



Japan

Modern life requires people to collaborate with one another. Many human activities involve groups of people, where individuals rely on each other for things that they cannot do themselves. More and more jobs require a high level of social skills, while the proportion of jobs that require minimal social skills is shrinking. PISA's first assessment of collaborative problem-solving skills shows how well-prepared 15-year-old students are to work together productively. The items in this assessment require students to establish a shared understanding with other group members, take appropriate action to solve the problem, and maintain team organisation – as students would do in real-world situations.

- Japan is one of the top-performing countries in collaborative problem solving (552 points) and performs significantly above all other education systems except Singapore (561 points).
- Students in Japan perform even better in collaborative problem solving than their already strong performance in science, reading and mathematics would suggest.
- Approximately one in seven students (14%) in Japan attains Level 4, the top level of proficiency in collaborative problem solving. These students can carry out advanced problem-solving tasks with high collaboration complexity, maintain an awareness of group dynamics, and take the initiative to perform actions or make requests to overcome obstacles and resolve disagreements. On average across OECD countries, only 8% of students can perform at this level.
- Just one in 10 students (10%) in Japan performs below Level 2, meaning that they can only complete tasks with low problem complexity and limited collaboration complexity, if they can complete these tasks at all. They tend to focus on their individual role within the group, and might be able to enact plans when prompted to do so. On average across OECD countries, 28% of students perform below Level 2.
- In Japan, a gap between high and low performers in collaborative problem solving is narrower than it is on average across OECD countries, mainly because of the relatively high scores of low performers in Japan. Even the bottom 5% of students in Japan score 402 points, on average, while across OECD countries, that group of students scores 341 points, on average.
- In Japan, girls score 26 points higher than boys in collaborative problem solving (565 score points versus 539 score points), on par with the OECD average gender gap, at 29 score points. Moreover, in Japan, even after accounting for students' performance in science, reading and mathematics, a similar level of gender difference is observed.
- As observed in many other countries and economies, students in Japan who value relationships tend to perform better in collaborative problem solving, and girls tend to value their relationships with others more than boys do. In Japan, 80% of girls reported that they are good listeners, while 73% of boys reported so; 91% of girls reported that they enjoy seeing their classmates be successful while 81% of boys did so.

PISA 2015 defines collaborative problem-solving competence as “the capacity of an individual to effectively engage in a process whereby two or more agents attempt to solve a problem by sharing the understanding and effort required to come to a solution and pooling their knowledge, skills and efforts to reach that solution”.

- Students in Japan who are more likely to value their relationships with others are those who: are regularly asked to discuss their work in class; reported that they participate in activities before or after school, including meeting friends or talking to friends on the phone and working in the household or taking care of family members; and reported more positive relationships with other students.
- In Japan, students score higher in collaborative problem solving when they reported more positive student-parent relationships. For instance, after accounting for the socio-economic profile of students and schools, students score 30 points higher in the collaborative problem-solving assessment when they reported that they had talked to their parents after school on the day prior to the PISA test; and they score 14 points higher when they strongly agreed that their parents are interested in their school activities. These students are more likely to value their relationships with others.

What is PISA?

The Programme for International Student Assessment (PISA) is a triennial survey that assesses the extent to which 15-year-old students near the end of compulsory education have acquired the knowledge and skills that are essential for full participation in modern societies. The assessment does not just ascertain whether students can reproduce knowledge; it also examines how well students can extrapolate from what they have learned and apply that knowledge in unfamiliar settings, both in and outside of school.

PISA offers insights for education policy and practice, and helps monitor trends in students' acquisition of knowledge and skills across countries and in different demographic subgroups within each country. The findings allow policy makers to gauge the knowledge and skills of students in their own countries in comparison with those in other countries, set policy targets against measurable goals achieved by other education systems, and learn from policies and practices applied elsewhere.

Key features of the PISA 2015 assessment of collaborative problem solving

The assessment

- Collaborative problem solving was assessed on computers. The assessment lasted 30 minutes, with different students taking different combinations of test items. A total of 90 minutes of collaborative problem-solving items were created.
- The assessment was interactive. Students interacted with computer agents in order to advance towards a solution to a given problem. Test items were a mixture of multiple-choice items requiring students to select the best response to their computer partners, and items requiring students to solve the problem, generally by clicking on a region in the central display area. Sample items can be explored online at: www.oecd.org/pisa/test.
- Students assessed in collaborative problem solving also completed assessments in science and, depending on the test form, may have completed an assessment in reading or mathematics. They also answered a background questionnaire, which took 30 minutes to complete, that sought information about themselves, their homes and their school and learning experiences.

The students

- Only a subsample of all students assessed in science in 2015 also participated in the collaborative problem-solving assessment. Around 125 000 students were assessed in collaborative problem solving, representing about 6 million 15-year-olds in the schools of the 52 participating countries and economies.
- In Japan, 2026 students in 198 schools completed the assessment of collaborative problem solving.

Map of PISA countries and economies



■ OECD countries	■ Partner countries and economies in PISA 2015	■ Partner countries and economies in previous cycles
Australia	Albania	Azerbaijan
Austria	Algeria	Himachal Pradesh-India
Belgium	Argentina	Kyrgyzstan
Canada	Brazil	Liechtenstein
Chile	B-S-J-G (China)*	Mauritius
Czech Republic	Bulgaria	Miranda-Venezuela
Denmark	Colombia	Panama
Estonia	Costa Rica	Serbia
Finland	Croatia	Tamil Nadu-India
France	Cyprus¹	
Germany	Dominican Republic	
Greece	Former Yugoslav Republic of Macedonia	
Hungary	Georgia	
Iceland	Hong Kong (China)	
Ireland	Indonesia	
Israel	Jordan	
Italy	Kazakhstan	
Japan	Kosovo	
	Lebanon	
	Lithuania	
	Macao (China)	
	Malaysia	
	Malta	
	Moldova	
	Montenegro	
	Peru	
	Qatar	
	Romania	
	Russian Federation	
	Singapore	
	Chinese Taipei	
	Thailand	
	Trinidad and Tobago	
	Tunisia	
	United Arab Emirates	
	Uruguay	
	Viet Nam	

Note: Countries and economies marked in bold participated in the PISA 2015 collaborative problem-solving assessment.

* B-S-J-G (China) refers to the four PISA participating Chinese provinces: Beijing, Shanghai, Jiangsu, Guangdong.

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For more information on the Programme for International Student Assessment and to access the full set of PISA 2015 results, visit:

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