

***Global STEM Classroom™
and
How to start a global
collaboration program in
your school***

#BLC15

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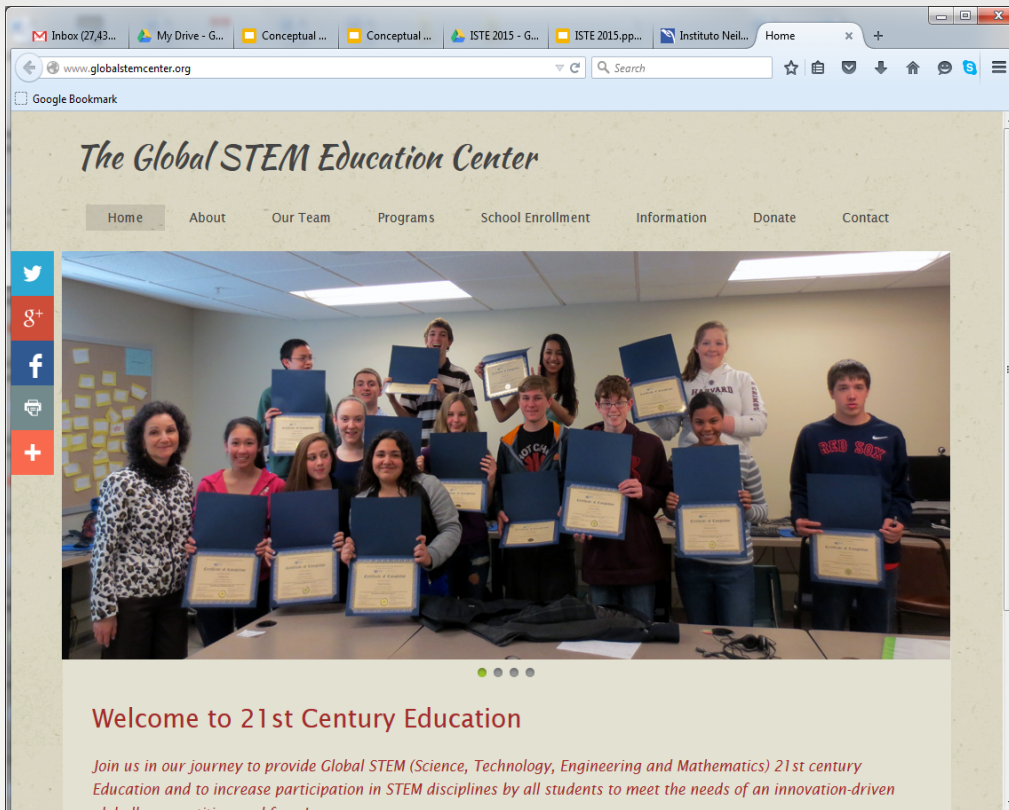
AGENDA



- What is “Global STEM Classroom™”
- Global STEM Education Center - who are we
- Why your students need to collaborate globally?
- How to find a school-partner
- How to organize a collaborative process
- Teacher PD needed
- Technology needed
- Project examples
- Where to find more information?
- Who can provide some help?
- Interested in partnering with Global STEM Center and the schools in Massachusetts?

Global STEM Education Center, Inc

www.globalstemcenter.org



- *Certificates of Completion (students)*
- *Certificates for Global Educator's Leadership (teachers)*
- *Teacher Professional Development and PDP's credit*
- *Teachers & students presenting at many Conferences in the USA and virtually worldwide*
- *Possible exchange visits: Finham Park School (UK) visited DYHS in 2013 and also visited Washington, DC*

Global STEM Classroom™ in Massachusetts public schools




USA-Mexico Global STEM Classroom™



Inbox (27,439) - ... My Drive - Goo... Conceptual Pre... Conceptual Pre... ISTE 2015 - Goo... ISTE 2015.ppt - ... Instituto Nei... x +

ina.edu.mx Search

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INSTITUTO
Neil Armstrong

Inicio | Nuestro Instituto | Niveles Académicos | Espacios e Infraestructura | Contacto



BIG THINGS
happen when you aim for the STARS

Videoconferencia con la Estación Espacial



INA INSTITUTO NEIL ARMSTRONG
MONTERREY, MEXICO

BIENVENIDOS

En nuestro instituto creemos firmemente que una **educación de excelencia** es la clave para llevar a tus hijos a grandes alturas.

iHola! **blog**



USA- Arkhangelsk, Northern Russia Global STEM Classroom™



gimnasia3.ru/index.php/stranica-z-direktora

Официальный сайт
Гимназии №3
г. Архангельска

Главная Сведения о гимназии Фотоальбом Интернет-приёмная Контакты Страница директора

Главное меню

- Муниципальные услуги
- Научно-методическая работа
- Воспитательная работа
- Служба сопровождения
- Информация для учителей
- Информация для гимназистов
- Информация для родителей
- Приём в гимназию
- Библиотека
- Роснефть-класс
- Методическая копилка
- Выпускники гимназии
- Карта сайта



USA-Netherlands *Global STEM Classroom*™



The screenshot shows a web browser window displaying the website for 'het 4e gymnasium'. The browser's address bar shows the URL 'www.het4egymnasium.nl/home/onderwijs/'. The website has a red header with the school's name and navigation tabs for 'School', 'Organisatie', 'Onderwijs', 'Schoolleven', and 'Praktisch'. The main content area is titled 'Onderwijs' and features a photo of a classroom. To the right, there is a 'Snel naar' (Quick links) section with links to 'Aanmelden nieuwe leerlingen', 'Absentie en verlof', 'Inhaaluur', and 'Bekijk al het nieuws'. Below this, there are social media links for Facebook and Twitter. At the bottom, there is a grid of red buttons for various school services like 'Decanaat', 'Examenreglement', 'Krantenbank', 'Mediatheek', etc.

Decanaat	Examenreglement
Krantenbank	Mediatheek
Mentoren	Overgangsnormen
Proefjeskist voor basisscholen	Profielkeuze
Projecten	Richtlijnen Bronvermelding
Rooster	Ruimte voor talent



USA-Norway Global STEM Classroom™



Some not... Velkomm... x My Drive... Concept... Concept... ISTE 2015... ISTE 2015... http://...l39.ru/ college re... > + -

ngv.hfk.no/templates/ExtensionSchoolFrontPage.aspx?id=29399

Google Bookmark

Skoleportalen It's learning Fag- og temabank

Nettstadkart | Større skrift HORDALAND FYLKESKOMMUNE

NORDAHL GRIEG VIDEREGÅENDE SKOLE
Skolen for dristige hjerner i samspill

Informasjon om skolen Pedagogikk og satsingsområder Utdanningsprogram Knutepunktskole Biblioteket English avd. Sykehusskolen avd. Klokkarlia

Du er her: Velkommen til Nordahl Grieg videregående skole

Hjertelig velkommen til Nordahl Grieg videregående skoles Avgangsfest for vg3-elevene

Torsdag 18.juni 2015 kl 18:00-19:30
Sted: Skoletorget, NGV

Program:
18:00-18:30 Jordbær, flygel og mingling
18:30-19:30 Offisiell avslutning

Elever, lærere og foresatte



USA - Ukraine Global STEM Classroom™



www.ochag.kh.ua/gallery/

Google Bookmark

ОЧАГ 2
ЧАСТНАЯ ГИМНАЗИЯ

Образование, создающее личность

Великолепный преподавательский состав, уникальные авторские учебные программы, внимательное и достойное отношение к каждому ученику.

Главная

О гимназии

Статьи, публикации, материалы

Фотогалерея

Условия поступления и обучения

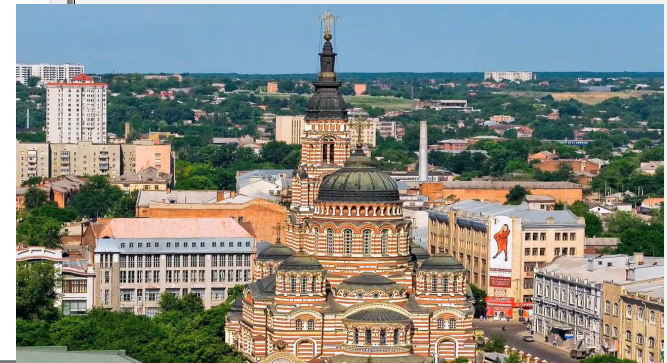
Очаг для меня

Контакты

Дистанционное обучение

Галерея выпускников

Вот так всё начиналось



USA-Moscow, Russia Global STEM Classroom™



Inbox (27,...) My Drive -... Conceptu... Conceptu... ISTE 2015... ISTE 2015... http://...i39.ru/ college re... Лицей... x +

www.sch2.ru Search

Google Bookmark

Никто не забыт, ничто не забыто!

Сайт второшкольников

Цена деления: 1 год
 VMШ при лицее
 1 2 3 4 5 6 7 8 9 10 11 12

Линейка качественного образования
 Физтех, МГУ...
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

«Вторая школа»
место, где учат и учатся

Если еще не...
 Набор в лицей
 Как мы учим
 В помощь определяющимся
 Вечерняя школа (ВМШШ)
 Карта сайта
 Ссылки
 Проезд во «Вторую школу»
 Новости

Сайт лицей
 Адрес лицей
 Письмо в Лицей

Samsung IT School
Samsung IT School - фактически единственная бесплатная школа программистов, ориентированная на проектное (промышленное) программирование - проводит набор учащихся на новый учебный год. Самая удобно-расположенная московская площадка находится при Техническом образовательном центре Samsung (Москва ТОЦ Samsung).
[Подать заявку на обучение](#)

Летняя ФМ школа
 Уважаемые родители и второшкольники!
 Родительское собрание по Летней физико-математической школе Л2Ш пройдет 17 июня 2015 г. в 19:00 в актовом зале. [Здесь список документов](#), необходимых для участия в выезде, и требования к их оформлению. Формы заявления, согласия, [медицинской справки № 159/у-02](#) также приложены. Убедительная просьба [заявление](#) и [согласие](#) принести на родительское собрание. Кроме того, необходимо до 17 июня заполнить анкету, пройдя по ссылке: <https://l2sh.timepad.ru/event/216252/>. По всем вопросам обращайтесь:
 - по тел.: 8-499-137-69-31
 - по почте: camp@sch2.ru

Второшкольные новости
 После уроков
 11.06.2015 г.

Официальный раздел
 Олимпиады и конференции
 После уроков
 Лицейский журнал
 Родительская страница
 Фонд друзей «Второй школы»
 Фотохроники
 Службы поддержки
 Физкультура и спорт
 Кафедра математики
 Психологическая служба

А дальше...
 Из истории «Второй школы»
 Доска медалистов
 50-летие «Второй школы»
 55-летие «Второй школы»
 Мы помогаем



USA- UK Global STEM Classroom™



Browser tabs: Inbox (27,435) - larisa.s... | ISTE 2015 - Google Drive | ISTE 2015.ppt - Google... | http://www.school39.ru/ | Finham Park School

Address bar: www.finhampark.co.uk

Navigation: Home, Key Information, Parents & Students, Staff, About the School, Departments, SEN Information, Training School, Friends of Finham, Vacancies, Lettings, Sixth Form, Contact Us

CLICK HERE FOR FINHAM PARK 2

FINHAM PARK SCHOOL

A Mathematics & Computing College

Log in to INSIGHT Parental Portal | Online Services

NEW YEAR 7 PARENTS' EVENING

Bring your smartphone or tablet to complete the mandatory online consent form on the evening of 1st July.
(Guest Wi-Fi will be made available)

Finham Park is a popular, successful and exciting secondary comprehensive school, located in the south-west of Coventry. The school became an 'Outstanding' convertor to Academy status in August 2011. Currently oversubscribed, the school attracts students from across the city.

We have an excellent academic track record. In 2014:

- 68% of our Year 11 students achieved 5 or more A*-C at GCSE including English Language & Mathematics.
- One third of Finham Park students achieved at least 3 A*/A grades and over one fifth achieved 5 or more A*/A grades at GCSE.
- Reflecting our specialism, over 60% students achieved 2 GCSE qualifications in Mathematics.
- Our A Level results are the highest in Coventry and well above national averages.
- 100% of those students who applied to University gained a place at a destination of their choice (over 80% first choice!).

Standards are consistently above national averages - a credit to the students, their families

Future Foreign Trips
Click here to see a list of future foreign school trips with more information and estimated prices.

Key Dates for Year 10s
Download a copy of all the key dates for current Year

PAY AN INVOICE NOT PARENTS | **STUDENT EMAIL** | **RADIO FPS**



USA-France Global STEM Classroom™




VIEW EDIT


★ FrontPage

last edited by Mrs Desroix 4 months ago Page history

Global Technology and Engineering Consortium (GTEC) Program
USA - France Collaborative School Program



Dennis Yarmouth Regional High School, Cape Cod, Massachusetts



Collège René Cassin, Ballan-Miré France

Click on your team's link to go to the page for your communication and collaboration.

Team 1 : Ian, Joshua, Pierre-Louis, Quentin St, Dylan	Team 2 : Emma, Juliana, Quentin Sz, Nattan, Elisio	Team 3 : John, Makenzie, Nicolas, Dmitri, Matthieu	Team 4 : Virginia, Paula, Marion, Pauline, Céline
Team 5 : Maxime, Shane, Ilona, Maéva	Team 6 : Lauren, Molly, Marie, Solenn	Team 7 : Philson, Olivia, Théo, Hugo	

Pictures of our video-conferences
 We were in the local news



France



Global STEM Classroom™: skills



- “Problem identification
 - Critical thinking and problem solving;
 - Communication and collaboration across networks and leading by influence;
 - Agility and adaptability;
 - Initiative and entrepreneurship;
 - Accessing and analyzing information;
 - Curiosity and imagination..” (Tony Wagner).
-
- “Content Knowledge and 21st Century Themes”
 - Global awareness
 - Financial, economic, business and entrepreneurial literacy
 - Civic literacy
 - Health literacy
 - Environmental literacy
 - Learning and Innovation Skills:
 - Information, Media and Technology Skills:
 - Life and Career Skills” (Framework for 21st Century Learning)

The 21st Century Workforce



*“..The 21st-century workforce is **global**, highly connected, technology-savvy, and demanding. Its employees are youthful, ambitious, and filled with passion and purpose

- Technology has transformed the workplace.

Technology is changing how we work and the skills we need

- Technology has **changed the nature of collaboration, expertise sharing, and the skills** one needs to succeed.

Collaborative technologies continue to make it possible for teams to work in remote locations across the world, easily accessing experts within and outside the organization

- The skills we need today and in the future are dramatically different than what they were only five years ago
- These changes in the workforce and workplace are significant, disruptive, and here today..”

The 21st-century workforce is GLOBAL

**“Global Human Capital Trends 2014 engaging the 21st-century workforce” A report by Deloitte Consulting LLP and Bersin by Deloitte*

US National Academies Grand Challenges* and why all educators need to know about it



ALL OF THESE ARE GLOBAL PROBLEMS...
WE CAN ONLY SOLVED THEM TOGETHER

- Make Solar Energy Economical
- Provide Energy from Fusion
- Develop Carbon Sequestration Methods
- Manage the Nitrogen Cycle
- Provide Access to Clean Water
- Restore and Improve Urban Infrastructure
- Advance Health Informatics
- Engineer Better Medicines
- Reverse-Engineer the Brain
- Prevent Nuclear Terror
- Secure Cyberspace
- Enhance Virtual Reality
- Advance Personalized Learning
- Engineer the Tools of Scientific Discovery

* **NAE Grand Challenges** <http://www.engineeringchallenges.org/>

**Global STEM Classroom*™



The unique features and components:

- Students engage in STEM project/-problem-based (both research and action-oriented) learning with students from a partner school in countries around the world in the collaborative learning and teaching environment that simulates the actual global STEM working environment. Students work together in multicultural globally dispersed teams on multidisciplinary problem-based, project-based, research and hands-on authentic, industry-responsive STEM projects.
- Teams use online innovative cutting edge collaborative tools/platforms, communication technologies as well as project-related STEM technology. Each technology encourages and enhances student engagement.

*
Global STEM Classroom™ Larisa Schelkin 2009-2015 © All rights reserved

**Global STEM Classroom™*



The unique features and components (continued)

- Teachers engage in unique professional development (on the topics detailed below*) that enables them to become successful global educators who have mastered collaborative teaching and learning for 21st century
- Teachers engage in a COLLABORATIVE project planning and TEACHING with teachers from partner schools in different countries and student teams in all schools complete and present Global STEM projects via international virtual conferences and Global STEM Classrooms

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Global STEM Classroom™ Project

EXAMPLES:



- **NASA Space Exploration projects (NASA GRACE Mission, NASA MARS Mission, NASA Astronomy & Virtual Observatory)**
- **NASA International Space Station (Electrical Wiring, Hydrology and Food Science)**
- **My Blue Planet & Global Citizenship (Clean Water Projects, Sustainability Projects, Global Citizenship Project)**
- **Data visualization (based on IBM Data Visualization and based on NASA GRACE)**
- **Global Collaboration & Global Communication technology (comparative analysis)**
- **Wind turbine design and 3D printing**
- **Nanotechnology applications**
- **Minecraft (computer gaming) in studying science (Minecraft and Space Exploration; Minecraft and Arctic Research)**
- **and much more**

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Global STEM Classroom™ - technology



.....Communication technology

.....Collaboration technology

....STEM professional technology

Remember - technology is an excellent tool, but it's just a tool..don't start planning your program from technology, start from what you would like to teach and then find the right tools (technology) that would help you accomplish your goals!

Global STEM Classroom™ : Teacher Professional Development



- Global education and an innovation-driven global workforce of 21st century – what has changed; how it's affecting K-20 education and how these new challenges can be addressed
- Global education in the environment simulating a real innovation-driven global workforce
- Global achievement gap and skills needed for global workforce of 21st century
- Global educational systems and collaborative curriculum development

Teacher Professional Development (cont)



- “How-to guide” for K-12 educators developing projects and working collaboratively with STEM professionals
- Foundations of “science diplomacy” and how to develop and maintain successful international relations with global partners
- Global STEM Classroom™ Model (all components) and the implementation approaches bringing all the “pieces of the puzzle” together and the next steps for a developing and implementing a (discipline specific/country specific) global education program in your school/college/university
- Intercultural Computer-supported collaborative learning
- Intercultural Communication and Global Competency

Evaluating intercultural communication, global competencies & global team-work



Power Distance

How is power divided?

How should it be distributed?

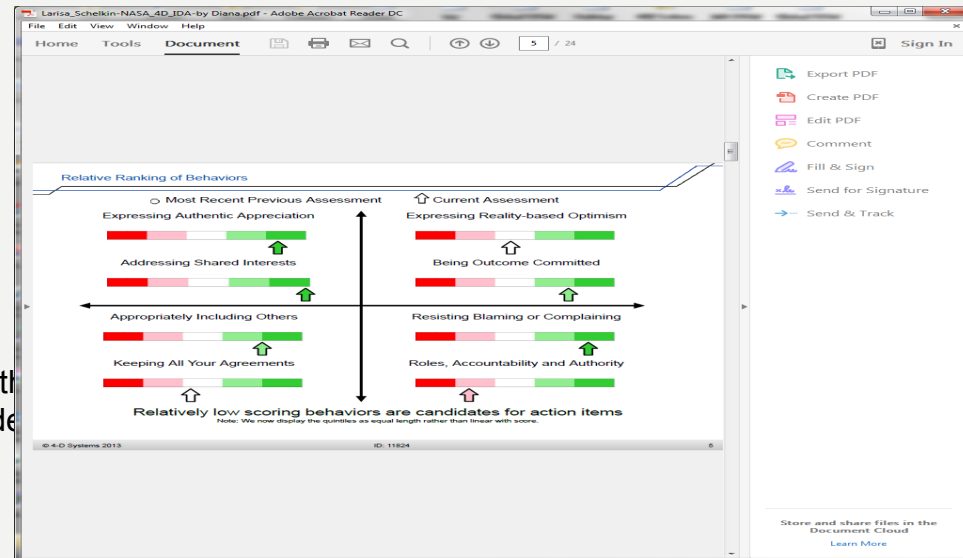
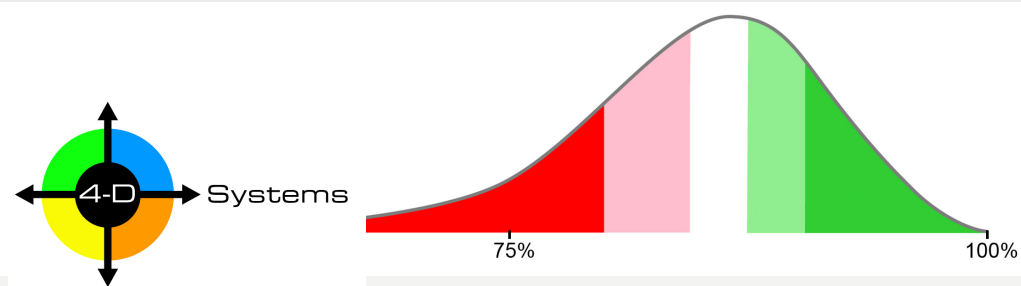
How a society handles inequalities among people?

High PDI

- High dependence needs
- Inequality accepted

Low PDI

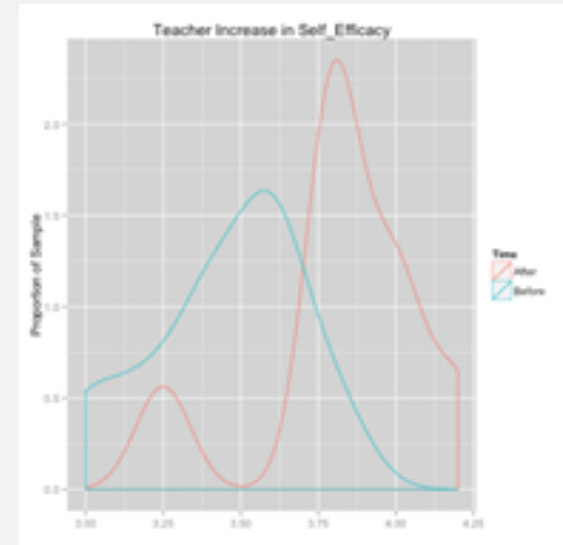
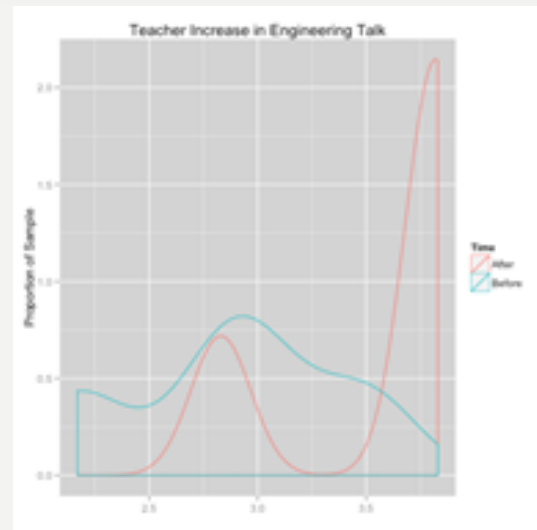
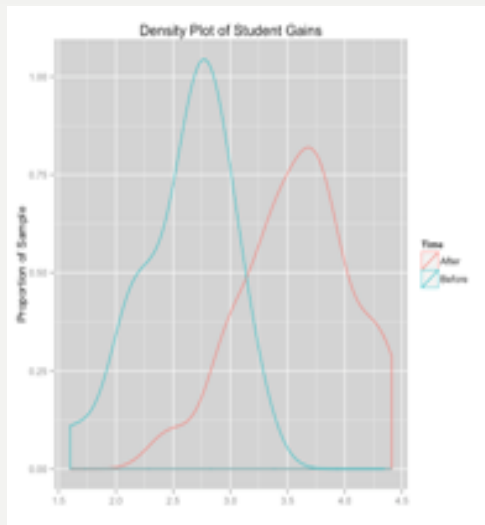
- Low dependence needs
- Inequality minimized



Dr. C
Dr. V

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Some interesting findings (quotes for presentation) from a preliminary research by Dr. Russell Faux, DSRA



Per Dr. Russell Faux from DRSA <http://davissquare.net/>
DRSA for Global STEM (formerly GTEC) © All right Reserved

Many great “lessons learned”!



- Relationship building takes time and efforts - it's greatly REWARDING and EXCITING!
- Finding PASSIONATE TEACHERS and COMMITTED SCHOOL LEADERSHIP is a “MUST”
- Great results require a lot of hard work and preparation (“surprise”! smile!!)
- Don't underestimate the importance of teacher PD (prior, during and after)
- It's difficult (if not impossible!) doing it alone - running global programs/projects is a team-effort - BUILD YOUR TEAM (with your IT Directors, Technology Integration Specialists, Curriculum Developers, IT technicians, Foreign Language and all STEM Teachers, parents and, of course - with your students!)
- A special word about wonderful parents - their enthusiastic support is absolutely priceless!
- Be prepared for a great “flipping classroom” effect - your STUDENTS will OWN the LEARNING!

...and more on “Lessons learned”



- Studying cultural differences is a “must”- there are no “surprises” here - it really makes a difference in how educators from different countries are working together
- Language “barrier” is not a real barrier - it’s manageable
- Students are much more “adaptable” and often “leading” the process
- Schools leadership/administration around the world are ready/supportive of global collaboration moving from “WHY?” to “WHAT?” and “HOW”
- A special word (again!) about the importance of teacher PD - intercultural communication, global competence, global team-work, global education systems, collaborative curriculum and instructional design, collaboration technology and...diplomacy - all are “must”
- Logistics - challenging, time consuming - but manageable
- and it’s all VERY REWARDING!!

What's next and how you can join?



We are expanding our global partnerships and developing new global STEM projects

Interested? Join our journey in global STEM Education!

Sign up for our contact list and we will send you the updates and the exciting news!

Would you like to be considered as a presenter or, a speaker at one of our conferences in Boston?

Looking for a school-partner and would like to participate in our programs? Let us know!

Not sure yet if you are ready to participate, but have questions and may be need a consultation?

Great! We would like to hear from you!

www.globalstemcenter.org

info@globalstemcenter.org