APPENDIX C: TIMSS 2015 and TIMSS Advanced DRAFT FIELD TEST QUESTIONNAIRES

Although the United States will not participate in the TIMSS 2015 field test at grades 4 and 8, the draft versions of TIMSS 2015 field test questionnaires are included here for OMB review. These draft field test questionnaires will not be finalized until December 2013. The main study questionnaires will be subsets of the final field test questionnaires. These instruments are summarized below.

TIMSS 2015 Grades 4 and 8

For TIMSS Advanced 2015, draft versions of the questionnaires have been posted for the November National Research Coordinator (NRC) meeting in Budapest. The United States will have very limited time to comment on the draft versions. Included here are the draft versions of the TIMSS Advanced questionnaires. These instruments are summarized below.

TIMSS Advanced

TIMSS 2015
Grade 4 Student Questionnaire (DRAFT)

About you

G1

Are you a girl or a boy?

*Fill **one** circle only.*

Girl -- ◯

Boy -- ◯

G2

When were you born?

Fill the circles next to the month and year you were born.

a) Month

January -- ◯
February -- ◯
March -- ◯
April -- ◯
May -- ◯
June -- ◯
July -- ◯
August -- ◯
September -- ◯
October -- ◯
November -- ◯
December -- ◯

b) Year

2002 -- ◯
2003 -- ◯
2004 -- ◯
2005 -- ◯
2006 -- ◯
2007 -- ◯
2008 -- ◯
Other -- ◯

G3

How often do you speak <language of test> at home?

*Fill **one** circle only.*

I always or almost always speak <language of test> at home -- ◯

I sometimes speak <language of test> and sometimes speak another language at home -- ◯

I never speak <language of test> at home -- ◯

G4

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

*Fill **one** circle only.*

None or very few (0–10 books) -- ◯

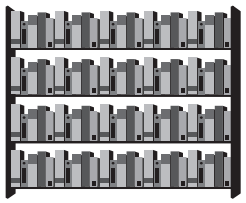
This shows 10 books

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

This shows 25 books

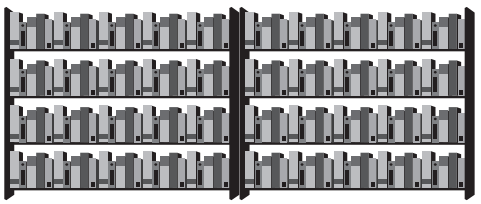
Enough to fill one bookcase (26–100 books) -- ◯

This shows 100 books



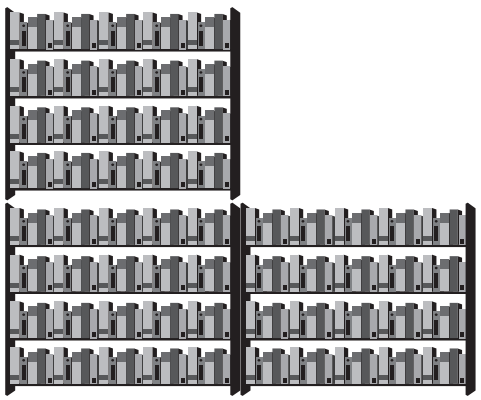
Enough to fill two bookcases (101–200 books) -- ◯

This shows 200 books



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

This shows more than 200 books



G5

Do you have any of these things at your home?

*Fill **one** circle for each line.*

		Yes	No
a)	A computer or tablet (such as iPad) of your own	○	○
b)	A computer or tablet (such as iPad) that you can use for school work	○	○
c)	Study desk/table for your use	○	○
d)	Your own room	○	○
e)	Internet connection	○	○
f)	<country-specific indicator of wealth>	○	○
g)	<country-specific indicator of wealth>	○	○
h)	<country-specific indicator of wealth>	○	○
i)	<country-specific indicator of wealth>	○	○
j)	<country-specific indicator of wealth>	○	○
k)	<country-specific indicator of wealth>	○	○

G6

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I like being in school	○	○	○	○
b) I feel safe when I am at school	○	○	○	○
c) I feel like I belong at this school	○	○	○	○

G7

During this year, how often have any of the following things happened to you <u>at school</u>?

*Fill **one** circle for each line.*

	At least once a week	Once or twice a month	A few times a year	Never
a) I was made fun of or called names	○	○	○	○
b) I was left out of games or activities by other students	○	○	○	○
c) Someone spread lies about me	○	○	○	○
d) Something was stolen from me	○	○	○	○
e) I was hit or hurt by other student(s) *(e.g., shoving, hitting, kicking)*	○	○	○	○
f) I was made to do things I didn't want to do by other students	○	○	○	○

G8

During this year, how often have other students from your school done any of the following things through <u>text messages, e-mails, or the Internet (including social networking sites)</u>?

*Fill **one** circle for each line.*

	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	○	○	○	○
b) Spread lies about me	○	○	○	○
c) Shared a photo of me that I didn't like	○	○	○	○
d) Embarrassed or hurt me	○	○	○	○
e) Threatened me	○	○	○	○

MS1

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

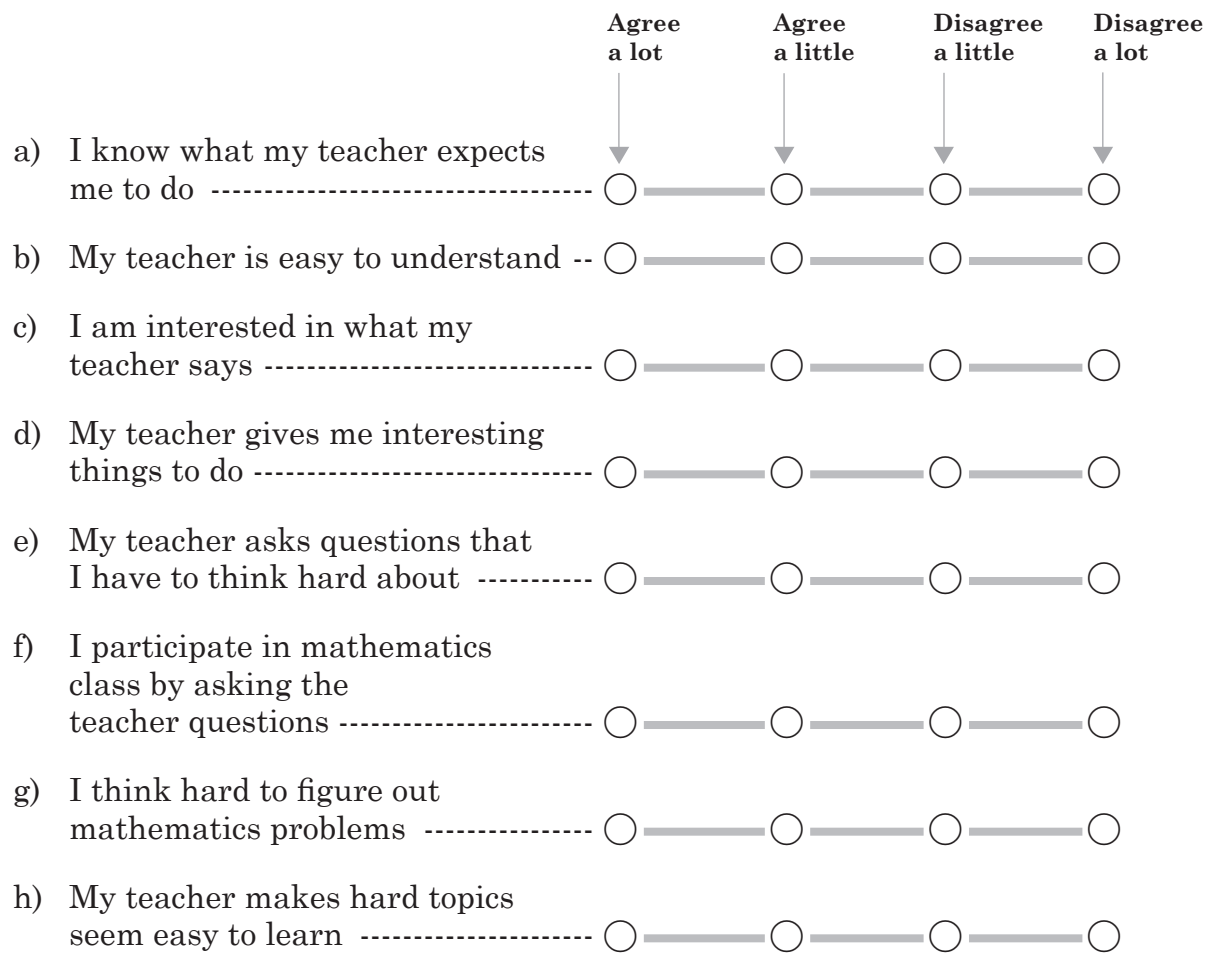
*Fill **one** circle for each line.*

		Agree a lot	Agree a little	Disagree a little	Disagree a lot
a)	I enjoy learning mathematics	○	○	○	○
b)	I wish I did not have to study mathematics	○	○	○	○
c)	Mathematics is boring	○	○	○	○
d)	I learn many interesting things in mathematics	○	○	○	○
e)	I like mathematics	○	○	○	○
f)	It is important to do well in mathematics	○	○	○	○
g)	I like schoolwork that involves numbers	○	○	○	○
h)	I like to solve mathematics problems	○	○	○	○
i)	It is fun to work on mathematics assignments	○	○	○	○
j)	Mathematics is one of my favorite subjects	○	○	○	○

MS2

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

*Fill **one** circle for each line.*



MS3

How much do you agree with these statements about mathematics?

*Fill **one** circle for each line.*

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

MS4

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I enjoy learning science	○	○	○	○
b) I wish I did not have to study science	○	○	○	○
c) I read about science in my spare time	○	○	○	○
d) Science is boring	○	○	○	○
e) I learn many interesting things in science	○	○	○	○
f) I like science	○	○	○	○
g) It is important to do well in science	○	○	○	○
h) Science is one of my favorite subjects	○	○	○	○
i) I look forward to science class	○	○	○	○
j) I like to do science experiments	○	○	○	○
k) I like science class because it teaches me how things in the world work	○	○	○	○

MS5

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I know what my teacher expects me to do	○	○	○	○
b) My teacher is easy to understand	○	○	○	○
c) I am interested in what my teacher says	○	○	○	○
d) My teacher gives me interesting things to do	○	○	○	○
e) My teacher asks questions that I have to think hard about	○	○	○	○
f) I participate in science class by asking the teacher questions	○	○	○	○
g) I think hard to figure out science problems	○	○	○	○
h) My teacher makes hard topics seem easy to learn	○	○	○	○

MS6

How much do you agree with these statements about science?

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I usually do well in science	○	○	○	○
b) Science is harder for me than for many of my classmates	○	○	○	○
c) I am just not good at science	○	○	○	○
d) I learn things quickly in science	○	○	○	○
e) My teacher tells me I am good at science	○	○	○	○
f) Science is harder for me than any other subject	○	○	○	○
g) Science makes me confused	○	○	○	○

TIMSS 2015
Grade 8 Student Questionnaire (DRAFT)

About you

1

Are you a girl or a boy?

*Fill **one** circle only.*

Girl -- ◯

Boy -- ◯

2

When were you born?

Fill the circles next to the month and year you were born.

a) Month

January -- ◯
February -- ◯
March -- ◯
April -- ◯
May -- ◯
June -- ◯
July -- ◯
August -- ◯
September -- ◯
October -- ◯
November -- ◯
December -- ◯

b) Year

1997 -- ◯
1998 -- ◯
1999 -- ◯
2000 -- ◯
2001 -- ◯
2002 -- ◯
2003 -- ◯
2004 -- ◯
2005 -- ◯
Other -- ◯

3

How often do you speak <language of test> at home?

*Fill **one** circle only.*

Always -- ◯

Almost always -- ◯

Sometimes -- ◯

Never -- ◯

4

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

*Fill **one** circle only.*

None or very few (0–10 books) -- ◯

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

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

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

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

5

A. Do you have a device that you use for reading ebooks?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯ → **(If No, go to #6)**

If Yes,

B. How many <u>ebooks</u> do you have?

*Fill **one** circle only.*

0–9 -- ◯

10–19 -- ◯

20–29 -- ◯

30–39 -- ◯

40–49 -- ◯

50 or more -- ◯

6

Do you have any of these things at your home?

*Fill **one** circle for each line.*

	Yes	No
a) A computer or tablet (such as iPad) of your own	○	○
b) A computer or tablet (such as iPad) that you can use for school work	○	○
c) Study desk/table for your use	○	○
d) Your own room	○	○
e) Internet connection	○	○
f) <country-specific indicator of wealth>	○	○
g) <country-specific indicator of wealth>	○	○
h) <country-specific indicator of wealth>	○	○
i) <country-specific indicator of wealth>	○	○
j) <country-specific indicator of wealth>	○	○
k) <country-specific indicator of wealth>	○	○

7

A. What is the highest level of education completed by your mother <or stepmother or female guardian>?

*Fill **one** circle only.*

Some <ISCED Level 1 or 2 > or did not go to school ---------- ◯

<ISCED Level 2> ---------- ◯

<ISCED Level 3> ---------- ◯

<ISCED Level 4> ---------- ◯

<ISCED Level 5> ---------- ◯

<ISCED Level 6> ---------- ◯

<ISCED Level 7> ---------- ◯

<ISCED Level 8> ---------- ◯

I don't know ---------- ◯

B. What is the highest level of education completed by your father <or stepfather or male guardian>?

*Fill **one** circle only.*

Some <ISCED Level 1 or 2 > or did not go to school ---------- ◯

<ISCED Level 2> ---------- ◯

<ISCED Level 3> ---------- ◯

<ISCED Level 4> ---------- ◯

<ISCED Level 5> ---------- ◯

<ISCED Level 6> ---------- ◯

<ISCED Level 7> ---------- ◯

<ISCED Level 8> ---------- ◯

I don't know ---------- ◯

8

How far in your education do you expect to go?

*Fill **one** circle only.*

Finish <ISCED Level 2> ---------- ◯

Finish <ISCED Level 3> ---------- ◯

Finish <ISCED Level 4> ---------- ◯

Finish <ISCED Level 5> ---------- ◯

Finish <ISCED Level 6> ---------- ◯

Finish <ISCED Level 7> ---------- ◯

Finish <ISCED Level 8> ---------- ◯

I don't know ---------- ◯

9

A. Was your mother <or stepmother or female guardian> born in <country>?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

B. Was your father <or stepfather or male guardian> born in <country>?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

10

A. Were you born in <country>?

*Fill **one** circle only.*

Yes -- ◯ → **(If Yes, go to #11)**

No -- ◯

If No,

B. If you were not born in <country>, how old were you when you came to <country>?

*Fill **one** circle only.*

Older than 10 years old -- ◯

5 to 10 years old -- ◯

Younger than 5 years old -- ◯

11

How often do you use a computer or tablet (such as iPad) in each of these places?

*Fill **one** circle for each line.*

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

12

How often do your parents talk to you about the following topics?

*Fill **one** circle for each line.*

	Very often	Often	Sometimes	Never or Almost Never
a) Schoolwork in general	○	○	○	○
b) The importance of going to school	○	○	○	○
c) The importance of doing well in school	○	○	○	○
d) How what is learned in school relates to everyday life	○	○	○	○
e) How what is learned in school is important for a future career	○	○	○	○
f) The importance of finishing school	○	○	○	○
g) Future occupations	○	○	○	○
h) The importance of always doing your best in school	○	○	○	○

13

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I like being in school	○	○	○	○
b) I feel safe when I am at school	○	○	○	○
c) I feel like I belong at this school	○	○	○	○

14

During this year, how often have any of the following things happened to you <u>at school?</u>

*Fill **one** circle for each line.*

	At least once a week	Once or twice a month	A few times a year	Never
a) I was made fun of or called names	○	○	○	○
b) I was left out of games or activities by other students	○	○	○	○
c) Someone spread lies about me	○	○	○	○
d) Something was stolen from me	○	○	○	○
e) I was hit or hurt by other student(s) (*e.g., shoving, hitting, kicking*)	○	○	○	○
f) I was made to do things I didn't want to do by other students	○	○	○	○

15

During this year, how often have other students from your school done any of the following things through <u>text messages, e-mails, or the Internet (including social networking sites)</u>?

*Fill **one** circle for each line.*

	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	○	○	○	○
b) Spread lies about me	○	○	○	○
c) Shared a photo of me that I didn't like	○	○	○	○
d) Embarrassed or hurt me	○	○	○	○
e) Threatened me	○	○	○	○

16

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I enjoy learning mathematics	○	○	○	○
b) I wish I did not have to study mathematics	○	○	○	○
c) Mathematics is boring	○	○	○	○
d) I learn many interesting things in mathematics	○	○	○	○
e) I like mathematics	○	○	○	○
f) It is important to do well in mathematics	○	○	○	○
g) I like schoolwork that involves numbers	○	○	○	○
h) I like to solve mathematics problems	○	○	○	○
i) It is fun to work on mathematics assignments	○	○	○	○
j) Mathematics is one of my favorite subjects	○	○	○	○

17

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I know what my teacher expects me to do	○	○	○	○
b) My teacher is easy to understand	○	○	○	○
c) I am interested in what my teacher says	○	○	○	○
d) My teacher gives me interesting things to do	○	○	○	○
e) My teacher asks questions that I have to think hard about	○	○	○	○
f) I participate in mathematics class by asking the teacher questions	○	○	○	○
g) I concentrate to figure out mathematics problems	○	○	○	○
h) My teacher makes difficult topics seem easy to learn	○	○	○	○

18

How much do you agree with these statements about mathematics?

*Fill **one** circle for each line.*

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

19

How much do you agree with these statements about mathematics?

*Fill **one** circle for each line.*

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

20

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I enjoy learning science	○	○	○	○
b) I wish I did not have to study science	○	○	○	○
c) I read about science in my spare time	○	○	○	○
d) Science is boring	○	○	○	○
e) I learn many interesting things in science	○	○	○	○
f) I like science	○	○	○	○
g) It is important to do well in science	○	○	○	○
h) Science is one of my favorite subjects	○	○	○	○
i) I look forward to science class	○	○	○	○
j) I like to conduct science experiments	○	○	○	○
k) I like science class because it teaches me how things in the world work	○	○	○	○

21

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I know what my teacher expects me to do	○	○	○	○
b) My teacher is easy to understand	○	○	○	○
c) I am interested in what my teacher says	○	○	○	○
d) My teacher gives me interesting things to do	○	○	○	○
e) My teacher asks questions that I have to think hard about	○	○	○	○
f) I participate in science class by asking the teacher questions	○	○	○	○
g) I concentrate to figure out science problems	○	○	○	○
h) My teacher makes hard topics seem easy to learn	○	○	○	○

22

How much do you agree with these statements about science?

*Fill **one** circle for each line.*

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

23

How much do you agree with these statements about science?

*Fill **one** circle for each line.*

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

Homework

24

A. How often does your teacher give you homework in mathematics?

*Fill **one** circle only.*

Every day -- ◯

3 or 4 times a week -- ◯

1 or 2 times a week -- ◯

Less than once a week -- ◯

Never -- ◯

B. When your teacher gives you mathematics homework, about how many minutes do you usually spend on your homework?

*Fill **one** circle only.*

My teacher never gives me homework in mathematics -- ◯

1–15 minutes - ◯

16–30 minutes -- ◯

31–60 minutes -- ◯

61–90 minutes -- ◯

More than 90 minutes -- ◯

25

A. How often does your teacher give you homework in science?

*Fill **one** circle only.*

Every day -- ◯

3 or 4 times a week -- ◯

1 or 2 times a week -- ◯

Less than once a week -- ◯

Never -- ◯

B. When your teacher gives you science homework, about how many minutes do you usually spend on your homework?

*Fill **one** circle only.*

My teacher never gives me homework in science -- ◯

1–15 minutes - ◯

16–30 minutes -- ◯

31–60 minutes -- ◯

61–90 minutes -- ◯

More than 90 minutes -- ◯

TIMSS 2015
Grade 4 Teacher Questionnaire (DRAFT)

G1

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

_____ years

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

G2

Are you female or male?

*Check **one** circle only.*

Female -- ◯

Male -- ◯

G3

How old are you?

*Check **one** circle only.*

Under 25 -- ◯

25–29 -- ◯

30–39 -- ◯

40–49 -- ◯

50–59 -- ◯

60 or more -- ◯

G4

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

*Check **one** circle only.*

Did not complete <ISCED Level 3> -- ◯

Finished <ISCED Level 3> -- ◯

Finished <ISCED Level 4> -- ◯

Finished <ISCED Level 5> -- ◯

Finished <ISCED Level 6> -- ◯

Finished <ISCED Level 7> --- ◯

Finished <ISCED Level 8> -- ◯

G5

A. During your <post-secondary> education, what was your major or main area(s) of study?

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

	Yes	No
a) Education—Primary/Elementary	◯	◯
b) Education—Secondary	◯	◯
c) Mathematics	◯	◯
d) Science	◯	◯
e) <language of test>	◯	◯
f) Other	◯	◯

B. If your major or main area of study was education, did you have a <specialization> in any of the following?

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

	Yes	No
a) Mathematics	◯	◯
b) Science	◯	◯
c) Language/reading	◯	◯
d) Other subject	◯	◯

G6

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

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

Exemplary | High | Medium | Low

a) Teachers' understanding of the school's curricular goals ---
b) Teachers' degree of success in implementing the school's curriculum --------
c) Teachers' expectations for student achievement-------
d) Teachers' working together to improve student achievement ----------
e) Teachers' ability to inspire students ----------
f) Parental commitment to ensure that students are ready to learn ----------
g) Parental expectations for student achievement ----------
h) Parental support for student achievement ----------
i) Parental pressure for the school to maintain high academic standards----------

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

Exemplary | High | Medium | Low

j) Students' desire to do well in school----------
k) Students' ability to reach school's academic goals--------
l) Students' respect for classmates who excel in school----------
m) Clarity of the school's educational objectives ---------
n) Collaboration between school leadership and teachers to plan instruction ---
o) Amount of instructional support provided by school leadership ----------
p) School leadership's support for professional development----------

G7

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

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

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) This school is located in a safe neighborhood	○	○	○	○
b) I feel safe at this school	○	○	○	○
c) This school's security policies and practices are sufficient	○	○	○	○
d) The students behave in an orderly manner	○	○	○	○
e) The students are respectful of the teachers	○	○	○	○
f) The students respect school property	○	○	○	○

G8

In your current school, how severe is each problem?

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

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair	○	○	○	○
b) Classrooms are overcrowded	○	○	○	○
c) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students)	○	○	○	○
d) Teachers do not have adequate instructional materials and supplies	○	○	○	○
e) The temperature in the school building is uncomfortable (too hot, too cold)	○	○	○	○
f) The school classrooms are not well maintained	○	○	○	○

G9

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

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

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

G10

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

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

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

G11

A. How many students are in this class?

_____ students
Write in a number.

B. How many of the students in #G11A are in <fourth grade>?

_____ <fourth-grade> students
Write in a number.

G12

How many <fourth-grade> students experience difficulties understanding <u>spoken</u> <language of test>?

_____ students in this class
Write in a number.

G13

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Summarize what students should have learned from the lesson	○	○	○	○
b) Relate the lesson to students' daily lives	○	○	○	○
c) Use questioning to elicit reasons and explanations	○	○	○	○
d) Encourage all students to improve their performance	○	○	○	○
e) Praise students for good effort	○	○	○	○
f) Bring interesting materials to class	○	○	○	○
g) Ask students to complete challenging exercises that require them to go beyond the instruction	○	○	○	○
h) Encourage classroom discussions among students	○	○	○	○
i) Link new content to students' prior knowledge	○	○	○	○
j) Ask students to decide their own problem solving procedures	○	○	○	○
k) Encourage students to express their opinion in class	○	○	○	○

G14

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

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

	Not applicable	Not at all	Some	A lot
a) Students lacking prerequisite knowledge or skills	○	○	○	○
b) Students suffering from lack of basic nutrition	○	○	○	○
c) Students suffering from not enough sleep	○	○	○	○

Questions M1–M3 ask about mathematics instruction for the <fourth-grade> students in the <TIMSS> class.

M1

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

_____hours and _____minutes per week

Write in the hours and minutes. One hour has 60 minutes.

M2

In teaching mathematics to this class, how confident do you feel to do the following?

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

	Very confident	Somewhat confident	Not confident
a) Answer students' questions about mathematics	○	○	○
b) Show students a variety of problem solving strategies	○	○	○
c) Provide challenging tasks for capable students	○	○	○
d) Adapt my teaching to engage students' interest	○	○	○
e) Help students appreciate the value of learning mathematics	○	○	○
f) Inspire students who are unmotivated to learn mathematics	○	○	○
g) Assess student comprehension of mathematics lessons	○	○	○
h) Improve the understanding of struggling students	○	○	○
i) Build supportive relationships with students	○	○	○
j) Manage the classroom to avoid disruptions	○	○	○
k) Make mathematics relevant to students	○	○	○
l) Challenge students into developing higher order thinking skills	○	○	○

M3

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Listen to me explain how to solve problems	○	○	○	○
b) Memorize rules, procedures, and facts	○	○	○	○
c) Work problems (individually or with peers) with my guidance	○	○	○	○
d) Work problems together in the whole class with direct guidance from me	○	○	○	○
e) Work problems (individually or with peers) while I am occupied by other tasks	○	○	○	○
f) Explain their answers	○	○	○	○
g) Relate what they are learning in mathematics to their daily lives	○	○	○	○
h) Take a written test or quiz	○	○	○	○

Questions M4–M6 ask about resources for teaching mathematics to the <fourth-grade> students in the <TIMSS> class.

M4

When you teach mathematics to this class, how do you use the following resources?

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

	Basis for instruction	Supplement	Not used
a) Textbooks	◯	◯	◯
b) Workbooks or worksheets	◯	◯	◯
c) Concrete objects or materials that help students understand quantities or procedures	◯	◯	◯
d) Computer software/ applications (apps) for mathematics instruction	◯	◯	◯

M5

Are the students in this class permitted to use calculators during mathematics lessons?

*Check **one** circle only.*

- Yes, with unrestricted use ◯
- Yes, with restricted use ◯
- No, calculators are not permitted ◯

M6

A. Do the students in this class have computer(s), including tablet(s) (such as iPads), available to use during their mathematics lessons?

*Check **one** circle only.*

- Yes ◯
- No ◯ → **(If No, go to #M7)**

If Yes,

B. Do any of the computers or tablets have access to the Internet?

*Check **one** circle only.*

- Yes ◯
- No ◯

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

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

	Every or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) Explore mathematics principles and concepts	◯	◯	◯	◯
b) Practice skills and procedures	◯	◯	◯	◯
c) Look up ideas and information	◯	◯	◯	◯

Question M7 asks about the topics taught and the content covered in teaching mathematics to the <fourth-grade> students in the <TIMSS> class.

M7

The following list includes the main topics addressed by the TIMSS 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 the <fourth 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."

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

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
A. Number			
a) Concepts of whole numbers, including place value and ordering	○	○	○
b) Adding, subtracting, multiplying, and/or dividing with whole numbers	○	○	○
c) Concepts of multiples and factors; odd and even numbers	○	○	○
d) Concepts of fractions (fractions as parts of a whole or of a collection, or as a location on a number line)	○	○	○
e) Adding and subtracting with fractions, comparing and ordering fractions	○	○	○
f) Concepts of decimals, including place value and ordering, adding and subtracting with decimals	○	○	○
g) Number sentences (finding the missing number, modeling simple situations with number sentences)	○	○	○
h) Number patterns (extending number patterns and finding missing terms)	○	○	○
B. Geometric Shapes and Measures			
a) Lines: measuring, estimating length of; parallel and perpendicular lines	○	○	○
b) Comparing and drawing angles	○	○	○
c) Using informal coordinate systems to locate points in a plane (e.g., in square B4)	○	○	○
d) Elementary properties of common geometric shapes	○	○	○
e) Reflections and rotations	○	○	○
f) Relationships between two-dimensional and three-dimensional shapes	○	○	○
g) Finding and estimating areas, perimeters, and volumes	○	○	○
C. Data Display			
a) Reading and representing data from tables, pictographs, bar graphs, or pie charts	○	○	○
b) Drawing conclusions from data displays	○	○	○

Question M8 asks about mathematics homework for the <fourth-grade> students in the <TIMSS> class.

M8

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

*Check **one** circle only.*

- I do not assign mathematics homework --- ◯ → **(Go to #M9)**
- Less than once a week --- ◯
- 1 or 2 times a week --- ◯
- 3 or 4 times a week --- ◯
- Every day --- ◯

B. When you assign mathematics 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.)

*Check **one** circle only.*

- 15 minutes or less --- ◯
- 16–30 minutes --- ◯
- 31–60 minutes --- ◯
- more than 60 minutes --- ◯

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

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

	Always or almost always	Sometimes	Never or almost never
a) Correct assignments and give feedback to students	◯	◯	◯
b) Discuss the homework in class	◯	◯	◯
c) Monitor whether or not the homework was completed	◯	◯	◯

Question M9 asks about mathematics assessment for the <fourth-grade> students in the <TIMSS> class.

M9

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

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

	Major emphasis	Some emphasis	Little or no emphasis
a) Evaluation of students' ongoing work	◯	◯	◯
b) Classroom tests (for example, teacher-made or textbook tests)	◯	◯	◯
c) National or regional achievement tests	◯	◯	◯

M10

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

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

	Yes	No
a) Mathematics content	◯	◯
b) Mathematics pedagogy/instruction	◯	◯
c) Mathematics curriculum	◯	◯
d) Integrating information technology into mathematics	◯	◯
e) Mathematics assessment	◯	◯
f) Addressing individual students' needs	◯	◯

M11

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

*Check **one** circle only.*

- None ◯
- Less than 6 hours ◯
- 6–15 hours ◯
- 16–35 hours ◯
- More than 35 hours ◯

M12

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

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

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
A. Number				
a) Concepts of whole numbers, including place value and ordering	○	○	○	○
b) Adding, subtracting, multiplying, and/or dividing with whole numbers	○	○	○	○
c) Concepts of multiples and factors; odd and even numbers	○	○	○	○
d) Concepts of fractions (fractions as parts of a whole or of a collection, or as a location on a number line)	○	○	○	○
e) Adding and subtracting with fractions, comparing and ordering fractions	○	○	○	○
f) Concepts of decimals, including place value and ordering, adding and subtracting with decimals	○	○	○	○
g) Number sentences (finding the missing number, modeling simple situations with number sentences)	○	○	○	○
h) Number patterns (extending number patterns and finding missing terms)	○	○	○	○
B. Geometric Shapes and Measures				
a) Lines: measuring, estimating length of; parallel and perpendicular lines	○	○	○	○
b) Comparing and drawing angles	○	○	○	○
c) Using informal coordinate systems to locate points in a plane (e.g., in square B4)	○	○	○	○
d) Elementary properties of common geometric shapes	○	○	○	○
e) Reflections and rotations	○	○	○	○
f) Relationships between two-dimensional and three-dimensional shapes	○	○	○	○
g) Finding and estimating areas, perimeters, and volumes	○	○	○	○
C. Data Display				
a) Reading and representing data from tables, pictographs, bar graphs, or pie charts	○	○	○	○
b) Drawing conclusions from data displays	○	○	○	○

Questions S1–S3 ask about science instruction for the <fourth-grade> students in the <TIMSS> class.

S1

A. Is science taught mainly as a separate subject (i.e., not integrated with other subjects) to the students in this class?

*Check **one** circle only.*

Yes --- ◯

No --- ◯

B. Please estimate the time that you spend on science topics with students in this class.

_____hours and _____minutes per week

Write in the hours and minutes. One hour has 60 minutes.

S2

In teaching science to this class, how confident do you feel to do the following?

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

	Very confident	Somewhat confident	Not confident
a) Answer students' questions about science	◯	◯	◯
b) Explain science concepts or principles by doing science experiments	◯	◯	◯
c) Provide challenging tasks for capable students	◯	◯	◯
d) Adapt my teaching to engage students' interest	◯	◯	◯
e) Help students appreciate the value of learning science	◯	◯	◯
f) Inspire students who are unmotivated to learn science	◯	◯	◯
g) Assess student comprehension of science lessons	◯	◯	◯
h) Improve the understanding of struggling students	◯	◯	◯
i) Build supportive relationships with students	◯	◯	◯
j) Manage the classroom to avoid disruptions	◯	◯	◯
k) Make science relevant to students	◯	◯	◯
l) Challenge students into developing higher order thinking skills	◯	◯	◯

S3

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Observe natural phenomena such as the weather or a plant growing and describe what they see	○	○	○	○
b) Watch me demonstrate an experiment or investigation	○	○	○	○
c) Design or plan experiments or investigations	○	○	○	○
d) Conduct experiments or investigations	○	○	○	○
e) Summarize or interpret data from experiments or investigations	○	○	○	○
f) Use evidence from experiments or investigations to support conclusions	○	○	○	○
g) Read their textbooks or other resource materials	○	○	○	○
h) Have students memorize facts and principles	○	○	○	○
i) Give explanations about something they are studying	○	○	○	○
j) Relate what they are learning in science to their daily lives	○	○	○	○
k) Do field work outside the class	○	○	○	○
l) Take a written test or quiz	○	○	○	○

Questions S4–S5 ask about resources for teaching science to the <fourth-grade> students in the <TIMSS> class.

S4

When you teach science to this class, how do you use the following resources?

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

	Basis for instruction	Supplement	Not used
a) Textbooks	○	○	○
b) Workbooks or worksheets	○	○	○
c) Science equipment and materials	○	○	○
d) Computer software/ applications (apps) for science instruction	○	○	○
e) Reference materials (e.g., encyclopedia, dictionary)	○	○	○

S5

A. Do the students in this class have computer(s), including tablet(s) (such as iPads), available to use during their science lessons?

*Check **one** circle only.*

Yes --- ◯

No --- ◯ → **(If No, go to #S6)**

If Yes,

B. Do any of the computers or tablets have access to the Internet?

*Check **one** circle only.*

Yes --- ◯

No --- ◯

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

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

	Every or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) Practice skills and procedures	◯	◯	◯	◯
b) Look up ideas and information	◯	◯	◯	◯
c) Do scientific procedures or experiments	◯	◯	◯	◯
d) Study natural phenomena through simulations	◯	◯	◯	◯

Question S6 asks about the topics taught and the content covered in teaching science to the <fourth-grade> students in the <TIMSS> class.

S6

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 <fourth 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."

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

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
A. Life Science			
a) Major body structures and their functions in humans and other organisms (plants and animals)	○	○	○
b) Life cycles and reproduction in plants and animals	○	○	○
c) Physical features, behavior, and survival of organisms living in different environments	○	○	○
d) Relationships in a given community (e.g., simple food chains, predator-prey relationships), human impact on the environment	○	○	○
e) Human health (e.g., transmission/prevention of communicable diseases, signs of health/illness, diet, exercise)	○	○	○
B. Physical Science			
a) States of matter (solids, liquids, gases) and differences in their physical properties (shape, volume), including changes in state of matter by heating and cooling	○	○	○
b) Classification of objects/materials based on physical properties (e.g., weight/mass, volume, magnetic attraction)	○	○	○
c) Forming and separating mixtures	○	○	○
d) Familiar chemical changes in materials (e.g., decaying, burning, rusting, cooking)	○	○	○
e) Common energy sources/forms and their practical uses (e.g., the Sun, electricity, water, wind/electricity, heat)	○	○	○
f) Light (e.g., sources, behavior)	○	○	○
g) Electricity and simple electrical systems	○	○	○
h) Magnetic attraction and repulsion	○	○	○
i) Forces that cause objects to move (e.g., gravity, push/pull forces)	○	○	○
C. Earth Science			
a) Common features of Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	○	○	○
b) Water on Earth (location, types, and movement) and air (composition, proof of its existence, uses)	○	○	○
c) Weather conditions from day to day or over the seasons	○	○	○
d) Fossils of animals and plants (age, location, formation)	○	○	○
e) Earth's solar system (planets, Sun, Moon)	○	○	○
f) Day, night, and shadows due to Earth's rotation and its relationship to the Sun	○	○	○
g) Seasons related to Earth's movement around the Sun	○	○	○

Question S7 asks about science homework for the <fourth-grade> students in the <TIMSS> class.

S7

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

*Check **one** circle only.*

- I do not assign science homework --- ◯ → **(Go to #S8)**
- Less than once a week --- ◯
- 1 or 2 times a week --- ◯
- 3 or 4 times a week --- ◯
- Every day --- ◯

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.)

*Check **one** circle only.*

- 15 minutes or less --- ◯
- 16–30 minutes --- ◯
- 31–60 minutes --- ◯
- more than 60 minutes --- ◯

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

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

	Always or almost always	Sometimes	Never or almost never
a) Correct assignments and give feedback to students	◯	◯	◯
b) Discuss the homework in class	◯	◯	◯
c) Monitor whether or not the homework was completed	◯	◯	◯

Question S8 asks about science assessment for the <fourth-grade> students in the <TIMSS> class.

S8

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

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

	Major emphasis	Some emphasis	Little or no emphasis
a) Evaluation of students' ongoing work	◯	◯	◯
b) Classroom tests (for example, teacher-made or textbook tests)	◯	◯	◯
c) National or regional achievement tests	◯	◯	◯

S9

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

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

	Yes	No
a) Science content	◯	◯
b) Science pedagogy/instruction	◯	◯
c) Science curriculum	◯	◯
d) Integrating information technology into science	◯	◯
e) Science assessment	◯	◯
f) Addressing individual students' needs	◯	◯

S10

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

*Check **one** circle only.*

- None ◯
- Less than 6 hours ◯
- 6–15 hours ◯
- 16–35 hours ◯
- More than 35 hours ◯

S11

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

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

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
A. Life Science				
a) Major body structures and their functions in humans and other organisms (plants and animals)	○	○	○	○
b) Life cycles and reproduction in plants and animals	○	○	○	○
c) Physical features, behavior, and survival of organisms living in different environments	○	○	○	○
d) Relationships in a given community (e.g., simple food chains, predator-prey relationships), human impact on the environment	○	○	○	○
e) Human health (e.g., transmission/prevention of communicable diseases, signs of health/illness, diet, exercise)	○	○	○	○
B. Physical Science				
a) States of matter (solids, liquids, gases) and differences in their physical properties (shape, volume), including changes in state of matter by heating and cooling	○	○	○	○
b) Classification of objects/materials based on physical properties (e.g., weight/mass, volume, magnetic attraction)	○	○	○	○
c) Forming and separating mixtures	○	○	○	○
d) Familiar chemical changes in materials (e.g., decaying, burning, rusting, cooking)	○	○	○	○
e) Common energy sources/forms and their practical uses (e.g., the Sun, electricity, water, wind/electricity, heat)	○	○	○	○
f) Light (e.g., sources, behavior)	○	○	○	○
g) Electricity and simple electrical systems	○	○	○	○
h) Magnetic attraction and repulsion	○	○	○	○
i) Forces that cause objects to move (e.g., gravity, push/pull forces)	○	○	○	○
C. Earth Science				
a) Common features of Earth's landscape (e.g., mountains, plains, rivers, deserts) and relationship to human use (e.g., farming, irrigation, land development)	○	○	○	○
b) Water on Earth (location, types, and movement) and air (composition, proof of its existence, uses)	○	○	○	○
c) Weather conditions from day to day or over the seasons	○	○	○	○
d) Fossils of animals and plants (age, location, formation)	○	○	○	○
e) Earth's solar system (planets, Sun, Moon)	○	○	○	○
f) Day, night, and shadows due to Earth's rotation and its relationship to the Sun	○	○	○	○
g) Seasons related to Earth's movement around the Sun	○	○	○	○

TIMSS 2015
Grade 8 Mathematics Teacher Questionnaire (DRAFT)

1

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

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

2

Are you female or male?

*Check **one** circle only.*

Female --- ◯
Male --- ◯

3

How old are you?

*Check **one** circle only.*

Under 25 --- ◯
25–29 --- ◯
30–39 --- ◯
40–49 --- ◯
50–59 --- ◯
60 or more --- ◯

4

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

*Check **one** circle only.*

Did not complete <ISCED Level 3> --- ◯
Finished <ISCED Level 3> --- ◯
Finished <ISCED Level 4> --- ◯
Finished <ISCED Level 5> --- ◯
Finished <ISCED Level 6> --- ◯
Finished <ISCED Level 7> --- ◯
Finished <ISCED Level 8> --- ◯

5

During your <post-secondary> education, what was your major or main area(s) of study?

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

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

6

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

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

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

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

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

7

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

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

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) This school is located in a safe neighborhood	○	○	○	○
b) I feel safe at this school	○	○	○	○
c) This school's security policies and practices are sufficient	○	○	○	○
d) The students behave in an orderly manner	○	○	○	○
e) The students are respectful of the teachers	○	○	○	○
f) The students respect school property	○	○	○	○

8

In your current school, how severe is each problem?

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

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair	○	○	○	○
b) Classrooms are overcrowded	○	○	○	○
c) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students)	○	○	○	○
d) Teachers do not have adequate instructional materials and supplies	○	○	○	○
e) The temperature in the school building is uncomfortable (too hot, too cold)	○	○	○	○
f) The school classrooms are not well maintained	○	○	○	○

9

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

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

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

10

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

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

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

11

How many students are in this class?

_____ students
Write in a number.

12

How many <eighth-grade> students experience difficulties understanding spoken <language of test>?

_____ students in this class
Write in a number.

13

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Summarize what students should have learned from the lesson	○	○	○	○
b) Use questioning to elicit reasons and explanations	○	○	○	○
c) Encourage all students to improve their performance	○	○	○	○
d) Praise students for good effort	○	○	○	○
e) Ask students to complete challenging exercises that require them to go beyond the instruction	○	○	○	○
f) Encourage classroom discussions among students	○	○	○	○
g) Link new content to students' prior knowledge	○	○	○	○
h) Ask students to decide their own problem solving procedures	○	○	○	○
i) Encourage students to express their opinion in class	○	○	○	○

14

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

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

	Not applicable	Not at all	Some	A lot
a) Students lacking prerequisite knowledge or skills	○	○	○	○
b) Students suffering from lack of basic nutrition	○	○	○	○
c) Students suffering from not enough sleep	○	○	○	○

Questions 15-17 ask about mathematics instruction for the <eighth-grade> students in the TIMSS class.

15

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

_____hours and _____minutes per week

Write in the hours and minutes. One hour has 60 minutes.

16

In teaching mathematics to this class, how confident do you feel to do the following?

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

	Very confident	Somewhat confident	Not confident
a) Answer students' questions about mathematics	○	○	○
b) Show students a variety of problem solving strategies	○	○	○
c) Provide challenging tasks for capable students	○	○	○
d) Adapt my teaching to engage students' interest	○	○	○
e) Help students appreciate the value of learning mathematics	○	○	○
f) Inspire students who are unmotivated to learn mathematics	○	○	○
g) Assess student comprehension of mathematics lessons	○	○	○
h) Improve the understanding of struggling students	○	○	○
i) Build supportive relationships with students	○	○	○
j) Manage the classroom to avoid disruptions	○	○	○
k) Make mathematics relevant to students	○	○	○
l) Challenge students into developing higher order thinking skills	○	○	○

17

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Listen to me explain how to solve problems	○	○	○	○
b) Memorize rules, procedures, and facts	○	○	○	○
c) Work problems (individually or with peers) with my guidance	○	○	○	○
d) Work problems together in the whole class with direct guidance from me	○	○	○	○
e) Work problems (individually or with peers) while I am occupied by other tasks	○	○	○	○
f) Apply facts, concepts, and procedures to solve routine problems	○	○	○	○
g) Explain their answers	○	○	○	○
h) Relate what they are learning in mathematics to their daily lives	○	○	○	○
i) Decide on their own procedures for solving complex problems	○	○	○	○
j) Work on problems for which there is no immediately obvious method of solution	○	○	○	○
k) Take a written test or quiz	○	○	○	○

Questions 18–20 ask about resources for teaching mathematics to the <eighth-grade> students in the TIMSS class.

18

When you teach mathematics to this class, how do you use the following resources?

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

	Basis for instruction	Supplement	Not used
a) Textbooks	○	○	○
b) Workbooks or worksheets	○	○	○
c) Concrete objects or materials that help students understand quantities or procedures	○	○	○
d) Computer software/ applications (apps) for mathematics instruction	○	○	○

19

A. Are the students in this class permitted to use calculators during mathematics lessons?

*Check **one** circle only.*

- Yes, with unrestricted use ○
- Yes, with restricted use ○
- No, calculators are not permitted ○ → **(If No, go to #20)**

If Yes,

B. How often do students in this class use calculators in their mathematics lessons for the following activities?

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Check answers	○	○	○	○
b) Do routine computations	○	○	○	○
c) Solve complex problems	○	○	○	○
d) Explore number concepts	○	○	○	○

20

A. Do the students in this class have computer(s), including tablet(s) (such as iPads), available to use during their mathematics lessons?

*Check **one** circle only.*

Yes --- ◯

No --- ◯ → **(If No, go to #21)**

If Yes,

B. Do any of the computers or tablets have access to the Internet?

*Check **one** circle only.*

Yes --- ◯

No --- ◯

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

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

	Every or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) Explore mathematics principles and concepts --------	◯	◯	◯	◯
b) Practice skills and procedures -	◯	◯	◯	◯
c) Look up ideas and information ----------	◯	◯	◯	◯
d) Process and analyze data ------	◯	◯	◯	◯

Question 21 asks about the topics taught and the content covered in teaching mathematics to the <eighth-grade> students in the TIMSS class.

21

The following list includes the main topics addressed by the TIMSS 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 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."

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

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
A. Number			
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	○	○	○
B. Algebra			
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.)	○	○	○
C. Geometry			
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	○	○	○
D. Data and Chance			
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	○	○	○

Question 22 asks about mathematics homework for the <eighth-grade> students in the TIMSS class.

22

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

*Check **one** circle only.*

- I do not assign mathematics homework --- ◯ **(Go to #23)**
- Less than once a week --- ◯
- 1 or 2 times a week --- ◯
- 3 or 4 times a week --- ◯
- Every day --- ◯

B. When you assign mathematics 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.)

*Check **one** circle only.*

- 15 minutes or less --- ◯
- 16–30 minutes --- ◯
- 31–60 minutes --- ◯
- 61–90 minutes --- ◯
- More than 90 minutes --- ◯

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

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

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

Questions 23–25 ask about mathematics assessment for the <eighth-grade> students in the TIMSS class.

23

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

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

	Major emphasis	Some emphasis	Little or no emphasis
a) Evaluation of students' ongoing work	○	○	○
b) Classroom tests (for example, teacher-made or textbook tests)	○	○	○
c) National or regional achievement tests	○	○	○

24

How often do you give a mathematics test or examination to this class?

*Check **one** circle only.*

- About once a week ○
- About every two weeks ○
- About once a month ○
- A few times a year ○
- Never ○

25

How often do you include the following types of questions in your mathematics tests or examinations?

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

	Always or almost always	Sometimes	Never or almost never
a) Questions based on recall of facts and procedures	○	○	○
b) Questions involving application of mathematical procedures	○	○	○
c) Questions involving searching for patterns and relationships	○	○	○
d) Questions requiring explanations or justifications	○	○	○

26

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

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

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

27

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

*Check **one** circle only.*

- None ◯
- Less than 6 hours ◯
- 6–15 hours ◯
- 16–35 hours ◯
- More than 35 hours ◯

28

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

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

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
A. Number				
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	○	○	○	○
B. Algebra				
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.)	○	○	○	○
C. Geometry				
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	○	○	○	○
D. Data and Chance				
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	○	○	○	○

TIMSS 2015
Grade 8 Science Teacher Questionnaire (DRAFT)

1

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

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

2

Are you female or male?

*Check **one** circle only.*

Female --- ◯
Male --- ◯

3

How old are you?

*Check **one** circle only.*

Under 25 --- ◯
25–29 --- ◯
30–39 --- ◯
40–49 --- ◯
50–59 --- ◯
60 or more --- ◯

4

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

*Check **one** circle only.*

Did not complete <ISCED Level 3> --- ◯
Finished <ISCED Level 3> --- ◯
Finished <ISCED Level 4> --- ◯
Finished <ISCED Level 5> --- ◯
Finished <ISCED Level 6> --- ◯
Finished <ISCED Level 7> --- ◯
Finished <ISCED Level 8> --- ◯

5

During your <post-secondary> education, what was your major or main area(s) of study?

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

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

6

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

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

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

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

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

7

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

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

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) This school is located in a safe neighborhood	○	○	○	○
b) I feel safe at this school	○	○	○	○
c) This school's security policies and practices are sufficient	○	○	○	○
d) The students behave in an orderly manner	○	○	○	○
e) The students are respectful of the teachers	○	○	○	○
f) The students respect school property	○	○	○	○

8

In your current school, how severe is each problem?

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

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair	○	○	○	○
b) Classrooms are overcrowded	○	○	○	○
c) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students)	○	○	○	○
d) Teachers do not have adequate instructional materials and supplies	○	○	○	○
e) The temperature in the school building is uncomfortable (too hot, too cold)	○	○	○	○
f) The school classrooms are not well maintained	○	○	○	○

9

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

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

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

10

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

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

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

11

How many students are in this class?

_____ students
Write in a number.

12

How many <eighth-grade> students experience difficulties understanding spoken <language of test>?

_____ students in this class
Write in a number.

13

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Summarize what students should have learned from the lesson	○	○	○	○
b) Use questioning to elicit reasons and explanations	○	○	○	○
c) Encourage all students to improve their performance	○	○	○	○
d) Praise students for good effort	○	○	○	○
e) Ask students to complete challenging exercises that require them to go beyond the instruction	○	○	○	○
f) Encourage classroom discussions among students	○	○	○	○
g) Link new content to students' prior knowledge	○	○	○	○
h) Ask students to decide their own problem solving procedures	○	○	○	○
i) Encourage students to express their opinion in class	○	○	○	○

14

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

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

	Not applicable	Not at all	Some	A lot
a) Students lacking prerequisite knowledge or skills	○	○	○	○
b) Students suffering from lack of basic nutrition	○	○	○	○
c) Students suffering from not enough sleep	○	○	○	○

Questions 15–17 ask about science instruction for the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

15

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

_____hours and _____minutes per week

Write in the hours and minutes. One hour has 60 minutes.

16

In teaching science to this class, how confident do you feel to do the following?

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

	Very confident	Somewhat confident	Not confident
a) Answer students' questions about science	○	○	○
b) Explain science concepts or principles by doing science experiments	○	○	○
c) Provide challenging tasks for capable students	○	○	○
d) Adapt my teaching to engage students' interest	○	○	○
e) Help students appreciate the value of learning science	○	○	○
f) Inspire students who are unmotivated to learn science	○	○	○
g) Assess student comprehension of science lessons	○	○	○
h) Improve the understanding of struggling students	○	○	○
i) Build supportive relationships with students	○	○	○
j) Manage the classroom to avoid disruptions	○	○	○
k) Make science relevant to students	○	○	○
l) Challenge students into developing higher order thinking skills	○	○	○

17

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Observe natural phenomena and describe what they see	○	○	○	○
b) Watch me demonstrate an experiment or investigation	○	○	○	○
c) Design or plan experiments or investigations	○	○	○	○
d) Conduct experiments or investigations	○	○	○	○
e) Summarize or interpret data from experiments or investigations	○	○	○	○
f) Use evidence from experiments or investigations to support conclusions	○	○	○	○
g) Read their textbooks or other resource materials	○	○	○	○
h) Have students memorize facts and principles	○	○	○	○
i) Use scientific formulas and laws to solve routine problems	○	○	○	○
j) Give explanations about something they are studying	○	○	○	○
k) Relate what they are learning in science to their daily lives	○	○	○	○
l) Do field work outside of class	○	○	○	○
m) Take a written test or quiz	○	○	○	○

Questions 18–19 ask about resources for teaching science to the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

18

When you teach science to this class, how do you use the following resources?

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

	Basis for instruction	Supplement	Not used
a) Textbooks	◯	◯	◯
b) Workbooks or worksheets	◯	◯	◯
c) Science equipment and materials	◯	◯	◯
d) Computer software/ applications (apps) for science instruction	◯	◯	◯
e) Reference materials (e.g., encyclopedia, dictionary)	◯	◯	◯

19

A. Do the students in this class have computer(s), including tablet(s) (such as iPads), available to use during their science lessons?

*Check **one** circle only.*

Yes --- ◯

No --- ◯ → **(If No, go to #20)**

If Yes,

B. Do any of the computers or tablets have access to the Internet?

*Check **one** circle only.*

Yes --- ◯

No --- ◯

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

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

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

Question 20 asks about the topics taught and the content covered in teaching science to the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

20

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."

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

	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)	○	○	○
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)	○	○	○
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	○	○	○
B. Chemistry			
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	○	○	○

20 (continued)

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."

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

	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)	○	○	○
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)	○	○	○
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)	○	○	○
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)	○	○	○

Question 21 asks about science homework for the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

21

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

*Check **one** circle only.*

- I do not assign science homework --- ○ **(Go to #22)**
- Less than once a week --- ○
- 1 or 2 times a week --- ○
- 3 or 4 times a week --- ○
- Every day --- ○

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.)

*Check **one** circle only.*

- 15 minutes or less --- ○
- 16–30 minutes --- ○
- 31–60 minutes --- ○
- 61–90 minutes --- ○
- More than 90 minutes --- ○

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

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

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

Questions 22–24 ask about science assessment for the <eighth-grade> students in the <TIMSS class/class with the TIMSS students>.

22

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

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

	Major emphasis	Some emphasis	Little or no emphasis
a) Evaluation of students' ongoing work	○	○	○
b) Classroom tests (for example, teacher-made or textbook tests)	○	○	○
c) National or regional achievement tests	○	○	○

23

How often do you give a science test or examination to this class?

*Check **one** circle only.*

- About once a week ○
- About every two weeks ○
- About once a month ○
- A few times a year ○
- Never ○

24

How often do you include the following types of questions in your science tests or examinations?

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

	Always or almost always	Sometimes	Never or almost never
a) Questions based on knowing facts and concepts	○	○	○
b) Questions based on the application of knowledge and understanding	○	○	○
c) Questions involving developing hypotheses and designing scientific investigations	○	○	○
d) Questions requiring explanations or justifications	○	○	○

25

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

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

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

26

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

*Check **one** circle only.*

- None ◯
- Less than 6 hours ◯
- 6–15 hours ◯
- 16–35 hours ◯
- More than 35 hours ◯

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."

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

	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)	○	○	○	○
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)	○	○	○	○
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	○	○	○	○
B. Chemistry				
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	○	○	○	○

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."

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

	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)	○	○	○	○
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)	○	○	○	○
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)	○	○	○	○
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)	○	○	○	○

TIMSS 2015
Grade 4 School Questionnaire (DRAFT)

1

What is the total enrollment of students in your school as of <first day of month TIMSS testing begins, 2014>?

_____ students
Write in a number.

2

What is the total enrollment of <fourth-grade> students in your school as of <first day of month TIMSS testing begins, 2014>?

_____ students
Write in a number.

3

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

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

	0 to 10%	11 to 25%	26 to 50%	More than 50%
a) Come from economically disadvantaged homes	◯	◯	◯	◯
b) Come from economically affluent homes	◯	◯	◯	◯

4

Approximately what percentage of students in your school have <language of test> as their native language?

*Check **one** circle only.*

- More than 90% ◯
- 76 to 90% ◯
- 51 to 75% ◯
- 26 to 50% ◯
- 25% or less ◯

5

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

*Check **one** circle only.*

- More than 500,000 people ◯
- 100,001 to 500,000 people ◯
- 50,001 to 100,000 people ◯
- 15,001 to 50,000 people ◯
- 3,001 to 15,000 people ◯
- 3,000 people or fewer ◯

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

*Check **one** circle only.*

- Urban–Densely populated ◯
- Suburban–On fringe or outskirts of urban area ◯
- Medium size city or large town ◯
- Small town or village ◯
- Remote rural ◯

6

For the <fourth-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 and _____minutes
Write in the number of hours and minutes.
One hour has 60 minutes.

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

*Check **one** circle only.*

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

7

What is the total number of computers including tablets (such as iPads) that can be used for instructional purposes by <fourth-grade> students?

_____computers
Write in the number.

8

Does your school have a science laboratory that can be used by <fourth-grade> students?

*Check **one** circle only.*

- Yes --- ◯
- No --- ◯

9

Does your school have a school library?

*Check **one** circle only.*

Yes ---

No ---

(If No, go to #10)

If Yes,

A. <u>Approximately</u> how many books (print and digital) with different titles does your school library have (exclude magazines and periodicals)?

*Check **one** circle in each column.*

	Print	Digital
250 or fewer		
251–500		
501–2,000		
2,001–5,000		
5,001–10,000		
More than 10,000		

B. <u>Approximately</u> how many titles of magazines and other periodicals (print and digital) does your school library have?

*Check **one** circle in each column.*

	Print	Digital
0		
1–5		
6–10		
11–30		
31 or more		

10

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

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

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

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

	Not at all	A little	Some	A lot
B. Resources for Mathematics Instruction				
a) Teachers with a specialization in mathematics	○	○	○	○
b) Computer software/ applications for mathematics instruction	○	○	○	○
c) Library resources relevant to mathematics instruction	○	○	○	○
d) Calculators for mathematics instruction	○	○	○	○
C. Resources for Science Instruction				
a) Teachers with a specialization in science	○	○	○	○
b) Computer software/ applications for science instruction	○	○	○	○
c) Library resources relevant to science instruction	○	○	○	○
d) Science equipment and materials	○	○	○	○

11

How often does your school do the following for parents in general?

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

	Never	Once a year	2–3 times a year	More than 3 times a year
a) Inform parents about the overall academic achievement of the school (e.g., results of national tests, results of inspections of learning)	○	○	○	○
b) Inform parents about the educational goals and pedagogical principles of the school	○	○	○	○
c) Provide parents with additional learning materials (e.g., books, computer software) for their child to use at home	○	○	○	○
d) Organize workshops or seminars for parents on learning or pedagogical issues	○	○	○	○

12

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

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

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

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

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

13

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

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

	Not a problem	Minor problem	Moderate problem	Serious problem
a) Arriving late at school	○	○	○	○
b) Absenteeism (i.e., unjustified absences)	○	○	○	○
c) Classroom disturbance	○	○	○	○
d) Cheating	○	○	○	○
e) Profanity	○	○	○	○
f) Vandalism	○	○	○	○
g) Students' disregard for school property	○	○	○	○
h) Theft	○	○	○	○
i) Intimidation or verbal abuse among students (including texting, emailing, etc.)	○	○	○	○
j) Physical fights among students	○	○	○	○
k) Intimidation or verbal abuse of teachers or staff (including texting, emailing, etc.)	○	○	○	○

14

During the past year, approximately how much time have you spent on the following school leadership activities in your role as a school principal?

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

	No time	Some time	A lot of time
a) Promoting the school's educational vision or goals	○	○	○
b) Developing the school's curricular and educational goals	○	○	○
c) Monitoring teachers' implementation of the school's educational goals in their teaching	○	○	○
d) Monitoring students' learning progress to ensure that the school's educational goals are reached	○	○	○
e) Keeping an orderly atmosphere in the school	○	○	○
f) Addressing disruptive student behavior	○	○	○
g) Advising teachers who have questions or problems with their teaching	○	○	○
h) Initiating educational projects or improvements	○	○	○
i) Participating in professional development activities specifically for school principals	○	○	○

15

About how many of the students in your school can do the following when they begin primary/ elementary school?

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

	Less than 25%	25–50%	51–75%	More than 75%
a) Recognize most of the letters of the alphabet	○	○	○	○
b) Read some words	○	○	○	○
c) Read sentences	○	○	○	○
d) Write letters of the alphabet	○	○	○	○
e) Write some words	○	○	○	○
f) Count up to 100 or higher	○	○	○	○
g) Recognize written numbers from 1-100	○	○	○	○
h) Write numbers from 1-100	○	○	○	○

TIMSS 2015
Grade 8 School Questionnaire (DRAFT)

1

What is the total enrollment of students in your school as of <first day of month TIMSS testing begins, 2014>?

_____ students
Write in a number.

2

What is the total enrollment of <eighth-grade> students in your school as of <first day of month TIMSS testing begins, 2014>?

_____ students
Write in a number.

3

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

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

	0 to 10%	11 to 25%	26 to 50%	More than 50%
a) Come from economically disadvantaged homes	◯	◯	◯	◯
b) Come from economically affluent homes	◯	◯	◯	◯

4

Approximately what percentage of students in your school have <language of test> as their native language?

*Check **one** circle only.*

- More than 90% -- ◯
- 76 to 90% -- ◯
- 51 to 75% -- ◯
- 26 to 50% -- ◯
- 25% or less -- ◯

5

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

*Check **one** circle only.*

- More than 500,000 people -- ◯
- 100,001 to 500,000 people -- ◯
- 50,001 to 100,000 people -- ◯
- 15,001 to 50,000 people -- ◯
- 3,001 to 15,000 people -- ◯
- 3,000 people or fewer -- ◯

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

*Check **one** circle only.*

- Urban–Densely populated -- ◯
- Suburban–On fringe or outskirts of urban area -- ◯
- Medium size city or large town -- ◯
- Small town or village -- ◯
- Remote rural -- ◯

6

For the <eighth-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 and _____minutes
Write in the number of hours and minutes.
One hour has 60 minutes.

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

*Check **one** circle only.*

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

7

What is the total number of computers including tablets (such as iPads) that can be used for instructional purposes by <eighth-grade> students?

_____computers
Write in the number.

8

A. Does your school have a science laboratory that can be used by <eighth-grade> students?

*Check **one** circle only.*

- Yes --- ◯
- No --- ◯

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

*Check **one** circle only.*

- Yes --- ◯
- No --- ◯

9

Does your school have a school library?

*Check **one** circle only.*

Yes ---

No ---

(If No, go to #10)

If Yes,

A. <u>Approximately</u> how many books (print and digital) with different titles does your school library have (exclude magazines and periodicals)?

*Check **one** circle in each column.*

	Print	Digital
250 or fewer		
251–500		
501–2,000		
2,001–5,000		
5,001–10,000		
More than 10,000		

B. <u>Approximately</u> how many titles of magazines and other periodicals (print and digital) does your school library have?

*Check **one** circle in each column.*

	Print	Digital
0		
1–5		
6–10		
11–30		
31 or more		

10

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

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

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

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

	Not at all	A little	Some	A lot
B. Resources for Mathematics Instruction				
a) Teachers with a specialization in mathematics	○	○	○	○
b) Computer software/ applications for mathematics instruction	○	○	○	○
c) Library resources relevant to mathematics instruction	○	○	○	○
d) Calculators for mathematics instruction	○	○	○	○
C. Resources for Science Instruction				
a) Teachers with a specialization in science	○	○	○	○
b) Computer software/ applications for science instruction	○	○	○	○
c) Library resources relevant to science instruction	○	○	○	○
d) Calculators for science instruction	○	○	○	○
e) Science equipment and materials	○	○	○	○

11

How often does your school do the following for parents in general?

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

	Never	Once a year	2–3 times a year	More than 3 times a year
a) Inform parents about the overall academic achievement of the school (e.g., results of national tests, results of inspections of learning)	○	○	○	○
b) Inform parents about the educational goals and pedagogical principles of the school	○	○	○	○
c) Provide parents with additional learning materials (e.g., books, computer software) for their child to use at home	○	○	○	○
d) Organize workshops or seminars for parents on learning or pedagogical issues	○	○	○	○

12

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

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

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

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

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

13

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

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

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

14

How difficult was it to fill <eighth-grade> teaching vacancies for this school year for the following subjects?

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

	Were no vacancies in this subject	Easy to fill vacancies	Somewhat difficult	Very difficult
a) Mathematics	○	○	○	○
b) Science	○	○	○	○

15

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

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

	Yes	No
a) Mathematics	○	○
b) Science	○	○
c) Other	○	○

16

During the past year, approximately how much time have you spent on the following school leadership activities in your role as a school principal?

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

	No time	Some time	A lot of time
a) Promoting the school's educational vision or goals	◯	◯	◯
b) Developing the school's curricular and educational goals	◯	◯	◯
c) Monitoring teachers' implementation of the school's educational goals in their teaching	◯	◯	◯
d) Monitoring students' learning progress to ensure that the school's educational goals are reached	◯	◯	◯
e) Keeping an orderly atmosphere in the school	◯	◯	◯

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

	No time	Some time	A lot of time
f) Addressing disruptive student behavior	◯	◯	◯
g) Advising teachers who have questions or problems with their teaching	◯	◯	◯
h) Initiating educational projects or improvements	◯	◯	◯
i) Participating in professional development activities specifically for school principals	◯	◯	◯

About you

1

Are you female or male?

*Fill **one** circle only.*

Female -- ◯

Male -- ◯

2

When were you born?

Fill the circles next to the month and year you were born.

a) Month

January -- ◯
February -- ◯
March -- ◯
April -- ◯
May -- ◯
June -- ◯
July -- ◯
August -- ◯
September -- ◯
October -- ◯
November -- ◯
December -- ◯

b) Year

1993 -- ◯
1994 -- ◯
1995 -- ◯
1996 -- ◯
1997 -- ◯
1998 -- ◯
1999 -- ◯
2000 -- ◯
2001 -- ◯
Other -- ◯

3

How often do you speak <language of test> at home?

*Fill **one** circle only.*

Always --◯

Almost always --◯

Sometimes --◯

Never --◯

4

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

*Fill **one** circle only.*

None or very few (0–10 books) --◯

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

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

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

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

5

Do you or your family have a device that you use for reading ebooks?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

6

Do you have any of these things at your home?

*Fill **one** circle for each line.*

		Yes	No
a)	A computer or tablet (such as iPad) of your own	◯	◯
b)	A computer or tablet (such as iPad) that is shared with other people at home	◯	◯
c)	Study desk/table for your use	◯	◯
d)	Your own room	◯	◯
e)	Internet connection	◯	◯
f)	Your own graphing calculator	◯	◯
g)	Your own mobile phone	◯	◯
h)	A gaming system (e.g., PlayStation®, Wii®, XBox®)	◯	◯
i)	<country-specific indicator of wealth>	◯	◯
j)	<country-specific indicator of wealth>	◯	◯
k)	<country-specific indicator of wealth>	◯	◯

7

A. What is the highest level of education completed by your mother <or stepmother or female guardian>?

*Fill **one** circle only.*

Some <ISCED Level 1 or 2 > or did not go to school ---------- ◯

<ISCED Level 2> ---------- ◯

<ISCED Level 3> ---------- ◯

<ISCED Level 4> ---------- ◯

<ISCED Level 5> ---------- ◯

<ISCED Level 6> ---------- ◯

<ISCED Level 7> ---------- ◯

<ISCED Level 8> ---------- ◯

I don't know ---------- ◯

B. What is the highest level of education completed by your father <or stepfather or male guardian>?

*Fill **one** circle only.*

Some <ISCED Level 1 or 2 > or did not go to school ---------- ◯

<ISCED Level 2> ---------- ◯

<ISCED Level 3> ---------- ◯

<ISCED Level 4> ---------- ◯

<ISCED Level 5> ---------- ◯

<ISCED Level 6> ---------- ◯

<ISCED Level 7> ---------- ◯

<ISCED Level 8> ---------- ◯

I don't know ---------- ◯

8

How far in your education do you expect to go?

*Fill **one** circle only.*

Finish <ISCED Level 2> ---------- ◯

Finish <ISCED Level 3> ---------- ◯

Finish <ISCED Level 4> ---------- ◯

Finish <ISCED Level 5> ---------- ◯

Finish <ISCED Level 6> ---------- ◯

Finish <ISCED Level 7> ---------- ◯

Finish <ISCED Level 8> ---------- ◯

I don't know ---------- ◯

9

A. Was your mother <or stepmother or female guardian> born in <country>?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

B. Was your father <or stepfather or male guardian> born in <country>?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

10

A. Were you born in <country>?

*Fill **one** circle only.*

Yes -- ◯ → **(If Yes, go to #11)**

No -- ◯

If No,

B. If you were not born in <country>, how old were you when you came to <country>?

*Fill **one** circle only.*

Older than 15 years old -- ◯

11 to 15 years old -- ◯

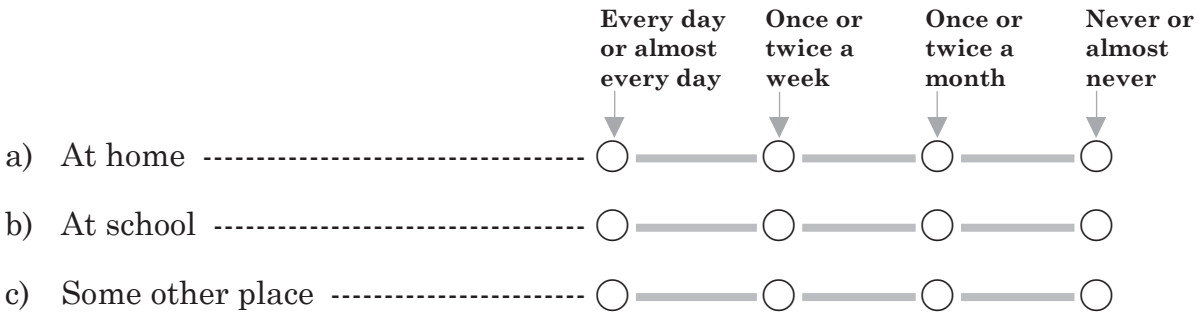
5 to 10 years old -- ◯

Younger than 5 years old -- ◯

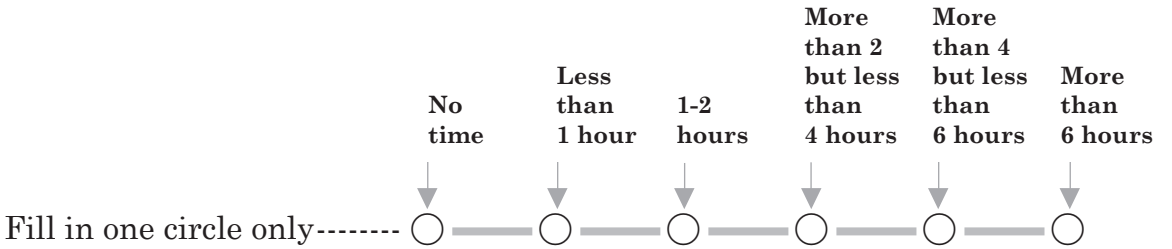
11

A. How often do you use a computer or tablet (such as iPad) in each of these places?

*Fill **one** circle for each line.*



B. How much time each day, on average, do you spend using a computer or tablet? (Do not include PlayStation®, Wii®, XBox®, or other gaming system.)



(If No Time, go to #12)

11

C. How often do you use a computer or tablet to work on mathematics outside of class?

*Fill **one** circle only.*

Almost every day -- ◯

Once or twice a week -- ◯

About once a month -- ◯

Never or almost never -- ◯

D. When you use a computer or tablet for your schoolwork, what do you use it for?

*Fill **one** circle for each line.*

	Yes	No
a) Researching information from the Internet	◯	◯
b) Word processing	◯	◯
c) Analyzing and presenting data (e.g., spreadsheets, graphing)	◯	◯
d) Using specialized programs (e.g., simulations, algebra programs)	◯	◯
e) Other	◯	◯

12

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I like being in school	○	○	○	○
b) I feel safe when I am at school	○	○	○	○
c) I feel like I belong at this school	○	○	○	○
d) I like to see my friends at school	○	○	○	○
e) I feel like my classmates care about me	○	○	○	○
f) Teachers at my school are fair to me	○	○	○	○
g) My teachers respect my ideas	○	○	○	○

13

During this year, how often have other students from your school done any of the following things to you (including through text messages (SMS), e-mails, or the Internet)?

*Fill **one** circle for each line.*

	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	○	○	○	○
b) Left me out of games or activities	○	○	○	○
c) Spread lies about me	○	○	○	○
d) Stole something from me	○	○	○	○
e) Hit or hurt me (*e.g., shoving, hitting, kicking*)	○	○	○	○
f) Made me do things I didn't want to do	○	○	○	○
g) Shared embarrassing information about me	○	○	○	○
h) Threatened me	○	○	○	○

14

Why are you studying advanced mathematics?
Please indicate how important each reason was for you.

*Fill **one** circle for each line.*

	Very important	Important	Unimportant	Very un-important
a) I enjoy solving mathematical problems	○	○	○	○
b) I usually do well in mathematics	○	○	○	○
c) Advanced mathematics lessons are interesting	○	○	○	○
d) Studying or doing mathematics homework does not take me a lot of time	○	○	○	○
e) I need advanced mathematics to pursue the career of my choice	○	○	○	○
f) Advanced mathematics has good teachers	○	○	○	○
g) My parents advised me to study advanced mathematics	○	○	○	○
h) I expect that I will easily pass the tests	○	○	○	○
i) I like the way advanced mathematics is taught in my school	○	○	○	○
j) Studying advanced mathematics will give me more options after finishing <secondary school>	○	○	○	○
k) A teacher advised me to study advanced mathematics	○	○	○	○
l) My friends also are studying advanced mathematics	○	○	○	○
m) The <study coordinator/mentor> of my school advised me to study advanced mathematics	○	○	○	○

15

A. 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.

B. Are you taking or have you taken <the physics track/ course that defines the physics population>?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

16

How often do you do the following in your mathematics lessons?

*Fill **one** circle for each line.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Listen to the teacher explain how to solve problems	○	○	○	○
b) Memorize rules, formulas, procedures, and facts	○	○	○	○
c) Work problems (individually or with peers) with teacher guidance	○	○	○	○
d) Work problems together in the whole class with direct teacher guidance	○	○	○	○
e) Work problems (individually or with peers) without teacher guidance	○	○	○	○
f) Solve problems like the examples in your textbooks	○	○	○	○
g) Apply facts, concepts, and procedures to solve routine problems	○	○	○	○
h) Use mathematical terms to represent relationships	○	○	○	○

16

How often do you do the following in your mathematics lessons? (continued)

*Fill **one** circle for each line.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
i) Explain your answers to the teacher	○	○	○	○
j) Discuss problem solving strategies	○	○	○	○
k) Relate what you are learning in mathematics to your daily life	○	○	○	○
l) Decide on your own procedures for solving complex problems	○	○	○	○
m) Work on problems for which there is no immediately obvious method of solution	○	○	○	○
n) Communicate your arguments	○	○	○	○
o) Take a written test or quiz	○	○	○	○
p) Work in small groups	○	○	○	○

17

A. How often do you use the following in your mathematics lessons?

*Fill **one** circle for each line.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Calculator	○	○	○	○
b) Computer	○	○	○	○
c) Tablet (such as iPad)	○	○	○	○
d) Other computing technology	○	○	○	○

B. If you use a calculator in your mathematics lessons, what kind of calculator do you usually use?

*Fill **one** circle only.*

Simple calculator – basic functions only (+, –, ×, ÷, %, or $\sqrt{}$), without functions like log, sin, cos ○

Scientific calculator – basic functions (+, –, ×, ÷, %, or $\sqrt{}$) and also functions like log, sin, cos ○

Graphing calculator – scientific and also able to display some graphs ○

Symbolic calculator – graphing and also able to solve expressions in symbolic terms ○

18

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I know what my teacher expects me to do	○	○	○	○
b) My teacher is easy to understand	○	○	○	○
c) I am interested in what my teacher says	○	○	○	○
d) My teacher gives me interesting things to do	○	○	○	○
e) My teacher asks questions that make me think	○	○	○	○
f) My teacher has good answers to my questions	○	○	○	○
g) Each new lesson builds on what we learned before	○	○	○	○
h) My teacher is good at explaining advanced mathematics	○	○	○	○
i) My teacher expects me to succeed in advanced mathematics	○	○	○	○
j) My teacher lets me show what I have learned	○	○	○	○
k) My teacher wants me to keep working on advanced mathematics problems until I solve them	○	○	○	○
l) My teacher tells me how to do better when I make a mistake	○	○	○	○

19

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

*Fill **one** circle for each line.*

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

20

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

*Fill **one** circle for each line.*

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

21

A. How often does your teacher give you homework in mathematics?

*Fill **one** circle only.*

Every day -- ◯

3 or 4 times a week -- ◯

1 or 2 times a week -- ◯

Less than once a week -- ◯

Never -- ◯

B. When your teacher gives you mathematics homework, about how many minutes do you usually spend on your homework?

*Fill **one** circle only.*

My teacher never gives me homework in mathematics -- ◯

1–15 minutes - ◯

16–30 minutes -- ◯

31–60 minutes -- ◯

61–90 minutes -- ◯

More than 90 minutes -- ◯

22

When doing mathematics homework, how often do you do each of the following?

*Fill **one** circle for each line.*

	Always or almost always	Sometimes	Never or almost never
a) Problem/question sets	◯	◯	◯
b) Read the textbook	◯	◯	◯
c) Memorize formulas and procedures	◯	◯	◯

23

How often do you work with a mathematics tutor?

*Fill **one** circle only.*

More than once a week -- ◯

About once a week -- ◯

About once a month -- ◯

Once in a while when I need extra help -- ◯

Never -- ◯

24

How often do you prepare for a mathematics test or examination?

*Fill **one** circle only.*

About once a week -- ◯

About once a month -- ◯

About 5 times a year -- ◯

About twice a year -- ◯

Never -- ◯

25

A. After <secondary school>, do you intend to continue your education?

*Fill **one** circle only.*

Yes -- ◯

Yes, but not immediately -- ◯

No -- ◯

B. If you plan to continue your education, which of the following comes closest to the area you intend to study most?

*Fill **one** circle only.*

a) SCIENCE (e.g., physics, chemistry, biological, earth sciences) ---------- ◯

b) HEALTH SCIENCES (e.g., dentistry, medicine, pharmacy, veterinary medicine) ---------- ◯

c) ENGINEERING (e.g., chemical engineering, civil engineering, electrical engineering, mechanical engineering) ---------- ◯

d) BUSINESS (e.g., accounting, marketing, finance, administration, management)---------- ◯

e) COMPUTER and INFORMATION SCIENCES (e.g., systems analyst) - ◯

f) MATHEMATICS (e.g., calculus, statistics) ---------- ◯

g) SOCIAL SCIENCES (e.g., psychology, economics, sociology, law) ---------- ◯

h) OTHER FIELD OF STUDY ---------- ◯

About you

1

Are you female or male?

*Fill **one** circle only.*

Female -- ◯

Male -- ◯

2

When were you born?

Fill the circles next to the month and year you were born.

a) Month

January -- ◯
February -- ◯
March -- ◯
April -- ◯
May -- ◯
June -- ◯
July -- ◯
August -- ◯
September -- ◯
October -- ◯
November -- ◯
December -- ◯

b) Year

1993 -- ◯
1994 -- ◯
1995 -- ◯
1996 -- ◯
1997 -- ◯
1998 -- ◯
1999 -- ◯
2000 -- ◯
2001 -- ◯
Other -- ◯

3

How often do you speak <language of test> at home?

*Fill **one** circle only.*

Always -- ◯

Almost always -- ◯

Sometimes -- ◯

Never -- ◯

4

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

*Fill **one** circle only.*

None or very few (0–10 books) -- ◯

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

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

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

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

5

Do you or your family have a device that you use for reading ebooks?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

6

Do you have any of these things at your home?

*Fill **one** circle for each line.*

		Yes	No
a)	A computer or tablet (such as iPad) of your own	◯	◯
b)	A computer or tablet (such as iPad) that is shared with other people at home	◯	◯
c)	Study desk/table for your use	◯	◯
d)	Your own room	◯	◯
e)	Internet connection	◯	◯
f)	Your own graphing calculator	◯	◯
g)	Your own mobile phone	◯	◯
h)	A gaming system (e.g., PlayStation®, Wii®, XBox®)	◯	◯
i)	<country-specific indicator of wealth>	◯	◯
j)	<country-specific indicator of wealth>	◯	◯
k)	<country-specific indicator of wealth>	◯	◯

7

A. What is the highest level of education completed by your mother <or stepmother or female guardian>?

*Fill **one** circle only.*

Some <ISCED Level 1 or 2 > or did not go to school ---------- ◯

<ISCED Level 2> ---------- ◯

<ISCED Level 3> ---------- ◯

<ISCED Level 4> ---------- ◯

<ISCED Level 5> ---------- ◯

<ISCED Level 6> ---------- ◯

<ISCED Level 7> ---------- ◯

<ISCED Level 8> ---------- ◯

I don't know ---------- ◯

B. What is the highest level of education completed by your father <or stepfather or male guardian>?

*Fill **one** circle only.*

Some <ISCED Level 1 or 2 > or did not go to school ---------- ◯

<ISCED Level 2> ---------- ◯

<ISCED Level 3> ---------- ◯

<ISCED Level 4> ---------- ◯

<ISCED Level 5> ---------- ◯

<ISCED Level 6> ---------- ◯

<ISCED Level 7> ---------- ◯

<ISCED Level 8> ---------- ◯

I don't know ---------- ◯

8

How far in your education do you expect to go?

*Fill **one** circle only.*

Finish <ISCED Level 2> ---------- ◯

Finish <ISCED Level 3> ---------- ◯

Finish <ISCED Level 4> ---------- ◯

Finish <ISCED Level 5> ---------- ◯

Finish <ISCED Level 6> ---------- ◯

Finish <ISCED Level 7> ---------- ◯

Finish <ISCED Level 8> ---------- ◯

I don't know ---------- ◯

9

A. Was your mother <or stepmother or female guardian> born in <country>?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

B. Was your father <or stepfather or male guardian> born in <country>?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

10

A. Were you born in <country>?

*Fill **one** circle only.*

Yes -- ◯ → **(If Yes, go to #11)**

No -- ◯

If No,

B. If you were not born in <country>, how old were you when you came to <country>?

*Fill **one** circle only.*

Older than 15 years old -- ◯

11 to 15 years old -- ◯

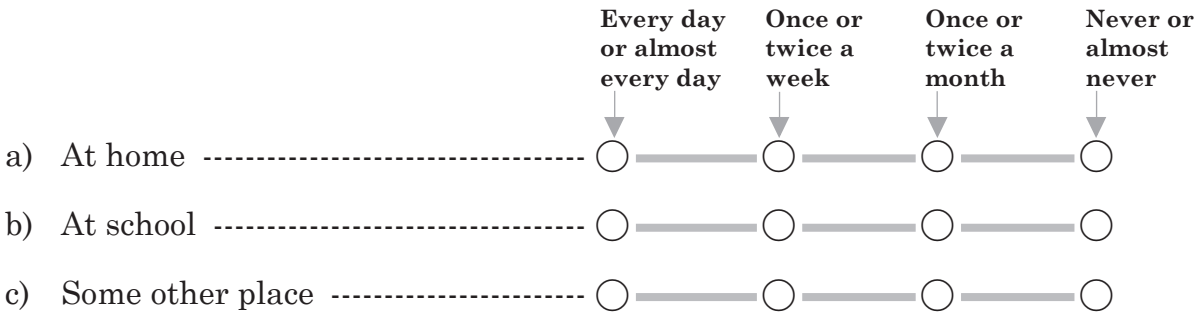
5 to 10 years old -- ◯

Younger than 5 years old -- ◯

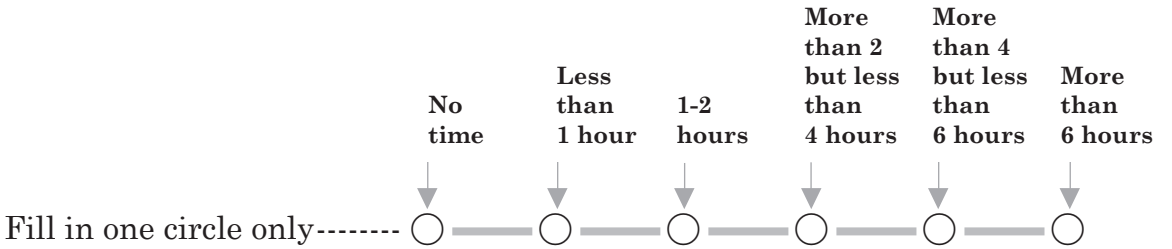
11

A. How often do you use a computer or tablet (such as iPad) in each of these places?

*Fill **one** circle for each line.*



B. How much time each day, on average, do you spend using a computer or tablet? (Do not include PlayStation®, Wii®, XBox®, or other gaming system.)



(If No Time, go to #12)

11

C. How often do you use a computer or tablet to work on physics outside of class?

*Fill **one** circle only.*

Almost every day -- ◯

Once or twice a week -- ◯

About once a month -- ◯

Never or almost never -- ◯

D. When you use a computer or tablet for your schoolwork, what do you use it for?

*Fill **one** circle for each line.*

	Yes	No
a) Researching information from the Internet	◯	◯
b) Word processing	◯	◯
c) Analyzing and presenting data (e.g., spreadsheets, graphing)	◯	◯
d) Using specialized programs (e.g., simulations, algebra programs)	◯	◯
e) Other	◯	◯

12

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I like being in school	○	○	○	○
b) I feel safe when I am at school	○	○	○	○
c) I feel like I belong at this school	○	○	○	○
d) I like to see my friends at school	○	○	○	○
e) I feel like my classmates care about me	○	○	○	○
f) Teachers at my school are fair to me	○	○	○	○
g) My teachers respect my ideas	○	○	○	○

13

During this year, how often have other students from your school done any of the following things to you (including through text messages (SMS), e-mails, or the Internet)?

*Fill **one** circle for each line.*

	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	○	○	○	○
b) Left me out of games or activities	○	○	○	○
c) Spread lies about me	○	○	○	○
d) Stole something from me	○	○	○	○
e) Hit or hurt me (*e.g., shoving, hitting, kicking*)	○	○	○	○
f) Made me do things I didn't want to do	○	○	○	○
g) Shared embarrassing information about me	○	○	○	○
h) Threatened me	○	○	○	○

14

Why are you studying physics?
Please indicate how important each reason was for you.

*Fill **one** circle for each line.*

	Very important	Important	Unimportant	Very un-important
a) I enjoy conducting experiments or investigations for physics	○	○	○	○
b) I usually do well in physics	○	○	○	○
c) Physics lessons are interesting	○	○	○	○
d) Studying or doing physics homework does not take me a lot of time	○	○	○	○
e) I need physics to pursue the career of my choice	○	○	○	○
f) Physics has good teachers	○	○	○	○
g) My parents advised me to study physics	○	○	○	○
h) I expect that I will easily pass the tests	○	○	○	○
i) I like the way physics is taught in my school	○	○	○	○
j) Studying physics will give me more options after finishing <secondary school>	○	○	○	○
k) A teacher advised me to study physics	○	○	○	○
l) My friends also are studying physics	○	○	○	○
m) The <study coordinator/mentor> of my school advised me to study physics	○	○	○	○

15

A. How much time do you spend in physics class each week?

_____minutes per week

Write in the number of minutes per week

Please convert the number of classes/periods into minutes.

B. Are you taking or have you taken <the advanced mathematics track/course that defines the advanced mathematics population>?

*Fill **one** circle only.*

Yes -- ◯

No -- ◯

16

How often do you do the following in your physics lessons?

*Fill **one** circle for each line.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Observe natural phenomena and describe what I see	○	○	○	○
b) Watch the teacher demonstrate an experiment or investigation	○	○	○	○
c) Design or plan experiments or investigations	○	○	○	○
d) Conduct experiments or investigations	○	○	○	○
e) Present data from experiments or investigations	○	○	○	○
f) Interpret data from experiments or investigations	○	○	○	○
g) Use evidence from experiments or investigations to support conclusions	○	○	○	○
h) Read the textbooks or other resource materials	○	○	○	○

16

How often do you do the following in your physics lessons? (continued)

*Fill **one** circle for each line.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
i) Memorize facts and principles ------	○	○	○	○
j) Use scientific formulas and laws to solve routine problems ----------	○	○	○	○
k) Give explanations about something we are studying ----------	○	○	○	○
l) Relate what I am learning in physics to my daily lives ----------	○	○	○	○
m) Do field work outside of clas ----------	○	○	○	○
n) Take a written test or quiz ----------	○	○	○	○
o) Work in small groups ----------	○	○	○	○

17

A. How often do you use the following in your physics lessons?

*Fill **one** circle for each line.*

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Calculator	○	○	○	○
b) Computer	○	○	○	○
c) Tablet (such as iPad)	○	○	○	○
d) Other computing technology	○	○	○	○

B. If you use a calculator in your physics lessons, what kind of calculator do you usually use?

*Fill **one** circle only.*

Simple calculator – basic functions only (+, –, ×, ÷, %, or $\sqrt{}$), without functions like log, sin, cos ○

Scientific calculator – basic functions (+, –, ×, ÷, %, or $\sqrt{}$) and also functions like log, sin, cos ○

Graphing calculator – scientific and also able to display some graphs ○

Symbolic calculator – graphing and also able to solve expressions in symbolic terms ○

18

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

*Fill **one** circle for each line.*

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
a) I know what my teacher expects me to do	○	○	○	○
b) My teacher is easy to understand	○	○	○	○
c) I am interested in what my teacher says	○	○	○	○
d) My teacher gives me interesting things to do	○	○	○	○
e) My teacher asks questions that make me think	○	○	○	○
f) My teacher has good answers to my questions	○	○	○	○
g) Each new lesson builds on what we learned before	○	○	○	○
h) My teacher is good at explaining physics	○	○	○	○
i) My teacher expects me to succeed in physics	○	○	○	○
j) My teacher lets me show what I have learned	○	○	○	○
k) My teacher wants me to keep working on physics problems until I solve them	○	○	○	○
l) My teacher tells me how to do better when I make a mistake	○	○	○	○

19

How much do you agree with these statements about physics?

*Fill **one** circle for each line.*

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

20

How much do you agree with these statements about physics?

*Fill **one** circle for each line.*

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

21

A. How often does your teacher give you homework in physics?

*Fill **one** circle only.*

Every day -- ◯

3 or 4 times a week -- ◯

1 or 2 times a week -- ◯

Less than once a week -- ◯

Never -- ◯

B. When your teacher gives you physics homework, about how many minutes do you usually spend on your homework?

*Fill **one** circle only.*

My teacher never gives me homework in physics -- ◯

1–15 minutes - ◯

16–30 minutes -- ◯

31–60 minutes -- ◯

61–90 minutes -- ◯

More than 90 minutes -- ◯

22

When doing physics homework, how often do you do each of the following?

*Fill **one** circle for each line.*

	Always or almost always	Sometimes	Never or almost never
a) Problem/question sets	◯	◯	◯
b) Read the textbook	◯	◯	◯
c) Memorize formulas and procedures	◯	◯	◯

23

How often do you work with a physics tutor?

*Fill **one** circle only.*

More than once a week -- ◯

About once a week -- ◯

About once a month -- ◯

Once in a while when I need extra help -- ◯

Never -- ◯

24

How often do you prepare for a physics test or examination?

*Fill **one** circle only.*

About once a week -- ◯

About once a month -- ◯

About 5 times a year -- ◯

About twice a year -- ◯

Never -- ◯

25

A. After <secondary school>, do you intend to continue your education?

*Fill **one** circle only.*

Yes -- ◯

Yes, but not immediately -- ◯

No -- ◯

B. If you plan to continue your education, which of the following comes closest to the area you intend to study most?

*Fill **one** circle only.*

a) SCIENCE (e.g., physics, chemistry, biological, earth sciences) ---------- ◯

b) HEALTH SCIENCES (e.g., dentistry, medicine, pharmacy, veterinary medicine) ---------- ◯

c) ENGINEERING (e.g., chemical engineering, civil engineering, electrical engineering, mechanical engineering) ---------- ◯

d) BUSINESS (e.g., accounting, marketing, finance, administration, management)---------- ◯

e) COMPUTER and INFORMATION SCIENCES (e.g., systems analyst) - ◯

f) Physics (e.g., calculus, statistics) ---------- ◯

g) SOCIAL SCIENCES (e.g., psychology, economics, sociology, law) ---------- ◯

h) OTHER FIELD OF STUDY ---------- ◯

1

A. By the end of this school year, how many years will you have been teaching altogether?

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

B. How many years will you have taught mathematics at the advanced level?

_____ years
Number of years taught advanced mathematics

2

Are you female or male?

*Check **one** circle only.*

Female --- ◯
Male --- ◯

3

How old are you?

*Check **one** circle only.*

Under 25 --- ◯
25–29 --- ◯
30–39 --- ◯
40–49 --- ◯
50–59 --- ◯
60 or more --- ◯

4

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

*Check **one** circle only.*

Did not complete <ISCED Level 3> --- ◯
Finished <ISCED Level 3> --- ◯
Finished <ISCED Level 4> --- ◯
Finished <ISCED Level 5> --- ◯
Finished <ISCED Level 6> --- ◯
Finished <ISCED Level 7> --- ◯
Finished <ISCED Level 8> --- ◯

5

During your <post-secondary> education, what was your major or main area(s) of study?

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

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

6

How long do you plan to continue teaching advanced mathematics?

*Check **one** circle only.*

I plan to continue teaching as long as I can ---------- ◯

I plan to continue teaching until the opportunity for a better job in education comes along --------- ◯

I plan to continue teaching for awhile but probably will leave the field of education ---------- ◯

I am undecided at this time ------- ◯

7

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

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

Very High | High | Medium | Low

a) Teachers' understanding of the school's curricular goals ---
b) Teachers' degree of success in implementing the school's curriculum --------
c) Teachers' expectations for student achievement-------
d) Teachers' working together to improve student achievement ----------
e) Teachers' ability to inspire students ----------
f) Parental commitment to ensure that students are prepared to learn----------
g) Parental expectations for student achievement ----------
h) Parental support for student achievement ----------
i) Parental pressure for the school to maintain high academic standards----------

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

Very High | High | Medium | Low

j) Students' desire to do well in school----------
k) Students' ability to reach school's academic goals--------
l) Students' respect for classmates who excel in school----------
m) Clarity of the school's educational objectives ---------
n) Collaboration between school leadership and teachers to plan instruction ---
o) Amount of instructional support provided to teachers by school leadership ----------
p) School leadership's support for professional development----------
q) Teachers' job satisfaction-------

8

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

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

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

9

In your current school, how severe is each problem?

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

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair	○	○	○	○
b) Classrooms are overcrowded	○	○	○	○
c) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students)	○	○	○	○
d) Teachers do not have adequate instructional materials and supplies	○	○	○	○
e) The school classrooms are not cleaned often enough	○	○	○	○
f) The school classrooms need maintenance work	○	○	○	○

10

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

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

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

11

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

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

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

12

How many students are in this class?

_____ students
Write in a number.

13

How many <twelfth-grade> students experience difficulties understanding <u>spoken</u> <language of test>?

_____ students in this class
Write in a number.

14

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Summarize what students should have learned from the lesson	○	○	○	○
b) Use questioning to elicit reasons and explanations	○	○	○	○
c) Use questioning to check that students understand what I am teaching	○	○	○	○
d) Encourage all students to improve their performance	○	○	○	○
e) Praise students for good effort	○	○	○	○
f) Ask students to complete challenging exercises that require them to go beyond the instruction	○	○	○	○
g) Encourage classroom discussions among students	○	○	○	○
h) Link new content to students' prior knowledge	○	○	○	○
i) Ask students to decide their own problem solving procedures	○	○	○	○
j) Encourage students to express their ideas in class	○	○	○	○

15

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

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

	Not at all	Some	A lot
a) Students lacking prerequisite knowledge or skills	○	○	○
b) Students suffering from lack of basic nutrition	○	○	○
c) Students suffering from not enough sleep	○	○	○
d) Students with special needs (e.g., physical disabilities, mental or emotional/ psychological impairment)	○	○	○
e) Disruptive students	○	○	○
f) Uninterested students	○	○	○

Questions 16-19 ask about mathematics instruction for the <twelfth-grade> students in the TIMSS class.

16

In a typical week, how much time do you spend teaching mathematics 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.

17

How many minutes per week do you usually spend preparing to teach the <TIMSS 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 confident do you feel to do the following?

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

	Very confident	Somewhat confident	Not confident
a) Answer students' questions about advanced mathematics	○	○	○
b) Show students a variety of problem solving strategies	○	○	○
c) Provide challenging tasks for capable students	○	○	○
d) Adapt my teaching to engage students' interest	○	○	○
e) Help students appreciate the value of learning advanced mathematics	○	○	○
f) Inspire students who are unmotivated to learn advanced mathematics	○	○	○
g) Assess student comprehension of advanced mathematics lessons	○	○	○
h) Improve the understanding of struggling students	○	○	○
i) Build supportive relationships with students	○	○	○
j) Manage the classroom to avoid disruptions	○	○	○
k) Make advanced mathematics relevant to students	○	○	○
l) Challenge students into developing higher order thinking skills	○	○	○
m) Integrate advanced mathematics with other subjects (e.g., science, technology, engineering)	○	○	○

19

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Listen to me explain how to solve problems	○	○	○	○
b) Memorize rules, formulas, procedures, and facts	○	○	○	○
c) Work problems (individually or with peers) with my guidance	○	○	○	○
d) Work problems together in the whole class with direct guidance from me	○	○	○	○
e) Work problems (individually or with peers) while I am occupied by other tasks	○	○	○	○
f) Solve problems like the examples in their textbooks	○	○	○	○
g) Apply facts, concepts, and procedures to solve routine problems	○	○	○	○
h) Use mathematical terms to represent relationships	○	○	○	○
i) Explain their answers	○	○	○	○
j) Discuss problem solving strategies	○	○	○	○
k) Relate what they are learning in mathematics to their daily lives	○	○	○	○
l) Decide on their own procedures for solving complex problems	○	○	○	○
m) Work on problems for which there is no immediately obvious method of solution	○	○	○	○
n) Communicate their arguments	○	○	○	○
o) Take a written test or quiz	○	○	○	○
p) Work in mixed ability groups	○	○	○	○
q) Work in same ability groups	○	○	○	○

Questions 20-23 ask about resources for teaching advanced mathematics to the <twelfth-grade> students in the TIMSS class.

20

A. When you teach advanced mathematics to this class, how do you use the following resources?

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

	Basis for instruction	Supplement	Not used
a) Textbooks	○	○	○
b) Workbooks or worksheets	○	○	○
c) Computer software/ applications (apps) for mathematics instruction	○	○	○
d) Internet resources	○	○	○

B. Does each student have his or her own textbook?

*Check **one** circle only.*

- Yes ○
- No ○

C. How often do you require students to do the following?

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Do problems or exercises from their textbooks	○	○	○	○
b) Read the textbook examples of how to do problems or exercises	○	○	○	○
c) Read about mathematical theory from their textbooks	○	○	○	○

21

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

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

	Not at all	Some	A little	A lot
a) Shortage of graphing calculators	○	○	○	○
b) Shortage of computer hardware	○	○	○	○
c) Shortage of computer software	○	○	○	○
d) Shortage of support for using computers	○	○	○	○
e) Shortage of textbooks for students' use	○	○	○	○
f) Shortage of other instructional equipment for students' use	○	○	○	○
g) Shortage of equipment for your use in demonstrations and other exercises	○	○	○	○
h) Inadequate physical facilities	○	○	○	○
i) High student/teacher ratio	○	○	○	○

22

A. Are the students in this class permitted to use calculators during advanced mathematics lessons?

*Check **one** circle only.*

- Yes, with unrestricted use ◯
- Yes, with restricted use ◯
- No, calculators are not permitted ◯ → **(If No, go to #26)**

If Yes,

B. If the students use calculators, what kind of calculators do most of them use?

*Check **one** circle only.*

- Simple calculators – basic functions only (+, –, ×, ÷, %, or $\sqrt{}$), without functions like log, sin, cos ◯
- Scientific calculators – basic functions (+, –, ×, ÷, %, or $\sqrt{}$) and also functions like log, sin, cos ◯
- Graphing calculators – scientific and also able to display some graphs ◯
- Symbolic calculators – graphing and also able to solve expressions in symbolic terms ◯

If Yes,

C. How often do students in this class use calculators in their advanced mathematics lessons for the following activities?

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Check answers	◯	◯	◯	◯
b) Do routine computations	◯	◯	◯	◯
c) Solve complex problems	◯	◯	◯	◯
d) Explore number concepts	◯	◯	◯	◯
e) Draw graphs of functions	◯	◯	◯	◯
f) Solve equations	◯	◯	◯	◯
g) Manipulate algebraic expressions	◯	◯	◯	◯
h) Conduct modeling and simulations	◯	◯	◯	◯
i) Perform numerical integration	◯	◯	◯	◯
j) Process and analyze data	◯	◯	◯	◯

23

A. Do the students in this class have computers, including tablets (such as iPads), available to use during their advanced mathematics lessons?

*Check **one** circle only.*

Yes ---
No ---

(If No, go to #24)

If Yes,

B. How many of the computers including tablets have access to the Internet?

*Check **one** circle only.*

All ---
Most ---
Some ---
None ---

If Yes,

C. How often do you have the students do the following activities on computers including tablets during advanced mathematics lessons?

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

	Every or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) Explore mathematics principles and concepts	○	○	○	○
b) Practice skills and procedures	○	○	○	○
c) Look up ideas and information	○	○	○	○
d) Process and analyze data	○	○	○	○
e) Draw graphs of functions	○	○	○	○
f) Solve equations	○	○	○	○
g) Manipulate algebraic expressions	○	○	○	○
h) Conduct modeling and simulations	○	○	○	○
i) Perform numerical integration	○	○	○	○

Question 24 asks about the topics taught and the content covered in teaching mathematics to the <twelfth-grade> students in the TIMSS class.

24

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 the <twelfth-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."

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

	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; complex numbers	○	○	○
b) Evaluate algebraic expressions (e.g., exponential, logarithmic, polynomial, rational, and radical)	○	○	○
c) The nth term of numeric and algebraic series and the sums to n terms or infinity of series	○	○	○
d) Linear, simultaneous, and quadratic equations and inequalities; surd (radical) equations, logarithmic, and exponential equations	○	○	○
e) Equivalent representations of functions as ordered pairs, tables, graphs, formulas, or words	○	○	○
f) Values of functions, including rational functions, for given values and ranges of the variable; function of a function	○	○	○
B. Calculus			
a) Limits of functions including rational functions; conditions for continuity and differentiability of functions	○	○	○
b) Differentiation of functions (including polynomial, exponential, logarithmic, trigonometric, rational, radical, composite, and parametric functions); differentiation of products and quotients	○	○	○
c) Using derivatives to solve problems (e.g., in kinematics, optimization, and rates of change)	○	○	○
d) Using first and second derivatives to determine gradient, turning points, and points of inflection of functions	○	○	○
e) Integrating functions (including polynomial, exponential, trigonometric, and rational functions); evaluating definite integrals	○	○	○
C. Geometry			
a) Properties of geometric figures; proving geometric propositions in two and three dimensions	○	○	○
b) Gradients, y-axis intercepts, and points of intersection of straight lines in the Cartesian plane	○	○	○
c) Equations and properties of circles in the Cartesian plane; tangents and normals to given points on a circle	○	○	○
d) Properties of vectors and their sums and differences	○	○	○
e) Trigonometric properties of triangles (sine, cosine, and tangent); solving equations involving trigonometric functions	○	○	○
f) Graphs of sine, cosine, and tangent functions	○	○	○

Question 25 asks about mathematics homework for the <twelfth-grade> students in the TIMSS class.

25

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

*Check **one** circle only.*

- I do not assign mathematics homework --- ◯ **(Go to #26)**
- Less than once a week --- ◯
- 1 or 2 times a week --- ◯
- 3 or 4 times a week --- ◯
- Every day --- ◯

B. When you assign mathematics 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.)

*Check **one** circle only.*

- 15 minutes or less --- ◯
- 16–30 minutes --- ◯
- 31–60 minutes --- ◯
- 61–90 minutes --- ◯
- More than 90 minutes --- ◯

C. How often do you assign the following kinds of mathematics homework to the <TIMSS class>?

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

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

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

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

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

Questions 26-28 ask about mathematics assessment for the <twelfth-grade> students in the TIMSS class.

26

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

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

	Major emphasis	Some emphasis	Little or no emphasis
a) Evaluation of students' ongoing work	○	○	○
b) Classroom tests (for example, teacher-made or textbook tests)	○	○	○
c) National or regional achievement tests	○	○	○

27

How often do you give a mathematics test or examination to this class?

*Check **one** circle only.*

- About once a week ○
- About every two weeks ○
- About once a month ○
- A few times a year ○
- Never ○

28

How often do you include the following types of questions in your mathematics tests or examinations?

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

	Always or almost always	Sometimes	Never or almost never
a) Questions based on recall of facts and procedures	○	○	○
b) Questions involving application of mathematical procedures	○	○	○
c) Questions involving searching for patterns and relationships	○	○	○
d) Questions requiring explanations or justifications	○	○	○

29

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

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

	Yes	No
a) Mathematics content	◯	◯
b) Mathematics pedagogy/instruction	◯	◯
c) Mathematics curriculum	◯	◯
d) Improving students' critical thinking or problem solving skills	◯	◯
e) Mathematics assessment	◯	◯
f) Addressing individual students' needs	◯	◯
g) Integrating mathematics with other subjects (e.g. science, engineering, technology)	◯	◯

30

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

*Check **one** circle only.*

- None ◯
- Less than 6 hours ◯
- 6–15 hours ◯
- 16–35 hours ◯
- More than 35 hours ◯

31

A. Are you a member of <professional organization for mathematics teachers>?

*Check **one** circle only.*

- Yes ◯
- No ◯

B. In the past two years, have you regularly participated in activities sponsored by <professional organization for mathematics teachers>?

*Check **one** circle only.*

- Yes ◯
- No ◯

32

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

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

	Yes	No
a) I attended a workshop or conference	◯	◯
b) I gave a presentation at a workshop or conference	◯	◯
c) I published an article in a journal or magazine for teachers (print or online)	◯	◯
d) I took part in an innovative project for curriculum and instruction	◯	◯
e) I exchanged information online about how to teach mathematics (e.g., email, forums, website)	◯	◯

33

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

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

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
A. Algebra				
a) Operations with exponential, logarithmic, polynomial, rational, and radical expressions; complex numbers	○	○	○	○
b) Evaluate algebraic expressions (e.g., exponential, logarithmic, polynomial, rational, and radical)	○	○	○	○
c) The nth term of numeric and algebraic series and the sums to n terms or infinity of series	○	○	○	○
d) Linear, simultaneous, and quadratic equations and inequalities; surd (radical) equations, logarithmic, and exponential equations	○	○	○	○
e) Equivalent representations of functions as ordered pairs, tables, graphs, formulas, or words	○	○	○	○
f) Values of functions, including rational functions, for given values and ranges of the variable; function of a function	○	○	○	○
B. Calculus				
a) Limits of functions including rational functions; conditions for continuity and differentiability of functions	○	○	○	○
b) Differentiation of functions (including polynomial, exponential, logarithmic, trigonometric, rational, radical, composite, and parametric functions); differentiation of products and quotients	○	○	○	○
c) Using derivatives to solve problems (e.g., in kinematics, optimization, and rates of change)	○	○	○	○
d) Using first and second derivatives to determine gradient, turning points, and points of inflection of functions	○	○	○	○
e) Integrating functions (including polynomial, exponential, trigonometric, and rational functions); evaluating definite integrals	○	○	○	○
C. Geometry				
a) Properties of geometric figures; proving geometric propositions in two and three dimensions	○	○	○	○
b) Gradients, y-axis intercepts, and points of intersection of straight lines in the Cartesian plane	○	○	○	○
c) Equations and properties of circles in the Cartesian plane; tangents and normals to given points on a circle	○	○	○	○
d) Properties of vectors and their sums and differences	○	○	○	○
e) Trigonometric properties of triangles (sine, cosine, and tangent); solving equations involving trigonometric functions	○	○	○	○
f) Graphs of sine, cosine, and tangent functions	○	○	○	

1

A. By the end of this school year, how many years will you have been teaching altogether?

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

B. How many years will you have taught physics?

_____ years
Number of years taught physics

2

Are you female or male?

*Check **one** circle only.*

Female --- ◯
Male --- ◯

3

How old are you?

*Check **one** circle only.*

Under 25 --- ◯
25–29 --- ◯
30–39 --- ◯
40–49 --- ◯
50–59 --- ◯
60 or more --- ◯

4

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

*Check **one** circle only.*

Did not complete <ISCED Level 3> --- ◯
Finished <ISCED Level 3> --- ◯
Finished <ISCED Level 4> --- ◯
Finished <ISCED Level 5> --- ◯
Finished <ISCED Level 6> --- ◯
Finished <ISCED Level 7> --- ◯
Finished <ISCED Level 8> --- ◯

5

During your <post-secondary> education, what was your major or main area(s) of study?

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

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

6

How long do you plan to continue teaching physics?

*Check **one** circle only.*

I plan to continue teaching as long as I can ---------- ◯

I plan to continue teaching until the opportunity for a better job in education comes along --------- ◯

I plan to continue teaching for awhile but probably will leave the field of education ---------- ◯

I am undecided at this time ------- ◯

7

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

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

Very High | High | Medium | Low

a) Teachers' understanding of the school's curricular goals ---
b) Teachers' degree of success in implementing the school's curriculum --------
c) Teachers' expectations for student achievement-------
d) Teachers' working together to improve student achievement ----------
e) Teachers' ability to inspire students ----------
f) Parental commitment to ensure that students are prepared to learn----------
g) Parental expectations for student achievement ----------
h) Parental support for student achievement ----------
i) Parental pressure for the school to maintain high academic standards----------

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

Very High | High | Medium | Low

j) Students' desire to do well in school----------
k) Students' ability to reach school's academic goals--------
l) Students' respect for classmates who excel in school----------
m) Clarity of the school's educational objectives ---------
n) Collaboration between school leadership and teachers to plan instruction ---
o) Amount of instructional support provided to teachers by school leadership ----------
p) School leadership's support for professional development----------
q) Teachers' job satisfaction-------

8

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

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

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

9

In your current school, how severe is each problem?

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

	Not a problem	Minor problem	Moderate problem	Serious problem
a) The school building needs significant repair	○	○	○	○
b) Classrooms are overcrowded	○	○	○	○
c) Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students)	○	○	○	○
d) Teachers do not have adequate instructional materials and supplies	○	○	○	○
e) The school classrooms are not cleaned often enough	○	○	○	○
f) The school classrooms need maintenance work	○	○	○	○

10

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

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

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

11

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

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

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

12

How many students are in this class?

_____ students
Write in a number.

13

How many <twelfth-grade> students experience difficulties understanding <u>spoken</u> <language of test>?

_____ students in this class
Write in a number.

14

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

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Summarize what students should have learned from the lesson	○	○	○	○
b) Use questioning to elicit reasons and explanations	○	○	○	○
c) Use questioning to check that students understand what I am teaching	○	○	○	○
d) Encourage all students to improve their performance	○	○	○	○
e) Praise students for good effort	○	○	○	○
f) Ask students to complete challenging exercises that require them to go beyond the instruction	○	○	○	○
g) Encourage classroom discussions among students	○	○	○	○
h) Link new content to students' prior knowledge	○	○	○	○
i) Ask students to decide their own problem solving procedures	○	○	○	○
j) Encourage students to express their ideas in class	○	○	○	○

15

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

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

	Not at all	Some	A lot
a) Students lacking prerequisite knowledge or skills	○	○	○
b) Students suffering from lack of basic nutrition	○	○	○
c) Students suffering from not enough sleep	○	○	○
d) Students with special needs (e.g., physical disabilities, mental or emotional/ psychological impairment)	○	○	○
e) Disruptive students	○	○	○
f) Uninterested students	○	○	○

Questions 16-19 ask about physics instr uction for the <twelfth-grade> students in the TIMSS class.

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 hours into minutes.

17

How many minutes per week do you usually spend preparing to teach the <TIMSS 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 confident do you feel to do the following?

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

	Very confident	Somewhat confident	Not confident
a) Answer students' questions about physics	○	○	○
b) Explain physics concepts or principles by doing physics experiments	○	○	○
c) Provide challenging tasks for capable students	○	○	○
d) Adapt my teaching to engage students' interest	○	○	○
e) Help students appreciate the value of learning physics	○	○	○
f) Inspire students who are unmotivated to learn physics	○	○	○
g) Assess student comprehension of physics lessons	○	○	○
h) Improve the understanding of struggling students	○	○	○
i) Build supportive relationships with students	○	○	○
j) Manage the classroom to avoid disruptions	○	○	○
k) Make physics relevant to students	○	○	○
l) Challenge students into developing higher order thinking skills	○	○	○
m) Integrate physics with other subjects (e.g., mathematics, technology, engineering)	○	○	○
n) Teach physics using inquiry methods	○	○	○

19

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

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

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

Questions 20-23 ask about resources for teaching physics to the <twelfth-grade> students in the TIMSS class.

20

A. When you teach physics to this class, how do you use the following resources?

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

	Basis for instruction	Supplement	Not used
a) Textbooks	○	○	○
b) Workbooks or worksheets	○	○	○
c) Physics equipment and materials	○	○	○
d) Computer software/ applications (apps) for physics instruction	○	○	○
e) Internet resources	○	○	○

B. Does each student have his or her own textbook?

*Check **one** circle only.*

- Yes ○
- No ○

C. How often do you require students to do the following?

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Do problems or exercises from their textbooks	○	○	○	○
b) Read the textbook examples of how to do problems or exercises	○	○	○	○
c) Read about physics theory from their textbooks	○	○	○	○

21

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

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

Resources	Not at all	Some	A little	A lot
a) Shortage of graphing calculators	○	○	○	○
b) Shortage of computer hardware	○	○	○	○
c) Shortage of computer software	○	○	○	○
d) Shortage of support for using computers	○	○	○	○
e) Shortage of textbooks for students' use	○	○	○	○
f) Shortage of other instructional equipment for students' use	○	○	○	○
g) Shortage of equipment for your use in demonstrations and other exercises	○	○	○	○
h) Inadequate physical facilities	○	○	○	○
i) High student/teacher ratio	○	○	○	○

22

A. Are the students in this class permitted to use calculators during physics lessons?

*Check **one** circle only.*

- Yes, with unrestricted use ◯
- Yes, with restricted use ◯
- No, calculators are not permitted ◯ → **(If No, go to #23)**

If Yes,

B. If the students use calculators, what kind of calculators do most of them use?

*Check **one** circle only.*

- Simple calculators – basic functions only (+, –, ×, ÷, %, or $\sqrt{}$), without functions like log, sin, cos ◯
- Scientific calculators – basic functions (+, –, ×, ÷, %, or $\sqrt{}$) and also functions like log, sin, cos ◯
- Graphing calculators – scientific and also able to display some graphs ◯
- Symbolic calculators – graphing and also able to solve expressions in symbolic terms ◯

If Yes,

C. How often do students in this class use calculators in their physics lessons for the following activities?

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

	Every or almost every lesson	About half the lessons	Some lessons	Never
a) Check answers	◯	◯	◯	◯
b) Do routine computations	◯	◯	◯	◯
c) Solve complex problems	◯	◯	◯	◯
d) Explore number concepts	◯	◯	◯	◯
e) Doing scientific procedures or experiments	◯	◯	◯	◯
f) Solve equations	◯	◯	◯	◯
g) Conduct modeling and simulations	◯	◯	◯	◯
h) Process and analyze data	◯	◯	◯	◯

23

A. Do the students in this class have computers, including tablets (such as iPads), available to use during their physics lessons?

*Check **one** circle only.*

Yes --- ◯

No --- ◯ → **(If No, go to #24)**

If Yes,

B. How many of the computers including tablets have access to the Internet?

*Check **one** circle only.*

All --- ◯

Most --- ◯

Some --- ◯

None --- ◯

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

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

	Every or almost every day	Once or twice a week	Once or twice a month	Never or almost never
a) Practice skills and procedures	◯	◯	◯	◯
b) Look up ideas and information	◯	◯	◯	◯
c) Process and analyze data	◯	◯	◯	◯
d) Do scientific procedures or experiments	◯	◯	◯	◯
e) Solve equations	◯	◯	◯	◯
f) Conduct modeling and simulations	◯	◯	◯	◯

Question 24 asks about the topics taught and the content covered in teaching physics to the <twelfth-grade> students in the TIMSS class.

24

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 the <twelfth-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."

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

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

Question 25 asks about physics homework for the <twelfth-grade> students in the TIMSS class.

25

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

*Check **one** circle only.*

- I do not assign physics homework --- ◯ **(Go to #26)**
- Less than once a week --- ◯
- 1 or 2 times a week --- ◯
- 3 or 4 times a week --- ◯
- Every day --- ◯

B. When you assign physics 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.)

*Check **one** circle only.*

- 15 minutes or less --- ◯
- 16–30 minutes --- ◯
- 31–60 minutes --- ◯
- 61–90 minutes --- ◯
- More than 90 minutes --- ◯

C. How often do you assign the following kinds of physics homework to the <TIMSS class>?

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

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

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

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

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

Questions 26-28 ask about physics assessment for the <twelfth-grade> students in the TIMSS class.

26

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

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

	Major emphasis	Some emphasis	Little or no emphasis
a) Evaluation of students' ongoing work	○	○	○
b) Classroom tests (for example, teacher-made or textbook tests)	○	○	○
c) National or regional achievement tests	○	○	○

27

How often do you give a physics test or examination to this class?

*Check **one** circle only.*

- About once a week ○
- About every two weeks ○
- About once a month ○
- A few times a year ○
- Never ○

28

A. How often do you include the following types of questions in your physics tests or examinations?

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

	Always or almost always	Sometimes	Never or almost never
a) Questions based on recall of facts and procedures	○	○	○
b) Questions involving application of physics procedures	○	○	○
c) Questions involving searching for patterns and relationships	○	○	○
d) Questions requiring explanations or justifications	○	○	○

B. How often do your physics tests or examinations include a practical examination or laboratory problems?

*Check **one** circle only.*

- Always or almost always ○
- Sometimes ○
- Never or almost never ○

29

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

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

	Yes	No
a) Physics content	◯	◯
b) Physics pedagogy/instruction	◯	◯
c) Physics curriculum	◯	◯
d) Improving students' critical thinking or problem solving skills	◯	◯
e) Physics assessment	◯	◯
f) Addressing individual students' needs	◯	◯
g) Integrating physics with other subjects (e.g. mathematics, engineering, technology)	◯	◯

30

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

*Check **one** circle only.*

- None ◯
- Less than 6 hours ◯
- 6–15 hours ◯
- 16–35 hours ◯
- More than 35 hours ◯

31

A. Are you a member of <professional organization for physics teachers>?

*Check **one** circle only.*

- Yes ◯
- No ◯

B. In the past two years, have you regularly participated in activities sponsored by <professional organization for physics teachers>?

*Check **one** circle only.*

- Yes ◯
- No ◯

32

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

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

	Yes	No
a) I attended a workshop or conference	◯	◯
b) I gave a presentation at a workshop or conference	◯	◯
c) I published an article in a journal or magazine for teachers (print or online)	◯	◯
d) I took part in an innovative project for curriculum and instruction	◯	◯
e) I exchanged information online about how to teach physics (e.g., email, forums, website)	◯	◯

33

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

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

	Not applicable	Very well prepared	Somewhat prepared	Not well prepared
A. Mechanics and Thermodynamics				
a) The dynamics of different types of movement, including Newton's laws of motion	○	○	○	○
b) Forces, including frictional force, acting on a moving body	○	○	○	○
c) Forces acting on a body moving in a circular path; the body's centripetal acceleration, speed, and circling time	○	○	○	○
d) The law of gravitation in relation to the movement of celestial object	○	○	○	○
e) Kinetic and potential energy; conservation of mechanical energy	○	○	○	○
f) Elastic and inelastic collision; the law of conservation of momentum	○	○	○	○
g) The first law of thermodynamics	○	○	○	○
h) Heat transfer and specific heat capacities	○	○	○	○
i) Expansion of solids and liquids in relation to temperature change; the law of ideal gases	○	○	○	○
B. Electricity and Magnetism				
a) Electrostatic attraction or repulsion between isolated charged particles – Coulomb's law	○	○	○	○
b) Charged particles in an electric field	○	○	○	○
c) Electrical circuits – Ohm's law and Joule's law for complex electrical circuits	○	○	○	○
d) Charged particles in a magnetic field	○	○	○	○
e) Relationship between magnetism and electricity; electromagnetic induction; Faraday's and Lenz' laws of induction	○	○	○	○
C. Wave Phenomena and Atomic/Nuclear Physics				
a) Mechanical waves; the relationship between speed, frequency, and wavelength	○	○	○	○
b) Electromagnetic radiation; wavelength and frequency of various types of waves (e.g., radio, infrared, x-rays, light)	○	○	○	○
c) Thermal radiation, temperature, and wavelength	○	○	○	○
d) Reflection, refraction, interference, and diffraction	○	○	○	○
e) The structure of the atom and its nucleus in terms of electrons, protons, and neutrons; atomic number and atomic mass number; Light emission and absorption and the behavior of electrons	○	○	○	○
f) Wave-particle quality and the photoelectric effect; types of nuclear reactions (i.e., fission, fusion, and radioactive decay) and their role in nature (e.g., in stars) and society (e.g., reactors, bombs); radioactive isotopes	○	○	○	○
g) Mass-energy equivalence	○	○	○	○

1

What is the total enrollment of students in your school as of <first day of month TIMSS Advanced testing begins, 2014>?

_____ students

Write in a number.

2

What is the total enrollment of <twelfth-grade> students in your school as of <first day of month TIMSS Advanced testing begins, 2014>?

_____ students

Write in a number.

3

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

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

	0 to 10%	11 to 25%	26 to 50%	More than 50%
a) Come from economically disadvantaged homes	◯	◯	◯	◯
b) Come from economically affluent homes	◯	◯	◯	◯

4

Approximately what percentage of students in your school have <language of test> as their native language?

*Check **one** circle only.*

- More than 90% -- ◯
- 76 to 90% -- ◯
- 51 to 75% -- ◯
- 26 to 50% -- ◯
- 25% or less -- ◯

5

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

*Check **one** circle only.*

- More than 500,000 people -- ◯
- 100,001 to 500,000 people -- ◯
- 50,001 to 100,000 people -- ◯
- 30,001 to 50,000 people -- ◯
- 15,001 to 30,000 people -- ◯
- 3,001 to 15,000 people -- ◯
- 3,000 people or fewer -- ◯

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

*Check **one** circle only.*

- Urban–Densely populated -- ◯
- Suburban–On fringe or outskirts of urban area -- ◯
- Medium size city or large town -- ◯
- Small town or village -- ◯
- Remote rural -- ◯

6

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

Write in the percent

a) <Advanced Mathematics>---------- _____%

b) <Physics> ---------- _____%

7

Does your school have a special policy to encourage students to choose the following courses?

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

	Yes, for all students	Yes, only for boys	Yes, only for girls	No
a) <Advanced Mathematics>	◯	◯	◯	◯
b) <Physics>	◯	◯	◯	◯

8

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>?

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

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

*Check **one** circle only.*

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

9

What is the total number of computers including tablets (such as iPads) that can be used for instructional purposes by <twelfth-grade> students?

_____computers
Write in the number.

10

A. Does your school have a physics laboratory?

*Check **one** circle only.*

Yes --- ◯
No --- ◯

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

*Check **one** circle only.*

Yes --- ◯
No --- ◯

11

A. Does your school have a have a school library?

*Check **one** circle only.*

Yes --- ◯
No --- ◯ → **(If No, go to #13)**

If Yes,

B. <u>Approximately</u> how many books (print and digital) with different titles does your school library have (exclude magazines and periodicals)?

*Check **one** circle in each column.*

	Print	Digital
250 or fewer	◯	◯
251–500	◯	◯
501–2,000	◯	◯
2,001–5,000	◯	◯
5,001–10,000	◯	◯
More than 10,000	◯	◯

C. <u>Approximately</u> how many titles of magazines and other periodicals (print and digital) does your school library have?

*Check **one** circle in each column.*

	Print	Digital
0	◯	◯
1–5	◯	◯
6–10	◯	◯
11–30	◯	◯
31 or more	◯	◯

12

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

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

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

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

	Not at all	A little	Some	A lot
B. Resources for Mathematics Instruction				
a) Teachers with a specialization in mathematics	○	○	○	○
b) Computer software/ applications for mathematics instruction	○	○	○	○
c) Library resources relevant to mathematics instruction	○	○	○	○
d) Calculators for mathematics instruction	○	○	○	○
e) Concrete objects or materials to help students understand quantities or procedures	○	○	○	○
C. Resources for Physics Instruction				
a) Teachers with a specialization in physics	○	○	○	○
b) Computer software/ applications for physics instruction	○	○	○	○
c) Library resources relevant to physics instruction	○	○	○	○
d) Calculators for physics instruction	○	○	○	○
e) Physics equipment and materials	○	○	○	○

13

How often does your school do the following for parents in general?

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

	Never	Once a year	2–3 times a year	More than 3 times a year
a) Inform parents about the overall academic achievement of the school (e.g., results of national tests, results of inspections of learning)	○	○	○	○
b) Inform parents about the educational goals and pedagogical principles of the school	○	○	○	○
c) Provide parents with additional learning materials (e.g., books, computer software) for their child to use at home	○	○	○	○
d) Organize workshops or seminars for parents on learning or pedagogical issues	○	○	○	○

14

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

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

	Very High	High	Medium	Low
a) Teachers' understanding of the school's curricular goals	○	○	○	○
b) Teachers' degree of success in implementing the school's curriculum	○	○	○	○
c) Teachers' expectations for student achievement	○	○	○	○
d) Teachers' working together to improve student achievement	○	○	○	○
e) Teachers' ability to inspire students	○	○	○	○

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

	Very High	High	Medium	Low
f) Parental commitment to ensure that students are prepared to learn	○	○	○	○
g) Parental expectations for student achievement	○	○	○	○
h) Parental support for student achievement	○	○	○	○
i) Parental pressure for the school to maintain high academic standards	○	○	○	○
j) Students' desire to do well in school	○	○	○	○
k) Students' ability to reach school's academic goals	○	○	○	○
l) Students' respect for classmates who excel in school	○	○	○	○

15

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

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

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

16

How difficult was it to fill <twelfth-grade> teaching vacancies for this school year for the following subjects?

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

	Were no vacancies in this subject	Easy to fill vacancies	Somewhat difficult	Very difficult
a) Mathematics	○	○	○	○
b) Physics	○	○	○	○
c) Computer science / information technology	○	○	○	○
d) Other	○	○	○	○

17

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

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

	Yes	No
a) Mathematics	○	○
b) Physics	○	○
c) Computer science/information technology	○	○
d) Other	○	○

18

During the past year, approximately how much time have you spent on the following school leadership activities in your role as a school principal?

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

	No time	Some time	A lot of time
a) Promoting the school's educational vision or goals	◯	◯	◯
b) Developing the school's curricular and educational goals	◯	◯	◯
c) Monitoring teachers' implementation of the school's educational goals in their teaching	◯	◯	◯
d) Monitoring students' learning progress to ensure that the school's educational goals are reached	◯	◯	◯
e) Keeping an orderly atmosphere in the school	◯	◯	◯

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

	No time	Some time	A lot of time
f) Addressing disruptive student behavior	◯	◯	◯
g) Advising teachers who have questions or problems with their teaching	◯	◯	◯
h) Initiating educational projects or improvements	◯	◯	◯
i) Participating in professional development activities specifically for school principals	◯	◯	◯