



STEM EDUCATION IN VIETNAM

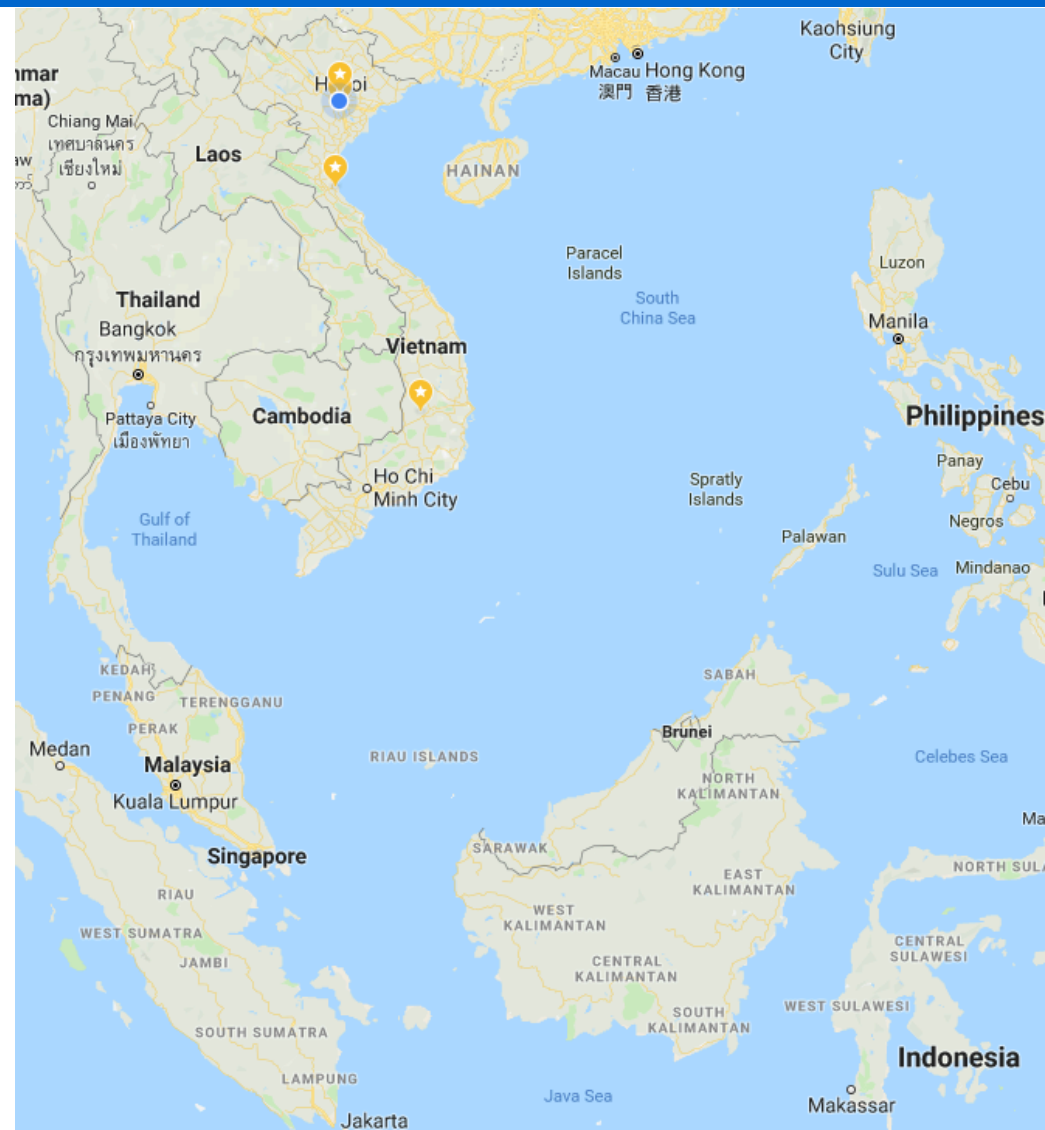
Nguyễn Văn Biên – Hanoi national university of education, Vietnam



Vietnam

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- ❑ **Socialist Republic of Vietnam**
- ❑ **Population** 96,160,163 (estimate 2017)
- ❑ **Pupils:** Primary: 8.3 million - Secondary: 5.3 million - Post secondary: 2.5 million
- ❑ **Compulsory Education: 9th Grade**
- ❑ **Academic Year: September – May**
- ❑ **Language of Instruction: Vietnamese**
- ❑ **Education Administration: Ministry of Education and Training (MOET)**
- ❑ <https://en.moet.gov.vn/Pages/home.aspx>

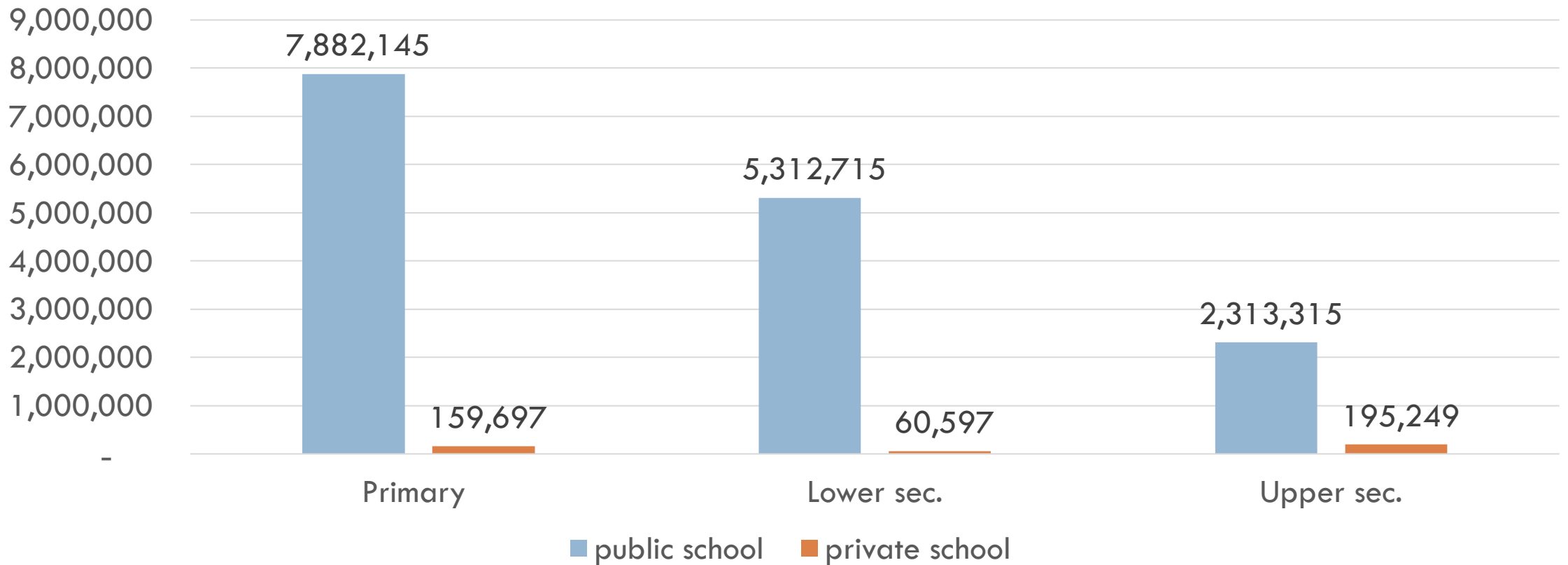




Public and private school

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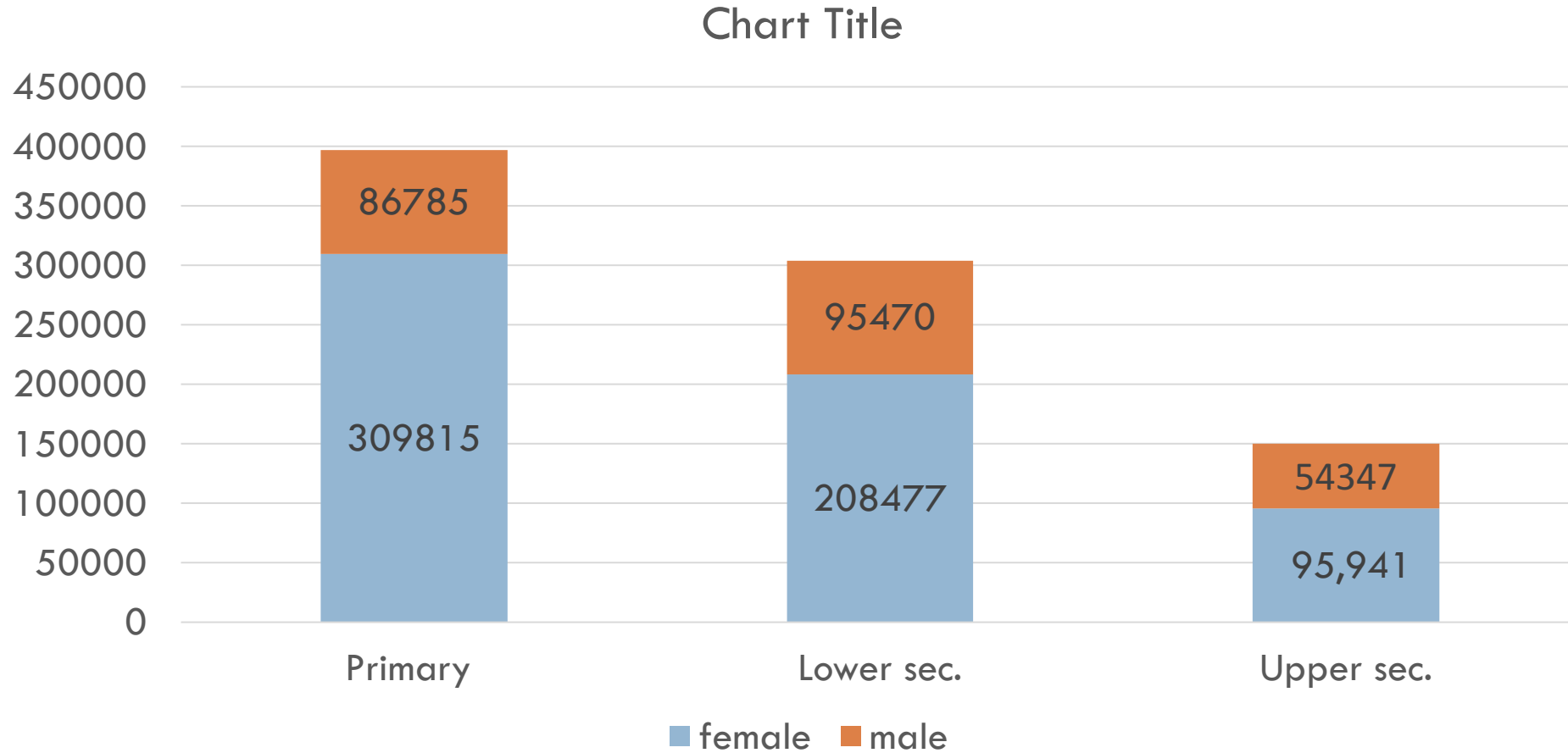
Chart Title





Teacher population

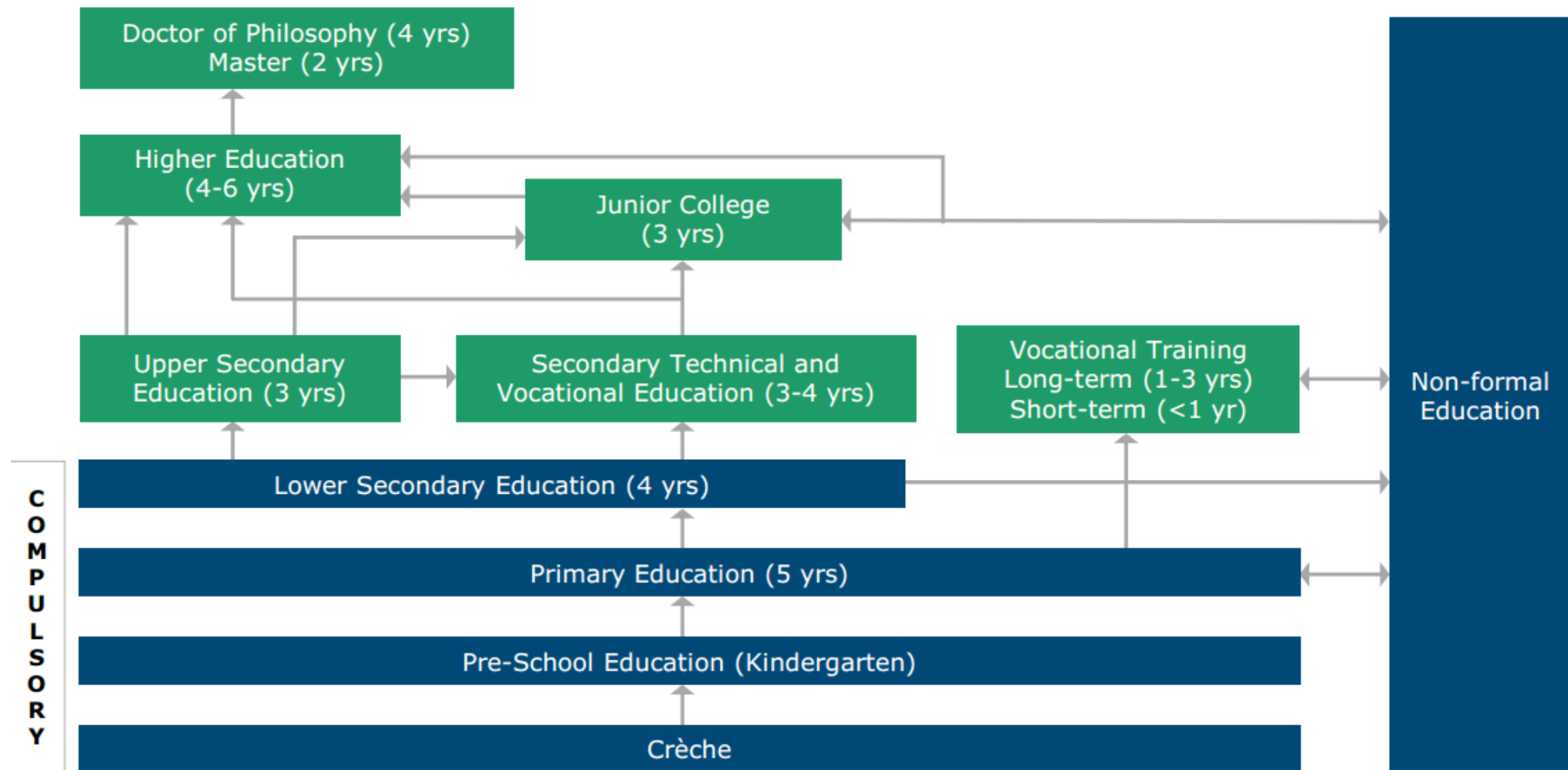
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Education system

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Lower secondary Curriculum

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SUBJECTS AND HOURS PER WEEK	2006- present	New curriculum
Compulsory subjects		
Literature	4	4
Mathematics	4	4
Foreign language 1	3	3
Civic education	1	1
History and Geography	1,5 + 1,5	3
Natural Science	1,5+1,5+1	4
Technology	1,5	1
Computing	2	1
Physical Education	2	2
Arts (Music, Fine Arts)	2	2
Compulsory educational activity		
Experiential and career-oriented activity	2	3
Local educational content		1
Elective subjects		
Ethnic minority language		3
Foreign language 2		3
Average periods/week (excluding elective subjects)	28	29



NEW Lower secondary Curriculum

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Educational plan	Periods/school year			
	Grade 6	Grade 7	Grade 8	Grade 9
Compulsory subjects				
Literature	140	140	140	140
Mathematics	140	140	140	140
Foreign language 1	105	105	105	105
Civic education	35	35	35	35
History and Geography	105	105	105	105
Natural Science	140	140	140	140
Technology	35	35	52	52
Computing	35	35	35	35
Physical Education	70	70	70	70
Arts (Music, Fine Arts)	70	70	70	70
Compulsory educational activity				
Experiential and career-oriented activity	105	105	105	105
Local educational content	35	35	35	35
Elective subjects				
Ethnic minority language	105	105	105	105
Foreign language 2	105	105	105	105
Total periods/school year (excluding elective subjects)	1015	1015	1032	1032
Average periods/week (excluding elective subjects)	29	29	29,5	29,5



Upper secondary Education: types of High schools

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□ There are four types of schools:

📖 Specialized General Education Schools

📖 Vocational and Technical Secondary Schools

📖 High Schools for the Gifted National Public High Schools (Magnet or Specialized)

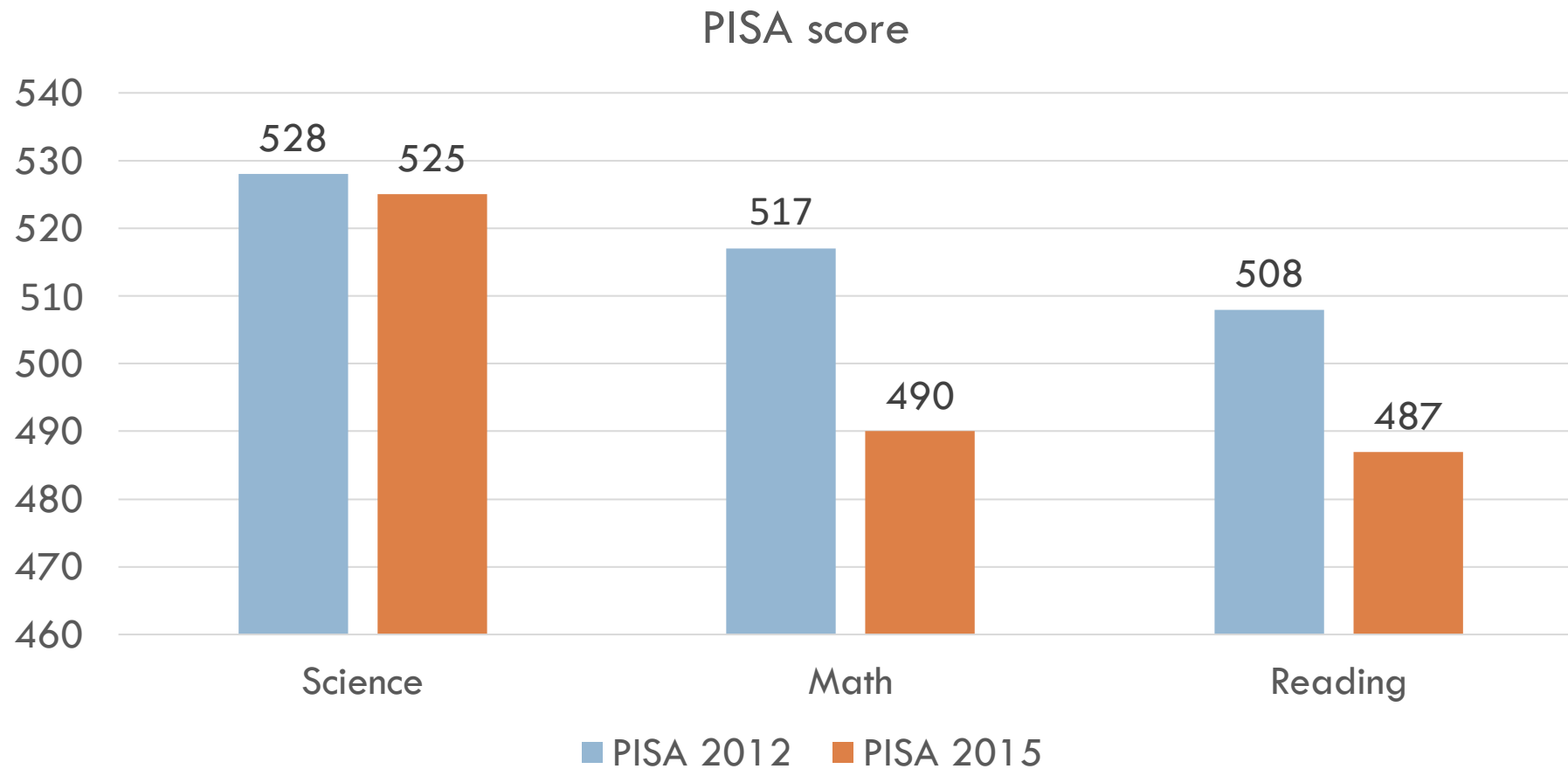
📖 International Schools

- British Schools offer Cambridge Exams – IGCSE, AS and A-Levels (ACG International School Vietnam)
- International Baccalaureate (IB) Schools (International School Ho Chi Minh City)



PISA score – just a score??

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The effectiveness of STEM education

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- The rapid developments of science and technology call for individuals well-equipped with academic knowledge as well as the 21st century skills.
- **Gain *learning achievements*** (Moore et al., 2013; Guzey et al., 2016; 2017; Mathis et al., 2018)
- **Develop *authentic problem solving*** (Sanders, 2009; Bybee, 2010; Quigley & Herro, 2016)
- **Enhance *interests* in STEM sub-subjects and pursue STEM careers** (Honey et al., 2014; Peterman et al., 2016; Stevens et al., 2016; Vennix et al., 2018)



Why do we need STEM education in VN?

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- Vietnam: **one** of the **poorest** countries
- **lower-middle-income** status in 2010
- **HOWEVER, Vietnam**
 - has **remained low** global competitive **index** by 2015 (The World Economic Forum, 2015)
 - has been **grappling to boost** global competitiveness and labor productivity. In the Southeast Asia area, Vietnam's productivity:
 - 2/5 Thailand; 1/5 Malaysia; 1/15 Singapore (ADB, 2016).



Why do we need STEM education in VN?

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- Vietnam's low- and semi-skilled labor limited global value chain linkages (ADB, 2016).
- The **prime minister** had the directive on the **strengthening of the ability** to access the four industrial revolution. (The 4.0 industry)
- Based on this directive, the **Ministry of Education and Training** has assigned to **promote STEM education** as well as **pilot implement STEM education** in some schools (The Prime Minister, 2017).



- Nowadays, Vietnam has not had the national STEM curriculum yet.
- However
 - Strengthening STEM education has been one of new features in this curriculum reform (Secondary Education Sector Development Program, 2017)
- → The call for researching STEM education



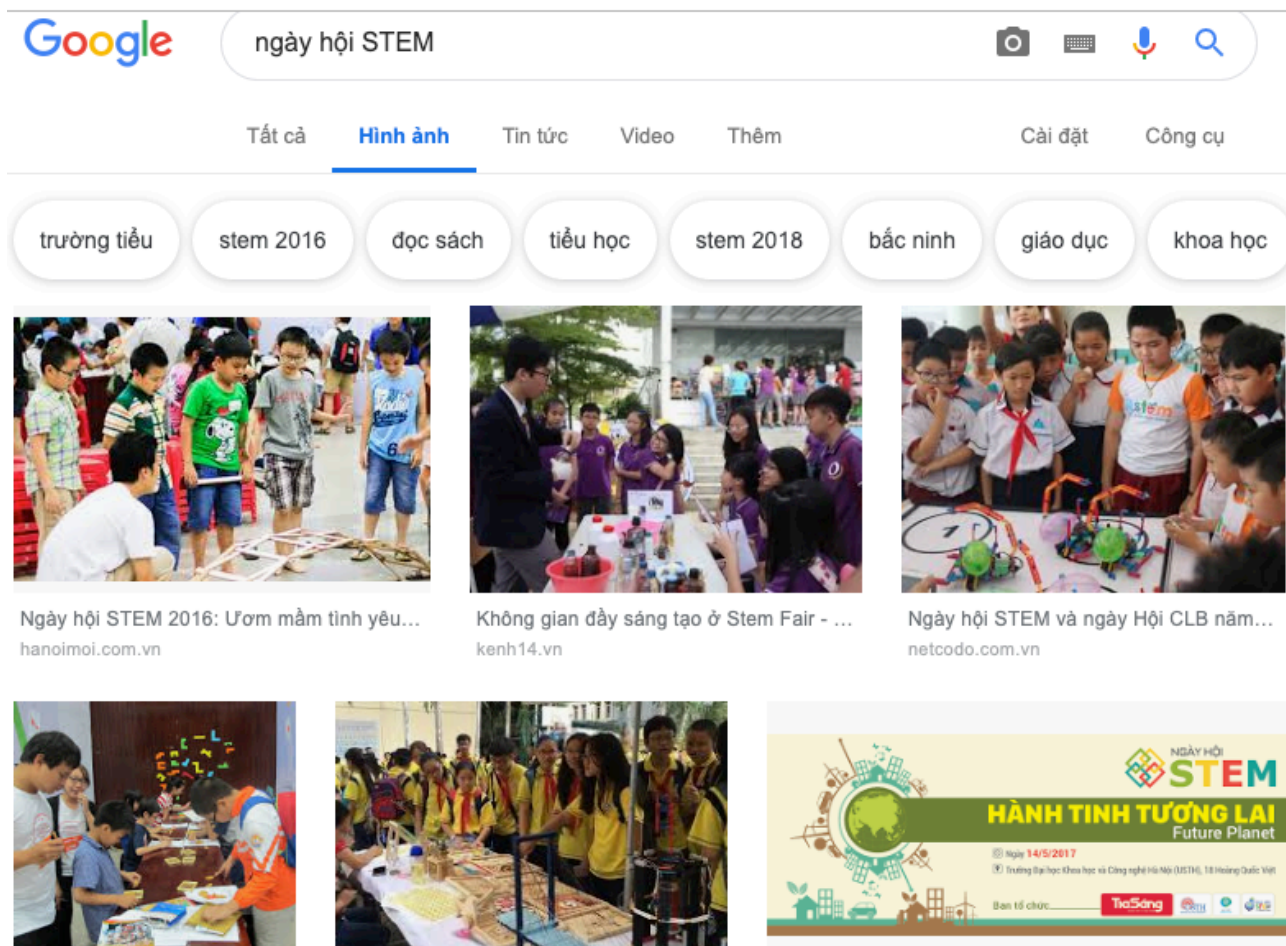
How STEM education in VN?

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- The project “Adapting STEM Education in England into Vietnam context” in 2016 – 2017:
 - The British Council in Vietnam and MOET
 - 15 schools in 5 cities in the North of Vietnam
- Note: since 2013
- At that time, while the **public schools** only cautiously deployed STEM education, **gifted schools, private schools and private educational centers** had plenty of STEM activities such as science shows, robotics mini contests, science camps, STEM clubs, etc

ACTIVITIES OF STEM ALLIANCE

1. Organize STEM DAY
2. Train primary, secondary and high school teachers
3. Train national team for Intel ISEF
4. Provide advice for public policy on education
5. Promote reading culture
6. Form STEM clubs at schools





Aims of science education

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Natural Science subject forms and develops students' natural scientific competence, including components: natural science awareness; understand nature; apply knowledge and skills learned.

- **Aware natural science**
- **Understand nature**
- **Apply knowledge and skills learned**



Teacher Training Systems by Level of Education

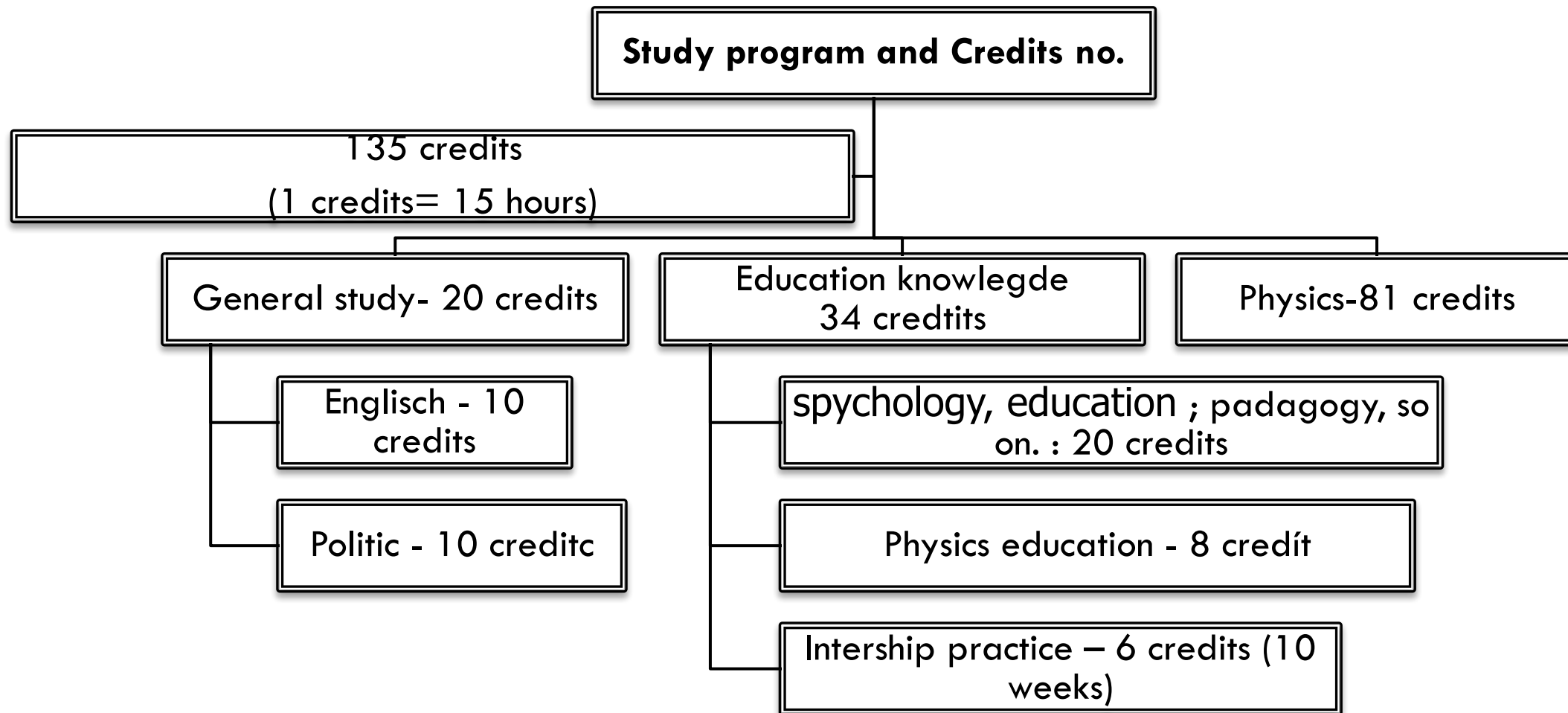
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Level \ Training System	Under standard	Standard	Above Standard
Preprimary		12+2 & 9+3	12+3 & 12+4
Primary	12+2 & 9+3 (for difficult areas)	12+3 (college education)	12+4 (higher education)
Lower Secondary		12+3 (college education)	12+3+1 (higher education)
Upper Secondary		12+4 (higher education)	12+4+2 (Post-graduate education)



Teacher education at HNUE

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THANK YOU!