**Not included in the curriculum through grade 8**	**PP**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**	**G7**	**G8**	**G9**	**G10**	**G11**	**G12**
a) Computing with whole numbers	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Comparing and ordering rational numbers	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Computing with rational numbers (fractions, decimals, and integers)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Concepts of irrational numbers	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e) Problem solving involving percents or proportions	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Eighth Grade Mathematics Topics Covered

M8. (continued)

(i) According to the national mathematics curriculum, what proportion of grade 8 students should have been taught each of the following topics or skills by the end of grade 8?

Be sure to include curriculum expectations for all grades up to and including grade 8. Grades represent years of formal schooling. For example, if "Year 9" in your country corresponds to the eighth year of formal schooling, please choose grade 8.

(ii) Across grades from preprimary through upper secondary education, at what grade(s) are the topics primarily intended to be taught?

If there are not any specifications to this detail, please indicate national expectations to the best of your ability. If part of a topic does not apply [e.g., fractions in part A topic (c)], please explain in the comment field.

	(i) Proportion of grade 8 students expected to be taught topic			**(ii) Grade(s) topic is expected to be taught** preprimary (PP) through the end of upper secondary (G12)												
	*Check **one** circle for each line.*			*Check the corresponding grade(s) for each topic.*												
B. Algebra	**All or almost all students**	**Only the more able students**	**Not included in the curriculum through grade 8**	**PP**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**	**G7**	**G8**	**G9**	**G10**	**G11**	**G12**
a) Simplifying and evaluating algebraic expressions	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Simple linear equations and inequalities	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Simultaneous (two variables) equations	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Numeric, algebraic, and geometric patterns or sequences (extension, missing terms, generalization of patterns)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e) Representation of functions as ordered pairs, tables, graphs, words, or equations	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f) Properties of functions (slopes, intercepts, etc.)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Eighth Grade Mathematics Topics Covered

M8. (continued)

(i) According to the national mathematics curriculum, what proportion of grade 8 students should have been taught each of the following topics or skills by the end of grade 8?

Be sure to include curriculum expectations for all grades up to and including grade 8. Grades represent years of formal schooling. For example, if "Year 9" in your country corresponds to the eighth year of formal schooling, please choose grade 8.

(ii) Across grades from preprimary through upper secondary education, at what grade(s) are the topics primarily intended to be taught?

If there are not any specifications to this detail, please indicate national expectations to the best of your ability. If part of a topic does not apply [e.g., fractions in part A topic (c)], please explain in the comment field.

	(i) Proportion of grade 8 students expected to be taught topic			**(ii) Grade(s) topic is expected to be taught** preprimary (PP) through the end of upper secondary (G12)												
	*Check **one** circle for each line.*			*Check the corresponding grade(s) for each topic.*												
C. Geometry	**All or almost all students**	**Only the more able students**	**Not included in the curriculum through grade 8**	**PP**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**	**G7**	**G8**	**G9**	**G10**	**G11**	**G12**
a) Geometric properties of angles and geometric shapes (triangles, quadrilaterals, and other common polygons)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Congruent figures and similar triangles	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Relationship between three–dimensional shapes and their two-dimensional representations	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Using appropriate measurement formulas for perimeters, circumferences, areas, surface areas, and volumes	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e) Points on the Cartesian plane	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f) Translation, reflection, and rotation	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Eighth Grade Mathematics Topics Covered

M8. (continued)

(i) According to the national mathematics curriculum, what proportion of grade 8 students should have been taught each of the following topics or skills by the end of grade 8?

Be sure to include curriculum expectations for all grades up to and including grade 8. Grades represent years of formal schooling. For example, if "Year 9" in your country corresponds to the eighth year of formal schooling, please choose grade 8.

(ii) Across grades from preprimary through upper secondary education, at what grade(s) are the topics primarily intended to be taught?

If there are not any specifications to this detail, please indicate national expectations to the best of your ability. If part of a topic does not apply [e.g., fractions in part A topic (c)], please explain in the comment field.

	(i) Proportion of grade 8 students expected to be taught topic			**(ii) Grade(s) topic is expected to be taught** preprimary (PP) through the end of upper secondary (G12)												
	*Check **one** circle for each line.*			*Check the corresponding grade(s) for each topic.*												
D. Data and Chance	**All or almost all students**	**Only the more able students**	**Not included in the curriculum through grade 8**	**PP**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**	**G7**	**G8**	**G9**	**G10**	**G11**	**G12**
a) Characteristics of data sets (mean, median, mode, and shape of distributions)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Interpreting data sets (e.g., draw conclusions, make predictions, and estimate values between and beyond given data points)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Judging, predicting, and determining the chances of possible outcomes	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

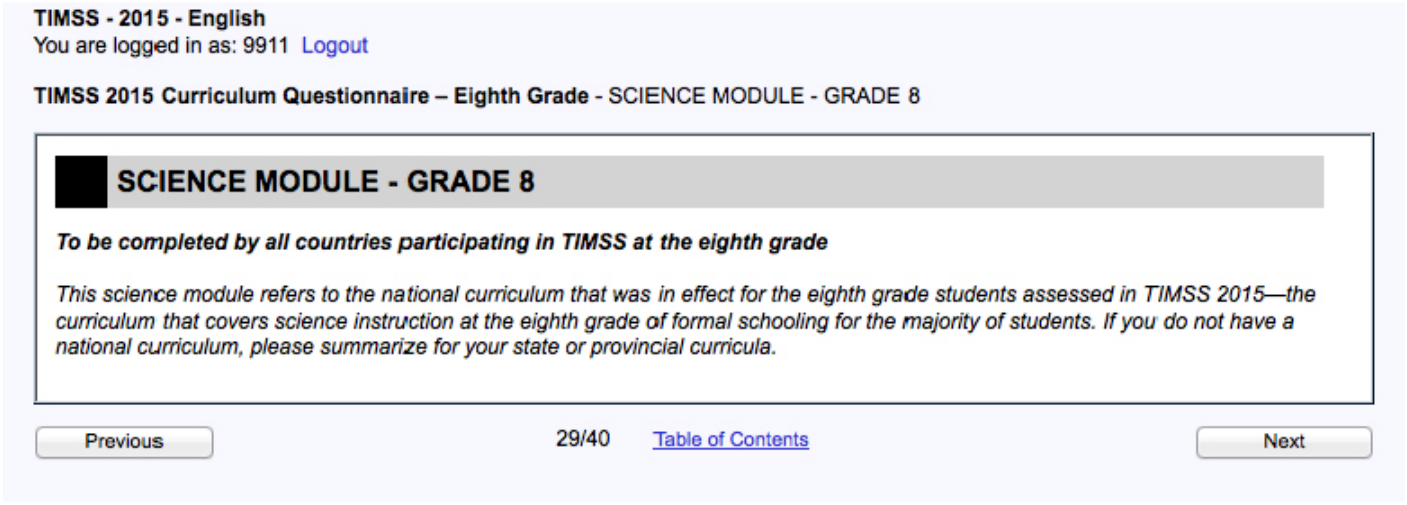

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - About the Eighth Grade Science Curriculum

About the Eighth Grade Science Curriculum

This science module refers to the national curriculum that was in effect for the eighth grade students assessed in TIMSS 2015—the curriculum that covers science instruction at the eighth grade of formal schooling for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

S1. Does your country have a national curriculum that covers science instruction at the eighth grade of formal schooling?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes…
Comments:

If No…
What is the highest level of decision-making authority (e.g., state or province) that provides a curriculum that covers science instruction at the eighth grade of formal schooling?

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - About the Eighth Grade Science Curriculum

S2. A. In what year was the 2014/2015 science curriculum introduced?

Comments:

B. Is the science curriculum currently being revised?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes…
Please explain:

If No…
Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

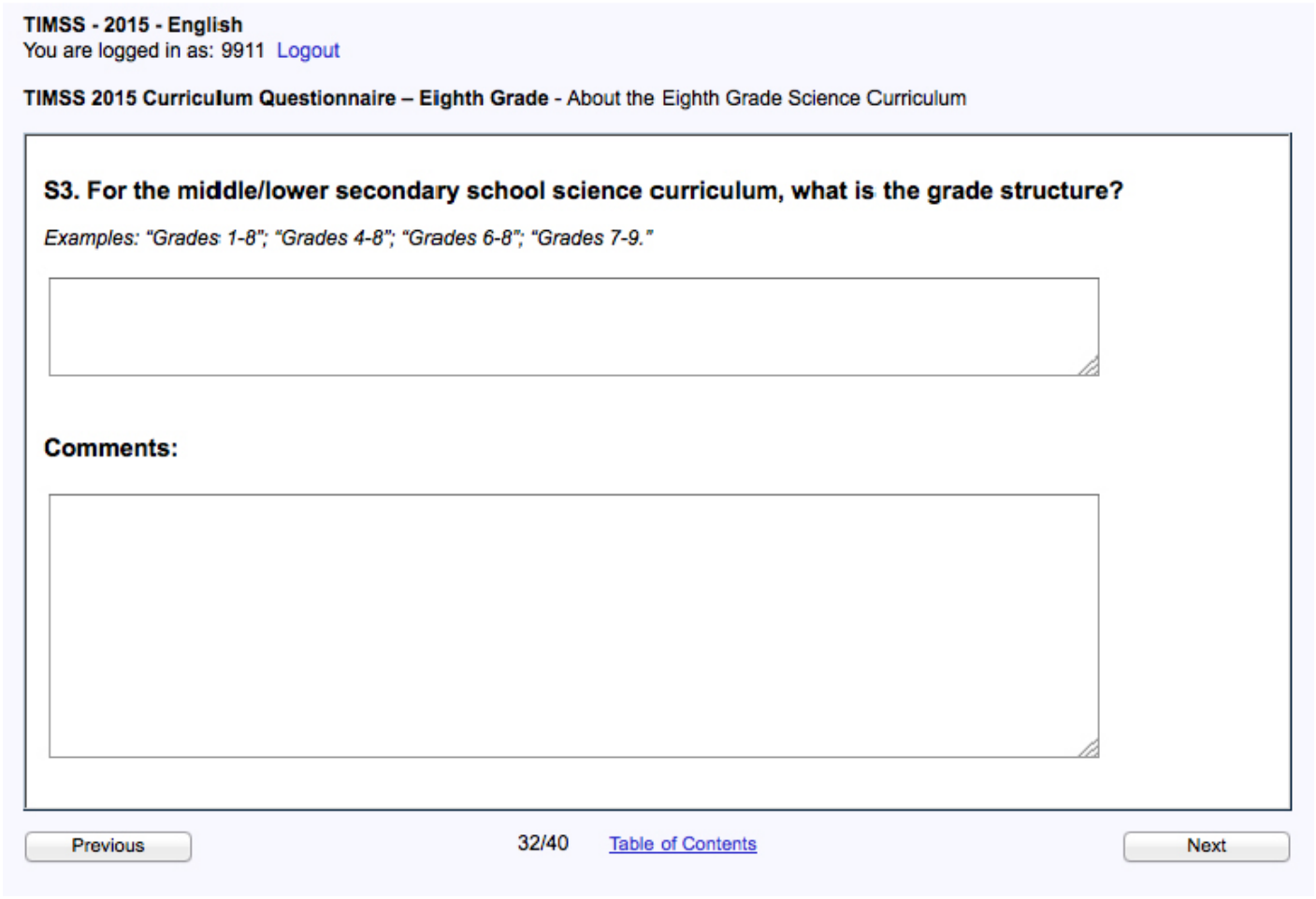

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Curriculum Specifications

Curriculum Specifications

This science module refers to the national curriculum that was in effect for the eighth grade students assessed in TIMSS 2015—the curriculum that covers science instruction at the eighth grade of formal schooling for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

S4. What does the science curriculum prescribe?

*Check **one** circle for each line.*

	Yes	No
a) Goals and objectives	○	○
b) Instructional processes or methods	○	○
c) Materials (e.g., textbooks, instructional materials)	○	○
d) Assessment methods/activities	○	○
e) Other Please specify below:	○	○

Comments:

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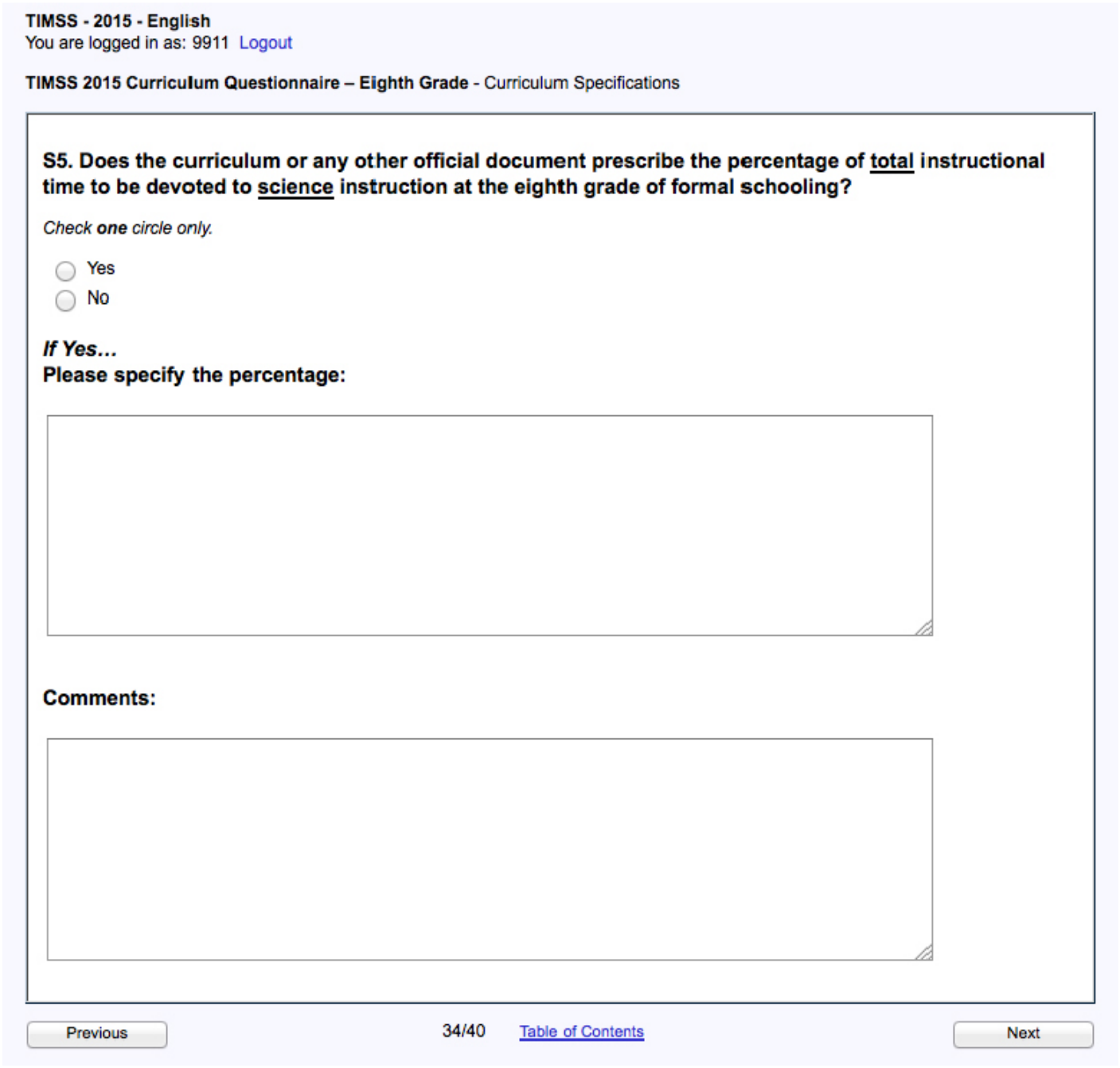
Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued



TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Curriculum Specifications

S5. Does the curriculum or any other official document prescribe the percentage of total instructional time to be devoted to science instruction at the eighth grade of formal schooling?

*Check **one** circle only.*

- Yes
- No

If Yes…
Please specify the percentage:

Comments:

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Curriculum Specifications

S6. How is the science curriculum implementation evaluated?

*Check **one** circle for each line.*

	Yes	No
a) Visits by inspectors	○	○
b) Research programs	○	○
c) School self-evaluation	○	○
d) National or regional examinations	○	○
e) Other Please specify below:	○	○

Comments:

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Instructional Materials and Use of Technology

Instructional Materials and Use of Technology

This science module refers to the national curriculum that was in effect for the eighth grade students assessed in TIMSS 2015—the curriculum that covers science instruction at the eighth grade of formal schooling for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

S7. A. Is there a process for approving the science instructional materials?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes…
Please describe the process, and what materials (e.g., textbooks, workbooks, online materials) must be approved through this process:

B. Does the national curriculum contain statements/policies about the use of technology (e.g., computers, tablets, calculators) in grade 8 science instruction?

*Check **one** circle only.*

- ○ Yes
- ○ No

If Yes…
What are the statements/policies?

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Eighth Grade Science Topics Covered

Eighth Grade Science Topics Covered

This science module refers to the national curriculum that was in effect for the eighth grade students assessed in TIMSS 2015—the curriculum that covers science instruction at the eighth grade of formal schooling for the majority of students. If you do not have a national curriculum, please summarize for your state or provincial curricula.

S8. (i) According to the national science curriculum, what proportion of grade 8 students should have been taught each of the following topics or skills by the end of grade 8?

Be sure to include curriculum expectations for all grades up to and including grade 8. Grades represent years of formal schooling. For example, if "Year 9" in your country corresponds to the eighth year of formal schooling, please choose grade 8.

(ii) Across grades from preprimary through upper secondary education, at what grade(s) are the topics primarily intended to be taught?

If there are not any specifications to this detail, please indicate national expectations to the best of your ability. If part of a topic does not apply [e.g., energy flow in part A topic (f)], please explain in the comment field.

	(i) Proportion of grade 8 students expected to be taught topic			**(ii) Grade(s) topic is expected to be taught** preprimary (PP) through the end of upper secondary (G12)												
	*Check **one** circle for each line.*			*Check the corresponding grade(s) for each topic*												
A. Biology	**All or almost all students**	**Only the more able students**	**Not included in the curriculum through grade 8**	**PP**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**	**G7**	**G8**	**G9**	**G10**	**G11**	**G12**
a) Differences among major taxonomic groups of organisms (plants, animals, fungi, mammals, birds, reptiles, fish, amphibians)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Major organs and organ systems in humans and other organisms (structure/function, life processes that maintain stable bodily conditions)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Cells, their structure and functions, including respiration and photosynthesis as cellular processes	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Life cycles, sexual reproduction, and heredity (passing on of traits, inherited versus acquired/learned characteristics)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

e) Role of variation and adaptation in survival/extinction of species in a changing environment (including fossil evidence for changes in life on Earth over time)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f) Interdependence of populations of organisms in an ecosystem (e.g., energy flow, food webs, competition, predation) and factors affecting population size in an ecosystem	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
g) Human health (causes of infectious diseases, methods of infection, prevention, immunity) and the importance of diet and exercise in maintaining health	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

(Continued on Next Page)

TIMSS - 2015 - English *(Continued)*
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Eighth Grade Science Topics Covered

Comments:

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Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Eighth Grade Science Topics Covered

S8. (continued)

(i) According to the national science curriculum, what proportion of grade 8 students should have been taught each of the following topics or skills by the end of grade 8?

Be sure to include curriculum expectations for all grades up to and including grade 8. Grades represent years of formal schooling. For example, if "Year 9" in your country corresponds to the eighth year of formal schooling, please choose grade 8.

(ii) Across grades from preprimary through upper secondary education, at what grade(s) are the topics primarily intended to be taught?

If there are not any specifications to this detail, please indicate national expectations to the best of your ability. If part of a topic does not apply [e.g., energy flow in part A topic (f)], please explain in the comment field.

	(i) Proportion of grade 8 students expected to be taught topic			**(ii) Grade(s) topic is expected to be taught** preprimary (PP) through the end of upper secondary (G12)												
	*Check **one** circle for each line.*			*Check the corresponding grade(s) for each topic*												
B. Chemistry	**All or almost all students**	**Only the more able students**	**Not included in the curriculum through grade 8**	**PP**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**	**G7**	**G8**	**G9**	**G10**	**G11**	**G12**
a) Classification, composition, and particulate structure of matter (elements, compounds, mixtures, molecules, atoms, protons, neutrons, electrons)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Physical and chemical properties of matter	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Mixtures and solutions (solvent, solute, concentration/dilution, effect of temperature on solubility)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Properties and uses of common acids and bases	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e) Chemical change (transformation of reactants, evidence of chemical change, conservation of matter, common oxidation reactions – combustion, rusting, tarnishing)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f) The role of electrons in chemical bonds	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Eighth Grade Science Topics Covered

S8. (continued)
(i) According to the national science curriculum, what proportion of grade 8 students should have been taught each of the following topics or skills by the end of grade 8?

Be sure to include curriculum expectations for all grades up to and including grade 8. Grades represent years of formal schooling. For example, if "Year 9" in your country corresponds to the eighth year of formal schooling, please choose grade 8.

(ii) Across grades from preprimary through upper secondary education, at what grade(s) are the topics primarily intended to be taught?

If there are not any specifications to this detail, please indicate national expectations to the best of your ability. If part of a topic does not apply [e.g., energy flow in part A topic (f)], please explain in the comment field.

	(i) Proportion of grade 8 students expected to be taught topic			(ii) Grade(s) topic is expected to be taught preprimary (PP) through the end of upper secondary (G12)												
	*Check **one** circle for each line.*			*Check the corresponding grade(s) for each topic*												
C. Physics	**All or almost all students**	**Only the more able students**	**Not included in the curriculum through grade 8**	**PP**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**	**G7**	**G8**	**G9**	**G10**	**G11**	**G12**
a) Physical states and changes in matter (explanations of properties in terms of movement and distance between particles; phase change, thermal expansion, and changes in volume and/or pressure)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Energy forms, transformations, heat, and temperature	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Basic properties/ behaviors of light (reflection, refraction, light and color, simple ray diagrams) and sound (transmission through media, loudness, pitch, amplitude, frequency)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Electric circuits (flow of current; types of circuits - parallel/ series) and properties and uses of permanent magnets and electromagnets	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e) Forces and motion (types of forces, basic description of motion, effects of density and pressure)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

TIMSS - 2015 - English
You are logged in as: 9911 Logout

TIMSS 2015 Curriculum Questionnaire – Eighth Grade - Eighth Grade Science Topics Covered

S8. (continued)
(i) According to the national science curriculum, what proportion of grade 8 students should have been taught each of the following topics or skills by the end of grade 8?

Be sure to include curriculum expectations for all grades up to and including grade 8. Grades represent years of formal schooling. For example, if "Year 9" in your country corresponds to the eighth year of formal schooling, please choose grade 8.

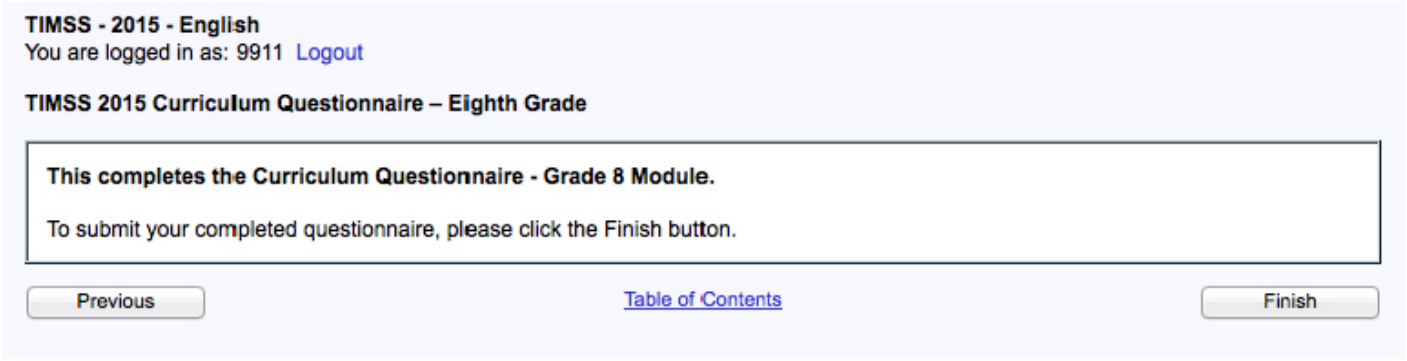
(ii) Across grades from preprimary through upper secondary education, at what grade(s) are the topics primarily intended to be taught?

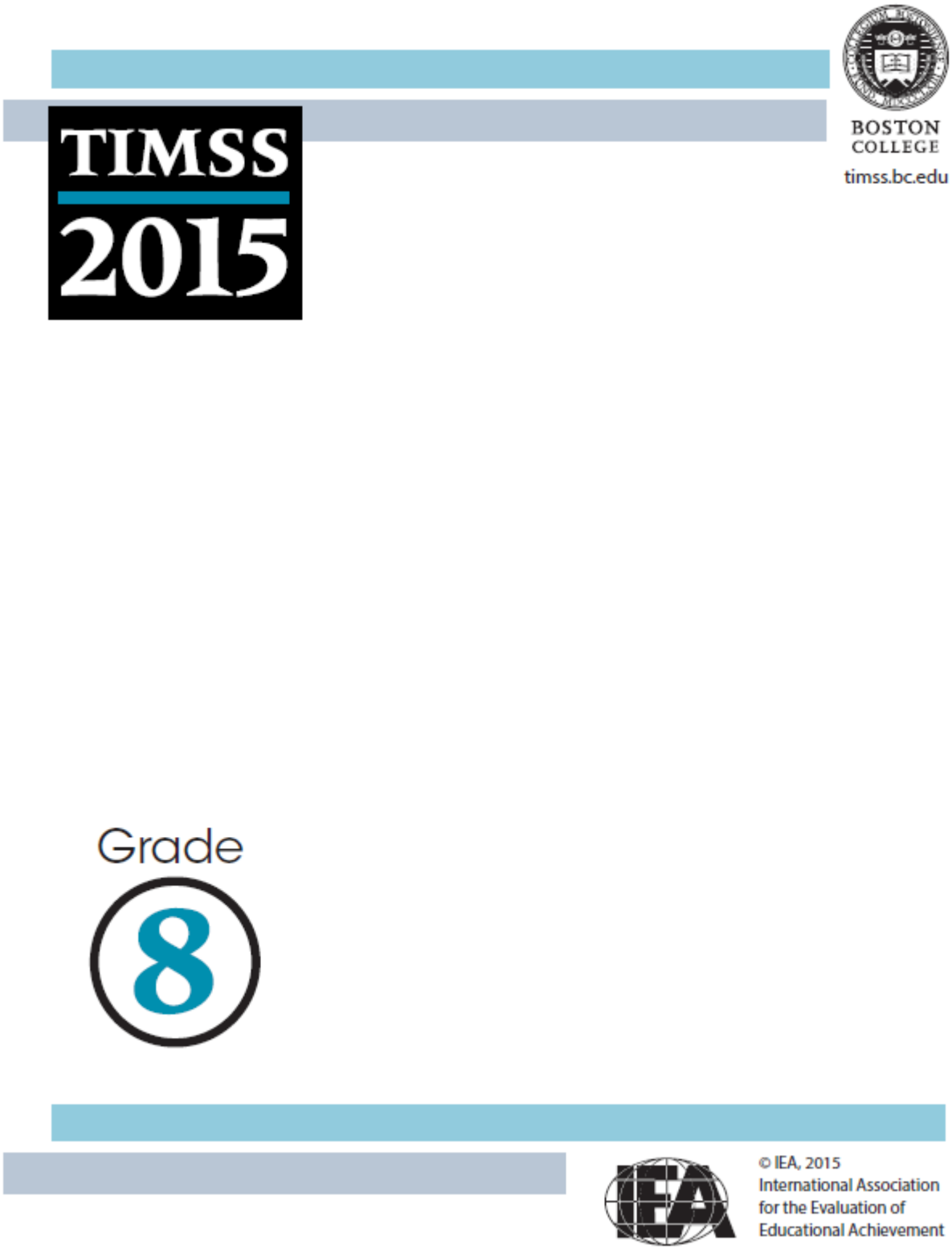
If there are not any specifications to this detail, please indicate national expectations to the best of your ability. If part of a topic does not apply [e.g., energy flow in part A topic (f)], please explain in the comment field.

	(i) Proportion of grade 8 students expected to be taught topic			**(ii) Grade(s) topic is expected to be taught** preprimary (PP) through the end of upper secondary (G12)												
	*Check **one** circle for each line.*			*Check the corresponding grade(s) for each topic*												
D. Earth Science	**All or almost all students**	**Only the more able students**	**Not included in the curriculum through grade 8**	**PP**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**	**G7**	**G8**	**G9**	**G10**	**G11**	**G12**
a) Earth's structure and physical features (Earth's crust, mantle, and core; composition and relative distribution of water, and composition of air)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Earth's processes, cycles, and history (rock cycle; water cycle; weather versus climate; major geological events; formation of fossils and fossil fuels)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Earth's resources, their use and conservation (e.g., renewable/ nonrenewable resources, human use of land/soil, water resources)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Earth in the solar system and the universe (phenomena on Earth - day/night, tides, phases of moon, eclipses, seasons; physical features of Earth compared to other bodies)	○	○	○	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Exhibit D-9. TIMSS 2015 Grade 8 Curriculum Questionnaire—Continued

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TIMSS Advanced 2015

Place Label Here

School ID ____ ____ ____ ____

Checksum ___ ___ ___ ___ ___

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

School Questionnaire

National Center for Education Statistics
U.S. Department of Education
1990 K St. NW
Washington, DC 20006-5650

TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

U.S. participation in this study is sponsored by the National Center for Education Statistics (NCES), U.S. Department of Education, and authorized by the Education Sciences Reform Act of 2002 (20 U.S.C., § 9543). Your responses are protected by federal statute (20 U.S.C., § 9573) and may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this voluntary information collection is 1850-0695. The time required to complete this information collection is estimated to average 30 minutes per respondent, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. **If you have any comments concerning the accuracy of the time estimate(s), suggestions for improving the form, or comments or concerns regarding the status of your individual submission of this form, write directly to:** Trends in International Mathematics and Science Study (TIMSS), National Center for Education Statistics, U.S. Department of Education, 1990 K Street, N.W., Washington, D.C. 20006. OMB No. 1850-0695, Approval Expires 9/30/2017.

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School *Questionnaire*

Your school has agreed to participate in TIMSS Advanced 2015 (Trends in International Mathematics and Science Study), an educational research project sponsored by the International Association for the Evaluation of Educational Achievement (IEA). TIMSS Advanced measures trends in student achievement in advanced mathematics and physics and studies differences in national education systems in order to help improve teaching and learning worldwide.

This questionnaire is addressed to school principals and department heads who are asked to supply information about their schools. Since your school has been selected as part of a nationwide sample, your responses are very important in helping to describe the school system in the United States.

It is important that you answer each question carefully so that the information provided reflects the situation in your school as accurately as possible. Some of the questions will require that you look up school records, so you may wish to arrange for the assistance of another staff member to help provide this information.

Since TIMSS Advanced is an international study and all countries are using the same questionnaire, you may find that some of the questions seem unusual or are not entirely relevant to you or schools in the United States. Nevertheless, it is important that you do your best to answer all of the questions so comparisons can be made across countries in the study.

It is estimated that you will need approximately 30 minutes to complete this questionnaire. We appreciate the time and effort that this takes and thank you for your cooperation and contribution.

When you have completed the questionnaire, please place it in the accompanying envelope and return it to the TIMSS school coordinator.

NCES is authorized to collect information from the questionnaire under the Education Science Reform Act of 2002 (ESRA 2002), 20 U.S. Code, § 9543. You do not have to provide the information requested. However, the information you provide will help the U.S. Department of Education's ongoing efforts to understand better how the educational system in the United States compares to that in other countries. There are no penalties should you choose not to participate in this study. Your answers may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S. Code, § 9573). Your response will be combined with those from other participants to produce summary statistics and reports.

This survey is estimated to take an average of 30 minutes, including time for reviewing instructions, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing burden, to: Stephen Provasnik, National Center for Education Statistics, U.S. Department of Education, 1990 K Street NW, Room 8123, Washington, DC 20006-5650. Do not return the completed form to this address.

Thank you.

TIMSS ADVANCED 2015

School Enrollment and Characteristics

1

What is the total enrollment of students in your school as of March 1, 2015?

_____ students
Write in the number.

2

What is the total enrollment of <u>twelfth-grade</u> students in your school as of March 1, 2015?

_____ students
Write in the number.

3

Approximately what percentage of students in your school have the following backgrounds?

*Fill in only **one** circle for each row.*

	0 to 10%	11 to 25%	26 to 50%	More than 50%
a) Come from economically disadvantaged homes	①	②	③	④
b) Come from economically affluent homes	①	②	③	④

4

Around the 1st of October 2014, what percentage of students at this school were eligible to receive free or reduced-price lunches through the National School Lunch Program?

_____ percentage of students
Write in the number.

5

A. Approximately what percentage of students in your school have English as their native language?

*Fill in **one** circle only.*

More than 90% --- ①
76 to 90% --- ②
51 to 75% --- ③
26 to 50% --- ④
25% or less --- ⑤

B. Of the students currently enrolled in your school, what percentage has been identified as limited-English proficient (LEP)/English language learners (ELL)?

*Fill in **one** circle only.*

0% -- ①
1 - 5% -- ②
6 - 10% -- ③
11 - 25% -- ④
26 - 50% -- ⑤
51 - 75% -- ⑥
76 - 90% -- ⑦
Over 90% -- ⑧

5

6

What type of school is this?

*Fill in **one** circle only.*

- Regular public school -- ①
- A regular public school with a magnet program -- ②
- A magnet school or school with a special program emphasis (e.g., Montessori, science/math school, performing arts school, talented/gifted school, foreign language immersion school) -- ③
- Special education: a school that primarily serves students with disabilities -- ④
- Alternative: a school designed to address the needs of students, typically at risk of educational failure, which cannot be met in regular schools -- ⑤
- Vocational -- ⑥
- Charter School -- ⑦
- Private (independent) -- ⑧
- Private (religiously affiliated) -- ⑨
- Other -- ⓪

7

A. How many people live in the city, town, or area where your school is located?

*Fill in **one** circle only.*

- More than 500,000 people --- ①
- 100,001 to 500,000 people --- ②
- 50,001 to 100,000 people --- ③
- 30,001 to 50,000 people --- ④
- 15,001 to 30,000 people --- ⑤
- 3,001 to 15,000 people --- ⑥
- 3,000 people or fewer --- ⑦

B. Which best describes the immediate area in which your school is located?

*Fill in **one** circle only.*

- Urban–Densely populated --- ①
- Suburban–On fringe or outskirts of urban area --- ②
- Medium size city or large town --- ③
- Small town or village --- ④
- Remote rural --- ⑤

8

What percentage of twelfth-grade students in your school are taking each of the following?

Write in the percent.

a) Advanced mathematics, such as calculus courses ---------- _____%

b) Advanced physics, such as college preparatory physics or AP Physics ---------- _____%

9

Does your school have a special program or track to prepare students for courses such as calculus or advanced physics?

*Fill in **one** circle only.*

- Yes --- ①
- No --- ②

Instructional Time

10

For the twelfth-grade students in your school:

A. How many <u>days per year</u> is your school open for instruction?

_____ days
Write in the number.

B. What is the <u>total instructional time</u>, excluding breaks, in a <u>typical day</u>?

_____ hours _____ minutes
Write in the number of hours and minutes per day.

C. In one <u>calendar week</u>, how many days is the school open for instruction?

*Fill in **one** circle only.*

- 6 days --- ①
- 5 1/2 days --- ②
- 5 days --- ③
- 4 1/2 days --- ④
- 4 days --- ⑤
- Other --- ⑥

Resources and Technology

11

How much is your school's capacity to provide instruction affected by a shortage or inadequacy of the following?

*Fill in only **one** circle for each row.*

	Not at all	A little	Some	A lot
A. General School Resources				
a) Instructional materials (e.g., textbooks)	①	②	③	④
b) Supplies (e.g., papers, pencils, materials)	①	②	③	④
c) School buildings and grounds	①	②	③	④
d) Heating/cooling and lighting systems	①	②	③	④
e) Instructional space (e.g., classrooms)	①	②	③	④
f) Technologically competent staff	①	②	③	④
g) Audio-visual resources for delivery of instruction (e.g., interactive white boards, digital projectors)	①	②	③	④
h) Computer technology for teaching and learning (e.g., computers or tablets for student use)	①	②	③	④
i) Resources for students with disabilities	①	②	③	④

*Fill in only **one** circle for each row.*

	Not at all	A little	Some	A lot
B. Resources for Advanced Mathematics Instruction				
a) Teachers with a specialization in advanced mathematics	①	②	③	④
b) Computer software/ applications for advanced mathematics instruction	①	②	③	④
c) Library resources relevant to advanced mathematics instruction	①	②	③	④
d) Calculators for advanced mathematics instruction	①	②	③	④
C. Resources for Physics Instruction				
a) Teachers with a specialization in physics	①	②	③	④
b) Computer software/ applications for physics instruction	①	②	③	④
c) Library resources relevant to physics instruction	①	②	③	④
d) Calculators for physics instruction	①	②	③	④
e) Physics equipment and materials for experiments	①	②	③	④

School Emphasis on Advanced Mathematics and Physics Education

12

How much do you agree with these statements about advanced mathematics and physics education within your school?

*Fill in only **one** circle for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) The school encourages students to study advanced mathematics and physics	1	2	3	4
b) The school promotes professional development for teachers of advanced mathematics and physics	1	2	3	4
c) The school provides students with information about career options in advanced mathematics and physics	1	2	3	4
d) The school has initiatives to promote student interest in advanced mathematics and physics (e.g., student clubs, competitions)	1	2	3	4
e) The school has partnership initiatives with industry/ businesses in advanced mathematics and physics	1	2	3	4
f) Advanced mathematics and physics teachers are admired by other teachers in the school	1	2	3	4
g) Students at this school respect students who excel in advanced mathematics and physics	1	2	3	4

School Discipline and Safety

13

To what degree is each of the following a problem among twelfth-grade students in your school?

*Fill in only **one** circle for each row.*

	Not a problem	Minor problem	Moderate problem	Serious problem
a) Arriving late at school	1	2	3	4
b) Absenteeism (i.e., unjustified absences)	1	2	3	4
c) Classroom disturbance	1	2	3	4
d) Cheating	1	2	3	4
e) Profanity	1	2	3	4
f) Vandalism	1	2	3	4
g) Theft	1	2	3	4
h) Intimidation or verbal abuse among students (including texting, emailing, etc.)	1	2	3	4
i) Physical injury to other students	1	2	3	4
j) Intimidation or verbal abuse of teachers or staff (including texting, emailing, etc.)	1	2	3	4
k) Physical injury to teachers or staff	1	2	3	4

Teachers in Your School

14

How difficult was it to fill teaching vacancies for this school year for the following subjects?

*Fill in only **one** circle for each row.*

	Were no vacancies in this subject	Easy to fill vacancies	Somewhat difficult	Very difficult
a) Advanced mathematics, such as calculus	1	2	3	4
b) Advanced physics, such as college preparatory physics or AP Physics	1	2	3	4
c) Computer science/ information technology	1	2	3	4
d) Other	1	2	3	4

15

Does your school currently use any incentives (e.g., pay, housing, signing bonus, smaller classes) to recruit or retain teachers in the following fields?

*Fill in only **one** circle for each row.*

	Yes	No
a) Advanced mathematics, such as calculus	1	2
b) Advanced physics, such as college preparatory physics or AP Physics	1	2
c) Computer science/information technology	1	2
d) Other	1	2

16

To what degree is each of the following a problem among teachers in your school?

*Fill in only **one** circle for each row.*

	Not a problem	Minor problem	Moderate problem	Serious problem
a) Arriving late or leaving early	1	2	3	4
b) Absenteeism	1	2	3	4

Principal Experience and Education

17

By the end of this school year, how many years altogether will you have been a principal?

_____ years

*Please **round** to the nearest whole number.*

18

By the end of this school year, how many years will you have been a principal at this school?

_____ years

*Please **round** to the nearest whole number.*

19

What is the highest level of formal education you have completed?

*Fill in only **one** circle only.*

- Did not complete Bachelor's degree (4-year college program) --- 1
- Bachelor's degree (4-year college program) --- 2
- Master's degree or professional degree (MD, DDS, lawyer, minister) --- 3
- Doctorate (Ph.D., or Ed.D.) --- 4

20

Do you hold the following degrees in educational leadership?

*Fill in only **one** circle for each row.*

	Yes	No
a) Master's degree or professional degree (MD, DDS, lawyer, minister)	1	2
b) Doctorate (Ph.D., or Ed.D.)	1	2

Thank You

Thank you for the thought, time, and effort you have put into completing this questionnaire.

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Exhibit D-10. TIMSS Advanced 2015 School Questionnaire—Continued

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BOSTON COLLEGE

TIMSS Advanced 2015

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

School Questionnaire

International Association for the Evaluation of Educational Achievement

timss.bc.edu

Place Label Here

School ID: ____ ____ ____ ____

Class ID: ____ ____ ____ ____ ____ ____

Teacher ID: ____ ____ ____ ____ ____ ____

Link #: ____ ____ Subject: ____ ____

Checksum: ____ ____ ____ ____ ____

TIMSS Advanced 2015

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire Advanced Mathematics

National Center for Education Statistics
U.S. Department of Education
1990 K St. NW
Washington, DC 20006-5650

TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

U.S. participation in this study is sponsored by the National Center for Education Statistics (NCES), U.S. Department of Education, and authorized by the Education Sciences Reform Act of 2002 (20 U.S.C., § 9543). Your responses are protected by federal statute (20 U.S.C., § 9573) and may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this voluntary information collection is 1850-0695. The time required to complete this information collection is estimated to average 30 minutes per respondent, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. **If you have any comments concerning the accuracy of the time estimate(s), suggestions for improving the form, or comments or concerns regarding the status of your individual submission of this form, write directly to:** Trends in International Mathematics and Science Study (TIMSS), National Center for Education Statistics, U.S. Department of Education, 1990 K Street, N.W., Washington, D.C. 20006. OMB No. 1850-0695, Approval Expires 9/30/2017.

869866 Printed in the USA by Pearson ISD10752

Teacher *Questionnaire—Advanced Mathematics*

Your school has agreed to participate in TIMSS Advanced 2015 (Trends in International Mathematics and Science Study), an educational research project sponsored by the International Association for the Evaluation of Educational Achievement (IEA). TIMSS Advanced measures trends in student achievement in advanced mathematics and physics and studies differences in national education systems in order to help improve teaching and learning worldwide.

This questionnaire is addressed to teachers of twelfth-grade students who have taken or are taking a calculus course. It seeks information about teachers' academic and professional backgrounds, classroom resources, instructional practices, and attitudes toward teaching. Since your class has been selected as part of a nationwide sample, your responses are very important in helping to describe the school system in the United States.

Some of the questions in the questionnaire refer to the "**TIMSS class**" or "**this class**." This is the class that is identified on the front of this booklet and that will be tested as part of TIMSS Advanced in your school. It is important that you answer each question carefully so that the information that you provide reflects your situation as accurately as possible.

Since TIMSS Advanced is an international study and all countries are using the same questionnaire, you may find that some of the questions seem unusual or are not entirely relevant to you or schools in the United States. Nevertheless, it is important that you do your best to answer all of the questions so comparisons can be made across countries in the studies.

It is estimated that you will need approximately 30 minutes to complete this questionnaire. We appreciate the time and effort that this takes and thank you for your cooperation and contribution.

When you have completed the questionnaire, please place it in the accompanying envelope and return it to the TIMSS school coordinator.

NCES is authorized to collect information from the questionnaire under the Education Science Reform Act of 2002 (ESRA 2002), 20 U.S. Code, § 9543. You do not have to provide the information requested. However, the information you provide will help the U.S. Department of Education's ongoing efforts to understand better how the educational system in the United States compares to that in other countries. There are no penalties should you choose not to participate in this study. Your answers may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S. Code, § 9573). Your response will be combined with those from other participants to produce summary statistics and reports.

This survey is estimated to take an average of 30 minutes, including time for reviewing instructions, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing burden, to: Stephen Provasnik, National Center for Education Statistics, U.S. Department of Education, 1990 K Street NW, Room 8123, Washington, DC 20006-5650. Do not return the completed form to this address.

Thank you.

TIMSS ADVANCED 2015

About You

1

A. What year did you start teaching?

_____
Please write in a year.

B. At the end of this school year, how many years will you have taught altogether?

_____ years
*Please **round** to the nearest whole number.*

2

Are you female or male?

*Fill in **one** circle only.*

Female --- ①
Male --- ②

3

How old are you?

*Fill in **one** circle only.*

Under 25 --- ①
25–29 --- ②
30–39 --- ③
40–49 --- ④
50–59 --- ⑤
60 or more --- ⑥

4

What is the highest level of formal education you have completed?

*Fill in **one** circle only.*

Did not complete a college degree --- ① →

(If you have not completed a college degree, go to question 6)

Associate's degree (2-year college program) --- ②
Bachelor's degree (4-year college program) --- ③
Master's degree or professional degree (MD, DDS, lawyer, minister) --- ④
Doctorate (Ph.D., or Ed.D.) --- ⑤

5

During your college or university education, what was your major or main area(s) of study?

*Fill in only **one** circle for each row.*

	Yes	No
a) Mathematics	①	②
b) Physics	①	②
c) Biology	①	②
d) Chemistry	①	②
e) Earth Science	①	②
f) Engineering	①	②
g) Education– Mathematics	①	②
h) Education– Physics	①	②
i) Education– Science	①	②
j) Education– General	①	②
k) Other	①	②

School Emphasis on Advanced Mathematics and Physics Education

6 **How much do you agree with these statements about advanced mathematics and physics education within your school?**

*Fill in only **one** circle for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) The school encourages students to study advanced mathematics and physics	1	2	3	4
b) The school promotes professional development for teachers of advanced mathematics and physics	1	2	3	4
c) The school provides students with information about career options in advanced mathematics and physics	1	2	3	4
d) Advanced mathematics and physics teachers are admired by other teachers in the school	1	2	3	4
e) Teachers have high expectations for student achievement in advanced mathematics and physics	1	2	3	4
f) Students at this school respect students who excel in advanced mathematics and physics	1	2	3	4
g) Parents expect their children to study advanced mathematics and physics	1	2	3	4

School Environment

7 **Thinking about your current school, indicate the extent to which you agree or disagree with each of the following statements.**

*Fill in only **one** circle for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) This school is located in a safe neighborhood	1	2	3	4
b) I feel safe at this school	1	2	3	4
c) This school's security policies and practices are sufficient	1	2	3	4
d) The students behave in an orderly manner	1	2	3	4
e) The students are respectful of the teachers	1	2	3	4
f) The students respect school property	1	2	3	4
g) This school has clear rules about student conduct	1	2	3	4
h) This school's rules are enforced in a fair and consistent manner	1	2	3	4

About Being a Teacher

8

In your current school, how severe is each problem?

*Fill in only **one** circle for each row.*

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair	1	2	3	4
b) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students)	1	2	3	4
c) Teachers do not have adequate instructional materials and supplies	1	2	3	4
d) The school classrooms are not cleaned often enough	1	2	3	4
e) The school classrooms need maintenance work	1	2	3	4
f) Teachers do not have adequate technological resources	1	2	3	4
g) Teachers do not have adequate support for using technology	1	2	3	4

9

How often do you have the following types of interactions with other teachers?

*Fill in only **one** circle for each row.*

	Very often	Often	Sometimes	Never or almost never
a) Discuss how to teach a particular topic	1	2	3	4
b) Collaborate in planning and preparing instructional materials	1	2	3	4
c) Share what I have learned about my teaching experiences	1	2	3	4
d) Visit another classroom to learn more about teaching	1	2	3	4
e) Work together to try out new ideas	1	2	3	4
f) Work as a group on implementing the curriculum	1	2	3	4
g) Work with teachers from other grades to ensure continuity in learning	1	2	3	4

10

How often do you feel the following way about being a teacher?

*Fill in only **one** circle for each row.*

	Very often	Often	Sometimes	Never or almost never
a) I am content with my profession as a teacher	1	2	3	4
b) I am satisfied with being a teacher at this school	1	2	3	4
c) I find my work full of meaning and purpose	1	2	3	4
d) I am enthusiastic about my job	1	2	3	4
e) My work inspires me	1	2	3	4
f) I am proud of the work I do	1	2	3	4
g) I am going to continue teaching for as long as I can	1	2	3	4

11

Indicate the extent to which you agree or disagree with each of the following statements.

*Fill in only **one** circle for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) There are too many students in the classes	1	2	3	4
b) I have too much material to cover in class	1	2	3	4
c) I have too many teaching hours	1	2	3	4
d) I need more time to prepare for class	1	2	3	4
e) I need more time to assist individual students	1	2	3	4
f) I feel too much pressure from parents	1	2	3	4
g) I have difficulty keeping up with all of the changes to the curriculum	1	2	3	4
h) I have too many administrative tasks	1	2	3	4

About Teaching the TIMSS Class

If you teach more than one advanced mathematics or physics class, select <u>one</u> of your classes and keep it in mind as you answer questions 12 through 15.

12

How many students are in this class?

_____ students
Write in the number.

13

How many students in this class experience difficulties understanding <u>spoken</u> English?

_____ students in this class
Write in the number.

14

How often do you do the following in teaching this class?

*Fill in only **one** circle for each row.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Relate the lesson to students' daily lives	1	2	3	4
b) Ask students to explain their answers	1	2	3	4
c) Ask students to complete challenging exercises that require them to go beyond the instruction	1	2	3	4
d) Encourage classroom discussions among students	1	2	3	4
e) Link new content to students' prior knowledge	1	2	3	4
f) Ask students to decide their own problem solving procedures	1	2	3	4
g) Encourage students to express their ideas in class	1	2	3	4

15

In your view, to what extent do the following limit how you teach this class?

*Fill in only **one** circle for each row.*

	Not at all	Some	A lot
a) Students lacking prerequisite mathematics knowledge or skills	1	2	3
b) Students suffering from lack of basic nutrition	1	2	3
c) Students suffering from not enough sleep	1	2	3
d) Students with physical disabilities	1	2	3
e) Students with mental, emotional, or psychological disabilities	1	2	3

Teaching Advanced Mathematics to the TIMSS Class

If you teach more than one advanced mathematics class, select <u>one</u> of your classes and keep it in mind as you answer questions 16 through 19.

16

In a typical week, how much time do you spend teaching advanced mathematics to the students in this class?

_____ minutes per week

Write in the number of minutes per week.
Please convert the number of instructional hours or periods into minutes.

17

How many minutes per week do you usually spend preparing to teach this class?

_____ minutes per week

Write in the number of minutes per week.
Please convert the number of hours into minutes.

18

In teaching advanced mathematics to this class, how would you characterize your confidence in doing the following?

*Fill in only **one** circle for each row.*

	Very high	High	Medium	Low
a) Inspiring students to learn advanced mathematics	1	2	3	4
b) Showing students a variety of problem solving strategies	1	2	3	4
c) Providing challenging tasks for the highest achieving students	1	2	3	4
d) Adapting my teaching to engage students' interest	1	2	3	4
e) Helping students appreciate the value of learning advanced mathematics	1	2	3	4
f) Assessing student comprehension of advanced mathematics	1	2	3	4
g) Improving the understanding of struggling students	1	2	3	4
h) Making advanced mathematics relevant to students	1	2	3	4
i) Developing students' higher-order thinking skills	1	2	3	4

Technology for Teaching Mathematics to the TIMSS Class

19

In teaching advanced mathematics to this class, how often do you ask students to do the following?

*Fill in only **one** circle for each row.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Listen to me explain new mathematics content	1	2	3	4
b) Listen to me explain how to solve problems	1	2	3	4
c) Memorize rules, formulas, procedures, and facts	1	2	3	4
d) Work problems (individually or with peers) with my guidance	1	2	3	4
e) Work problems together in the whole class with direct guidance from me	1	2	3	4
f) Work problems (individually or with peers) while I am occupied by other tasks	1	2	3	4
g) Solve problems like the examples in their textbooks	1	2	3	4
h) Discuss problem solving strategies	1	2	3	4
i) Work on problems for which there is no immediately obvious method of solution	1	2	3	4
j) Communicate their arguments	1	2	3	4
k) Take a written test or quiz	1	2	3	4

Question 20 asks about technology for teaching mathematics to the students in the TIMSS class. If you teach more than one advanced mathematics class, select <u>one</u> of your classes and keep it in mind as you answer question 20.

20

A. Do the students in this class have computers, tablets, calculators, or smartphones available to use during their advanced mathematics lessons?

*Fill in **one** circle only.*

Yes -- 1

No -- 2 → **(If No, go to question 21)**

If Yes,

B. How often do you have the students do the following activities on computers, tablets, calculators, or smartphones during advanced mathematics lessons?

*Fill in only **one** circle for each row.*

	Every or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) Read the textbook or course materials in digital format	1	2	3	4
b) Look up ideas and information	1	2	3	4
c) Process and analyze data	1	2	3	4
d) Draw graphs of functions	1	2	3	4
e) Solve equations	1	2	3	4
f) Manipulate algebraic expressions	1	2	3	4
g) Conduct modeling and simulations	1	2	3	4
h) Perform numerical integration	1	2	3	4

Advanced Mathematics Topics Taught to the TIMSS Class

Question 21 asks about the topics taught and the content covered in teaching advanced mathematics to the students in the TIMSS class. If you teach more than one advanced mathematics class, select <u>one</u> of your classes and keep it in mind as you answer question 21.

21

The following list includes the main topics addressed by the TIMSS Advanced mathematics test. Choose the response that best describes when the students in this class have been taught each topic. If a topic was in the curriculum before this year, please choose "Mostly taught before this year." If a topic was taught half this year but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

*Fill in only **one** circle for each row.*

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
A. Algebra			
a) Operations with exponential, logarithmic, polynomial, rational, and radical expressions	①	②	③
b) Operations with complex numbers	①	②	③
c) Evaluating algebraic expressions (e.g., exponential, logarithmic, polynomial, rational, and radical)	①	②	③
d) The nth term of arithmetic and geometric sequences and the sums of finite and infinite series	①	②	③
e) Linear, simultaneous, and quadratic equations and inequalities; radical equations, logarithmic, and exponential equations	①	②	③
f) Slopes, y-axis intercepts, and points of intersection of straight lines	①	②	③
g Equivalent representations of functions, including composite functions, as ordered pairs, tables, graphs, formulas, or words	①	②	③
h) Properties of functions including domain and range	①	②	③
B. Calculus			
a) Limits of functions	①	②	③
b) Conditions for continuity and differentiability of functions	①	②	③
c) Differentiation of functions (including polynomial, exponential, logarithmic, trigonometric, rational, and radical functions); differentiation of products, quotients, and composite functions	①	②	③
d) Using derivatives to solve problems (e.g., in optimization and rates of change)	①	②	③
e) Using first and second derivatives to determine slope and local extrema of functions	①	②	③
f) Using derivatives to determine points of inflection of functions	①	②	③
g) Integrating functions (including polynomial, exponential, trigonometric, and rational functions); evaluating definite integrals, including calculation of areas	①	②	③
C. Geometry			
a) Properties of geometric figures in two and three dimensions	①	②	③
b) Properties of vectors and their sums and differences	①	②	③
c) Trigonometric properties of triangles (sine, cosine, and tangent)	①	②	③
d) Trigonometric functions and their graphs	①	②	③

Mathematics Homework for the TIMSS Class

Question 22 asks about mathematics homework for the students in the TIMSS class. If you teach more than one advanced mathematics class, select <u>one</u> of your classes and keep it in mind as you answer question 22.

22

A. Do you assign mathematics homework to this class?

*Fill in **one** circle only.*

Yes --- ①

No --- ② → **(If No, go to question 23)**

If Yes,

B. How often do you assign the following kinds of mathematics homework to this class?

*Fill in only **one** circle for each row.*

	Always or almost always	Sometimes	Never or almost never
a) Doing problem/question sets	①	②	③
b) Reading the textbook	①	②	③
c) Memorizing formulas and procedures	①	②	③
d) Gathering, analyzing, and reporting data	①	②	③
e) Finding one or more applications of the content covered	①	②	③
f) Working on projects	①	②	③

C. How often do you do the following with the mathematics homework assignments for this class?

*Fill in only **one** circle for each row.*

	Always or almost always	Sometimes	Never or almost never
a) Correct assignments and give feedback to students	①	②	③
b) Have students correct their own homework	①	②	③
c) Discuss the homework in class	①	②	③
d) Monitor whether or not the homework was completed	①	②	③
e) Use the homework to contribute towards students' grades or marks	①	②	③

Professional Development and Activities

23

In the past two years, have you participated in professional development in any of the following?

*Fill in only **one** circle for each row.*

	Yes	No
a) Mathematics content	1	2
b) Mathematics pedagogy/instruction	1	2
c) Mathematics curriculum	1	2
d) Integrating information technology into mathematics	1	2
e) Improving students' critical thinking or problem solving skills	1	2
f) Mathematics assessment	1	2
g) Addressing individual students' needs	1	2

24

In the past two years, how many hours in total have you spent in formal in-service/professional development (e.g., workshops, seminars) for mathematics?

*Fill in **one** circle only.*

- None --- 1
- Less than 6 hours --- 2
- 6–15 hours --- 3
- 16–35 hours --- 4
- More than 35 hours --- 5

25

By the end of this school year, how many years will you have taught mathematics at the advanced level?

_____ years

Number of years taught advanced mathematics

26

A. Are you a member of the National Council of Teachers of Mathematics (NCTM) or the Mathematics Association of America (MAA)?

*Fill in **one** circle only.*

- Yes --- 1
- No --- 2

B. In the past two years, have you regularly participated in activities sponsored by the National Council of Teachers of Mathematics (NCTM) or the Mathematics Association of America (MAA)?

*Fill in **one** circle only.*

- Yes --- 1
- No --- 2

27

In the past two years, have you taken part in any of the following activities in mathematics?

*Fill in only **one** circle for each row.*

	Yes	No
a) I attended a workshop or conference	1	2
b) I gave a presentation at a workshop or conference	1	2
c) I took part in an innovative project for curriculum and instruction	1	2

Thank You

Thank you for the thought, time, and effort you have put into completing this questionnaire.

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BOSTON COLLEGE

TIMSS Advanced 2015

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire Advanced Mathematics

International Association for the Evaluation of Educational Achievement

timss.bc.edu

TIMSS Advanced 2015

Place Label Here

School ID: ____ ____ ____ ____

Class ID: ____ ____ ____ ____ ____ ____

Teacher ID: ____ ____ ____ ____ ____ ____

Link #: ____ ____ Subject: ____ ____

Checksum: ____ ____ ____ ____ ____

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire Physics

National Center for Education Statistics
U.S. Department of Education
1990 K St. NW
Washington, DC 20006-5650

TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

U.S. participation in this study is sponsored by the National Center for Education Statistics (NCES), U.S. Department of Education, and authorized by the Education Sciences Reform Act of 2002 (20 U.S.C., § 9543). Your responses are protected by federal statute (20 U.S.C., § 9573) and may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this voluntary information collection is 1850-0695. The time required to complete this information collection is estimated to average 30 minutes per respondent, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. **If you have any comments concerning the accuracy of the time estimate(s), suggestions for improving the form, or comments or concerns regarding the status of your individual submission of this form, write directly to:** Trends in International Mathematics and Science Study (TIMSS), National Center for Education Statistics, U.S. Department of Education, 1990 K Street, N.W., Washington, D.C. 20006. OMB No. 1850-0695, Approval Expires 9/30/2017.
869865 Printed in the USA by Pearson ISD10751

Teacher *Questionnaire—Physics*

Your school has agreed to participate in TIMSS Advanced 2015 (Trends in International Mathematics and Science Study), an educational research project sponsored by the International Association for the Evaluation of Educational Achievement (IEA). TIMSS Advanced measures trends in student achievement in advanced mathematics and physics and studies differences in national education systems in order to help improve teaching and learning worldwide.

This questionnaire is addressed to teachers of twelfth-grade students who have taken or are taking a course in physics. It seeks information about teachers' academic and professional backgrounds, classroom resources, instructional practices, and attitudes toward teaching. Since your class has been selected as part of a nationwide sample, your responses are very important in helping to describe the school system in the United States.

Some of the questions in the questionnaire refer to the "**TIMSS class**" or "**this class**." This is the class that is identified on the front of this booklet and that will be tested as part of TIMSS Advanced in your school. It is important that you answer each question carefully so that the information that you provide reflects your situation as accurately as possible.

Since TIMSS Advanced is an international study and all countries are using the same questionnaire, you may find that some of the questions seem unusual or are not entirely relevant to you or schools in the United States. Nevertheless, it is important that you do your best to answer all of the questions so comparisons can be made across countries in the studies.

It is estimated that you will need approximately 30 minutes to complete this questionnaire. We appreciate the time and effort that this takes and thank you for your cooperation and contribution.

When you have completed the questionnaire, please place it in the accompanying envelope and return it to the TIMSS school coordinator.

NCES is authorized to collect information from the questionnaire under the Education Science Reform Act of 2002 (ESRA 2002), 20 U.S. Code, § 9543. You do not have to provide the information requested. However, the information you provide will help the U.S. Department of Education's ongoing efforts to understand better how the educational system in the United States compares to that in other countries. There are no penalties should you choose not to participate in this study. Your answers may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S. Code, § 9573). Your response will be combined with those from other participants to produce summary statistics and reports.

This survey is estimated to take an average of 30 minutes, including time for reviewing instructions, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing burden, to: Stephen Provasnik, National Center for Education Statistics, U.S. Department of Education, 1990 K Street NW, Room 8123, Washington, DC 20006-5650. Do not return the completed form to this address.

Thank you.

TIMSS ADVANCED 2015

About You

1

A. What year did you start teaching?

_____
Please write in a year.

B. At the end of this school year, how many years will you have taught altogether?

_____ years
*Please **round** to the nearest whole number.*

2

Are you female or male?

*Fill in **one** circle only.*

Female --- ①
Male --- ②

3

How old are you?

*Fill in **one** circle only.*

Under 25 --- ①
25–29 --- ②
30–39 --- ③
40–49 --- ④
50–59 --- ⑤
60 or more --- ⑥

4

What is the highest level of formal education you have completed?

*Fill in **one** circle only.*

Did not complete a college degree --- ① →

(If you have not completed a college degree, go to question 6)

Associate's degree (2-year college program) --- ②
Bachelor's degree (4-year college program) --- ③
Master's degree or professional degree (MD, DDS, lawyer, minister) --- ④
Doctorate (Ph.D., or Ed.D.) --- ⑤

5

During your college or university education, what was your major or main area(s) of study?

*Fill in only **one** circle for each row.*

	Yes	No
a) Mathematics	①	②
b) Physics	①	②
c) Biology	①	②
d) Chemistry	①	②
e) Earth Science	①	②
f) Engineering	①	②
g) Education– Mathematics	①	②
h) Education– Physics	①	②
i) Education– Science	①	②
j) Education– General	①	②
k) Other	①	②

School Emphasis on Advanced Mathematics and Physics Education

6 **How much do you agree with these statements about advanced mathematics and physics education within your school?**

*Fill in only **one** circle for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) The school encourages students to study advanced mathematics and physics	1	2	3	4
b) The school promotes professional development for teachers of advanced mathematics and physics	1	2	3	4
c) The school provides students with information about career options in advanced mathematics and physics	1	2	3	4
d) Advanced mathematics and physics teachers are admired by other teachers in the school	1	2	3	4
e) Teachers have high expectations for student achievement in advanced mathematics and physics	1	2	3	4
f) Students at this school respect students who excel in advanced mathematics and physics	1	2	3	4
g) Parents expect their children to study advanced mathematics and physics	1	2	3	4

School Environment

7 **Thinking about your current school, indicate the extent to which you agree or disagree with each of the following statements.**

*Fill in only **one** circle for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) This school is located in a safe neighborhood	1	2	3	4
b) I feel safe at this school	1	2	3	4
c) This school's security policies and practices are sufficient	1	2	3	4
d) The students behave in an orderly manner	1	2	3	4
e) The students are respectful of the teachers	1	2	3	4
f) The students respect school property	1	2	3	4
g) This school has clear rules about student conduct	1	2	3	4
h) This school's rules are enforced in a fair and consistent manner	1	2	3	4

About Being a Teacher

8

In your current school, how severe is each problem?

*Fill in only **one** circle for each row.*

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair	①	②	③	④
b) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students)	①	②	③	④
c) Teachers do not have adequate instructional materials and supplies	①	②	③	④
d) The school classrooms are not cleaned often enough	①	②	③	④
e) The school classrooms need maintenance work	①	②	③	④
f) Teachers do not have adequate technological resources	①	②	③	④
g) Teachers do not have adequate support for using technology	①	②	③	④

9

How often do you have the following types of interactions with other teachers?

*Fill in only **one** circle for each row.*

	Very often	Often	Sometimes	Never or almost never
a) Discuss how to teach a particular topic	①	②	③	④
b) Collaborate in planning and preparing instructional materials	①	②	③	④
c) Share what I have learned about my teaching experiences	①	②	③	④
d) Visit another classroom to learn more about teaching	①	②	③	④
e) Work together to try out new ideas	①	②	③	④
f) Work as a group on implementing the curriculum	①	②	③	④
g) Work with teachers from other grades to ensure continuity in learning	①	②	③	④

10

How often do you feel the following way about being a teacher?

*Fill in only **one** circle for each row.*

	Very often	Often	Sometimes	Never or almost never
a) I am content with my profession as a teacher	1	2	3	4
b) I am satisfied with being a teacher at this school	1	2	3	4
c) I find my work full of meaning and purpose	1	2	3	4
d) I am enthusiastic about my job	1	2	3	4
e) My work inspires me	1	2	3	4
f) I am proud of the work I do	1	2	3	4
g) I am going to continue teaching for as long as I can	1	2	3	4

11

Indicate the extent to which you agree or disagree with each of the following statements.

*Fill in only **one** circle for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) There are too many students in the classes	1	2	3	4
b) I have too much material to cover in class	1	2	3	4
c) I have too many teaching hours	1	2	3	4
d) I need more time to prepare for class	1	2	3	4
e) I need more time to assist individual students	1	2	3	4
f) I feel too much pressure from parents	1	2	3	4
g) I have difficulty keeping up with all of the changes to the curriculum	1	2	3	4
h) I have too many administrative tasks	1	2	3	4

About Teaching the TIMSS Class

If you teach more than one advanced mathematics or physics class, select <u>one</u> of your classes and keep it in mind as you answer questions 12 through 15.

12

How many students are in this class?

_____ students
Write in the number.

13

How many students in this class experience difficulties understanding <u>spoken</u> English?

_____ students in this class
Write in the number.

14

How often do you do the following in teaching this class?

*Fill in only **one** circle for each row.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Relate the lesson to students' daily lives	1	2	3	4
b) Ask students to explain their answers	1	2	3	4
c) Ask students to complete challenging exercises that require them to go beyond the instruction	1	2	3	4
d) Encourage classroom discussions among students	1	2	3	4
e) Link new content to students' prior knowledge	1	2	3	4
f) Ask students to decide their own problem solving procedures	1	2	3	4
g) Encourage students to express their ideas in class	1	2	3	4

15

In your view, to what extent do the following limit how you teach this class?

*Fill in only **one** circle for each row.*

	Not at all	Some	A lot
a) Students lacking prerequisite mathematics knowledge or skills	1	2	3
b) Students suffering from lack of basic nutrition	1	2	3
c) Students suffering from not enough sleep	1	2	3
d) Students with physical disabilities	1	2	3
e) Students with mental, emotional, or psychological disabilities	1	2	3

Teaching Physics to the TIMSS Class

If you teach more than one physics class, select <u>one</u> of your classes and keep it in mind as you answer questions 16 through 19.

16

In a typical week, how much time do you spend teaching physics to the students in this class?

_____ minutes per week
Write in the number of minutes per week.
Please convert the number of instructional hours or periods into minutes.

17

How many minutes per week do you usually spend preparing to teach this class?

_____ minutes per week
Write in the number of minutes per week.
Please convert the number of hours into minutes.

18

In teaching physics to this class, how would you characterize your confidence in doing the following?

*Fill in only **one** circle for each row.*

	Very high	High	Medium	Low
a) Inspiring students to learn physics	1	2	3	4
b) Explaining physics concepts or principles by doing physics experiments	1	2	3	4
c) Providing challenging tasks for the highest achieving students	1	2	3	4
d) Adapting my teaching to engage students' interest	1	2	3	4
e) Helping students appreciate the value of learning physics	1	2	3	4
f) Assessing student comprehension of physics	1	2	3	4
g) Improving the understanding of struggling students	1	2	3	4
h) Making physics relevant to students	1	2	3	4
i) Developing students' higher-order thinking skills	1	2	3	4
j) Teaching physics using inquiry methods	1	2	3	4

19

In teaching physics to this class, how often do you ask students to do the following?

*Fill in only **one** circle for each row.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Listen to me explain new physics content	1	2	3	4
b) Observe natural phenomena and describe what they see	1	2	3	4
c) Watch me demonstrate an experiment, investigation, or simulation	1	2	3	4
d) Design or plan experiments, investigations, or simulations	1	2	3	4
e) Conduct experiments, investigations, or simulations	1	2	3	4
f) Present data from experiments, investigations, or simulations	1	2	3	4
g) Interpret data from experiments, investigations, or simulations	1	2	3	4
h) Use evidence from experiments, investigations, or simulations to support conclusions	1	2	3	4
i) Read their textbooks or other resource materials	1	2	3	4
j) Have students memorize facts and principles	1	2	3	4
k) Use scientific formulas and laws to solve routine problems	1	2	3	4
l) Do field work outside of class	1	2	3	4
m) Take a written test or quiz	1	2	3	4

Resources for Teaching Physics to the TIMSS Class

Questions 20 - 21 ask about resources for teaching physics to the students in the TIMSS class. If you teach more than one physics class, select <u>one</u> of your classes and keep it in mind as you answer questions 20 and 21.

20

A. Do the students in this class have computers, tablets, calculators, or smartphones available to use during their physics lessons?

*Fill in **one** circle only.*

Yes --- ①

No --- ② → **(If No, go to question 21)**

If Yes,

B. How often do you have the students do the following activities on computers, tablets, calculators, or smartphones during physics lessons?

*Fill in only **one** circle for each row.*

	Every or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) Read the textbook or course materials in digital format	①	②	③	④
b) Look up ideas and information	①	②	③	④
c) Process and analyze data	①	②	③	④
d) Draw graphs of functions	①	②	③	④
e) Solve equations	①	②	③	④
f) Manipulate algebraic expressions	①	②	③	④
g) Conduct modeling and simulations	①	②	③	④
h) Perform numerical integration	①	②	③	④
i) Do scientific procedures or experiments	①	②	③	④

21

A. Does your school have a physics laboratory?

*Fill in **one** circle only.*

Yes --- ①

No --- ②

B. Do teachers usually have assistance available when students are conducting physics experiments?

*Fill in **one** circle only.*

Yes --- ①

No --- ②

Physics Topics Taught to the TIMSS Class

Question 22 asks about the topics taught and the content covered in teaching physics to the students in the TIMSS class. If you teach more than one physics class, select <u>one</u> of your classes and keep it in mind as you answer question 22.

22

The following list includes the main topics addressed by the TIMSS Advanced physics test. Choose the response that best describes when the students in this class have been taught each topic. If a topic was in the curriculum before this year, please choose "Mostly taught before this year." If a topic was taught half this year but not yet completed, please choose "Mostly taught this year." If a topic is not in the curriculum, please choose "Not yet taught or just introduced."

*Fill in only **one** circle for each row.*

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
A. Mechanics and Thermodynamics			
a) Applying Newton's laws and laws of motion	①	②	③
b) Forces, including frictional force, acting on a body	①	②	③
c) Forces acting on a body moving in a circular path; the body's centripetal acceleration, speed, and circling time	①	②	③
d) The law of gravitation in relation to the movement of celestial objects	①	②	③
e) Kinetic and potential energy; conservation of mechanical energy	①	②	③
f) The law of conservation of momentum; elastic and inelastic collisions	①	②	③
g) The first law of thermodynamics	①	②	③
h) Heat transfer and specific heat capacities	①	②	③
i) The law of ideal gases; expansion of solids and liquids in relation to temperature change	①	②	③
B. Electricity and Magnetism			
a) Electrostatic attraction or repulsion between isolated charged particles – Coulomb's law	①	②	③
b) Charged particles in an electric field	①	②	③
c) Electrical circuits; using Ohm's law and Joule's law	①	②	③
d) Charged particles in a magnetic field	①	②	③
e) Relationship between magnetism and electricity; magnetic fields around electric conductors; electromagnetic induction	①	②	③
f) Faraday's and Lenz's laws of induction	①	②	③
C. Wave Phenomena and Atomic/Nuclear Physics			
a) Mechanical waves; the relationship between speed, frequency, and wavelength	①	②	③
b) Electromagnetic radiation; wavelength and frequency of various types of waves (radio, infrared, visible light, x-rays, gamma rays)	①	②	③
c) Thermal radiation, temperature, and wavelength	①	②	③
d) Reflection, refraction, interference, and diffraction	①	②	③
e) The structure of the atom and its nucleus; atomic number and atomic mass; electromagnetic emission and absorption and the behavior of electrons	①	②	③
f) Wave-particle duality and the photoelectric effect; types of nuclear reactions and their role in nature (e.g., in stars) and society; radioactive isotopes	①	②	③
g) Mass-energy equivalence in nuclear reactions and particle transformations	①	②	③

Physics Homework for the TIMSS Class

Question 23 asks about physics homework for the students in the TIMSS class. If you teach more than one physics class, select <u>one</u> of your classes and keep it in mind as you answer question 23.

23

A. Do you assign physics homework to this class?

*Fill in **one** circle only.*

Yes --- ①

No --- ② → **(If No, go to question 24)**

If Yes,

B. How often do you assign the following kinds of physics homework to this class?

*Fill in only **one** circle for each row.*

	Always or almost always	Sometimes	Never or almost never
a) Doing problem/question sets	①	②	③
b) Reading the textbook	①	②	③
c) Memorizing formulas and procedures	①	②	③
d) Gathering, analyzing, and reporting data	①	②	③
e) Finding one or more applications of the content covered	①	②	③
f) Working on projects	①	②	③

C. How often do you do the following with the physics homework assignments for this class?

*Fill in only **one** circle for each row.*

	Always or almost always	Sometimes	Never or almost never
a) Correct assignments and give feedback to students	①	②	③
b) Have students correct their own homework	①	②	③
c) Discuss the homework in class	①	②	③
d) Monitor whether or not the homework was completed	①	②	③
e) Use the homework to contribute towards students' grades or marks	①	②	③

Professional Development and Activities

24

In the past two years, have you participated in professional development in any of the following?

*Fill in only **one** circle for each row.*

	Yes	No
a) Physics content	①	②
b) Physics pedagogy/instruction	①	②
c) Physics curriculum	①	②
d) Integrating information technology into physics	①	②
e) Improving students' critical thinking or inquiry skills	①	②
f) Physics assessment	①	②
g) Addressing individual students' needs	①	②

25

In the past two years, how many hours in total have you spent in formal in-service/professional development (e.g., workshops, seminars) for physics?

*Fill in **one** circle only.*

- None --- ①
- Less than 6 hours --- ②
- 6–15 hours --- ③
- 16–35 hours --- ④
- More than 35 hours --- ⑤

26

By the end of this school year, how many years will you have taught physics at the advanced level?

_____ years
Number of years taught physics

27

A. Are you a member of the National Science Teachers Association (NSTA) or the American Association of Physics Teachers (AAPT)?

*Fill in **one** circle only.*

- Yes --- ①
- No --- ②

B. In the past two years, have you regularly participated in activities sponsored by the National Science Teachers Association (NSTA) or the American Association of Physics Teachers (AAPT)

*Fill in **one** circle only.*

- Yes --- ①
- No --- ②

28

In the past two years, have you taken part in any of the following activities in physics?

*Fill in only **one** circle for each row.*

	Yes	No
a) I attended a workshop or conference	①	②
b) I gave a presentation at a workshop or conference	①	②
c) I took part in an innovative project for curriculum and instruction	①	②

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Thank You

Thank you for the thought, time, and effort you have put into completing this questionnaire.

BOSTON COLLEGE

TIMSS Advanced 2015

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Teacher Questionnaire Physics

International Association for the Evaluation of Educational Achievement

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Do Not Turn Page Until Instructed To Do So.

TIMSS Advanced 2015

TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

Student Questionnaire Advanced Mathematics

National Center for Education Statistics
U.S. Department of Education
1990 K St. NW
Washington, DC 20006-5650

TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College

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Directions

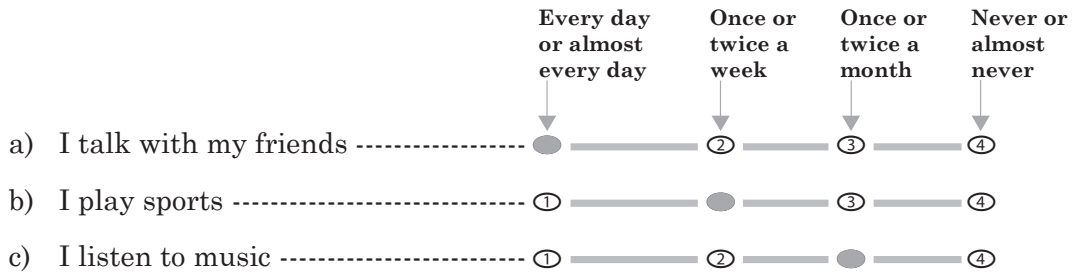
In this booklet, you will find questions about yourself. Some questions ask for facts while other questions ask for your opinion.

Each question is followed by a number of answers. Fill in the oval next to or under the answer of your choice as shown in the example below.

Example

How often do you do these things?

*Fill in only **one** oval for each row.*



- Read each question carefully, and pick the answer you think is best.
- Fill in the oval next to or under your answer.
- If you decide to change your answer, completely erase your first choice. Then, fill in the oval next to or under your new answer.
- Ask for help if you do not understand something or are not sure how to answer.

About You

1

A. Are you female or male?

*Fill in **one** oval only.*

Female -- ①

Male -- ②

B. Are you Hispanic or Latino?

*Fill in **one** oval only.*

Yes, I am Hispanic or Latino -- ①

No, I am not Hispanic or Latino -- ②

C. Which of the following best describes you?

*Fill in ovals for **all** that apply.*

White -- ①

Black or African American -- ①

Asian -- ①

American Indian or Alaska Native -- ①

Native Hawaiian or other Pacific Islander -- ①

2

When were you born?

Fill in the ovals next to the month and year you were born.

a) Month	b) Year
January --- Ⓐ	1993 --- ①
February --- Ⓑ	1994 --- ②
March --- Ⓒ	1995 --- ③
April --- Ⓓ	1996 --- ④
May --- Ⓔ	1997 --- ⑤
June --- Ⓕ	1998 --- ⑥
July --- Ⓖ	1999 --- ⑦
August --- Ⓗ	2000 --- ⑧
September --- Ⓘ	2001 --- ⑨
October --- Ⓙ	Other --- ⓪
November --- Ⓚ	
December --- Ⓛ	

3

A. How often do you speak English at home?

*Fill in **one** oval only.*

Always -- ① If **Always**, please go to question 4

Almost always -- ②

Sometimes -- ③

Never -- ④

If Almost always, Sometimes, Never,
please go to question 3B

B. What language do you speak at home (other than English)?

*Fill in **one** oval only.*

Spanish -- ①

Other -- ② Please specify _____

4

How many days were you absent from school in the last month?

*Fill in **one** oval only.*

None -- ①

1 or 2 days -- ②

3 or 4 days -- ③

5 to 10 days -- ④

More than 10 days -- ⑤

5

Have you ever repeated a grade?

*Fill in only **one** oval for each row.*

	Yes	No
a) In elementary school	①	②
b) In middle or junior high school	①	②
c) In high school	①	②

6

About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)

*Fill in **one** oval only.*

None or very few (0–10 books) -- ①

Enough to fill one shelf (11–25 books) -- ②

Enough to fill one bookcase (26–100 books) -- ③

Enough to fill two bookcases (101–200 books) -- ④

Enough to fill three or more bookcases (more than 200) -- ⑤

7

How many digital information devices are there in your home? Count computers, tablets, smartphones, smart TVs, and e-readers. (Do not count other devices.)

*Fill in **one** oval only.*

None -- ①

1-3 devices -- ②

4-6 devices -- ③

7-10 devices -- ④

More than 10 devices -- ⑤

8

Do you have any of these things?

*Fill in only **one** oval for each row.*

		Yes	No
a)	Your own computer	①	②
b)	Your own tablet	①	②
c)	Your own smartphone	①	②
d)	Your own graphing calculator	①	②
e)	A gaming system (e.g., PlayStation, Wii, Xbox)	①	②
f)	Study desk/table for your use	①	②
g)	Your own room	①	②
h)	Your own car	①	②

9

A. What is the highest level of education completed by your mother (or stepmother or female legal guardian)?

*Fill in **one** oval only.*

Less than high school -- ①

Some high school -- ②

High school graduate -- ③

Associate's degree (2-year college program) -- ④

Bachelor's degree (4-year college program) -- ⑤

Master's degree or professional degree (MD, DDS, lawyer, minister) -- ⑥

Doctorate (Ph.D., or Ed.D.) -- ⑦

I don't know -- ⑧

B. What is the highest level of education completed by your father (or stepfather or male legal guardian)?

*Fill in **one** oval only.*

Less than high school -- ①

Some high school -- ②

High school graduate -- ③

Associate's degree (2-year college program) -- ④

Bachelor's degree (4-year college program) -- ⑤

Master's degree or professional degree (MD, DDS, lawyer, minister) -- ⑥

Doctorate (Ph.D., or Ed.D.) -- ⑦

I don't know -- ⑧

10

What kind of work do your father (or stepfather or male legal guardian) and mother (or stepmother or female legal guardian) do for their main jobs?

For each, fill in the oval for the job category that best describes what he/she does. Each category has a few examples to help you decide the correct category. If your father or mother is not working now, think about the last job he/she had.

*Fill in only **one** oval for each column.*

	Your father	Your mother
a) Has never worked for pay	①	②
b) Small Business Owner Includes owners of small businesses (fewer than 25 employees) such as retail shops, services, restaurants	①	②
c) Clerk Includes office clerks; secretaries; typists; data entry operators; customer service clerks	①	②
d) Service or Sales Worker Includes travel attendants; restaurant service workers; personal care workers; protective service workers; enlisted military and police; salespersons; street vendors	①	②
e) Skilled Agricultural or Fishery Worker Includes farmers; forestry workers; fishery workers; hunters and trappers	①	②
f) Craft or Trade Worker Includes builders, carpenters, plumbers, electricians, metal workers; machine mechanics; handicraft workers	①	②

Continued on next page →

10 **(continued)**

	Your father	Your mother
g) Plant or Machine Operator Includes plant and machine operators; assembly-line operators; motor-vehicle drivers	①	②
h) General Laborers Includes domestic helpers and cleaners; building caretakers; messengers, porters, and doorkeepers; farm, fishery, agricultural, and construction workers	①	②
i) Corporate Manager or Senior Official Includes corporate managers such as managers of large companies (25 or more employees) or managers of departments within large companies; legislators or senior government officials; senior officials of special-interest organizations; military officers	①	②
j) Professional Includes scientists; mathematicians; computer scientists; architects; engineers; life science and health professionals; teachers; legal professionals; social scientists; writers and artists; religious professionals	①	②
k) Technician or Associate Professional Includes science, engineering, and computer associates and technicians; life science and health technicians and assistants; teacher aides; finance and sales associate professionals; business service agents; administrative assistants	①	②
l) I don't know	①	②

11

How far in your education do you expect to go?

*Fill in **one** oval only.*

High school -- ①

Associate's degree
(2-year college program) -- ②

Bachelor's degree
(4-year college program) -- ③

Master's degree or professional degree
(MD, DDS, lawyer, minister) -- ④

Doctorate (Ph.D., or Ed.D.) -- ⑤

12

If you plan to continue your education, which area(s) do you intend to study?

*Fill in ovals for **all** that apply.*

a) Mathematics or Statistics ---------- ①

b) Physics ---------- ①

c) Chemistry ---------- ①

d) Biological and Biomedical Sciences (e.g., dentistry, medicine, nursing, pharmacology, veterinary medicine) ---------- ①

e) Engineering and Engineering Technologies (e.g., aerospace engineering, chemical engineering, civil engineering, electrical engineering, mechanical engineering) ---------- ①

f) Computer and Information Sciences ---------- ①

g) Education ---------- ①

h) Business (e.g., accounting, marketing, administration, finance, management) ---------- ①

i) Law ---------- ①

j) Social Sciences (e.g., sociology, political science, economics, psychology) ---------- ①

k) Arts and Humanities (e.g., art, language, literature, history, philosophy) ---------- ①

l) Other Science Fields of Study ---------- ①

m) Other Non-science Fields of Study ---------- ①

13

In the future, do you want to work in any of the following professional fields?

*Fill in only **one** oval for each row.*

	Yes	Maybe	No
a) Education (e.g., teacher, university professor)	①	②	③
b) Engineering and Engineering Technologies (e.g., aerospace engineer, chemical engineer, civil engineer, electrical engineer, mechanical engineer)	①	②	③
c) Computer and Information Sciences (e.g., database administrator, network administrator, software or application developer, systems analyst)	①	②	③
d) Finance/Banking	①	②	③
e) Biological and Biomedical Sciences (e.g., biomedical engineer, biochemist, biophysicist, dentist, medical doctor, nurse, veterinarian)	①	②	③
f) Environmental Sciences	①	②	③
g) Agriculture and Agricultural Sciences	①	②	③
h) Actuarial Sciences (i.e., uses mathematical and statistical methods to assess risk)	①	②	③
i) Other Fields	①	②	③

14

A. Was your mother (or stepmother or female legal guardian) born in the United States? ("United States" includes the 50 states, its territories, the District of Columbia, and U.S. military bases abroad.)

*Fill in **one** oval only.*

Yes -- ①

No -- ②

I don't know -- ③

B. Was your father (or stepfather or male legal guardian) born in the United States?

*Fill in **one** oval only.*

Yes -- ①

No -- ②

I don't know -- ③

15

A. Were you born in the United States?

*Fill in **one** oval only.*

Yes -- ① → **(If Yes, go to question 16)**

No -- ②

If No,

B. If you were not born in the United States, how old were you when you came to the United States?

*Fill in **one** oval only.*

Older than 15 years old -- ①

11 to 15 years old -- ②

5 to 10 years old -- ③

Younger than 5 years old -- ④

Studying Advanced Mathematics

16

How much time do you spend in mathematics class each week?

_____ minutes per week

*Write in the number of **minutes** per week.*

Please convert the number of classes/periods into minutes.

17

How much time do you spend on mathematics outside of class each week?

_____ minutes per week

*Write in the number of **minutes** per week.*

Please convert the number of hours into minutes.

18

A. During the school year, do you work at a paid job on a regular basis?

*Fill in **one** oval only.*

Yes -- ①

No -- ② →

(If No, go to question 19)

If Yes,

B. How much time do you spend working at the paid job each week?

_____ minutes per week

*Write in the number of **minutes** per week.*

Please convert the number of hours into minutes.

19

A. During the last 12 months, have you attended extra lessons or tutoring not provided by the school in advanced mathematics?

*Fill in **one** oval only.*

Yes -- ①

No -- ② → **(If No, go to question 20)**

If Yes,

B. Why did you attend these extra lessons or tutoring?

*Fill in only **one** oval for each row.*

	Yes	No
a) To excel in class	①	②
b) To keep up in class	①	②
c) To do well on an examination	①	②

C. For how many of the last 12 months have you attended extra lessons or tutoring in advanced mathematics?

*Fill in **one** oval only.*

Less than 4 months -- ①

4-8 months -- ②

More than 8 months -- ③

20

How much do you agree with these statements about your advanced mathematics lessons?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) The teacher clearly communicates the purpose of each mathematics lesson	①	②	③	④
b) I know what my teacher expects me to do	①	②	③	④
c) My teacher is easy to understand	①	②	③	④
d) I am interested in what my teacher says	①	②	③	④
e) My teacher gives me interesting things to do	①	②	③	④
f) My teacher asks me thought-provoking questions	①	②	③	④
g) My teacher has clear answers to my questions	①	②	③	④
h) My teacher links new content to what I already know	①	②	③	④

20 **(continued)**

How much do you agree with these statements about your advanced mathematics lessons?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
i) My teacher is good at explaining advanced mathematics	①	②	③	④
j) My teacher provides the opportunity for me to show what I have learned	①	②	③	④
k) My teacher encourages me to keep working on advanced mathematics problems until I solve them	①	②	③	④
l) My teacher provides helpful feedback on my schoolwork (including homework)	①	②	③	④
m) My teacher uses a variety of teaching methods, tasks, and activities to help us learn	①	②	③	④
n) My teacher believes that I can learn difficult advanced mathematics material	①	②	③	④
o) I like the way my teacher teaches mathematics	①	②	③	④

21

Do you use the Internet to do any of the following tasks for advanced mathematics schoolwork (including classroom tasks, homework, and studying outside of class)?

*Fill in only **one** oval for each row.*

	Yes	No
a) Access the textbook or other course materials	①	②
b) Access assignments posted online by my teacher	①	②
c) Collaborate with classmates on mathematics assignments or projects	①	②
d) Communicate with the teacher	①	②
e) Discuss mathematics topics with other students	①	②
f) Find information, articles, or tutorials to aid in understanding mathematics concepts	①	②
g) Find information, articles, or tutorials to aid in solving mathematics problems	①	②

22

How much do you agree with these statements about the mathematics you are studying?

*Fill in only **one** oval for each row.*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
a)	When I do mathematics problems, I sometimes get completely absorbed	①	②	③	④
b)	I get a sense of satisfaction when I solve mathematics problems	①	②	③	④
c)	I feel bored when I do my mathematics schoolwork	①	②	③	④
d)	I like studying for my mathematics class outside of school	①	②	③	④
e)	It is interesting to learn mathematics theory	①	②	③	④
f)	I dread my mathematics class	①	②	③	④
g)	I am studying mathematics because I like to learn new things	①	②	③	④
h)	I enjoy figuring out challenging mathematics	①	②	③	④
i)	Mathematics is one of my favorite subjects	①	②	③	④
j)	Jobs that require advanced mathematics skills seem interesting to me	①	②	③	④
k)	I wish I did not have to study mathematics	①	②	③	④
l)	I enjoy thinking about the world in terms of mathematical relationships	①	②	③	④

23

How much do you agree with these statements about the mathematics you are studying?

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) Learning mathematics will help me get ahead in the world	①	②	③	④
b) It is important to do well in my mathematics class	①	②	③	④
c) The mathematics I am studying is not useful for my future	①	②	③	④
d) My parents are pleased that I am taking advanced mathematics	①	②	③	④
e) Doing well in mathematics will help me get into the college or university of my choice	①	②	③	④
f) Learning advanced mathematics does not seem to be a worthwhile exercise	①	②	③	④
g) My parents think that it is important that I do well in my mathematics class	①	②	③	④
h) I like telling people I am studying advanced mathematics	①	②	③	④
i) Learning advanced mathematics will give me more job opportunities	①	②	③	④

24

How hard was this test compared to most other tests you have taken this year in school?

*Fill in **one** oval only.*

Easier than other tests -- ①

About as hard as other tests -- ②

Harder than other tests -- ③

Much harder than other tests -- ④

25

How hard did you try on this test compared to how hard you tried on most other tests you have taken this year in school?

*Fill in **one** oval only.*

Not as hard as on other tests -- ①

About as hard as on other tests -- ②

Harder than on other tests -- ③

Much harder than on other tests -- ④

26

How important was it to you to do well on this test?

*Fill in **one** oval only.*

Not very important -- ①

Somewhat important -- ②

Important -- ③

Very important -- ④

Academic and Post-Secondary Preparation

27

In what grade did you complete any of the courses listed below?

*Fill in **one or more** ovals in each row.*

	Never	Grade 8 or earlier	Grade 9	Grade 10	Grade 11	Grade 12
a) Algebra I course	○	○	○	○	○	○
b) Geometry course	○	○	○	○	○	○
c) Algebra II course, with or without trigonometry	○	○	○	○	○	○
d) Trigonometry (as a separate course)	○	○	○	○	○	○
e) Pre-calculus course (also called introductory analysis)	○	○	○	○	○	○
f) Calculus course	○	○	○	○	○	○
g) Probability or statistics course	○	○	○	○	○	○
h) Integrated mathematics 1 (first year of a multi-year course)	○	○	○	○	○	○
i) Integrated mathematics 2 (second year of a multi-year course)	○	○	○	○	○	○
j) Integrated mathematics 3 (third year of a multi-year course)	○	○	○	○	○	○
k) Integrated mathematics 4 (fourth year of a multi-year course)	○	○	○	○	○	○
l) Other advanced mathematics course	○	○	○	○	○	○

28

Please indicate if you have taken or are currently enrolled in any of the following Advanced Placement (AP) courses. Have taken or are enrolled in:

*Fill in only **one** oval for each row.*

	Yes	No
a) Advanced Placement (AP) Calculus AB	①	②
b) Advanced Placement (AP) Calculus BC	①	②
c) Advanced Placement (AP) Statistics	①	②

29

Are you currently enrolled in or have you taken any online mathematics courses?

*Fill in **one** oval only.*

- No -- ①
- Yes, but not for credit -- ②
- Yes, for high school credit -- ③
- Yes, for college credit -- ④
- Yes, for both high school and college credit -- ⑤

30

Are you currently enrolled in or have you taken an International Baccalaureate (IB) mathematics course?

*Fill in **one** oval only.*

Yes -- ①

No -- ②

31

During this school year, which of the following have you done?

Taken the SAT or ACT college entrance exams -- ①

Submitted the Free Application for Federal Student Aid (FAFSA) -- ①

Applied to a 2-year college -- ①

Been accepted to a 2-year college -- ①

Applied to a 4-year college -- ①

Been accepted to a 4-year college -- ①

Talked with a military recruiter or contacted a ROTC program -- ①

Enlisted in the military or enrolled in a ROTC program -- ①

Applied for a full-time job -- ①

Been interviewed for a full-time job -- ①

None of the above -- ①

Your School

32

What do you think about your school? Tell how much you agree with these statements.

*Fill in only **one** oval for each row.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I enjoy school	①	②	③	④
b) I feel safe when I am at school	①	②	③	④
c) I feel like I belong at this school	①	②	③	④
d) I like to see my classmates at school	①	②	③	④
e) Teachers at my school are fair to me	①	②	③	④
f) I am proud to go to this school	①	②	③	④
g) I learn a lot in school	①	②	③	④
h) My classmates respect students who excel in school subjects	①	②	③	④
i) My classmates respect students who struggle learning school subjects	①	②	③	④

33

During this school year, how often have other students from your school done any of the following things to you (including through texting or the Internet)?

*Fill in only **one** oval for each row.*

	At least once a week	Once or twice a month	A few times a year	Never
a) Made fun of me or called me names	①	②	③	④
b) Excluded me from their activities	①	②	③	④
c) Spread lies about me	①	②	③	④
d) Stole something from me	①	②	③	④
e) Hit or hurt me (*e.g., shoving, hitting, kicking*)	①	②	③	④
f) Made me do things I didn't want to do	①	②	③	④
g) Posted embarrassing things about me online	①	②	③	④
h) Threatened me	①	②	③	④

34

During this school year, did you participate in any of these extracurricular activities?

*Fill in ovals for **all** that apply.*

Sports -- ①

Performing arts -- ①

Academic clubs -- ①

Vocational/professional clubs -- ①

Honor societies -- ①

Publications -- ①

Student government -- ①

Service clubs -- ①

Hobby clubs -- ①

Thank You!

Thank you for filling out the questionnaire!