



International Particle
Physics Outreach Group

HST 2018 IPPOG

WG4 (*Spicy Asian Mafia*)

Abolfazl (Iran)

Afnan (Palestine)

Ahmad (Palestine)

Bisma (Pakistan)

Galymbek (Kazakhstan)

Flordeliza (Philippines)

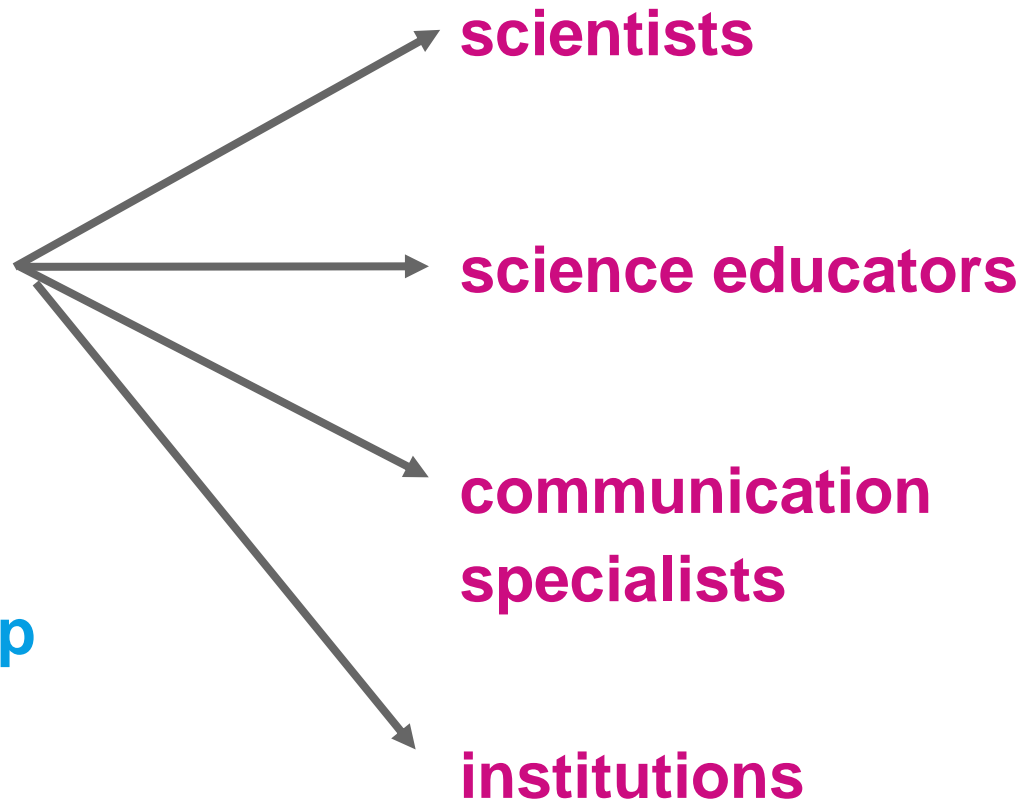
Barbora (IPPOG)

Steve (IPPOG)

IPPOG (International Particle Physics Outreach Group)



started out as a group
of physicist friends



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4 books for teachers and students which can be used for lectures about particle physics

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International Masterclasses

Students becoming scientists for a day

International Masterclasses

- **Lectures from active scientists** give insight to topics on particle physics and methods of basic research.
- **Students to perform measurements on real data** from particle physics experiments.

How can we find the real information



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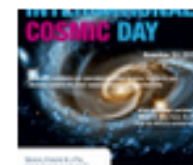
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INTERNATIONAL



MASTERCLASSES

hands on particle physics

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Hands on Particle Physics Masterclasses

INFORMATION FOR TEACHERS AND EDUCATORS

All material for International Masterclasses, including measurements and data, is free to use standalone and for any educational purpose, not only in the framework of International Masterclasses. If you are a teacher or an educator, you can use any material in school. The table below provides direct access to all material.

In various countries initiatives and programs exist that might provide support, e.g. a scientific facilitator to help in the classroom:

- U.S.: Quarknet
- Germany: Netzwerk Teilchenwelt
- UK: Contact Elizabeth Cunningham or Pete Watkins

status as of March 02 2017

experiment	ATLAS	CMS	ALICE	LHCb

status as of March 02 2017

[illegible]



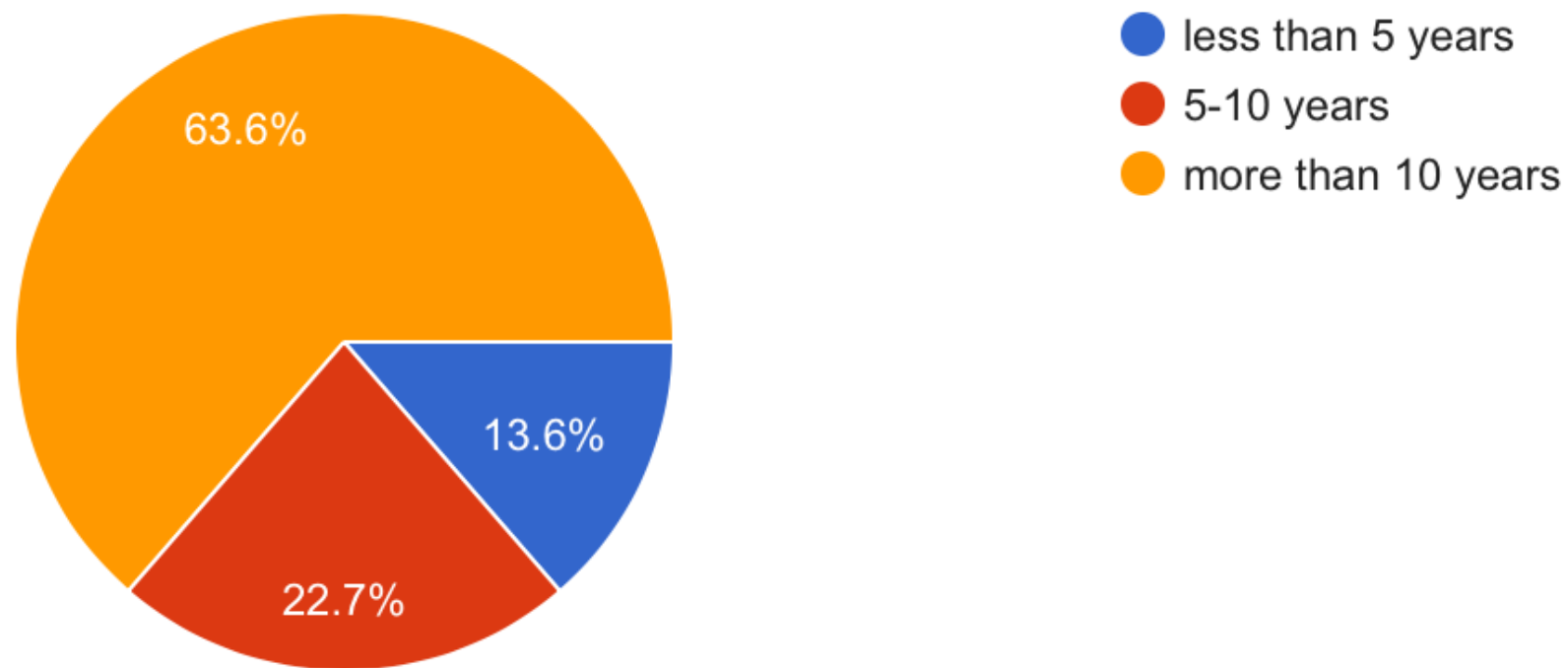
Umbrella for PP outreach globally

- **Classroom to Boardroom** Making Global Goals everybody's business "Creating Ambassadors for science in society".
- **Cosmic rays global educational platform** New Project being designed.
- **Collection of IPPOG wisdom** a book of the best IPPOG recommendations, stories, challenges and future plans

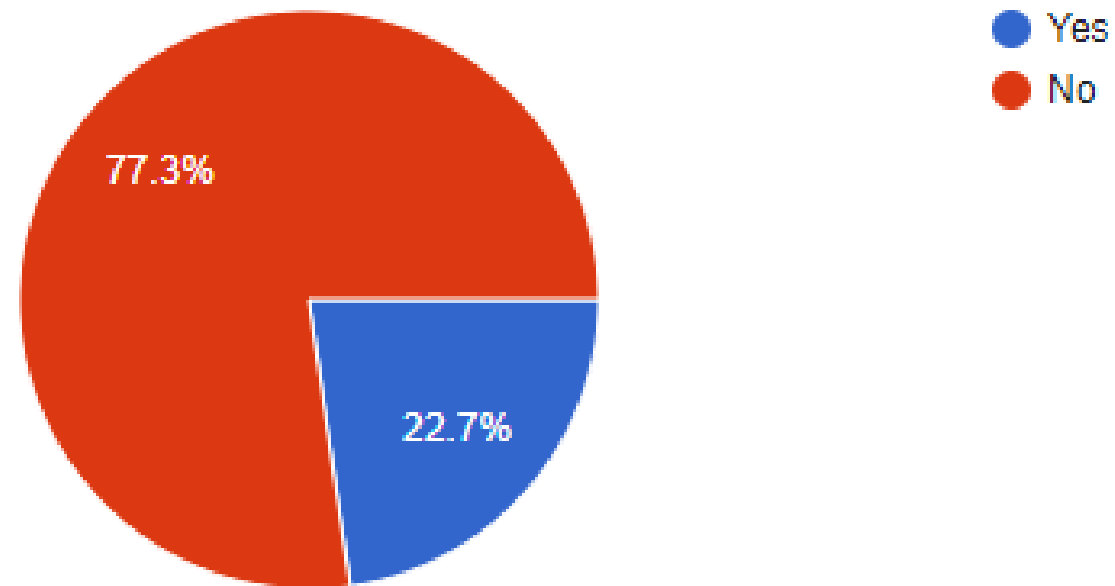
Survey Results -- HST2018 teachers



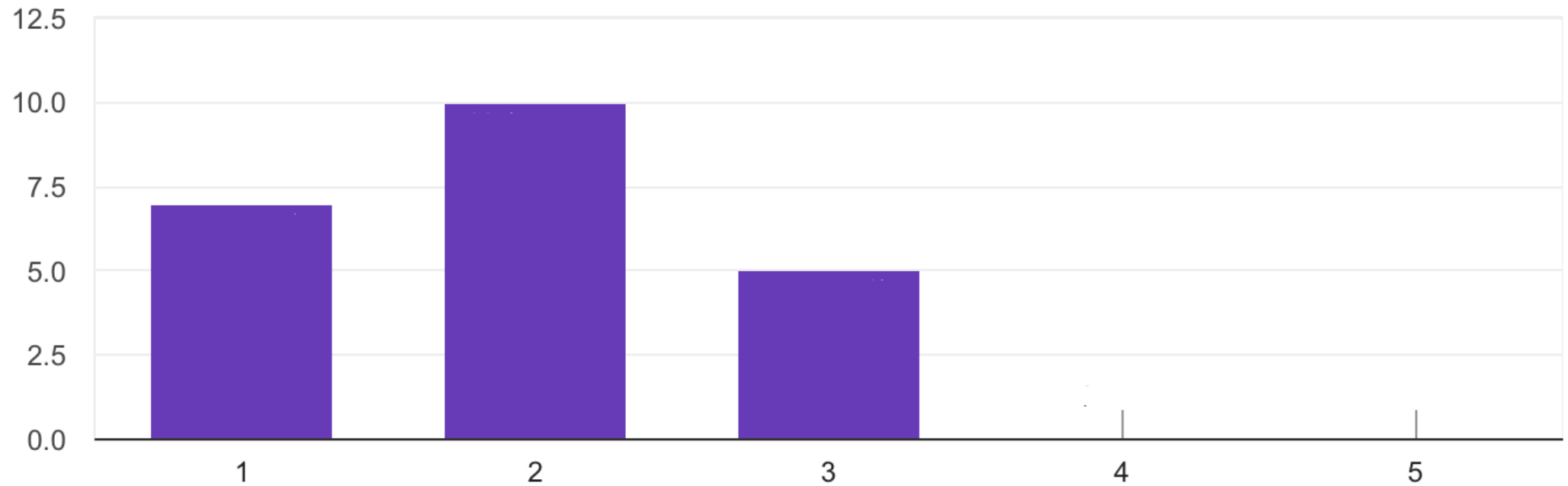
How long have you been teaching?



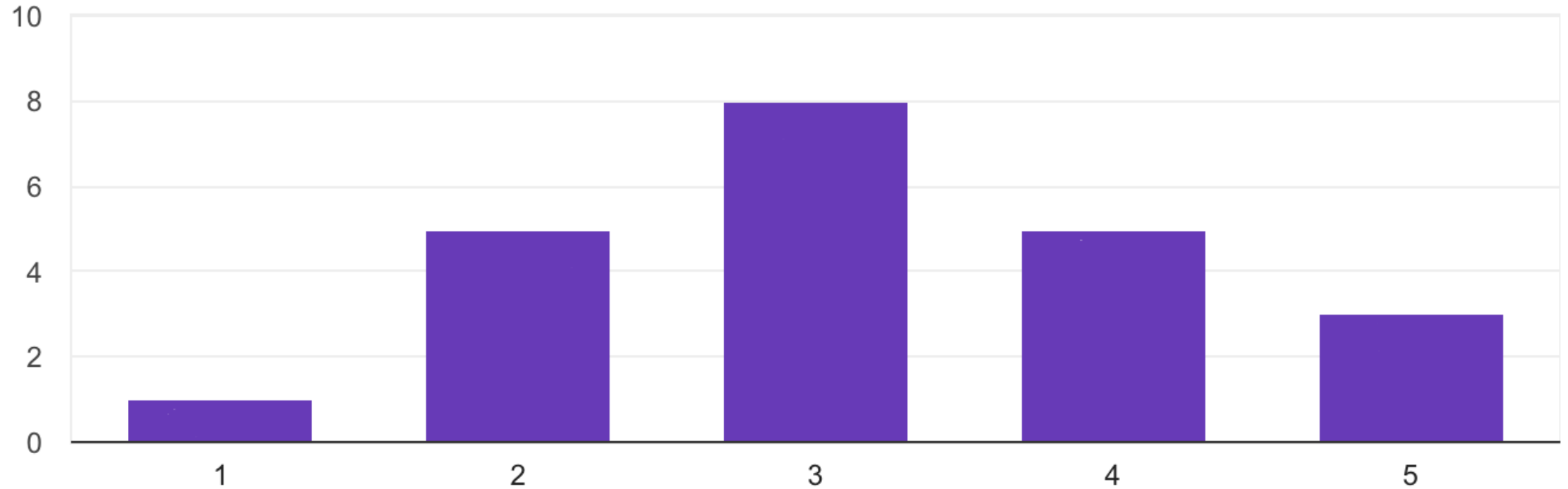
Are you familiar with the IPPOG website (ippog.org)?

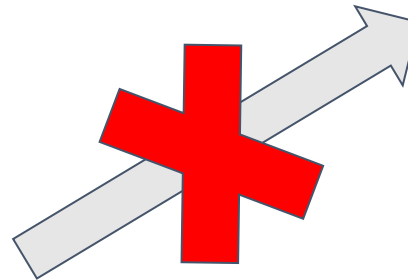
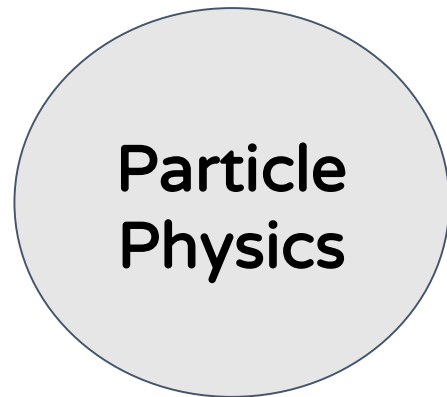
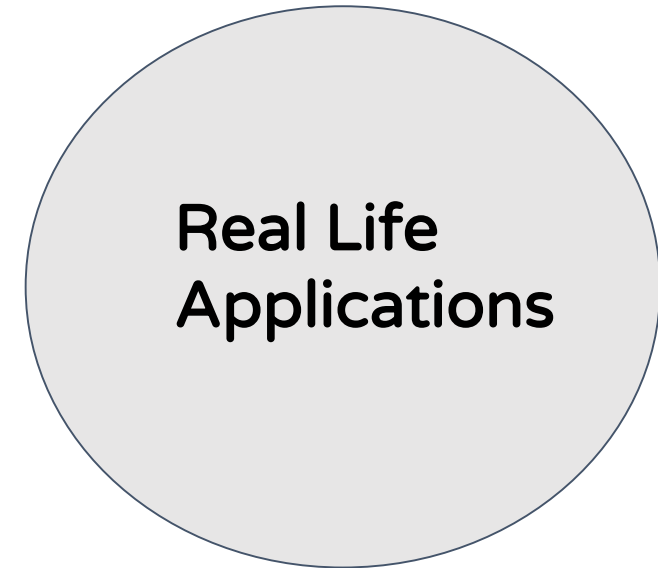
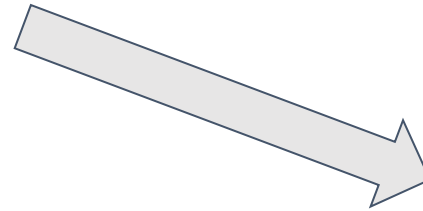
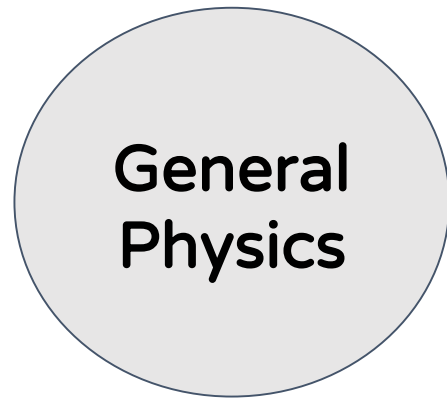


How often do you face difficulties in giving real life examples in your
GENERAL PHYSICS lectures?



How often do you face difficulties in giving real life examples in your PARTICLE PHYSICS lectures?



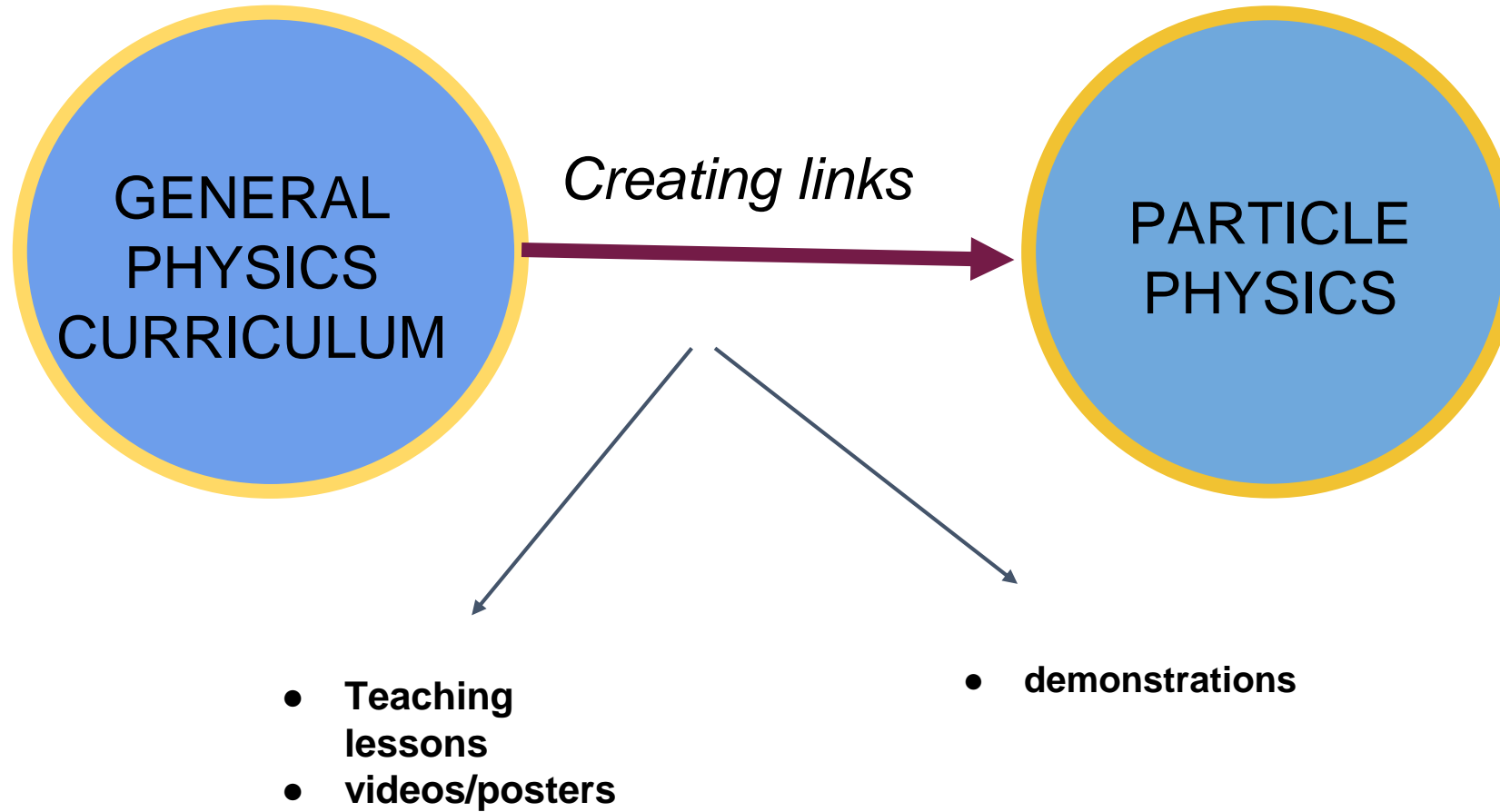




**Particle
Physics**

**General
Physics**

HELPING TEACHERS



Adding to the last year's database

	A	B
1	Item	link to general physics topics
40	Types of matter and energy	-
41	Antimatter and other mysteries of the ATLAS experiment	mass of a body, unification of fundamental forces
42	Den Kosmiki Kalender	-
43	LHCb Video B is for beauty	radioactive decay
44	cest pas sorcier	-
45	Journey to the unimaginably small	length, micrometer screw guage, very small distances, measurements
46	The ATLAS experiment, exploring matter in the universe	
47	The ATLAS experiment movie	Mass, Electromagnetism
48	LHCb poster, timeline of the universe	temperature, thermal expansion in terms of timeline of universe
49	LHCb poster, matter verses antimatter	-
50	CERN lesson plan will you be changing that	-
51	CERN lesson plan, oh no formulas	energy of a photon, relativistic kinetic energy, fundamental particles
52	CERN lesson plan, conservation of energy revisited	conservation of enery, $E = mc^2$
53	CERN lesson plan, what are the indivisibles	concept of atoms for middle school students



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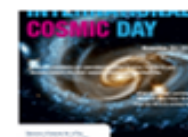
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Presenting Science

To improve scientists' presentation and public speaking skills

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FIRST PHYSICS LAW OF CARTOONS



GRAVITY WILL NOT WORK
TILL YOU LOOK DOWN...

Selfie time





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- Organise a science fair or science exhibitions
- Request for a virtual visit of CERN or international masterclasses
- Inquire about the various programs that they have for students, teachers, or the community

Send an email to: ippog.outreach@cern.ch

THANK YOU FOR LISTENING



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