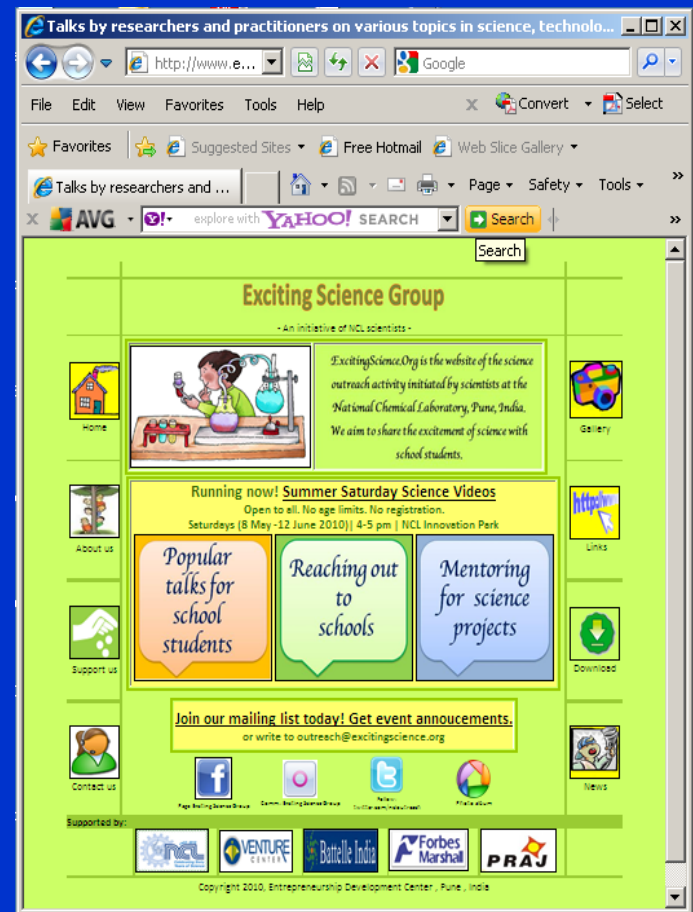




www.excitingscience.org



Exciting Science Group

To excite school students about science and technology

Volunteer group of CSIR-NCL scientists and IISER-P
faculty

The idea is ***NOT*** to teach science, but to communicate the joys/thrill of doing research.

Key element: Create interface between students and practising researchers (“real” scientists)

Exciting Science Group: Activities

Popular Science Talks (once a month on Sunday morning at Venture Center)



School Outreach Programme
(work with 3 PMC schools)



Weekly science clubs

Summer internships at NCL



Workshops: Chemistry, Scratch programming, etc.

Science Quiz

Science Fair

Developing a Research Project

Guruwamy Kumaraswamy

based on presentations made by

Narayan Iyer (SSI)

Arnab Bhattacharya (TIFR)

Chetan Gadgil and BLV Prasad (NCL)

Submitting a project

www.excitingscience.org

Exciting Science Group

- An Initiative of NCL scientists and IISER-P faculty -

ExcitingScience.Org is the website of the science outreach activity organized by scientists at the National Chemical Laboratory, and faculty from the Indian Institute of Science Education and Research, Pune, India. We aim to share the excitement of science and technology with school students.

Home

About us

Support us

Contact us

(Sunday, 20 Nov 2016 (10 am)) : "Small is beautiful" [Register](#) or write to register@excitingscience.org

- [1. Submission Link for ESG Science Fair"](#)
- [2. Preparatory Workshop for ESG Science Fair](#)
- [3. ESG Science Fair 2016-17](#)

Popular talks for school students

Reaching out to schools

Mentoring for science projects

Submitting a project

The screenshot shows a web browser window with the URL sciencesociety.in/esg/openconf.php. The page title is "ESG Science Fair". Below the title is a navigation bar with "Home" and "Email ESG Science Fair Administrator". The main content area features a welcome message: "Welcome to ESG Science Fair 2016-17 conducted by Exciting Science Group, Pune. Submission Deadline: Friday, January 20th, 2017". A list of links includes "Make a Submission", "View Submission", "Edit Submission", "Upload File", "View File", and "Download ESG Science Fair Handbook". A section for "For More Information on Exciting Science Group visit:" provides the URL <http://www.excitingscience.org/>. The "Review & Program Committees:" section lists "Sign In" and "Sign up", followed by a "keycode required:" field with an "Enter" button. The "Program Chair:" section also includes a "Sign In" link.

← → ↻ ⓘ sciencesociety.in/esg/openconf.php

ESG Science Fair

ESG Science Fair Online Synopsis Submission

Home [Email ESG Science Fair Administrator](#)

Welcome to ESG Science Fair 2016-17
conducted by
Exciting Science Group, Pune
Submission Deadline: Friday, January 20th, 2017

- [Make a Submission](#)
- [View Submission](#)
- [Edit Submission](#)
- [Upload File](#)
- [View File](#)
- [Download ESG Science Fair Handbook](#)

For More Information on Exciting Science Group visit:
<http://www.excitingscience.org/>

Review & Program Committees:

- [Sign In](#)
- [Sign up](#)

keycode required:

Program Chair:

- [Sign In](#)

Thank you to
Science Society of India
for developing a
submission portal for us

(Thanks especially to
Narayan Iyer and Arnab
Bhattacharya)

Submitting a project

Title of project

Details of team/guide

Subject category

Synopsis (< 250 words)

Details of project:

What is innovative about your work?

Where did you get the idea?

What work have you completed?

References

What is your guide's contribution?

Submitting a project

Details of project:

8. Restricted Items/Regulated Research: If your research involves human subjects, vertebrate animals, potentially hazardous biological agents, hazardous chemicals, radiation, lasers, etc., these may be either be prohibited, or possible only under specific guidelines.

Write "Not Applicable" if your project does not deal with restricted items / regulated research.

Submitting a project

Part 2: Supporting Data / Additional Information & Ethics Statement

A) Supporting Data/Additional Information

Please attach relevant calculations, graphs, diagrams, photographs, program code, results etc. Any information that helps quantitatively support your project will be useful in evaluating your work

You will get an option to upload a file after submitting this form. Only one file can be uploaded, so please make a single pdf file and submit

B) Ethics Statement

Scientific fraud and misconduct are not condoned at any level of research or competition. Such practices include plagiarism, forgery, use or presentation of other researcher's work as one's own, and fabrication of data.

Fraudulent projects will fail to qualify for competition in this fair or affiliated fairs.

Research ethics

https://en.wikipedia.org/wiki/Research_ethics

From Wikipedia, the free encyclopedia

Research ethics involves the application of fundamental ethical principles to a variety of topics involving research, including scientific research. These include the design and implementation of research involving human experimentation, animal experimentation, various aspects of academic scandal, including scientific misconduct (such as fraud, fabrication of data and plagiarism), whistleblowing; regulation of research, etc. Research ethics is most developed as a concept in medical research. The key agreement here is the 1964 Declaration of Helsinki. The Nuremberg Code is a former

Plagiarism

plagiarism

/ˈpleɪdʒərɪz(ə)m/

noun

the practice of taking someone else's work or ideas and passing them off as one's own.
"there were accusations of plagiarism"

Common forms of student plagiarism [\[edit \]](#)

According to "The Reality and Solution of College Plagiarism"^[28] created by the Health Informatics department of the University of Illinois at Chicago there are 10 main forms of plagiarism that students commit:

1. Submitting someone's work as their own.
2. Taking passages from their own previous work without adding citations.
3. Re-writing someone's work without properly citing sources.
4. Using quotations, but not citing the source.
5. Interweaving various sources together in the work without citing.
6. Citing some, but not all passages that should be cited.
7. Melding together cited and uncited sections of the piece.
8. Providing proper citations, but fails to change the structure and wording of the borrowed ideas enough.
9. Inaccurately citing the source.
10. Relying too heavily on other people's work. Fails to bring original thought into the text.

<https://en.wikipedia.org/wiki/Plagiarism>

Fraudulent Projects

Fabrication of Data

Falsification of Data

(not fraud but not good practice)

Overinterpretation of Data

So, you want to do a research project

Where do you start?

$dm = \rho dV = \rho(2\pi r L dr)$
 $I = \int r^2 \rho(2\pi r L) dr = \frac{\pi \rho L}{2} (R_2^2 - R_1^2)(R_2^2 + R_1^2) = \frac{1}{2} MR^2$ cylinder
 $I = \frac{1}{2} ML^2$

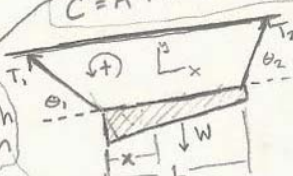
Sphere $r = \sqrt{R^2 - x^2}$
 $V = \pi r^2 dx = \pi(R^2 - x^2) dx$
 $dI = \frac{1}{2} r^2 dm = \frac{1}{2} (\sqrt{R^2 - x^2})^2 [\pi \rho (R^2 - x^2) dx] = \frac{\pi \rho}{2} (R^2 - x^2)^2 dx$
 $I = 2 \frac{\pi \rho}{2} \int_0^R (R^2 - x^2)^2 dx = \frac{8\pi \rho}{15} R^5$
 $M = \rho V = \frac{4\pi \rho R^3}{3}$
 $I = \frac{2}{5} MR^2$

$\vec{\tau} = R F \sin \theta = F_{tan} R$
 $\alpha = \frac{-RT}{I}$
 $a_y = \frac{-R^2 T}{I}$
 $\vec{\tau} = \vec{r} \times \vec{F}$
 $\omega = \frac{v}{R}$
 $a_y = \frac{-R^2 T}{I}$
 $\vec{\tau} = I \alpha$
 $\vec{\tau} = RT$ ccw
 $\vec{\tau} = -RT$ cw
 $\vec{\tau} = FR$
 $I = \frac{1}{2} MR^2$
 $\vec{L} = \vec{r} \times \vec{p}$ angular momentum
 $\vec{L} = I \vec{\omega}$
 $\vec{\tau} = \frac{d\vec{L}}{dt}$
 $\Omega = \frac{T_z}{I_z} = \frac{wR}{I\omega}$
 $w = \text{weight}$
 $\omega = \text{angular velocity}$

$K_1 + U_1 = K_2 + U_2$
 $Mgh = \frac{3}{4} M v_{cm}^2$
 $v_{cm} = R\omega$
 $\omega_{cm} = \sqrt{\frac{4}{3} gh}$
 $K_2 = \frac{1}{2} M v_{cm}^2 + \frac{1}{2} I \omega^2$
 $K_2 = \frac{3}{4} M v_{cm}^2$
 $\sum \tau = TR = I \alpha$
 $\sum \tau = \frac{1}{2} MR^2 \alpha$
 $\alpha_{cm} = \frac{2}{3} g$
 $T = \frac{1}{3} Mg$
 $\alpha_{cm} = R \alpha$

HAP 12 GRAVITATION
 $G = 6.67 \times 10^{-11} \text{ N} \cdot \text{m}^2 / \text{kg}^2$
 $M_E = 5.97 \times 10^{24} \text{ kg}$
 $V_E = 1.09 \times 10^{21} \text{ m}^3$
 $g = \frac{GM_E}{R_E^2}$
 $U_g = -\frac{GM_E m}{r}$
 $\epsilon = K + U = \frac{1}{2} m v^2 + \left(-\frac{GM_E m}{r}\right)$
 $T = \frac{2\pi r}{v} = \frac{2\pi r^{3/2}}{\sqrt{GM_E}}$
 $\epsilon = -\frac{GM_E m}{2r}$
 $\vec{w} = \vec{w}_0 - m \vec{a}_{rad} = mg_0 - m \vec{a}_{rad}$
 $v_{esc} = \sqrt{\frac{2GM_E}{R_E}}$
 $v_{orb} = \sqrt{\frac{GM_E}{r}}$
 $v = \frac{2\pi r}{T}$

HAP 13 PERIODIC MOTION
 $f = \frac{1}{T}$
 $\omega = 2\pi f = \frac{2\pi}{T}$
 $x(t) = \pm A \cos(\omega t + \theta)$
 $x(t) = \pm A \sin(\omega t + \theta)$
 $F_x = -kx$ restoring force
 $a_x = \frac{d^2 x}{dt^2} = -\frac{k}{m} x$
 $\omega = \sqrt{\frac{k}{m}}$
 $f = \frac{\omega}{2\pi} = \frac{1}{2\pi} \sqrt{\frac{k}{m}}$
 $T = \frac{1}{f} = 2\pi \sqrt{\frac{m}{k}}$
 $\frac{1}{2} m v_x^2 + \frac{1}{2} k x^2 = \frac{1}{2} k A^2 = \text{constant}$
 $\omega = \sqrt{\frac{g}{L}}$
 $f = \frac{1}{2\pi} \sqrt{\frac{g}{L}}$
 $T = \frac{2\pi}{\omega} = \frac{1}{f} = 2\pi \sqrt{\frac{L}{g}}$
 $C^2 = A^2 + R^2 - 2AB \cos(\theta)$
 $\sin 2\theta = 2 \sin \theta \cos \theta$
 $\sin^2 \theta + \cos^2 \theta = 1$

LAPDER PROBLEM

 $\sum \tau_{net} = 0 = LT_2 \sin \theta_2 + Wx$
 $\sum F_x = 0 = T_2 \cos \theta_2 - T_1 \cos \theta_1$
 $\sum F_y = 0 = T_1 \sin \theta_1 + T_2 \sin \theta_2 - W$
 $W = T_1 \sin \theta_1 + T_2 \sin \theta_2$
 $LT_2 \sin \theta_2 = \frac{LT_2 \sin \theta_2}{T_1 \sin \theta_1 + T_2 \sin \theta_2} W$
 $x = \frac{L \sin \theta_2 \cos \theta_1}{\sin(\theta_1 + \theta_2)}$

up incline
 $W_p = -Lmg \cos \theta$
 $W_F = Lmg \sin \theta + L\mu mg \cos \theta$
 $\Delta U = mgL \sin \theta$

down incline
 $W_p = -Lmg \cos \theta$
 $W_F = -Lmg \sin \theta + L\mu mg \cos \theta$

rot product
 $\vec{v}(t) - \vec{v}(t)$

balance
 $T = RT$
 $WL = \omega L_1$
 $L_1 = \frac{LW}{\omega}$
 $W_{lead} = \omega(L_1 + L_2) + F_x h$
 $W_{rod} = \omega L_1 + \omega L_2 + F_x h$
 $f = \frac{(m_1 d + \frac{m_2 L}{2}) \cos \theta}{L \sin \theta}$
 $v_{min} = \frac{-(m_1(L-d) \cos \theta - \frac{1}{2} m_2 L \cos \theta) + (m_1 + m_2) L \cos \theta}{(m_1 + m_2) L \sin \theta}$
 $\vec{r}(t) = R \cos(\omega t) \hat{i} + R \sin(\omega t) \hat{j}$
 $\vec{v}(t) = -R\omega \sin(\omega t) \hat{i} + R\omega \cos(\omega t) \hat{j}$
 $\vec{a}(t) = -R\omega^2 \cos(\omega t) \hat{i} - R\omega^2 \sin(\omega t) \hat{j}$
 $\vec{a}(t) = -\omega^2 (R \cos(\omega t) \hat{i} + R \sin(\omega t) \hat{j}) = -\omega^2 \vec{r}(t) = \frac{v^2}{R}$
 $v_{res1} = \frac{-MgL \mu_1}{2}$
 $W_{net} = \frac{-MgL}{2} (\mu_1 + \mu_2)$
 $v_{res2} = \frac{-MgL \mu_2}{2}$
 $W_{net} = \frac{MgL}{2} (\mu_1 + \mu_2)$
 $a_c = \frac{v^2}{R} = \mu g \sin \theta = \text{start}$
 $t = \frac{2\pi L \sin \theta}{\sqrt{g L \sin \theta \tan \theta}}$
 $\Delta = 2\pi L \sin \theta$

Most Important

NO THERMOCOKE MODELS!

NO GLITTERY CHARTS AND NOTEBOOKS

SCIENCE projects, not ART & CRAFT projects!!

Slide taken from Arnab's talk

Research based projects?

Challenges:

- Almost all local/national science fairs encourage model-making, pedagogical posters
- Students, and teachers, not aware of simple research based ideas that can be turned into excellent projects
- Evaluation of projects at school level fairs do not emphasize criteria appropriate for research

Slide taken from Arnab's talk

Not a standard school lab expt.!

#1 Pitfall – most students/teachers think a research project is like an experiment done as part of the school curriculum!

Experiments typically done (shown?) in high-schools are

- Very routine and predictable
- Usually planned to be completed in fixed time, with a pre-determined result that has to be demonstrated for “success”
- The best way to turn off kids from science!

Slide taken from Arnab's talk

What is Research?

Usually

- We don't know the answer before starting out.....
- So we ask questions, make hypotheses, make observations/ do experiments to prove or disprove our hypotheses...
- No fixed end-point, can modify path of depending on what is done, and upon making interesting observations
- Here, we are talking about ORIGINAL research (not something you can look up)

Slide based on Arnab's talk

What is / isn't a Research Idea?

To start with, come up with an idea – either based on your experience, or in discussion with a guide.

We are looking only for original research ideas

What we do NOT consider a research idea includes (a) simply repeating an experiment from a book, viz. adding acid to metal to generate hydrogen or neutralizing acids with bases or germinating seeds; (b) essays on science topics, viz. an essay on the environment or nuclear power, etc.; (c) models that demonstrate what is already known, such as generation of electricity by windmills, or visualization of a geometric solution, etc.; (d) making claims without basis, viz. without an experimental design or calculation.

We want your research idea, NOT something that you looked up on the internet and copied verbatim.

What makes a good project?

- **Innovation / Novelty / Creativity** (has to be there somewhere, maybe in a very limited way)
- A structured, systematic approach to the problem
- Well-documented work (log books)
- An appreciation of the “what is so exciting about this”

(Slide taken from Arnab's talk)

Common tips

Helpful hints

- Use available resources fully – *anyone* can be a guide
- Maintain a log book – record of the thought process, and original data is a must!
- Starting off with a hypothesis and proving it is incorrect can also be good science
- Control experiments are often forgotten
- Appropriate measurements – e.g “V only, no I”
- Solid conclusions – repeatability, practicality, knowledge of limitations of data

(Slide taken from Arnab's talk)

Select your topic

- Choose a topic that interests you - you'll have a lot more fun (and probably learn more)
- Check all the resources around you.
 - For eg. - If you are doing a project on Eucalyptus leaves, ensure that you have the Eucalyptus tree in the surrounding region where you live
- Literature survey helps define questions
 - Books
 - Wikipedia
 - scholar.google.com, www.scirus.com or www.pubmed.gov

(taken from Chetan/Prasad't talk)

Let's consider some topics from previous fairs

I want to make a earphone and a translator, poor people who can't go classes for other languages by this they can speak or understand other

I got this idea from a film named shamitabh In which a man who can't speak has given a earphon and a translator and the other man has a earphon what that man speak he can hear and by that earphone it goes in that translator and can speak that wording which that man has spoken by that I got this Idea

④ Can we go near the sun to get and store its maximum amount of energy? ⑤ Is it possible to go near the sun? ⑥ How can we go near the sun? ⑦ If we can't which device or object can we send near the sun? ⑧ Is it possible to get maximum solar energy on the surface of earth? ⑨ If it is possible it will be

Your Research Ideas

Title of the Project

NB cream (non-Burning cream)

while doing activities of burning and torchering our body while get burned. The solution is NB cream.

इशुक्तिवन्चे पान खान मधुमेहापासून मुक्त व्हा.

हे आजिव्दिच्या वटव्यानीत वनस्पती आहे. याने रक्त शक्ति नियंत्रित होण्यास मदत होते. आमच्या रोगाच्या काळाना आयबेरोस आहे. त्या रोगासक्ती अनशापोटी या वनस्पतीचे एकदिन पाने खावून अशा स्मृतीवून खातान त्यांची रक्तशक्ति कमी झालेली आढळून येते. या वनस्पतीचे

1

Title of the Project

वातावरणातील कार्बन डायऑक्साईड कमी करणे.

You have an Idea. What Next?

- **Hypothesis:** a tentative theory that can be proved or disproved through further investigation and analysis.
 - Usually one hypothesis for each question you have.
 - You must do at least one experiment to test each hypothesis.

You have an Idea and Hypothesis. What Next?

search the literature (using, for example, books, internet searches, google scholar, patent databases, etc.) to see if someone has already done what you are proposing to do

Is your idea novel?

Searching the Literature

The screenshot shows a Google search interface. The search bar contains the text "earphone and translator". Below the search bar, there are tabs for "All", "News", "Images", "Videos", "More", and "Search tools". The search results show "About 4,67,000 results (0.47 seconds)". The first result is titled "Translation Systems - Translator Headsets - Earpiece ..." with a link to www.devices4less.com/LanguageTranslation.html. The second result is titled "Sound Language Translators - Translation Headsets - FM ..." with a link to www.innovativehearingdevices.com/Language-Translation-Systems_c18.... The third result is titled "Translation Headsets for Churches - Language Transmitters ..." with a link to www.innovativehearingdevices.com/Church-Equipment_c21.htm?page.... Below the search results, there is a section titled "Images for earphone and translator" with a "Report images" link. The image section displays several small images of translation devices, including a headset, a microphone, and a transmitter.

I want
people w
by this

, poor
vages
thes

[Questions?](#)



[Email Us \(Or Not\)](#)

For Info, A Catalog, Or To Order By Phone: 1-800-328-6684

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Language Translation Systems - Headset Translators - Language Transmitters

Our FM Systems are used by language translators to translate languages so listeners can use the headphone receivers to understand the languages being spoken. **These electronic devices are not automatic translation devices and need a live translator for translating languages.** Depending on the brand of FM Systems from Williams Sound, Nady Systems or Array Systems, you can simultaneously translate up to 8 languages at one time with the use of more electronic transmitters for each language. You will also need a live translator for each different language you want to translate.

[Nady 4-Receiver Translation Devices](#)

[Williams Sound 4-Receiver Translation Devices](#)

New - BEST BUY

Array AG300-4 Mobile Three Channel UHF Language Translation Headphones or Tour Guide System
1 Transmitter (AGT300) -- 4 Receivers (AGR300)

\$467.99 (\$12 S&H)

- UHF Frequencies Minimize RF Interference
- Three User-Selectable Frequencies Allow Up To 3 languages to be translated simultaneously.
- PLL Synthesized Design Insures High Frequency Stability.
- Noise Cancellation Technology.
- LED Display Of Low Battery (Tx & Rx).
- LED Display of Received Signal (Rx).
- Tx & Rx each Use 2 AA Batteries.
- Additional 3-Channel UHF Receivers: **\$88.99** (\$6 S&H)
- Additional 3-Channel UHF Transmitters: **113.99** (\$7 S&H)
- 25 Year Warranty**



System Includes: Transmitter (AGT300), 4 Receivers (AGR300),

Simultaneous Interpretation and Translation Equipment 101

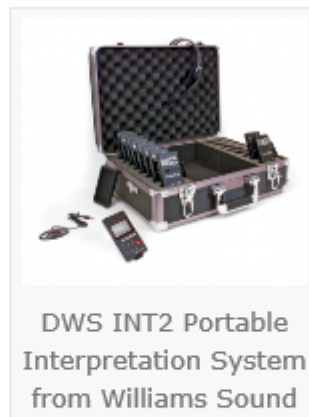
Hello -

I have no idea how you got to this website.

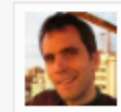
Maybe a colleague referred you. Maybe you came from an online search. Or maybe you're already a customer.

But I'll bet someone has asked you to research buying language translation equipment for your office, church, school district, etc.

Two years ago, I was in your shoes. My boss in a previous job decided that we needed to buy translation equipment for some conferences that we were running, so she put me in charge of



Hi - I'm Will and I started this company to help you find the best simultaneous translation / interpretation equipment for your organization.



If you need a sales quote, are looking for an audio product you don't see on the site, or have any other questions just drop me a line.

I usually respond within 30 minutes during business hours (EST).

Call: (877) 817 0733

Or email:

will.ward@translationequipmentthq.com

Note: All equipment we sell is for interpretation using a LIVE human interpreter/translator. There is nothing that I know of that exists now that is able to produce a good quality audio translation.

Browser tabs: Mail -..., Cond..., G re..., Hand..., Goog..., Notifi...

Address bar: https://www.google.co.in/?gfe_rd=cr&e

Search bar: Find: tam | Previous Next | Options

Google logo | Search: real time translation

Navigation: All Videos Images News Maps More Search tools

About 20,60,00,000 results (0.53 seconds)

Interpretation Equipment - mwt.com
Ad www.mwt.com/
Rent: FM Transmitter,Tabletop booth FM Receiver, Control Unit, Engineer

Get Translation Practice - sikana.how
Ad factory.sikana.how/en/join
Translate from English / French to: Portuguese, Arabic, Spanish & more!

Skype Translator: Preview of our free online translator
www.skype.com/en/translator-preview/
Skype Translator provides near-real-time translation for voice and video calls. Try Skype Translator to stay in touch across the globe.

Google just turned your phone into a real-time translator ...
www.techradar.com/.../google-just-turned-your-phone-into-a-real-time-t...
Jan 14, 2015 - Google has officially announced its overhaul of the Google Translate app, proudly proclaiming that it is now more powerful than ever.

Here's Microsoft Demoing Their Real-Time Translation ...
digg.com/.../heres-microsoft-demoing-their-breakthrough-in-real-time-tr...
"Skype Translator results from decades of work by the industry, years of work by ...
The demo showed near real-time audio translation from English to German ...

Skype now has real-time translation built in | The Verge
www.theverge.com/2015/.../skype-now-has-real-time-translation-built-in
Oct 1, 2015 - Microsoft first released Skype Translator almost a year ago as a standalone app designed for Windows 8. The software giant is now integrating ...

like Without A Country

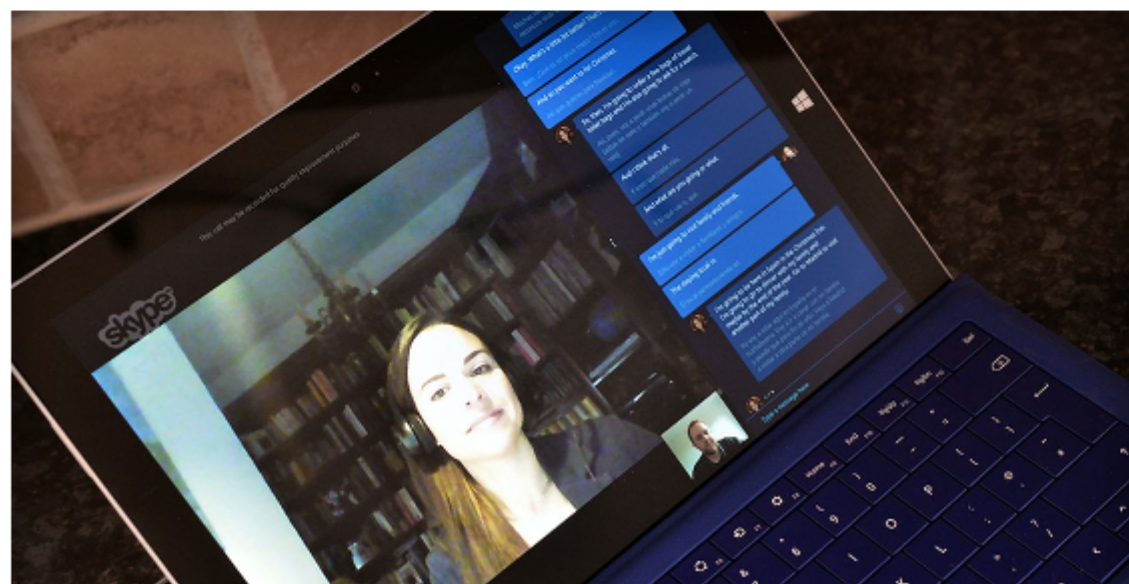
MICROSOFT TECH

10 COMMENTS


Skype now has real-time translation built in

Not on Mac or mobile versions yet

By Tom Warren on October 1, 2015 09:00 am @tomwarren



THE LATEST HEADLINES

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 BT must open up network to competitors, says British watchdog

 Amazon paid \$15 million for Woody Allen's new movie

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- ronojoy.adhikari
- Sanat Kumar
- sarika bhattacharyya
- Simon Kuhn**
- Sujata

Advertisement

Simon Kuhn
Offline | 12:51 Leuven, Belgium

Call to **Simon Kuhn**

Call ended, duration 10:48

Call from **Simon Kuhn**

Call ended, duration 16:56

sure, we are here and rea

via Skype

Type a message here

Chinese (Han (Simplified variant))
Chinese (Han (Traditional variant))
English
French
German
Italian
Portuguese

German

How about a portable device that can translate?

http://www.digitaltrends.com/cool-tech

Mail - Gurus... Condensatio... real time tran... Handheld ... x Google just t...


Find: tam Previous Next Options

Home > Cool Tech > Handheld SIGMO offers real-time language...

HANDHELD SIGMO OFFERS REAL-TIME LANGUAGE TRANSLATION FOR 25 LANGUAGES

By Mike Flacy — September 9, 2013

14



The image shows three handheld SIGMO translation devices, one in black, one in white, and one in yellow. Each device is rectangular with rounded corners and features a speaker grille on the front. The devices are arranged in a row, slightly overlapping, against a light background.

Is this idea novel?

Idea



Literature
Search

What can we do that is NOVEL?

- Does a translator to/from Hindi exist?
- Does a translator to/from Marathi exist?

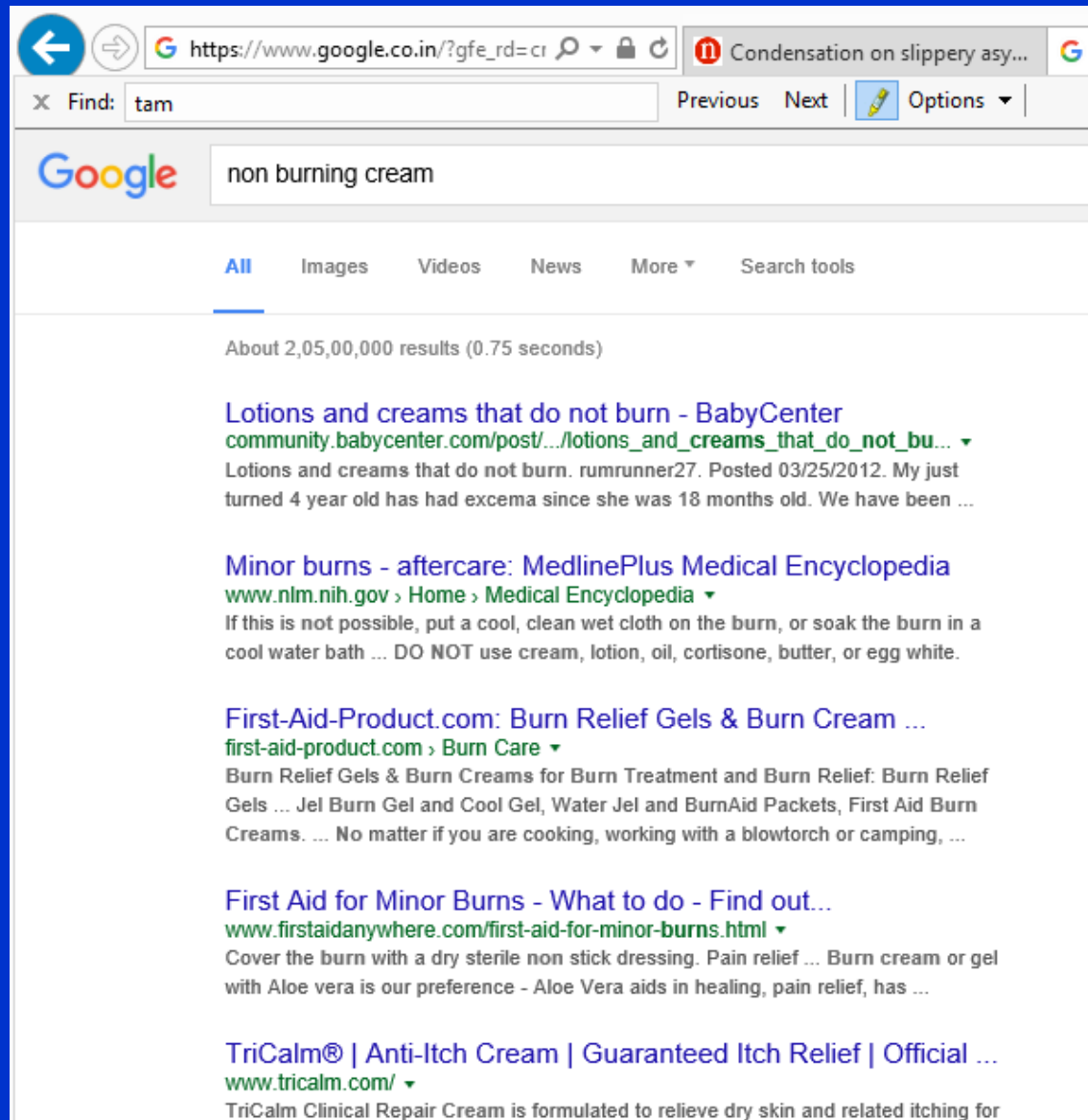
How does a translator work?

Fairly complicated.

Need to record sentence, then need to “understand” sentence (it is really difficult to understand English grammar, for example), then need to translate into new language



Another example



The screenshot shows a Google search interface. The search bar contains the text "non burning cream". Below the search bar, the results are displayed. The first result is from BabyCenter, the second is from MedlinePlus, the third is from First-Aid-Product.com, the fourth is from firstaidanywhere.com, and the fifth is from Tricalm.com.

Condensation on slippery asy...

Find: tam Previous Next Options

Google non burning cream

All Images Videos News More Search tools

About 2,05,00,000 results (0.75 seconds)

Lotions and creams that do not burn - BabyCenter
[community.babycenter.com/post/.../lotions_and_creams_that_do_not_bu...](#)
Lotions and creams that do not burn. rumrunner27. Posted 03/25/2012. My just turned 4 year old has had excema since she was 18 months old. We have been ...

Minor burns - aftercare: MedlinePlus Medical Encyclopedia
[www.nlm.nih.gov > Home > Medical Encyclopedia](#)
If this is not possible, put a cool, clean wet cloth on the burn, or soak the burn in a cool water bath ... DO NOT use cream, lotion, oil, cortisone, butter, or egg white.

First-Aid-Product.com: Burn Relief Gels & Burn Cream ...
[first-aid-product.com > Burn Care](#)
Burn Relief Gels & Burn Creams for Burn Treatment and Burn Relief: Burn Relief Gels ... Jel Burn Gel and Cool Gel, Water Jel and BurnAid Packets, First Aid Burn Creams. ... No matter if you are cooking, working with a blowtorch or camping, ...

First Aid for Minor Burns - What to do - Find out...
[www.firstaidanywhere.com/first-aid-for-minor-burns.html](#)
Cover the burn with a dry sterile non stick dressing. Pain relief ... Burn cream or gel with Aloe vera is our preference - Aloe Vera aids in healing, pain relief, has ...

TriCalm® | Anti-Itch Cream | Guaranteed Itch Relief | Official ...
[www.tricalm.com/](#)
TriCalm Clinical Repair Cream is formulated to relieve dry skin and related itching for

How can one proceed?

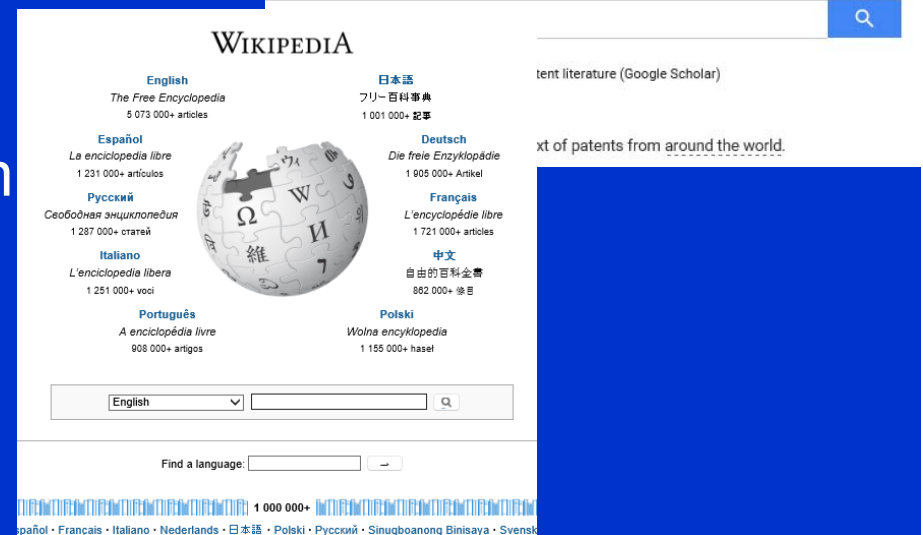
Alternate keywords?

Try a google search

Also try google scholar
<http://scholar.google.com>

or
google patents
<http://patents.google.com>

or
Wikipedia
<http://www.wikipedia.org>



Let us try doing this together

What next?

- ✓ You have an idea
- ✓ You've checked the literature and your idea is novel

What now?

EXPERIMENTAL PLAN: how to do the project?

(Taken from previous years)

QUESTION:

How do birds sense food?

- **Do they see their food or do they smell it?**

EXACTLY what experiment will you do to check this?

EXACTLY what experiment will you do?

**Separate out effects of seeing food
vs smelling food**

Decide what species of bird to study

Determine natural food

**Keep food for bird – covered with transparent sheet
so that the bird can see it (but not smell it)**

**Or make plastic replica (that looks like food but,
obviously, does not have any smell)**

**Keep food for bird – covered with mesh so that can
smell it (but cannot see it)**

How exactly will you do this experiment?

Question 2: Can we use weeds as herbicides?

How will you plan this experiment?

- Weed
- Weed extract
- Test on what plant?
- Statistics? How many plants?
- How will you determine effect on the plant?

Question 3: Reducing helicopter noise

How will you plan this experiment?

- Source of noise
- Change in blade edge / surface
- Design of wind tunnel
- Noise measurements

What you should NOT do

Reducing noise from a helicopter blade

- I will build a machine that will be attached to the helicopter blade and will reduce noise

What is this machine???

How will it reduce noise???

Wild claims but no “design” for how to make such a fantastic machine

Good to have some calculations or estimates

Converting noise into electricity

- Energy cannot be “created”

How much energy is in sound? How much electricity can this generate and is it sufficient for any application?

We will tap into the brain (or study poisonous snakes)

How will you do such an experiment??

Finally, doing the experiment

Idea -> Hypothesis -> Experimental Design

Experiments:

Collecting data (Careful documentation;
Maintain a lab note book – note down all
details) – VERY important to maintain a log

Then, analyze data and arrive at conclusions
supported by the data

Common Problems

- Abstract – Lot of pages; sometimes the message is lost – Express your idea in 250 words
- Not enough data provided, it is not clear if it is a mere idea or some work has been done
- Not enough novelty – bring out your novelty upfront
- Copied material – we hate it! & reject immediately
- If you have a prototype done – say a working prototype done!
- State your specific reference – don't hide! Don't say referred google or yahoo – state the exact internet site URL
- If you don't have complete data points – don't make any conclusion – state that it is in progress

(Slide taken from Chetan/Prasad's talk)

Web resources

- Science buddies - www.sciencebuddies.org

A wonderful resource with many manageable projects at all levels, with a lot of step-by-step directions

- References – see Lib. of Congress list

<http://www.loc.gov/rr/scitech/tracer-bullets/environmentaltb.html>

- Curriki - www.curriki.org
- Google
- Wikipedia

(Slide taken from Arnab's talk)

Science buddies

Free Science Fair Project Ideas, Answers,
& Tools for Serious Students



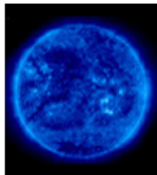
Google Custom Search

Search

Home Project Ideas Project Guide Ask an Expert Teachers Competitions

Science Fair Project Resources

Science Fair Project Ideas



- Over 700 Project Ideas to choose from!
- [Topic Selection Wizard](#): Looking for a science fair project? The Topic Selection Wizard will recommend a science fair project idea that is just right for you.
- [Science Fair Project Ideas Directory](#): Browse through a list of all of our science fair project ideas organized by area of science.

Student Resources



- [Science Fair Project Guide](#): A step by step guide to help you do a science fair project.
- [Ask an Expert](#): Our online bulletin board staffed by volunteer scientists and top high school students ready to answer your science fair project questions.
- [Advanced Science Competitions](#): Tips and techniques to prepare for an advanced science competition such as ISEF or Intel STS.

Science Buddies News



- [Science Buddies in Action](#) shows how real kids are using Science Buddies materials to create interesting projects with success! We want to hear your science fair stories, so please share them with us.
- Science Buddies Winner of a 2008 Parents' Choice Recommended Award in the Website Category (*September 10, 2008*) [Read more...](#)

Teacher Resources



- [Teacher Resources](#): Everything teachers need to plan, manage, and evaluate a science fair or a science project in the classroom.
- [Free Scientific Method Classroom Poster](#): A full color 26"x36" poster providing an overview of the steps of the scientific method.

Announcements

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Project Ideas in Action



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Slide from Arnab's talk

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Environmental Engineering Project Ideas

The human population on Earth is now more than 6 billion, and still growing. With more and more of us living an energy-intensive, modern lifestyle, the environmental stresses from human activity continue to increase. Greenhouse gases leading to global warming and fertilizer runoff resulting in marine "dead zones" are just two examples of large-scale environmental impacts from human activity.

With our environmental engineering science fair project ideas, you can begin to explore these kinds of problems.

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Grades 6-8 Projects

[Middle School Project Ideas](#)

Grades 9-12 Projects

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1 2 3 4 5 6 7 8 9 10

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Difficulty = 6 - 8 [Add to favorites](#) [Show others like this](#)

[I'm Trying to Breathe Here! Dissolved Oxygen vs. Temperature](#)

To survive, we need oxygen in the air we breathe. Oxygen is also essential for most aquatic organisms, but there is much less oxygen available in water than in air. How much oxygen can dissolve in water? Does the temperature of the water matter? Learn how to measure dissolved oxygen and then see how oxygen concentration changes with water temperature. [Read more...](#)

Difficulty = 6 [Add to favorites](#) [Show others like this](#)

[Mapping Tropospheric Ozone Levels Over Time](#)

Ozone in the stratosphere protects the earth by absorbing harmful ultraviolet radiation from the sun. However, when ozone occurs in the troposphere health. In this project you can use data from EPA monitoring stations to analyze the weather/climate conditions that can lead to harmful ozone levels.

Difficulty = 6 - 8 [Add to favorites](#) [Show others like this](#)

Slide from Arnab's talk

Science Fair

Most importantly – have fun!

Thank you