

## World Environment Day: How much did students learn about environmental topics?

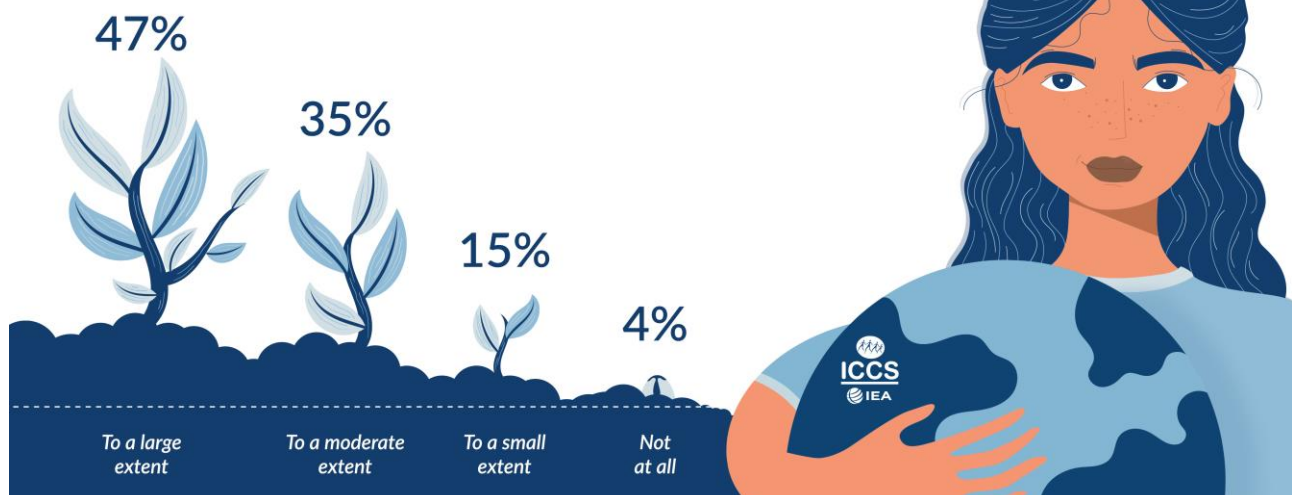
IEA studies indicate more can be done in some countries to teach Grade 8 students about how to protect the environment, and results from students' answers to environmental science questions show there is room for improvement to build knowledge in this area.

As the climate crisis is communicated with increasing urgency in recent years, environmental education has never been more important; but do students believe they have learned to protect the environment, and how well do they answer environment-based assessment items?

Data from IEA's international large-scale assessment studies on mathematics and science education (TIMSS), and civic and citizenship education (ICCS), provide an insight into these questions.

Encouragingly, among the approximately 94,000 Grade 8 students who participated in ICCS 2016, 47% said they had learned about how to protect the environment to a large extent, and 35% to a moderate extent. However, the remaining 19% thought they had only learned about the environment to a small extent or not at all, as shown in the image below. Results by country can be observed [here](#).

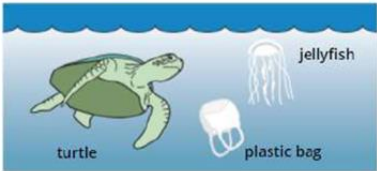
### *At school, to what extent have you learned about how to protect the environment?*



Looking at student environmental knowledge, two assessment items from TIMSS 2019 have been selected for analysis here, in the theme of protecting the environment. The first item, pictured below, is a Grade 4 assessment item which looks at the problem of plastic ending up in the ocean. Internationally, on average, 65% of Grade 4 students, across the 58 countries who participated, answered the item correctly. However, this ranged from as low as 20% of students in one country, to as high as 82% of students in another.

## Grade 4

1 The picture shows a turtle and jellyfish swimming in the ocean. A plastic bag is floating nearby.




Write down one reason why plastic objects in the ocean are dangerous for animals such as turtles.

The turtle might think the bag is a jellyfish and eat it. The bag could get stuck in its throat or its stomach.

*The answer shown illustrates a full credit response.*

## Grade 8

1 Algal blooms can occur in freshwater ponds when there are too many nutrients in the water. These blooms can be harmful to other wildlife. The picture shows an algal bloom in a pond.



What human activity can cause too many nutrients to enter a pond and cause an algal bloom?

- A farming with a lot of fertilizer
- B burning chemicals in factories
- C using aerosol spray cans
- D planting lots of trees around a pond

SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2019

The second item is a Grade 8 assessment, pictured above, testing knowledge on freshwater pollution. Across the 39 countries who participated at this level, just half of the students (52%) answered the question correctly, with a range of 42% between the bottom and top scoring countries. Results for these two assessment items can be explored by country [here](#).

Commenting on these findings, IEA Executive Director, Dr Dirk Hastedt, said:

“After a challenging year due to the pandemic, environmental topics may have taken a back seat, therefore we need to ensure teaching and learning focuses on these, such as how to protect the environment. This analysis indicates there is room for improvement with regards to how well students understand environmental topics, although this varies from country to country. It is important for curricula around the world to include a solid foundation for environmental problem solving, to reflect the challenges modern society faces, nurturing future citizens who can tackle these issues.”

-ENDS-

For more information about this release, or to arrange an interview, please contact:

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### **Notes to Editors**

This press release is based on extra analysis conducted by IEA using data from the recently released [TIMSS 2019 International Database](#). There are 33 items at Grade 4 looking at environmental issues and 41 items at Grade 8.

### **About TIMSS 2019**

TIMSS 2019 is the seventh assessment cycle of the IEA's Trends in International Mathematics and Science Study and was administered to nationally representative samples of students in 64 countries and 8 benchmarking systems in total (58 countries and 6 benchmarking entities at the fourth grade, and 39 countries and 7 benchmarking at the eighth grade).

Results can be explored further by subject and grade in [IEA's TIMSS 2019 infographics dashboard](#), on a whole host of topics such as achievement, gender differences, early education, student bullying and teacher professional development.

As well as providing 24 years of trends in global student achievement in mathematics and science, TIMSS administers questionnaires to students and their teachers, school principals, and parents to collect information about contexts for learning. Taken together, more than 580,000 students (participated in TIMSS 2019, with questionnaires completed by about 310,000 parents, 19,000 school principals, and 52,000 teachers. Read more about [TIMSS 2019](#).

### **About ICCS 2016**

ICCS 2016 was the fourth project conducted by IEA in civic education (after [ICCS 2009](#), [CIVED 1999](#), and the [Six Subject Survey](#) conducted in 1971). As the second cycle within the framework of the International Civic and Citizenship Education Study, ICCS 2016 monitored trends in civic knowledge and engagement over seven years in the countries that participated in ICCS 2009.

Two regional modules for countries in Europe and Latin America collected data regarding issues of civic and citizenship education of special interest in these parts of the world.



## **About the International Association for the Evaluation of Educational Achievement (IEA)**

IEA is an independent, international cooperative of national research institutions, governmental research agencies, scholars, and analysts working to research, understand, and improve education worldwide. It conducts high-quality, large-scale comparative studies of educational achievement and other educational aspects, across the globe in order to provide educators, policymakers, and parents with insights into how students perform.